

Motivational Levies and Academic Achievement in Public Day Primary Schools in Nyamira County, Kenya

Cliff Nyakeya Onyancha¹
Geoffrey Ababu Musera²
Jason Nganyi³

¹cliffo_2002@yahoo.com
²gmusera@mmust.co.ke
³jnganyi@mmust.co.ke

¹<https://orcid.org/0009-0005-3501-591X>

²<https://orcid.org/0000-0001-8494-4778>

³<https://orcid.org/0000-0002-4685-7152>

^{1,2,3}Masinde Muliro University of Science and Technology, Kenya

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ABSTRACT

The study dealt with the effect of motivational levies on academic achievement in public day primary schools in Nyamira County. The study explored teacher motivation levies, academic tour levies and pupil motivation levies. The study adopted the ex – post facto research design. The target population for this study comprised of 392 public day primary school head teachers in Nyamira County. A sample of 198 head teachers were selected using Slovin’s formula from the target population. The study used both a questionnaires and documentary analysis guide for data collection. The data collected were analyzed by the use of descriptive statistics (mean, frequencies and percentages) and inferential statistics using Pearson Product-Moment Correlation Coefficient and Multiple Linear Regression. The study findings of the data analysis revealed that pupils’ motivational levies are statistically significant, with a partial regression coefficient of $b = 0.0036$, $t = 2.75$, and $p = 0.007$, indicating that an increase in pupils’ motivation is associated with a significant improvement in academic achievement. Specifically, the coefficient for pupils’ motivation levy ($b = 0.004$) showed that an increase in the levy by one Kenya shilling results in an improvement in the KCPE mean by 0.004 points. In practical terms, when a parent pays Kshs 100 for pupil motivation, the school’s KCPE mean will increase by 0.4 points. On the other hand, the regression coefficients for academic tours ($b = 0.0003$, $t = 0.64$, $p = 0.520$) and teachers’ motivation ($b = -0.0007$, $t = -0.82$, $p = 0.414$) were not statistically significant at $p < .05$. This indicates that there is no evidence to suggest that academic tours and teachers’ motivation have a statistically significant impact on school’s academic achievement. Therefore, the study concludes that while pupils’ motivational levies significantly influence academic achievement, teachers’ motivational levies and academic tours levies do not have a statistically significant effect on improving performance.

Keywords: Academic Achievement, Levies, Motivation, Motivation Levies, Primary Schools, Public Day Primary Schools, Public Primary Schools

I. INTRODUCTION

Over decades, studies by (Ames, 1992; Filgona et al., 2020; Ivana & Radovan, 2017; Han & Yin, 2016; Marthin, 2008; Stirling, 2014; Tohidi & Mohammad, 2012; Wambugu, 2018) have been devoted to the study of motivation and school learning. The reason for this is because motivation has long been seen to be a key component that influences behavior and performance in humans (Kian et al. 2014). In the education sector, motivation has become one of the core factors that drives learners towards academic excellence. This is because, in comparison to other learning levels, motivation is crucial in primary school since young students must be encouraged to learn as they become familiar with new information (Abbas & Khurshid, 2013). Consequently, it should be acknowledged in academic circles that motivation influences a learner's interest in the subject matter, making motivation a necessary condition for effective learning to occur (Auwalu, et al., 2021).

But in more recent times, a brand-new idea in education known as motivational levies has surfaced in educational institutions, particularly in Kenya's public day primary schools. Previous research by (Asiago et al., 2018; Mboi & Nyambedha, 2013; Munda et al., 2014; Njoroge, 2013; Obar, 2014) shown that most public schools have continued to impose motivational levies on parents in addition to prohibitive fees, even in spite of guidelines regarding extra fees charging (Ministry of Education Science and Technology [MoEST] 2014).

This concept of motivational levies has become popular, such that, the head teachers in public day primary schools in Kenya, have employed it extensively as a strategy to enhance academic achievement through financial rewards to top pupils in public day primary schools as a motivation to better achievement. The employment of this strategy could be supported by foregone studies such as (Adebunmi et al. 2020; Moneva et al. 2020; Mupa et al. 2015; Nyawanda, 2016) who contend that there is a significant relationship between extra levies and academic achievement without specifically delving into the effect of motivational levies. While ignoring the outcomes of other studies by (Sawamura & Sifuna, 2008; Wekesa et al., 2015; Werunga et al., 2011) who have on contrary observed that school levies have a far-reaching negative impact on learners when parents are not able to raise the fees required, motivational levies could enhance academic achievement.

While evidence by (Mbalaka et al., 2021; Mboi & Nyambedha, 2013; Munda et al., 2014; Njoroge, 2013; Obar, 2014; Shavanga 2015) shows that school levies still exist in primary schools in Kenya, most of these results reflect partial equilibrium analysis, with the government efforts nationwide abolition of public-school fees charges in Kenya in 2003. It is evident by (Asiago et al., 2018; Nyawanda 2016) that this move contributed to a decrease in total enrollment rates of pupils in public day primary schools, due to perceived low quality in public day primary schools (Schmidt, 2006) but rather a dramatic shift toward private schooling where households are readily willing to pay any amount of fees charged in private schools. This difference between partial- and general-equilibrium effect is partially explained by social interactions: The entry of poorer pupils into free education contributed to the exit of their more affluent peers leading to emergence of private schools in Kenya.

While according to Schmidt (2006) elimination of fees has resulted in perceptions of reduced educational quality, limiting the benefits of primary schooling and therefore restricting economic growth though the production of inadequate manpower. According to (UNESCO, 2005) it is evident that, this state of affairs where public day primary schools are left to less affluent peers has led to compromises in teachers' performance and quality of education. If a decrease in school fees is complimented by a decrease in the quality of education, then positive incentive of reduced cost was mitigated by the negative incentive of reduced quality. In other words, if less money means poorer quality, then the benefits of dropping user fees could be negligible (Schmidt, 2006). This could be a basis and reason suggesting why parents are willing to spend money in terms of motivational levies.

