

**DETERMINANTS OF TRANSITION RATES ON PRIMARY AND SECONDARY  
SCHOOL EDUCATION IN KENYA**

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## DECLARATION

This research proposal is my original work and has not been presented for a degree in any other university.

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This research project has been submitted for examination with my approval as the university supervisor.

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## **DEDICATION**

To Grace Akinyi Awino, Ivan Darren Awino, Rubi W. Giana Awino and George Ochieng Obuya

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Much appreciation to my supervisor Prof. Damiano Kulundu for professional advice, technical guidance and constructive criticism of my work, which has successfully seen me through the research project. Gratitude to the University of Nairobi, My family, Workmates and Friends.

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## **ABBREVIATIONS AND ACRONYMS**

ADF	Augmented Dickey-Fuller
CDF	Constituency Development Fund
CUE	Commission for University Education
DHS	Demographic and Health Surveys
ECM	Error Correction Model
EFA	Education for All
FPE	Free Primary Education
FSE	Free Secondary Education
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
K.C.S.E	Certificate of Secondary Examination
KCPE	Kenya Certificate of Primary Education
MDGs	Millennium Development Goals
MICS	Multiple Indicator Cluster Surveys
NARC	National Alliance Rainbow Coalition
OLS	Ordinary Least Squares
PCI	Per-Capita Income
SDG	Sustainable Development Goals
TSC	Teachers Service Commission
UIS UNESCO	Institute for Statistics
UNDP	United Nations Development Program
UPE	Universal Primary Education

## **ABSTRACT**

Ensuring an inclusive, and equitable quality education and promotion of lifelong holistic learning opportunities for all is Goal Number Four of the United Nations' "The 2030 Agenda for Sustainable Development" where Kenya amongst other United Nations members ratified in 2015. The agenda is founded on the recognition that education is a very vital measure of socio-economic development of a country. In Kenya, not all pupils who are enrolled in primary school transit to secondary school which worries government policy makers. This study purported to investigate the determinants of transition rates from primary school to secondary school by pupils in Kenya and to establish the effects of primary school transition rates on secondary school education. Multivariate regression model and ARDL-Bounds tests were adopted to establish the long run relationships between the identified time-series study variables. The study's findings revealed that parents' literacy levels, income per capita, primary school performance and secondary school enrolment rates were statistically significant determinants of transition rates from primary school to secondary school. That primary school transition rates, performance at primary school and student-teacher ratio were statistically significant in explaining performance at secondary school education. The study recommends that in ensuring optimal transition rates from primary to secondary school education and in enhancing performance at the secondary school level, the government should re-engineer efforts in these observed variables.

