



DETERMINANTS OF PRIMARY SCHOOL ENROLMENT IN KENYA SINCE INDEPENDENCE

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Abstract

The world today aims at achieving universal primary education and this has been stated in Millennium Development Goals and Dakar framework (UNESCO, 2011). This paper explores determinants of primary school enrolment in Kenya since independence 1964. The main objective of the study is to identify the determinants of primary school enrollment in Kenya since independence. The annual time series data running from 1964 independence year to 2017 has been used. The study has used OLS method to estimate the long-run equation. The study finds that coefficient of government expenditure on education as a portion of the budget has a positive and a significant effect on the primary school enrollment implying that an increase in government spending on education leads to an increase in primary school enrollment. Household expenditure on education coefficient has a positive and insignificant statistical effect on the primary school enrollment implying that an increase in household expenditure on education leads to an increase in primary school enrollment and adult literacy rate has a positive coefficient and has a statistical significant effect on the primary school enrollment which means that an increase in adult literacy rate leads to an increase in primary school enrollment.

Keywords: Primary school enrolment, Government expenditure, Education, Kenya

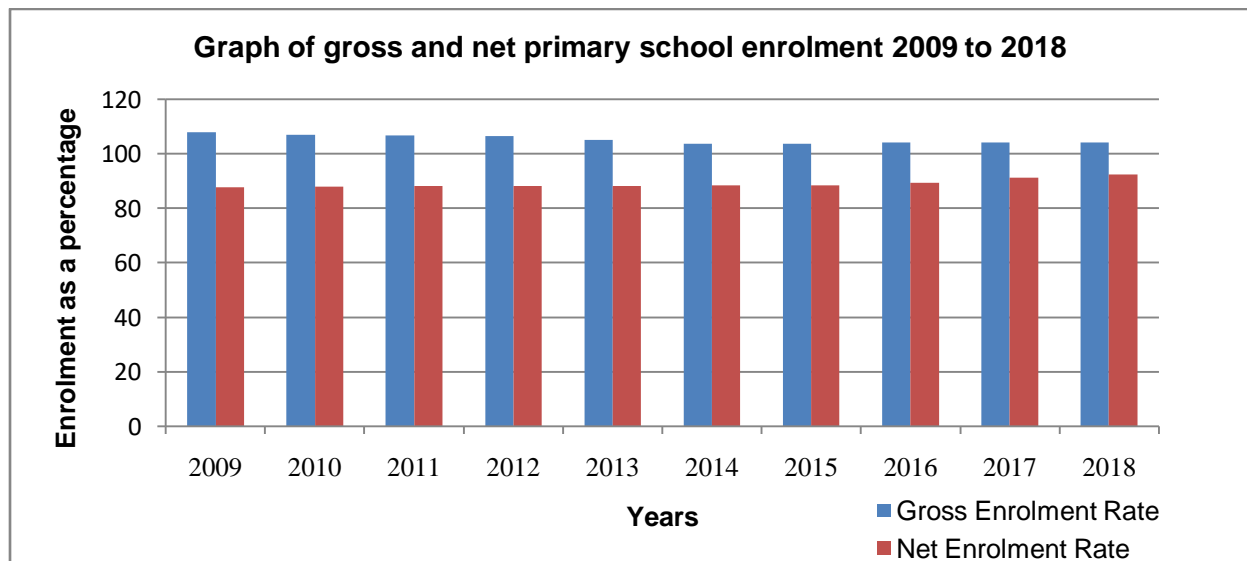
INTRODUCTION

Education in Kenya was introduced by missionaries and Arab traders. It has undergone several evolutions, from informal and formal education. The education system prior to independence 1906 - 1963 was based on ethnic grounds. It was characterized by the distribution of resources much of it been vested in the European and Asian system. The African system however, had

less resources allocated to it in which it was exclusively the responsibility of the community and organizations whereby much of the nation's wealth was allocated to the European and Asians who constitute 3% of the population as compared to Africa's who constituted 97% of the population (Washington DC, 2008).