Despite this, there is little existence of empirical evidence, which has explored the effect of various motivational levies which include teacher motivational levies, pupil motivational levies and tour levies. Therefore, it's against this context and that this study was conceptualized to examine the effect of motivational levies and academic achievement in public day primary school in Nyamira County.

1.1 Statement of the Problem

In Kenya, provision of quality basic education has been the priority of the government since independence (Republic of Kenya 1999; 2007; 2010; 2013; MoEST 2002, 2005, 2014; Ministry of Education (MoE) 2012). Quality in this regard has been measured in terms of the grade achievement in the national exams. It is on this basis of quality assessment that many primary school head teachers levy motivational levies so as to show case improved achievement in KCPE exams. Unfortunate not all primary schools charge motivational levies.

It is worth considering that, while, a study conducted by Asiago et al., (2018) found statistically significant relationship between school financial resources and school KCSE mean score. School financial resources predicted school K.C.S.E. mean score at 11.1 percent, no documented study has specifically looked at the effects of motivational levies such as pupil motivation levies, teacher motivation levies academic tour levies. Therefore, this study sought to find out the effect of motivational levies on academic achievement in public day primary school performance in Nyamira County.

1.2 Research Objectives

To determine the effect of motivational levies on academic achievement in public day primary schools in Nyamira County.

1.3 Research Hypothesis

H₀₁: School motivational levies have no statistically significant effect on academic achievement in public day primary schools in Nyamira County.



II. LITERATURE REVIEW

2.1 Theoretical Review

This study is guided by the Educational Production Function (EPF) theory. The Education Production Function theory represents a mathematical process where by a school transform inputs such school levies into outputs in this case academic achievement (Hanushek, 1979). This theory's proponents contend that more money spent on education will lead to greater learning and improved student performance.

Initially this theory was referred to as input output analysis and it served to highlight the direct policy significance of the inputs and outputs analysis in education. It was later changed into “educational production functions” instead of simply input-output analyses (Dew et al., 2009).

According to the EPF theory, the process of producing educated individuals involves the utilization of limited financial, physical, and human resources. Meaning that, the outputs of education are a function of the various inputs that are injected into the education system. The differences in the educational outcomes can be attributed to changes in the amount and caliber of school inputs.

The model used in this study is as shown below:

Input-output Model

The general EPF is expressed as;

$$A_i = f \{F_i(t), S_i(t), P_i(t), I_i(t)\} \dots\dots\dots (i)$$

Where:

- i refer to the ith student
- t refers to an input.
- A denotes educational output usually, educational achievement

In assessing the educational outcomes, it is important to consider the combined effects of all the input components. This study however, specifically investigated the effects of school motivational levies on academic achievement in public day primary schools.

Taking school mean achievement in national examinations as dependent variable an equation is developed.

$$E = f (V_1, V_2, V_3) \dots\dots\dots (ii)$$

Where:

- E = Academic achievement
- V₁= Academic tours levies
- V₂ = Teacher motivational levies
- V₃ = Pupils Motivational levies

The EPF is used to develop a model for data analysis, that is

$$DV_1=K+aV_2+bV_3+V_z\dots\dots\dots (iii)$$

Where:

- a, b, c are coefficient estimates
- K is the constant
- v₂, v₃ and v_z are the independent variables (academic tours levies, teacher motivational levies and pupil motivational levies)
- DV1 is the dependent variable (academic achievement of schools)

This theoretical framework is deemed suitable for this research study since it has both inputs and outputs of education.

2.2 Empirical Review

At primary level, motivation plays an important role compared to the other levels of learning due to the fact that young learners need to be more motivated towards learning as they experience the new knowledge (Abbas et al, 2013 and Inyang, 2021). Motivation thus, is an indispensable requirement for efficient learning to take place (Auwalu, et al., 2021). However, according to Gachie et al., (2017), the teachers, along with the pupils, play an important role in the educational process because one cannot function without the other. That’s the reason why, in every institution of learning in any country, teacher’s motivation is also extremely important in order to make teachers satisfied and be committed to their work for better performance (Ogunlade et al., 2015).

From the global perspective, countries all over the world have embraced the notion of motivation in schools, Macneil et al., (2009) argue that schools with good culture have motivated teachers in Texas. They added that highly motivated teachers have greater success in terms of student performance and student outcomes (Macneil et al, 2009). This is supported by the study of Auwalu et al (2021), on impact of motivation on students’ academic performance a

case study of University Sultan Zainal Abidin Students which revealed from computed result of the correlation analysis that a strong positive correlation exists between motivation and University Sultan Zainal Abidin students' academic performance. The value of the computed r was found to be $r = 0.667$ at $p = 0.000$, $p < 0.05$ level of significance. The obtained correlation value of 0.667 indicates that a strong relationship exists between motivation and University Sultan Zainal Abidin students' academic achievement. This shows that for any increase in students' motivation, there will be a positive improvement in their academic performance (GPA).

There seems to be growing concern in Africa regarding the fact that an unacceptable number of teachers employed in public school systems in many developing nations lack motivation as a result of a variety of factors, including low job satisfaction and morale, inadequate controls, and other behavioral sanctions (Aacha, 2010).

In Kenya, while examining effects of non-payment of school levies by parents on service delivery in public secondary schools in Ainabkoi Sub- County, Uasin-Gishu County, Morogo (2020) found evidence that non-payment of school levies by parents negatively affected staff performance, educational programs, school management and school projects. In agreement with this observation Kithokoo (2011) on school factors affecting performance in Kenya Certificate of Primary Education (KCPE) in public primary schools in Yatta Division Lower Yatta District, found evidence which revealed that, pupils perform poorly in Kenya Certificate of Primary Education (KCPE) due to lack of books 24(7.5%), poverty 160(50%), lack of enough teachers 3(0.9%), lack of motivation 45(14.1%), stress 14(4.4%) and all the above 74(23.1%). The findings by studies conducted by (Kithokoo, 2011; Morogo, 2020) concludes that motivation in the part of learners and their teachers increased school performance but at the cost of greater inequality. It is thus worth noting that, while evidence gathered in this section shows that low motivation affects the quality of education offered, little has been examined in regards to how much the households should spend for motivation as required for the purpose of academic performance. It is therefore, in line with this that this study is undertaken to fill in this gap in the literature.