## **CHAPTER ONE**

### **INTRODUCTION**

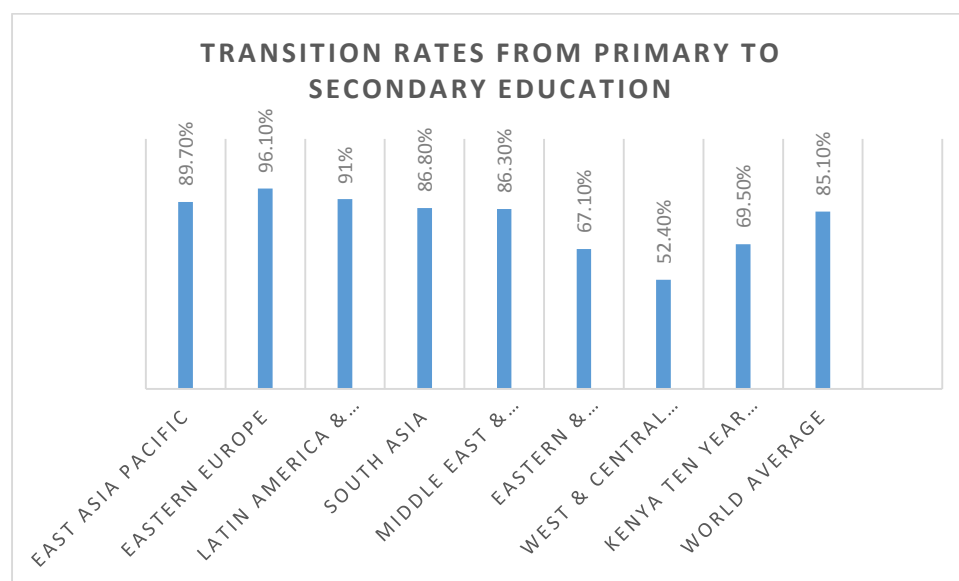
#### **1.1 Background**

Education is any act of experience that has a formation effect on the mind, character or physical ability of an individual. It is a process by which society transmits knowledge, skills and values from one generation to another. According to Hueblar (2011), Education transition rate can be defined as the percentage of learners advancing from one level of schooling to the next. It is calculated as the percentage of learners enrolling in secondary school for the upcoming year divided by the number of learners in class eight in the preceding year. The United Nations Development Programme (UNDP) Human Development Indicator (HDI) and the United Nations' Sustainable Development Goals (SDGs 2015-2030) classify education as a very vital measure of economic growth and development of a nation. Education has been associated with improvements in human capital, and thus has been declared as a fundamental human right. According to (UNESCO, 2010), education can be utilized as a tool to reduce poverty levels by empowering society members by enhancing their skills and knowledge necessary to access employment. Thus education is such a crucial investment that a nation cannot ignore if at all it would want to excel in its growth.

Global trends currently indicate that a nation with more skilled personnel, highly literate standards and approaches will have ease of access to any job opportunities in the world and so the delivery of quality lower and higher levels of education in a country is crucial in opening opportunities for socio-economic progress, (World Bank, 2005). Most development economists have linked literacy levels to positive economic growth and development of developing nations through improving the human capital stock as well as the social empowerment of the society (Kulundu et al, 2016).

Access to basic education such as primary education has been declared as fundamental human right by the United Nations, implying that all signatory nations must adhere to such conventions. The United Nations’ Universal Declarations on Human Rights of 1948 states that education should be a right that should be accessed by every individual and at present the United Nation’s Sustainable Development Goals (SDGs) of 2015, Goal No. 4 stresses on quality education for all. The transition rate to secondary school from the primary level of education is critical in developing human capital. As indicated in Figures 1.1 and 1.2 below, global transitional rates reveal that globally, 85.1% of pupils from primary schools transit to the secondary school.

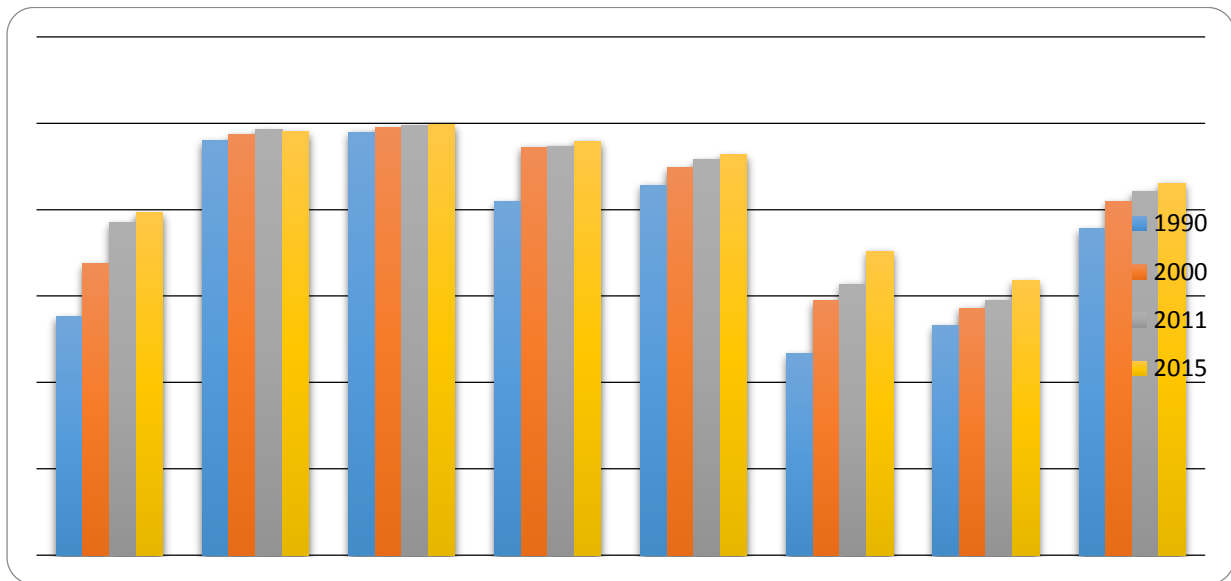
**Figure 1: Global Transition Rates, Primary to Secondary Education**