After independence the three types of schools were changed to being government and missionary / private schools. Due to the influx in population harambee schools were established to cater for the influx, which were governed by the community. The three types of schools inherited and adopted the 7-4-2-3 system which included seven years in primary, four years of lower secondary, two years of upper secondary and three years of university. At independence there were 6056 primary schools with a total enrollment of 891,000 children (Wanjohi, 2011) but as of 2018 there were 37,910 primary schools with a total enrolment of 10,542,500 children (Government of Kenya, Economic Survey 2019). The figure below shows gross and net primary school enrolment from 1970 to 2018

Figure 1: Gross and net primary school enrolment rates from 2009 to 2018

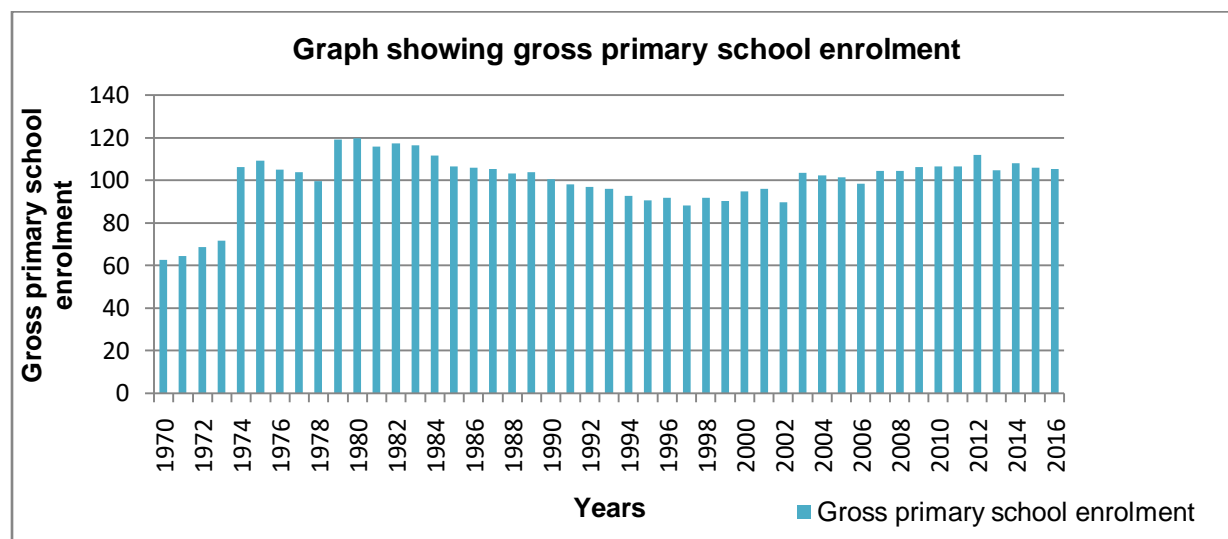


Source: Government of Kenya, Economic Surveys 2013 and 2019

As shown in figure above, the gap between the primary Gross Enrolment Rate (GER) and Net Enrolment Rate (NER) has declined between 2009 and 2018. In 2009, the gap was 20.2 percentage points while in 2018 it was 11.6 percentage points. This indicates that over the period the number of under age and over age pupils enrolled at primary has been declining. The decline in GER and increase in NER indicates a positive trend implying that the Government's policies on repetition and promotion have impacted positively on access to education. In spite of

the impressive national figures on GER and NER, there still exist regional disparities among counties.

Figure 2: Graph showing total primary school enrolment rates from 1970 to 2018



Source: World Bank

From the graph the following can be noted: the period between 1970 and 1979 enrolment increased from 62 percent to 106 percent due to increase in births which increased the number of school going children. From 1978 to 1982, introduction of free primary education raised the enrolment rates of the primary school, but between 1982 and 1985 the enrolment decreased due to prolonged drought spell from 117 percent to 106 percent. Between 1985 and 2002 the enrolment decreased tremendously from 106 percent to 97 percent, this was attributed to factors such as drought spells, political instabilities in and introduction of school levies. The enrolment rates increased between 2003 and 2007 due to re-introduction of free primary education. In 2008 post election violence affected slightly. From 2009 the rate has been good due to political stability.