III. METHODOLOGY

For this investigation, an ex post facto research design was employed. Kerlinger & Howard (2000), Cohen et al. (2000), and Marilyn & Jim. (2013) define an ex-post facto research design as a systematic, empirical study in which the researcher does not directly control independent variables because their manifestations have already occurred or because they are not manipulative in nature. It was decided that an ex post facto research design would be appropriate because the main goal was to examine the impact of an independent variable that had already happened and could not be changed.

3.1 Target Population

Target population is the total group of subjects to whom the study wants to apply, the conclusion from the findings (Mugenda & Mugenda, 2003). The study targeted a total of 392 public day primary school head teachers in Nyamira County.

3.2 Sample Size and Sampling Procedures

A sample, as defined by Orodho (2012), is a tiny subset of the target population chosen by a methodical process that is intended to choose a specific number of people from the target population as representative of that group. Owing to its size, the study used Slovin's Formula (Sloniv, 1960) to generate a sample for analysis. The Slovin's Formula is as follows:

$$n = N/1+Ne^2$$

Where:

n is the sample size,

N is the population size and

e is the margin of error to be decided by the researcher (the tolerance at a desired level of confidence, at 95% confidence level) or take 0.05

$$\begin{aligned} n &= N/1+Ne^2 \\ &= \{392/ 1+392 \times 0.05^2\} \\ &= 392/1.98 \\ &= 198 \text{ respondents} \end{aligned}$$

Thus, the study sample size consisted of 198 public day primary schools head teachers. Further, a stratified random sampling technique was used to guarantee a fair representation of the study population. This ensured that the sample was proportionately and adequately distributed among the five Sub-Counties according to the population of Sub- County. By distributing the sample throughout the entire county, this ensured that all of the sub-counties were

included in the study and that the socioeconomic dynamics of the area were taken into account. Finally, the study participants were selected purposively, using purposive sampling technique. Table 1 displays the sample size.

Table 1
Sample Size of Public Day Schools by Sub-County

Sub-county	Targeted schools	Sample size
Nyamira South	89	45
Nyamira North	112	57
Borabu	64	32
Manga	63	32
Masaba North	64	32
Total	392	198

3.3 Data Collection Method

The study used both a questionnaires and documentary guide for data collection. The data collected by the questionnaires were obtained from the head teachers of the sampled schools while documentary analysis guides were used to capture information from the documents that contained analyzed KCPE results and teaching staff demographic data.

3.4 Validity and Reliability

According to Mugenda & Mugenda (2003) the significance and correctness of conclusions drawn from research findings constitute validity. In order to verify the content validity of the instruments, two experts (supervisors) examined the questionnaires and the documentary analysis guide, closely examining each subsection's questions and determining which ones were pertinent to the study's goals.

Construct validity was also used as index to measure the validity of the instrument. The content validity index was thus calculated as follows: 540 items were piloted and the returned items checked for content and construct. If 420 returned items are in agreement with questionnaire, then;

$$CVI = \frac{\text{Sum of agreement on every relevant judgment} \times 100}{\text{Total number of items in Instrument}}$$

Construct Validity Index $420/540 = 0.77$. This value was deemed appropriate thus the questionnaire was adequate for data collection.

Reliability of this study instruments were ascertained by piloting the questionnaires in the field. According to Oladipo et al. (2015), reliability is the degree to which a measure produces consistent outcomes. If a measure or observation may be verified by another measurement or observation, that issue should be raised when evaluating dependability (Oladipo et al, 2015). Therefore, reliability was assessed by comparing the answers respondents gave in one pretest with answers in another pretest. We can estimate the reliability of the sum scale via the spearman-Brown split half coefficient: $r_{sb} = 2r_{xy} / (1+r_{xy})$

In this formula, r_{sb} is the split-half reliability coefficient, and r_{xy} represents the correlation between the two halves of the scale.

3.5 Data Analysis

Mertler (2016) states that, data analysis is the key backbone and lead wire to research. Therefore, in this study questionnaires were arranged and their completeness verified. The study data set was then created by coding and entering them into a computer by utilizing an excel sheet. Version 4.2.1 of the R Project for Statistical Computing program was used to analyze the study's data. Pearson correlation coefficient and multiple linear regression were used, together with descriptive statistics (mean, frequencies, and percentages) to analyze the data gathered from the questionnaires and document analysis guide.

In particular, descriptive statistics (mean, frequencies, and percentages) were used to analyze the characteristics of the variables used for inferential statistics as collected from the respondents in Nyamira County, while Pearson correlation coefficient and multiple linear regression were used to infer conclusions about the effects of motivation levies; pupil motivational levies, teacher motivational levies and academic tour levies on academic achievements in public day primary schools. As a predictive analysis, multiple linear regression allowed the study to examine the direction and magnitude of each explanatory variable's effect on the outcome variable while controlling for other variables, which is why it was determined to be appropriate for the research (Cohen et al., 2000).

3.6 Ethical Considerations

According to Oladipo et al (2015), research ethics is defined as the moral principles that guide research from its inception through to its completion and publication of the results. The fact that this study was looking into extremely delicate topic that can cause antagonism, insecurity, or participants hiding the true information needed from them made them. For the purpose of protecting the subjects' interests, confidentiality and privacy were therefore guaranteed. The participants, school administrators, and pertinent authorities, such as the Ministry of Education, Science, and Technology (MOEST), were consulted in order to obtain permission to conduct the study. It was entirely voluntary to participate. The participants were given a clear explanation of the research's goal by the researcher. Participants received an assurance from the researcher that any information collected for the study would be treated with strict secrecy. Participants had to be willing in order for them to make wise selections. The information gathered was kept private and utilized exclusively for this study. Every source is cited.

