The Extent to Which Curriculum Support Costs Influence Students' Gross Enrolment Ratio Inlaikipia County, Kenya.

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ABSTRACT

This study was set to investigate the students' participation in education in day secondary schools in Laikipia County as measured by gross enrolment ratios. It was necessitate by the declining enrolment ratios in day secondary schools within the county. The main objective was to analyze the extent to which curriculum support costs influence students' gross enrolment ratio in Laikipia County. The target population was 19,065 respondents, of whom were, five sub-County directors of education; 78 principals; 7,800 form three and four parents; 8,870 form three and four students, and 312 form three and four class teachers. Census was used to select five SCDEs, stratified random sampling was used to select 25 principals and 400 students, simple random sampling to select 400 parents and 100 class teachers to make a sample size of 930 participants. Both probability and non-probability sampling methods were used to select a sample size of 930 participants. Pearson Product Moment Correlation Coefficient (r) was computed and a level of 0.87 was achieved. The research utilized tangerine electronic data collection software used for data entry and data cleaning. Statistical Package for Social Sciences (SPSS) was used to analyze quantitative data. mathematical set had a statistically significant relationship with the gross attendance ratio with ordinal rank 2, 3, 4, 5 having (b- 1.161, 1.978, 1.545, 2.194 SE 0.535, 0.451, 0.440, 472, wald 4.703, 19.221, 12.306, 21.588 and p= 0.030, <0.001, <0.001, <0.001) respectively; Mathematical set and table showed positive relationship to the gross enrolment ratio.

Key Words: Gross Enrolment ratio, Participation in Education, Day Secondary school.

INTRODUCTION

The expenses associated with curriculum support are those that parents bear either directly or indirectly. This is because some schools may demand that parents pay these costs directly to the school or buy text books, backpacks, scientific calculators, pens, and math-math tables from bookstores for their children to use in class.

Charging for school supplies may prevent certain students from participating fully, according to UNESCO (2011). This is even if there is legislation in place to address financial barriers for students who are unable to pay for the items.

According to a Farthing (2014) study on "Course Materials & Students' Participation," 21% of students were unable to obtain the books and stationery they needed for their research. Additionally, this study demonstrated that students from low-income families were more negatively impacted by the lack of course materials than students from households with relatively higher incomes. Although his study only determined the percentage of students who lacked sufficient course materials, its primary goal was to assess the extent to which the cost of course materials affected students' involvement. Farthing (2014) conducted research using an online poll that included multiple questions regarding the cost of attending school. Students from Scotland, England, and Northern Ireland made up his responders. Data for the current study was gathered in Laikipia County, Kenya, using hand-delivered questionnaires to students, class teachers and parents. Dewan (2018) found that children in Bangladesh who could not afford the extras in their free secondary education did not go to school till they could afford it. This problem is especially evident in parts of Australia and Latin America, where rising educational costs make it difficult for everyone save the wealthy to send every member of the household to school. The

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purpose of this study is to evaluate the degree to which course material expenses predict students' attendance at Laikipia County public day secondary schools.

Olayemi (2019) emphasized the significance of textbooks and other learning resources on student performance in his paper, "The role of the parents teachers association (PTA) in promoting school education in Ekiti state, Nigeria." His research supported the findings of Fuller and Clarke (2014), who examined studies on the effectiveness of schools in less developed nations, adjusting student achievements for family background. They discovered a consistent relationship between the availability of textbooks and additional reading materials and the effects of schools. The two pointed out that almost half of the research they had looked at had found a strong correlation between academic success and school inputs. Nevertheless, they did not provide a monetary value for the school's contributions. The goal of the current study was to put the unnecessary inputs into monetary terms. Furthermore, the writers did not disclose the methods they employed to arrive at their conclusions. According to Kapur (2018), some schools consider the provision of books, stationery, and bags to be the necessities for their students. She makes the argument that in order to facilitate learning, students require materials and tools. Books, office supplies, school materials, luggage, electronics, computers, and the internet are among them. Requiring parents to provide their children with instructional resources promotes learning. However, as she points out, if parents cannot afford to provide the required resources and equipment, pupils may find it difficult to attend class and develop their learning.