Statement of the Problem

Since Kenya attained its independence in 1963, it has committed herself to expand the education system to ensure all children access education. In 1974, free primary education was introduced from standard 1 to 4 and in 1978 they expanded the programme to the entire primary school. This reflected high number of enrolments which lasted for a short period. In 1980s and 1990s due introduction of Structural Adjustment Programme for co-sharing parents were made to pay for the education of their children. The policy had a negative impact on access to primary

education. The enrolment dropped to 5.8 million in 2002 (Too, 2007). In 2003, the change of ruling regime re-introduced free primary education which led to enrolment rising by 20.58% and so many children who had dropped out of school re-enrolled in primary schools but still over 3 million were out of school despite the free primary education (UNESCO, 2005).

Ndege and Ngesu (2007) noted that decision by the government did not seem to be the panacea to the problem of access to primary school education in Kenya. Patrinos (2007) found no evidence that allocating more funds to education by state or parents improves the enrolment. It seems there are other factors to consider in determining the enrolment rate in primary schools. Therefore this study will aim to answer the question on the determinants of primary school enrolment since independence in Kenya.

Objectives of the study

To investigate the factors that determine primary school enrollment in Kenya.

The specific ones being:

- i. To find out if the proportion of government expenditure allocated to the education sector influences the enrollment rates.
- ii. To study if the adult literacy rate has an impact on the primary school enrollment rates.
- iii. To determine if the household expenditure on education determines the primary school enrollment rates.

Justification of the Study

This research will benefit policy makers, donors' academic bodies and private sectors in exactly determining the factors that affect primary school enrolment in Kenya and be able to draw clear policy conclusions on the same. The study adds up on the body of knowledge by providing for; the variables that determine primary school enrollment in Kenya, effective and efficient logical decisions on how to improve the primary school enrolment rates by ensuring that at least each and every child goes to school. Moreover, it may also help the above parties to establish platforms that may improve the quality of education by ensuring that tertiary institutions are developed to enroll and produce full baked teachers.

LITERATURE REVIEW

Theoretical Review

Functionalist Theory

It was a theory founded by a French sociologist. Durkheim (1973), he saw the major functions of education as the transmission of society's norms and values. He maintained, "society can

survive if only there exist among its members a sufficient degree of homogeneity, perpetuates and reinforce this homogeneity by fixing in the child from the beginning the essential similarities which collective demands."

According to Durkheim, he emphasized on certain factors that would determine the enrollment of children in primary school. These factors included: constructed Curriculum, sorting, networking and replacement of the family's role. The constricted curriculum helped students develop their identities and self-esteem. Different cultures would enroll children in curriculum that favoured their needs. Sorting included separating children based on merit. Durkheim viewed that societies need demanded that the most capable people get channeled into the most important occupations or students that scored higher in class enter accelerated programmes and college preparation courses. This was later to be known as social replacement.

Networking affected enrollment, it referred to the making of interpersonal connections. To him, it was inevitable. He asserts that people place so much importance on this function of education that some parents limit their children's option for college to insure that they attend schools where they can meet the right person to marry. Moreover, enrollment was directly affected by the replacement of the family's role. Parents opted to home-school their children where school curriculums had to resolve issues on career development discipline and human sexuality.

However, the theory was bounded by weakness that included: it only assumed that there exists no conflict of interest between the different citizen groups in society. Secondly, it assumes education is fair and that it rewards the best and ignores social inequalities that may restrict attainment.

John Dewey's Education Theory

His work focused on the trends in education. According to Dewey (1960) each generation of children is not only helped but hindered and hurt by the elders who exercise direct control over them, just as society may deny satisfaction to the physical education and cultural needs of the young; so their parents and guardians may slightly ignore their rights. He adds on and says that, most adults cannot be held culpable for such misleads, they too have been shaped by the society around them. He continues further and claims that social status affects education enrollment; "The rich and the poor, the upper middle and lower classes". This determines both the characteristics of the educational system and the children trained and tutored under it.

He aimed to integrate the school with society. The school system would be open to all on a completely free and equal basis. This type of education would tend to erase unjust jurisdiction and prejudice. According to him, the requirement of the new era included, pupils

should govern their own conduct based on the social needs of the community, interest shall be motive for all work, teachers should act as guides rather than task masters of a particular task, scientific study of each pupil development, physical mental, social and spiritual, is absolutely essential to the intelligent direction of his development, greater attention is paid to the child's physical needs co-operation between school and home will help built the child's development in extracurricular activities.