IV. FINDINGS & DISCUSSION

4.1 Findings

The study sought to establish the effect of school motivational levies on academic achievement in public day primary schools in Nyamira County. For the study to achieve its objective. The study tested the null hypothesis that school motivational levies have no statistically significant effect on academic achievement in public day primary schools in Nyamira County.

The first step in the analysis of the data for this objective involved univariate analysis (standard deviations, kurtosis, skewness, and means) for the school motivational levies (academic tours, teachers' motivation, and pupils' motivation) in order to describe the constructs of school motivational levies.

Secondly, the study ran a pair wise correlation to establish which school motivational levies constructs (academic tours, teachers' motivation, and pupils' motivation) and head teacher characteristics were correlated with the outcome variable (school KCPE mean score). The results of the bivariate statistics are presented in section 1.

Before fitting the multiple linear regression, the study conducted the model diagnostic test for the assumptions of multiple regression analysis for testing the objective.

The study then fitted a multiple linear regression model to establish the effect of motivational levies on academic achievement in public day primary schools while controlling for head teacher's characteristics. The results of the multiple regression analysis are presented in section 2.

Finally, the study tested the null hypothesis that school motivational levies have no statistically significant effect on academic achievement in public day primary schools in Nyamira County.

4.1 Response Rate

The total of 198 head teachers responded to the questionnaires making it 100% return rate. It is on this basis that, this study modelled the effect of motivational levies on academic achievement in public day primary schools using multiple linear regression analysis.

4.2 Descriptive Statistics for Motivational Levies in Public Day Primary Schools in Nyamira County

The study sought data from the public day primary school head teachers on the total monies solicited from class eight parents to support the school academic tours, teachers' motivation, and pupils' motivation. The descriptive statistics for monies spent on school academic tours, teachers' motivation, and pupils' motivation are presented in sections 4.2.1, 4.2.2, and 4.2.3 respectively.

4.2.1 Univariate Statistics for School Academic Tour Levies

This section presents the data analysis from the school head teachers on the total monies collected from parents towards school academic tours. The results are presented in Figure 1

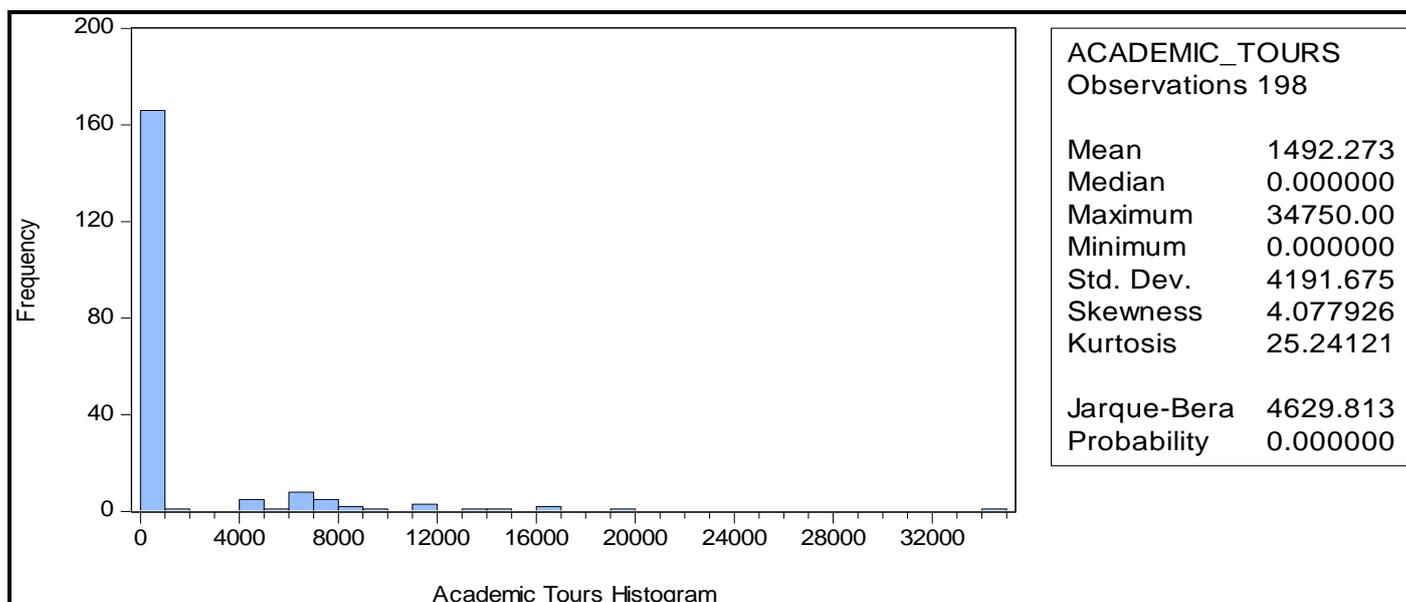


Figure 1
Summary Statistics and Histogram of School Academic Tours

It can be observed from Figure 1 that academic tours levies ranged from a minimum of zero to a maximum of Kshs 34, 759 with a mean of Kshs 1,492.27. Although only observed in a few cases, the observation that schools could ask for as much as Kshs 34,000 for academic tours appears exorbitant. The frequency of zero contributions was 166 (83.8%), which showed that most schools do not collect academic tours levies from parents. This conclusion is supported by the value of median, which was zero. The standard deviation (Kshs 4,191.68) was very large (larger than the mean), indicating the existence of wide variances between schools in their collection of academic tours levies. The skewness (4.08) was positive, indicating a skew to the right, that is, most data values were zero. Kurtosis (25.24) was large and positive, indicating leptokurtosis in the data, this can be argued that, there are more items that’s the amount of tour levies near the values the comprise the mean and towards the tail but the items are fewer in the intermediate regions (Norusis, 2010). Given that skewness and kurtosis values were outside the benchmark ± 2.0 (Field, 2013), the results indicated that the distribution of academic tours was non-normal. This conclusion was buttressed by results from the more explicit test for normality, JB (Jarque-Bera) = 4629.81, $p < 0.0001$. The data should be regularly distributed for analysis and the null hypothesis test.