There are many factors that affect access to education, and starting school does not always equate to finishing secondary education because finishing secondary education requires resources beyond paying the required tuition, according to a recent study by Lumosi et al. (2021) in Public Day Secondary Schools in Kakamega East sub County. The rise in the cost of schooling in the senior classes (Forms three and four) is a reliable predictor of completion for children from low-income families. The report states that scientific calculators, mathematical tables, and textbooks in both English and Kiswahili are required for students entering Form 3. In other words, Form 3 enrollment denotes a sudden rise in educational expenses. The average cost of the language set books was Kshs 3,760 and the average cost of the scientific calculator was Kshs 1,050, according to the report. These figures added up to Kshs 4,810, which appeared substantial for kids from low-income households. The study also revealed that over twenty percent (20.3%) of the total cost of stationery was spent by households on exercise books, copying sheets, pencils, biro pens, rulers, rubbers, and other user items to support secondary education. The bulk of parent interviews disclosed the challenges some of them encountered in providing their children with the school materials they required to go to school each day; one parent even made the joke that "students going back home meant a lack of these items." Student absences were influenced by the cost of the user items, especially for students from low-income families. In the senior Form three and Form four classes, the problem of irregular school attendance generally got worse, partly because of the increased costs involved in completing academic requirements. The study's design and methodology were not made public.

Sometimes, without subjects requirements in class, students at public day secondary schools in Masaba North District, Kenya, were sent home until they could collect them. The source of this data is Keraita (2016). This is in line with the findings of the current inquiry, which demonstrated that the construction of toiles, labs, and personal quarters incurred notable but needless expenses. Biwott (2013) states that most of the time, students who miss school do so of their own choosing or because they are kept out of the building until they can show that they have acquired the required user materials.

In a study by Okemwa et al. (2020), the majority of respondents (77.1%) believed that teaching and learning resources such textbooks and workbooks were adequate, despite the fact that 18% of the student respondents felt that they were insufficient. The survey's findings also demonstrated that learning resources, such as libraries, lacked sufficient reading material. According to the study's findings, 72.2% of the students disagreed with the assertion that there was an adequate amount of review and supplemental material available in the libraries. This implies that most public schools in Nyamira County did not have well-stocked libraries.

A significant portion of Kenyan households finance their kids' secondary schooling by paying for materials like books and clothes. Kenyans have encountered many difficulties lately in their attempts to boost school enrollment, according to Wanja (2014). The 2019 research by the Kenya National Bureau of Statistics (KNBS) revealed that a significant amount of household expenditures went toward education, indicating the crucial role

that families play in supporting education. This analysis confirms Wanja's (2014) conclusions that GER & GAR are significantly impacted by the cost of personal pay, the construction of restrooms, and laboratories. Most of the studies reviewed did not indicate the specific books that missed in the school libraries neither did they indicate the category of schools in which the studies were carried out nor did they indicate their research designs and methodology. They also did not quantify in monetary terms the costs involved for learners' materials. The current study has focused on these gaps in public day secondary schools in Laikipia County, Kenya.

METHODOLOGY

This study used a convergent parallel mixed techniques design. According to Creswell (2012), this form of research design was a mixed study design. Convergent (parallel or contemporaneous) mixed method designs, according to Creswell, are crucial because they seek to concurrently collect qualitative and quantitative data, combine the two kinds of data, and apply the findings to a deeper understanding of a study subject.

The fact that obtaining information from the two categories results in a deeper comprehension of a research subject and that one type of information offers strength to offset the shortcomings of the other is a basic defense of this strategy. Creswell (2012) added that defects in either qualitative or quantitative data can be improved using this study approach. In order to fully understand the phenomenon of superfluous costs and determine if it predicts student involvement in public day secondary schools in Laikipia County, the current study purposefully gave equal weight to both qualitative and quantitative data.