Empirical Literature

Government Expenditure

Rajkumar and Swaroop (2008) empirically examine whether public expenditure on education is more effective in improving educational outcomes, primary school enrollment, in countries with good governance. Their results are derived based on sample that has 101 observations using annual data from 1990 to 2003. They employed the ordinary least square regression model to estimate the impact of government spending on primary school enrollment. In their regression, the coefficient on primary school education spending becomes significant only when the interaction term between spending and good governance is included. Therefore, as the quality of bureaucracy rises, public spending on education becomes more effective in achieving primary education, increase in enrollment.

According to Manimagala (2012), impact of public intervention on Child school enrollment rates in India he focuses on appropriate government expenditure, allocation, towards the education centre. He emphasizes more on government expenditure programmes such as textbooks and distribution of uniforms; lie used primary data collected from 16 districts in India and secondary data from secondary sources and did a regression the data to arrive at a finding that high public expenditure toward the education sector increased the rate of primary school enrolment.

Household Expenditure

Kabubo - mariara and Mwabu (2001) investigated on primary school enrollment as a function of individual household wellbeing. They did use a three level mixed effect profit regression model that matched up with their cross sectional collected data. Based on the data collected and model, they did conclude that the level of welfare of a family or individual had a positive correlation, effect, on the level of primary school enrollment.

UNESCO (2004) looked into the impact of cost sharing in education, they did affirm that cost sharing policy had an effect on the enrollment rates, for instance, the introduction of free primary education in 2003 increased the primary school enrollment levels from 5.9 million to 9.2

million a year later. However, although most Kenyan children now attend schools, completion rates remain relatively low and have actually declined over the years as a result of cost sharing, meager household spending on education. They did use both primary and secondary data and used the probit regression model to arrive at their conclusion.

Ahiakpor, Nunoo and Alnaa (2014) in their paper a new look at school enrollment in Ghana, they intended to analyze on whether household expenditure had an effect on primary school enrollment. They did use secondary yearly data obtained from World Development Indicators (WDI) and regressed it using the Bayesian moving average model, Findings from the analysis helped them conclude that household expenditure was a significant determinant of primary school enrollment and had a negative correlation with primary school enrollment.

Adult Literacy Ratio

Investigations by Gurmu and Etana (2005) in their paper, socio-economic and demographic determinants of children's primary school enrollment in Ethiopia did affirm that adult literacy rate did affect the rate of primary school enrollment Using the 2005 Ethiopian demographic and health survey data and a binary logistic regression model they did arrive at a conclusion that adult literacy rate had a strong statistical significance on the rate of primary school enrollment.

Similarly, Jeynes (2015) results found improvements in father's education to raise the schooling of both sons and daughters, but mother's education had significant impact only on daughters schooling in Genuine. Therefore, if the household head is a male, then boys and girls were likely to have similar patterns in schooling attendance whereas on those headed by females, girls are more likely to be enrolled in schools and household to enroll their children in school. The data is drawn from the 1998 Gambia National Household Poverty Survey which was analyzed using the logit binary regression model. The regression results provided that there a strong negative association expenditure. That is the higher the level of education expenditure the lower the probability or child schooling.

Handa (1999) points out that raising primary school enrollment is easier said than done. The relative importance of supply versus household demand factor remains controversial, with serious implications for educational policies. Marginal probabilities were derived using probit regression model. The sample size included children of primary school age (7 to 11 years old) and the dependent variable accounted for whether the child was currently enrolled in school at the time of survey. The results indicate that the education of adult household members seem most important in stimulating child enrollment. Moreover the dimension of school quality/ access or availability/ and efficiency all work to stimulate enrollment, although the effects are small and differ somewhat by gender.

Overview of Literature

Based from the above studies we may conclude that different studies have been conducted to investigate on the implication of different policies such as educational and cost sharing policies on the enrollment rates at a both local and international context. However this study is set to find out on the various factors that determine primary school enrollment rates in Kenya.