4.2.2 Univariate Statistics for Teachers Motivational Levies

This section of the study presents the data that was sought from the school heads concerning the total amount of monies collected from parents to support the teacher motivation program. The results are presented in Figure 2.

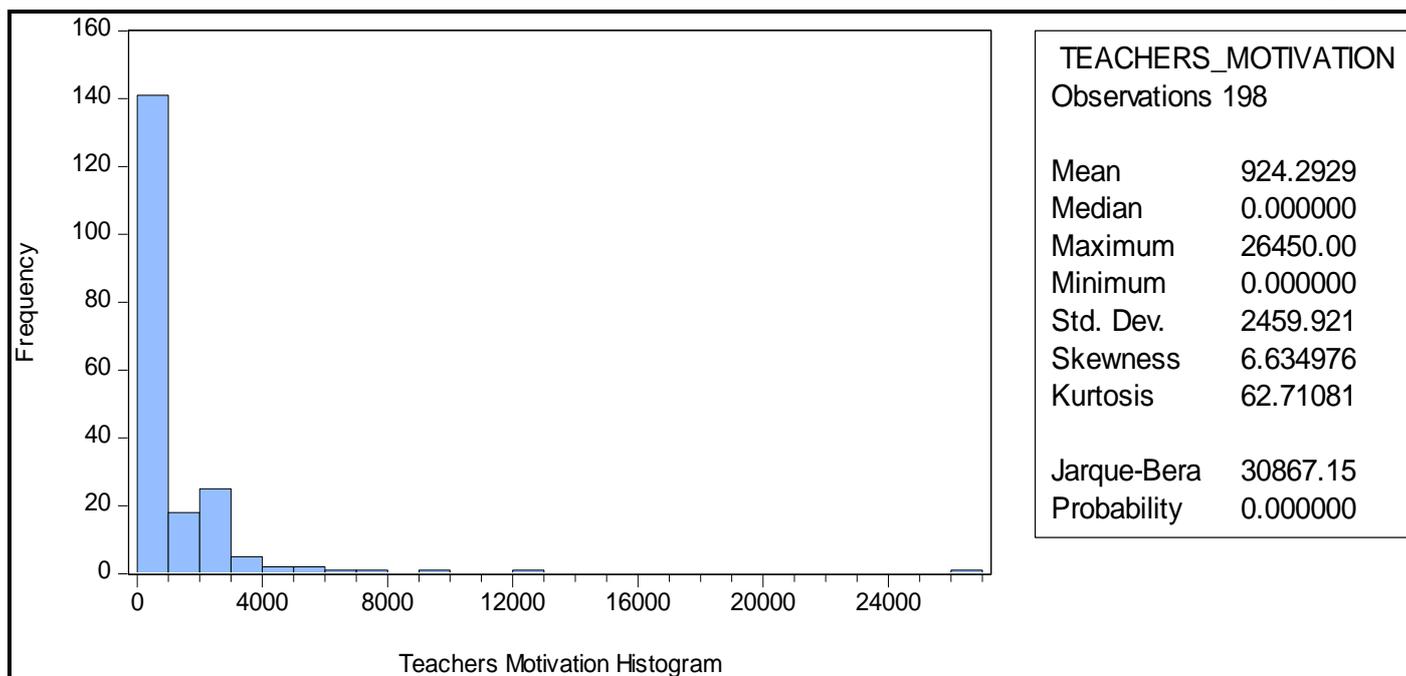


Figure 2
Summary Statistics and Histogram of Teacher’s Motivation Levies

The data from Figure 2 indicate that the average teacher’s motivation levy was Kshs 924.30 and it ranged from a minimum of zero to a maximum of Kshs 26,450. A predominant number of head teachers ($n=139$, 70.2%) answered that their schools never collect levies for motivation of teachers. The median was zero, which supported this conclusion. The standard deviation was very large (Kshs 2,459.92) and greater than the mean, showing a wide disparity in the collection of teacher motivation levies amongst the schools. Most data values were less than the mean, as skewness (6.63) was positive. In addition, the distribution was leptokurtic, since kurtosis was large and positive (62.71). The $JB = 30867.55$, $p < 0.0001$, indicated non-normality in the distribution.

4.2.3 Univariate Statistics for Pupils Motivational Levies

Concerning pupils’ motivational levies, this research study sought data from the school head masters, on the total monies collected from parents to support the pupils’ motivation program. The results are presented in Figure 3.