The researcher used three interrelated steps in this design: Initially, both open-ended and closed-ended questions were used to collect data simultaneously on both the quantitative and qualitative levels. Second, analysis of the quantitative and qualitative data was carried out independently and concurrently. Third, the results from the two types of data were integrated and their convergence or divergence was discussed in order to provide a comprehensive understanding of the problem.

Because this method was used in research that attempted to link various viewpoints gathered from both quantitative and qualitative data sets around a single issue, it was thus highly relevant to our investigation. The methodology has also been applied in studies that show how quantitative and qualitative data diverge or converge when it comes to understanding a certain subject (Creswell, 2012). With the use of this approach, the researcher was able to derive conclusions from quantitative and qualitative data collected through the administration of questionnaires and interviews regarding the degree to which private costs may have hindered students' participation in secondary education in Laikipia County.

RESULTS

The Extent to Which Curriculum Support Costs Determine Students' Gross Enrolment Ratio

This study considered the predictive effect of curriculum support costs on the gross enrolment ratio. The researcher considered whether personal emoluments costs would predict the gross enrolment ratio. An ordinal logistic regression analysis was conducted to determine the extent to which the personal emoluments costs would affect the gross enrolment ratio in secondary schools.

Model Fitting Information

The analysis provided model fitting results in the section provides results of ordinal logistic regression versus reduced model (intercept) with complimentary log-log link function. The presence of a relationship between the dependent variable and combination of independent variables is based on the statistical significance of the final model.

From Table 4.29, the -2LL of the model with only intercept is 432.041 while the -2LL of the model with intercept and independent variables is 0.001. The difference (Chi-square statistics) is 432.041-371.604 =60.436 which is statistically significant at α=0.05, $p < .001$. The conclusion is that the dependent is associated with independent variables in complimentary Log-log link function.

Table 1: Model fit for curriculum support costs on gross enrolment ratio

Model Fitting Information				
Model	**-2 Log Likelihood**	**Chi-Square**	**df**	**Sig.**
Intercept Only	432.041			
Final	371.604	60.436	21	<.001
Link function: Logit.				

Goodness-of-fit

The goodness-of-fit is determined by the Pearson statistic which measures the extent of the relationship between linearly associated variables and the deviance which is the likelihood-ratio test and is a measure of lack of fit between the model and data. When the deviance show tendency towards largeness then the fit is poor. The difference between the deviances D0 and D1 has a large-sample chi-square distribution with degrees of freedom equal to the difference in the number of parameters estimated. The null hypothesis states that the observed data are consistent with the fitted model. The null hypothesis is rejected since the p was significant, p = <.001 < 0.05.

Table 2: Goodness-of-fit for curriculum support costs and gross enrolment ratio

Goodness-of-Fit			
	Chi-Square	**df**	**Sig.**
Pearson	271.703	209	.002
Deviance	329.094	209	<.001

Pseudo R-Squares

Cox & Snell's pseudo R-squared has a maximum value that is not 1 thus the full model predicts the outcome weakly as the likelihood value is 0.212. Nagelkerke R square of 0.225 reveals that there is a weak association between the independent variables and the dependent variable. McFadden's the ratio of the likelihoods suggests the model did not predict the outcome perfectly as its likelihood is 0.073.

Table 3: Pseudo R-square for curriculum costs on gross enrolment ratio

Pseudo R-Square	
Cox and Snell	.157
Nagelkerke	.210
McFadden	.124

Parameter estimates

Predictors, mathematical set, and mathematical table and scientific calculator showed positive relationship to the gross enrolment ratio. Mathematical set had (b – -0.860, SE 0.468, wald 3.374 and p=, 0.66), while mathematical table (b – 1.183, SE 0.595, wald 3.357 and p=, 0.47). These statistics indicate a positive relationship between the cost of the mathematical set and mathematical table on gross enrolment ratio.

Table 4: Parameter estimates on curriculum support costs and gross enrolment ratio.