METHODOLOGY

The Model

The model illustrates the relationships between the dependent variable, primary school enrollment (PSE) and independent variables i.e. proportion of gross domestic product (GDPE) allocated to the education sector, adult literacy rate (ALR), and household expenditure on education (HEE). The conceptual model underlying a typical expenditure function can be expressed as a functional relationship that relates primary school enrolment to its determinants using the regression as below:

$$PSE = f(GDPE, ALR, HEE) \dots \dots \dots (1)$$

The study adopts an econometric model of the form:

$$PSE = \gamma_0 + \gamma_1 GDPE + \gamma_3 ALR + \gamma_4 HEE + \varepsilon \dots \dots \dots (2)$$

Definition of Variables

Expenditure of Gross Domestic Product on Education

It refers to the total monetary value of goods and services allocated to the education sector. It being an independent attribute in our study it defines how important it is, since it reflects the budget of any economy. It's through the budget that different sectors within the economy tire able to have a share of the national cake. We expect it to have a positive correlation, $\gamma_1 > 0$ with the dependent variable, primary school enrollment.

Adult Literacy Rate

It is the percentage of persons aged 15 and over who can read and write. From our model, we expect it to a have positive correlation, $\gamma_2 > 0$, with the dependent variable, primary school enrollment.

Household Expenditure

In this context it refers to the total disposal income that is used for the purpose of educating the pupils in any given household. We expect it to have a negative correlation γ_3 with the independent variable.

Data Sources

The study will use secondary data covering the period 1964 to 2017. The period is chosen because Kenya gained her independence in 1964. The data available includes up to 2017. Data on the independent variables i.e. gross domestic product, adult literacy rate, gender, teacher people ratio and household expenditure has been obtained from World Development Indicators (WDI), and UNESCO.

EMPIRICAL RESULTS AND DISCUSSIONS

Estimation Technique

The study will adopt ordinary least squares (OLS) in establishing the relationship between Primary School Enrolment and the explanatory variables. OLS is the preferred estimation technique since it is straightforward and easy to understand. Stata version 12 will be the preferred econometric package to run the required regressions since it is easier to understand and can handle time series data.

Descriptive statistics

Table 1: Summary descriptive statistics

Stats	PSE	GDPE	ALR	HEE
N	54	54	54	54
Mean	5.667425	100.3712	67.41463	5.520732
Std. Dev.	0.7817322	13.89986	12.74203	0.8103869
Min	3.7623	62.82272	43.7	3.83
Max	7.33565	119.8757	89.79	6.62

Based on data from 54 observations, the total primary school enrollment (PSE) has a mean of 5.667475 with a standard deviation of 0.7817322 and its upper most value being 7.33565 while its lowest being 3.7623. Government expenditure on education has a mean of 100.3712 with a standard deviation of 13.89986 and its upper most value being 119.87.57 while lowest being 62.82272. Adult literacy rate has a mean of 67.41463 with a standard deviation of 12.74203 and its upper most value being 89.79 while lowest being 43.7. Household spending on education has a mean of 5.520732 with a standard deviation of 0.8103869 and its upper most value being 6.62 while lowest being 3.83.

Multicollinearity Test

Table 2: Variance Inflation Factors

Variable	VIF	1/VIF
GDPE	1.05	0.952381
ALR	1.13	0.884956
HEE	1.10	0.909091
Mean VIF	1.09	

From table 2, the variable government expenditure on education (GDPE) has a variance inflationary factor of 1.05 which is less than 10 hence implying the absence of multicollinearity. Household expenditure on education (HEE) has a variance inflationary factor of 1.10 hence implying absence of multicollinearity. Adult literacy rate (ALR) has a variance inflationary factor of 1.13 hence implying absence of multicollinearity.

Testing for Serial correlation

Table 3: Breusch-Godfrey LM test for autocorrelation

Lags(p)	Chi2	Degrees of freedom	Prob > chi2
0	201.252	1	0.0001

H0: no serial correlation

Breusch-Godfrey test was used in testing for serial correlation. The test involves a determination of lag length which was obtained by the Akaike's Information Criterion (AIC). The test results revealed that there is no autocorrelation since the p-value which is 0.0001 is less than 0.05 thus reject the null hypothesis that no autocorrelation.

Test for Heteroskedasticity

Table 4: Breusch – Pagan test

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: Fitted values of primary school enrolment

Chi2(1) = 10.51

Prob> chi2 = 0.0032

H₀: Homoscedasticity

Using Breusch-Pagan test, results reveal that the variances of the random error terms are not constant across observations since the p-value is less than 0.05 implying that the error terms are homoscedastic leading to the rejection of the null hypothesis of constant variance. As a remedy to this bias, robust standard errors will be used.