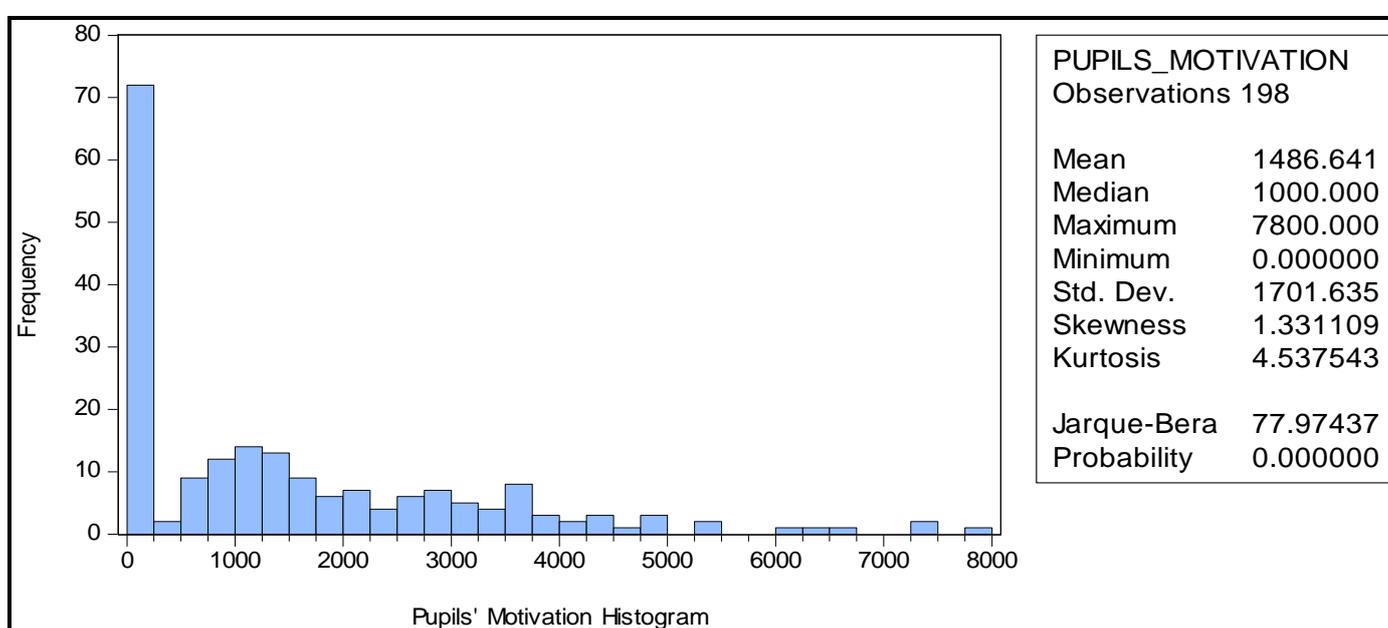


Figure 3
Summary Statistics and Histogram of Pupil’s Motivation Levies



Data from Figure 3 indicate that the mean pupils’ motivation levy was Kshs 1,486.64 and it ranged from a minimum of zero to a maximum of Kshs 7,800. Head teachers from 72 schools (36%) answered that their schools did not collect levies for motivation of pupils. Hence, two-thirds of the schools ($n=126$, 64%) collect pupils motivation levy. The median was Kshs 1,000, supporting the finding that most schools collect pupil motivation levies. The standard deviation was Kshs 1,702, showing that most schools collect between zero and Kshs 3,188 for motivating pupils. Although, the $JB = 77.97$, $p < 0.0001$, indicated non-normality, the skewness (1.33) and kurtosis (4.54) were either within or close to the benchmark ± 2 .

School motivational levies constructs (academic tours, teachers’ motivation, and pupils’ motivation) as explanatory variables and are modelled to establish their effect on school academic performance in KCPE using the inferential statistics of Linear Multiple Regression analysis.

4.2.4 Descriptive Statistics for Academic Achievement in Public Day Primary Schools in Nyamira County.

Each primary day school was required to indicate their KCPE mean score for the 2018 KCPE examination. The descriptive statistics are summarised in Figure 4.