Parameter Estimates								
		Estimate	**Std. Error**	**Wald**	**df**	**Sig.**	**95% Confidence Interval**	
							Lower Bound	**Upper Bound**
Threshold	[GER = .01]	1.186	3300.302	.000	1	1.000	-6467.288	6469.659
Location	[Q1D=2.00]	-.773	.571	1.829	1	.176	-1.892	.347
	[Q1D=3.00]	-1.576	.557	7.992	1	.005	-2.668	-.483
	[Q1D=4.00]	-.860	.468	3.374	1	.066	-1.778	.058

	[Q1D=5.00]	-1.183	.484	5.976	1	.015	-2.131	-.234
	[Q2D=2.00]	.887	.687	1.663	1	.197	-.461	2.234
	[Q2D=3.00]	1.783	.585	9.273	1	.002	.635	2.930
	[Q2D=4.00]	.911	.574	2.515	1	.113	-.215	2.037
	[Q2D=5.00]	1.227	.604	4.119	1	.042	.042	2.411
	[Q2D=6.00]	0[a]	.	.	0	.	.	.
	[Q3D=2.00]	1.183	.595	3.957	1	.047	.017	2.350
	[Q3D=3.00]	-.652	.452	2.084	1	.149	-1.537	.233
	[Q3D=4.00]	.428	.442	.938	1	.333	-.438	1.295
	[Q3D=5.00]	-.060	.464	.017	1	.898	-.968	.849
	[Q3D=6.00]	0[a]	.	.	0	.	.	.
	[Q4D=4.00]	-15.118	.463	1066.838	1	<.001	-16.025	-14.211
	[Q4D=5.00]	-15.900	.361	1935.044	1	<.001	-16.609	-15.192
	[Q4D=6.00]	-16.189	.382	1793.704	1	<.001	-16.938	-15.439
	[Q4D=7.00]	-16.044	.000	.	1	.	-16.044	-16.044
	[Q5D=2.00]	16.775	3300.302	.000	1	.996	-6451.699	6485.248
	[Q5D=3.00]	17.020	3300.302	.000	1	.996	-6451.453	6485.494
	[Q5D=4.00]	16.833	3300.302	.000	1	.996	-6451.640	6485.306
	[Q5D=5.00]	16.934	3300.302	.000	1	.996	-6451.539	6485.408
	[Q5D=6.00]	16.449	3300.302	.000	1	.996	-6452.025	6484.922

Test of parallel lines

The test of parallel lines is used to checks the proportional odds assumption to judge the model adequacy. A non-significant result (p-value > 0.05) means that the assumption holds, and the model is appropriate. The model null hypothesis states that the slope coefficients in the model are the same across the response categories. The significance p = <0.001 <0.05 indicated that there was a significant difference for the corresponding slope coefficients across the response categories.

Table 5: Test of parallel lines for curriculum support costs and gross attendance ratio

Test of Parallel Lines[a]				
Model	**-2 Log Likelihood**	**Chi-Square**	**df**	**Sig.**
Null Hypothesis	371.604			
General	371.604	.000	0	.

According to Kenya National Bureau of Statistics (2019) school-age population projections for the 8-4-4 educational system of education, in Kenya; secondary school age-population is 14-17 years. The upper secondary school age (Form three & form four) is 15-17 years of age in Kenya. The school age 15-17 population in Laikipia county was 49,014 (KNBS, 2019; Laikipia County Statistical Abstract, 2020), in the year 2019/2020. According to Table 4.2 the enrolled number of upper secondary school students from 25 sampled public day secondary schools was 2320; those who were attending school, from the same 25 sampled public day secondary schools were 2179.

CONCLUSION

Regarding the extent to which curriculum support costs determined the student's gross enrolment ratio, this study concluded that changes in these costs only fairly influenced changes in the dependent variable. Students are allowed to create a co-dependent relationship, which enables them to share and borrow the curriculum support materials, thus reducing the chances that they will drop out of school. Therefore, there are no significant changes in the gross enrolment ratio in upper forms of secondary school.

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