Table 5: Linear Regression results

Primary school enrolment	Coefficients	Robust Std. Err.	T	P>/t/	95% confidence intervals	
GDPE	0.230071	0.0072147	3.10	0.003	0.0083886	0.0376255
ALR	0.025352	0.0080673	3.14	0.032	0.0090061	0.0416986
HEE	0.042476	0.1241481	0.34	0.734	-0.2090717	0.2940237
_cons	1.414593	1.0041580	1.41	0.167	-0.6200248	3.119211

Number of obs=54

F(3,41)=8.85

Prob> F=0.0001

R-squared=0.5177

Adj R-squared=0.5005

Discussion of Results

The study shows that primary school enrollment (PSE) has a positive and significant predictor of government expenditure. It is indicated by a coefficient of 0.230071 and a p-value of 0.003. An increase in government expenditure by one unit increases the primary school enrollment by 0.23 units. This is consistent with a study done by Manimagala (2012), impact of public intervention on child school enrollment rates in India, who found a positive relationship between primary school enrollment and government expenditure.

From table 5, primary school enrollment has a positive and significant predictor of adult literacy rate. It is indicated by a co-efficient of 0.0253527 and a p-value of 0.03 an increase in adult literacy rate by one unit increases the primary school enrollment rates by 0.025 units. It proves being consistent with the Gurm and Etana (2005) in their paper, socio-economic and demographic determinants of children's primary school enrollment in Ethiopia, who found out that adult literacy rate and positive correlation and a strong statistical significance on the rate of primary school enrollment.

However, from the data obtained, primary school enrollment has a positive and insignificant predictor of household expenditure on education may increase the primary school enrollment rates by 0.042476 units it is deemed to be statistically insignificant in our study.

R-squared takes a value of 0.5177 suggesting that the data fits the model well. This implies 51.77% of the variation in primary school enrollment is explained by the independent variables used. The F-statistics gives the significance of the model. The F-statistic of 8.85 with p-value of approximately 0.0001 indicates that the model used in explaining the determinants of primary school enrollment is statistically significant.

CONCLUSION

The study sought to examine the factors influencing primary school enrollment in Kenya. Based from the results obtained from our analysis we found out that; government expenditure on education as a portion of the budget has a positive and a significant effect on the primary school enrollment. This implies that an increase in government spending on education leads to an increase in primary school, enrollment. In addition to this, we also found out that household expenditure, on education has a positive and an insignificant statistical effect on the primary school enrollment. This implies that an increase in household expenditure on education leads to an increase in primary school enrollment. Finally, we observed that adult literacy rate has a positive coefficient and has a statistical significant effect on the primary school enrollment. This implies that an increase in adult literacy rate leads to an increase in primary school enrollment.

POLICY IMPLICATIONS

The government should ensure on programmes aimed at enhancing the adult literacy rate, such programmes may include, facilitating on teaching programmes that would create a clear understanding to adults on the constitutional framework on education and its importance. There is need to improve on the teacher-pupil ratio to enable better interaction of teachers and children, mentoring programmes is easier with fewer children at personal level compared to large number of children, this results to dropping out of some children.

A more feasible policy is to encourage private sector to expand primary school coverage by minimizing the restrictions either formal or informal imposed by the government in the country. Rationalization or removal of these barriers is likely to have high returns in the form of expanded enrollments, especially for children from poor backgrounds.

The government should increase the proportion of the budget allocated to the education sector and ensure legal framework are followed to facilitate transparency and accountability of this funds by the relevant authorities. Through the Ministry of Education, the government should plan on parents meetings in schools in order to educate them on the importance of investing more on their children's education, especially the girl child who are undermined by the society. This would in turn increase the primary school enrollment.

AREAS FOR FURTHER RESEARCH

The study recommends more to be done on the following areas:

- i. Determinants that have led to a decline in boy child enrolment in primary schools in Kenya given the girl child have increased.
- ii. Factors contributing to the gap between gross enrolment and net enrolment rate
- iii. The effect of this enrolment on the ability of pupils' to read and write for the lower primary classes in Kenya.

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