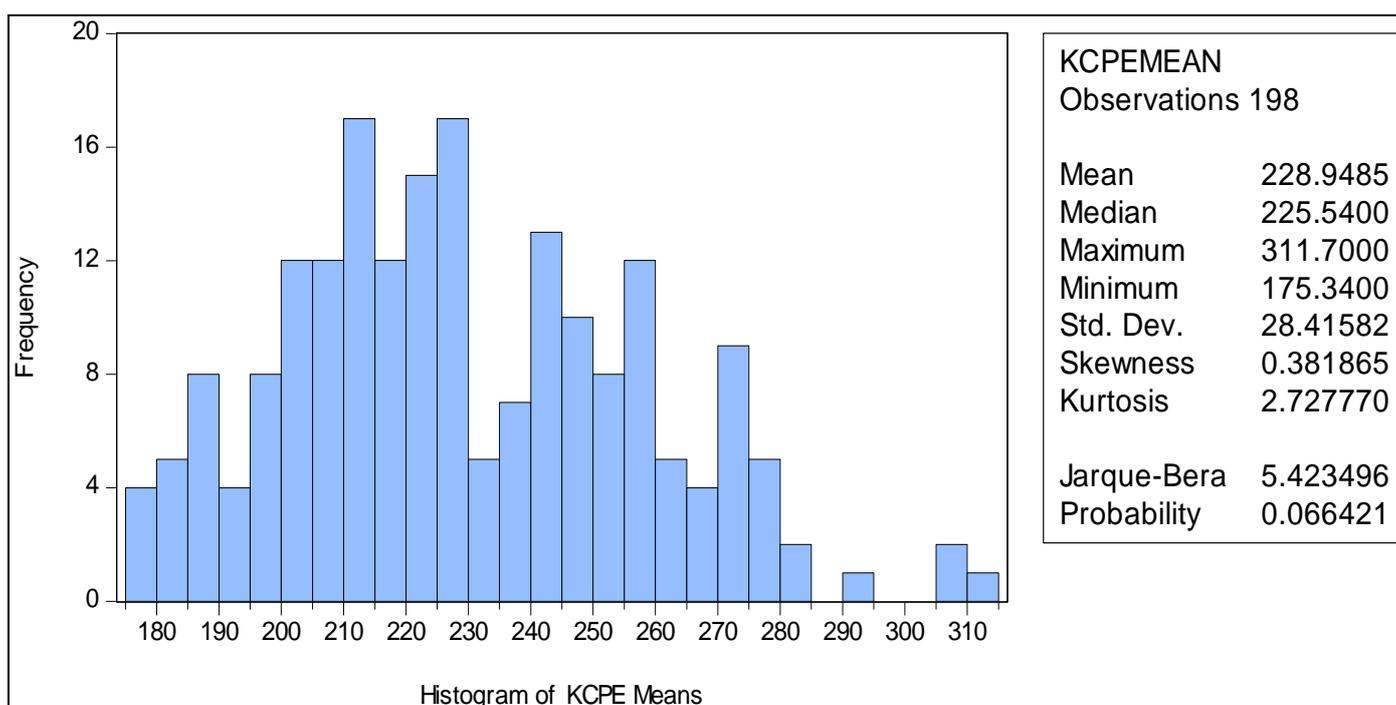


Figure 4
School KCPE Performance

The KCPE means in public schools in Nyamira County in Figure 4 ranged from a minimum of 175.34 to a maximum of 311.70, with an average mean 228.95. The results showed that performance in most schools was relatively poor. The standard deviation (28.42) was small and assuming a Gaussian distribution, the results showed that most schools’ means occurred between 200.53 and 257.36, which buttressed the conclusion that performance in most public schools was average. Skewness (0.38) and kurtosis (2.72) were either within or close to the benchmark ± 2 , which showed that the data was normal, a finding supported by the shape of the histogram did not greatly depart from normality. Furthermore, the $JB=5.42$, $p=0.07$ means that these results exhibit normality in the distribution of KCPE mean.

4.3 Correlation Analysis

To be able to fit the multiple linear regression model, the study ran two pair-wise correlations. First, the study ran a Pearson’s Correlation Coefficient, r to establish which school motivational levies constructs (academic tours, teachers’ motivation, and pupils’ motivation) were correlated with the outcome variable (school KCPE mean score) in order to establish which variable constructs to pursue in the regression model. Correlation coefficients (in absolute value) which are ≤ 0.35 are generally considered to represent low or weak correlations, 0.36 to 0.67 moderate correlations, and 0.68 to 1.0 strong or high correlations with r coefficients > 0.90 very high correlations (Field, 2005). The results are presented in Table 2.



Table 2
Correlations between School KCPE Mean and School Motivation Levies

Variable (n = 198)		KCPE means	Academic tours	Teachers' motivation	Pupils' motivation
KCPE means	<i>R</i>	1			
Academic tours	<i>R</i>	0.076 (0.287)	1		
Teachers' motivation	<i>R</i>	0.040 (0.576)	0.145*(0.0034)	1	
Pupils' motivation	<i>R</i>	0.160* (0.024)	0.144*(0.003)	0.472**(0.0001)	1

Key: *r* = Pearson correlation coefficient; **, * = correlation significant at .01 and .05 levels (2-tailed), respectively. Values in parentheses are *p*-values

The results in Table 2 show significant, positive but weak correlation between school academic achievement and pupil's motivation ($r=0.160, p=0.024$). The relationship was positive showing that when pupils' motivation increases, their academic achievement also increases and vice versa. Nevertheless, the study failed to find significant relationships between academic tours ($r=0.076, p=0.287$) and teachers' motivation ($r=0.040, p=0.576$) with KCPE means. The results suggested that an increase in academic tours or teachers' motivation is not correlated with improved pupil academic achievement. The relationship between pupils' and teachers' motivation was found to be significant, positive and moderate ($r=0.472, p<0.0001$), suggesting that schools that collect teachers' motivation levies are also likely to levy pupils' motivation monies.

4.4 Multivariate Analysis for the Effect of School Motivational Levies on Academic Achievement in Public Day Primary Schools in Nyamira County

This study used two models to model the effect of school motivation levies on academic achievement in public day primary schools in Nyamira County. In model 1, the study assesses the effect of school motivation levies on academic achievement in public day primary schools. In model 2, the study assesses the effect of school motivation levies on academic achievement in public day primary schools while controlling for head teacher's characteristics.

In the model, the value of the coefficient indicates aggregate mean points in KCPE. The positive sign and negative signs of the coefficient indicate increased and decreased school aggregate points in KCPE respectively. The significance of the relationship between a given explanatory variable and school mean score in KCPE is tested at $p=0.05$. The results of the multiple regression modelling for the effect of school motivation levies on academic achievement in public day primary schools are presented in Table 3.

Table 3
Multiple Linear Regression Results for the Effect of School Motivational Levies on School Academic Achievement

Variable (n=198)	Model 1				Model 2			
	<i>B</i>	B	<i>t</i>	<i>P</i>	<i>B</i>	β	<i>T</i>	<i>P</i>
(Constant)	224.54		82.94	0.000	338.95		6.56	0.000
Academic tours	0.0004	0.0582	0.81	0.418	0.0003	0.045	0.64	0.52
Teachers' motivation	-0.0006	-0.052	-0.64	0.522	-0.0007	-0.064	-0.82	0.414
Pupils' motivation	0.0029	0.1759	2.19	0.03	0.0036	0.2196	2.75	0.007
Control Variables								
Sex_2					10.371	0.1469	2.09	0.038
Mean age					-2.6912	-0.228	-2.17	0.031
Mean experience					0.7221	0.0578	0.56	0.577
Training years					-0.2826	-0.022	-0.32	0.75
R^2	0.0305				0.0898			
Adjusted R^2	0.0155				0.0563			
<i>F</i> Change	2.036				2.69			
<i>P</i>	0.1102				0.011			

Key: *B*= b coefficient (unstandardized), β = Beta (standardized coefficient)

R square measures how much variability in the dependent variable the predictors account for. In the first model in Table 3, the R^2 was found to be 0.0305, which means that academic tours, teachers' and pupils' motivation could jointly explain just about 3% of the variation in school's academic achievement. Since R^2 values above 40% are considered high (Field, 2005), this model could explain very little variance in academic achievement, suggesting that motivation levies do not seem to affect school's academic achievement by a greater degree. The remaining

unexplained variation in school's academic achievement could partly be attributed to other factors not specified in the model and partly to the error term in the regression equation.

The change statistics show the effect of adding or removing independent variables from the regression model. In the first model as shown in table 3, when academic tours, teachers' and pupils' motivational levies were entered, the effect of the change was not significant, $F(3, 194) = 2.036, p=0.1102$, suggesting that the three variables were not significant predictors of school's academic achievement. In the second model as shown in table 3, when some control variables were added, the effect of the change was significant, $F(7, 190) = 2.69, p=0.011$, with R square increasing to 0.0898. This showed that other variables, such as head teachers' mean age, gender, and experience, could affect school's academic achievement.

Adjusted R Square provides information on how well a model can be generalized in the population. If the second model had been derived from the population rather than the sample, then it would have accounted for approximately 6% of the variance in the dependent variable. This implies that 94% of the variance in the dependent variable could be taken care of by other factors not included in the model.

The partial regression coefficient (B coefficient) indicates the individual contribution of a predictor to a model. The partial coefficient for a variable show how much the value of the dependent variable changes when the value of that independent variable increases by one, when other independent variables are held constant. A positive coefficient means that the predicted value of the dependent variable increases when the value of the independent variable increases. In the final model (model 2), the partial regression coefficient for pupils' motivation ($b=0.0036, t=2.75, p=0.007$) was statistically significant. However, the regression coefficients for academic tours ($b=0.0003, t=0.64, p=0.520$) and teachers' motivation ($b= -0.0007, t= -0.82, p=0.414$) were not statistically significant at $p<.05$. Thus, while motivation of pupils has a significant effect on school's academic achievement, the study found no evidence that academic tours and teachers' motivation lead to improved school's academic achievement.

The coefficient of the pupils' motivation was positive, indicating that school's academic achievement likely improves whenever there is an increase in pupils' motivation, *ceteris paribus*. The coefficient for pupils' motivation levy was 0.0036, which means that an increase in the levy by one Kenya shilling results in an improvement in the KCPE mean by 0.004 points or by 0.0016% (coefficient of determination = $r^2 = 0.004^2$). The result suggests that, for any increase in students' motivation, there will be a positive improvement in their academic performance (GPA). Further, when control variables were added into the regression model to determine whether they could be potential confounding factors and therefore, help to delineate the exact effect of motivational variables on school's academic achievement.

Nominal variables were dummy coded before being used in regression analysis. School characteristics (total class eight enrolment, number of class eight streams, presence of library in schools, existence of a lunch program for pupils, location of the school, and the type of sponsor) were included in the model and were found not to be significant. Hence, they were removed from the final model.

The results showed that pupil motivation is a significant predictor of pupil achievement, regardless the sponsorship in school, class eight enrolment, number of class eight streams, presence of library in schools, existence of a lunch program for pupils, and location of the school. This similarly upholds the argument by Adipo (2015) that teaching at any level requires that students be exposed to some form of stimulation.

The standard partial regression coefficients, also known as b -primes, beta coefficients, or beta weights are all measured in standard deviation units and are therefore not dependent on the units of measurement of the variables. The advantage of the standard partial regression coefficients then is that their magnitudes can be compared directly to show the relative standardized strengths of the effects of several independent variables on the same dependent variable. Among the main effects, the beta coefficient of pupils' motivation ($\beta=0.219$) is the greatest in magnitude. A standardized partial regression coefficient gives the rate of change in standard deviation units of Y per one standard deviation unit of X (when all other X variables are kept constant). For example, for an increase of one standard deviation in a pupil motivation levy, there will be an improvement in school's academic achievement by roughly 0.219 of its standard deviation, *ceteris paribus*.

4.5 Testing the Null Hypothesis that School Motivational Levies have no Statistically Significant Effect on Academic Achievement in Public Day Primary Schools in Nyamira County.

The research hypotheses of the study were tested using t-tests provided in various regression analyses. The B coefficient for pupils' motivation ($b=0.0037, t=2.75, p=0.007$) was statistically significant. It was therefore highly unlikely that the population B coefficient for this variable was zero. Thus, the null hypothesis that school motivational levies have no statistically significant effect on academic achievement in public day primary schools in Nyamira County was rejected and the alternative hypothesis was accepted. This is because the computed value of t for the pupil's motivation was 2.75 which is more than the critical value of t . However, the regression coefficients for academic tours ($b=0.0003, t=0.64, p=0.520$) and teachers' motivation ($b= -0.0007, t= -0.82, p=0.414$) were not

statistically significant at $p < .05$. Thus, while motivation of pupils has a significant effect on school's academic achievement, the study found no evidence that academic tours and teachers' motivation lead to improved performance.

The coefficient for pupils' motivation levy (0.004) showed that an increase in the levy by one Kenya shilling results in an improvement in the KCPE mean by 0.004 points. Put differently, when a parent pays Kshs 100 for pupil motivation, school KCPE mean will go up by 0.4 points.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusions

The study findings of the data analysis revealed that pupils' motivational levies are statistically significant, with a partial regression coefficient of $b = 0.0036$, $t = 2.75$, and $p = 0.007$, indicating that an increase in pupils' motivation is associated with a significant improvement in academic achievement. Specifically, the coefficient for pupils' motivation levy ($b = 0.004$) showed that an increase in the levy by one Kenya shilling results in an improvement in the KCPE mean by 0.004 points. In practical terms, when a parent pays Kshs 100 for pupil motivation, the school's KCPE mean will increase by 0.4 points. On the other hand, the regression coefficients for academic tours ($b = 0.0003$, $t = 0.64$, $p = 0.520$) and teachers' motivation ($b = -0.0007$, $t = -0.82$, $p = 0.414$) were not statistically significant at $p < .05$. This indicates that there is no evidence to suggest that academic tours and teachers' motivation have a statistically significant impact on school's academic achievement. Thus, the more parents spend on pupil's motivation the higher the school KCPE mean.

5.2 Recommendation

The study recommended that the ministry of education, school board of management, head teachers, teachers, parents and guardians should adopt the culture of motivating pupils in public day primary schools so as to enhance school KCPE mean.

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