**Source: UNESCO Institute for Statistics (UIS), 2005.**

Global literacy levels reveal that both Central Asia and Europe have done quite well in the last three decades (1990-2015) while South and West Asia and Latin America have lagged behind with Sub-Saharan African countries lying below the world average as shown in the figure below:

**Figure 2: Global Literacy Levels**



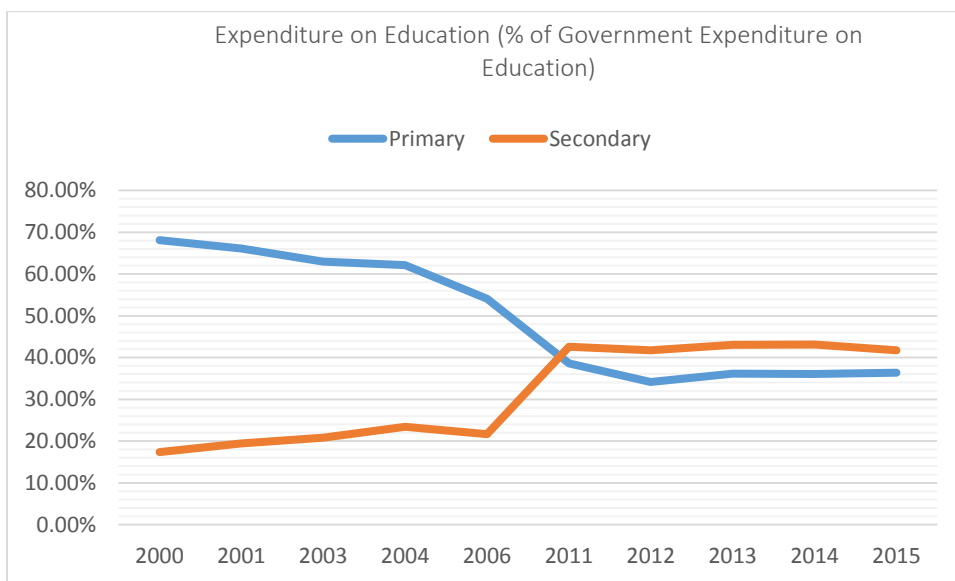
**Source: UNESCO Institute for Statistics (UIS), 2005.**

## **1.2 Education System in Kenya**

Education is the most valuable thing that society can bequeath its citizens. Education also aids in fighting ignorance. The acquisition of knowledge also creates a better citizen in terms of prospects in life (Fanuel, 2010). The public spending on education by the Government of Kenya is driven by the sessional Paper No. 1 of 2005 on policy framework for Education and Research and the Second Kenya Education Sector Support Programme (KESP II) as well as the Basic Education Act, 2013. From the time Kenya became independent in 1963, efforts to expand participation of the stakeholders in the education system has been on the rise. These efforts are being driven by the urge to fight socio-economic challenges such as diseases, poverty and ignorance. The aim has been to ensure access to education by all in the Kenyan society. Hence the rollout of universal access to education in Kenya has been a critical obligation of the country's national and county governments. Through various government and donor agencies' initiatives, the country has realized a striking upsurge in literacy levels generally evidenced by

an increment and expansion of the network of learning institutions all over the country. An increment has been observed in school attendance by vulnerable and marginalized children who had little to no access to any schooling at all. As the national government moves towards achieving universal primary schooling, attention has now shifted to secondary education. Figure 1.3 below shows the efforts of the Kenyan government to improve the education sector captured by the annual amount of money invested in the sector:

**Figure 3: Government Expenditure on Education in Kenya**



**Source: Kenya Statistical Abstract, 2015**

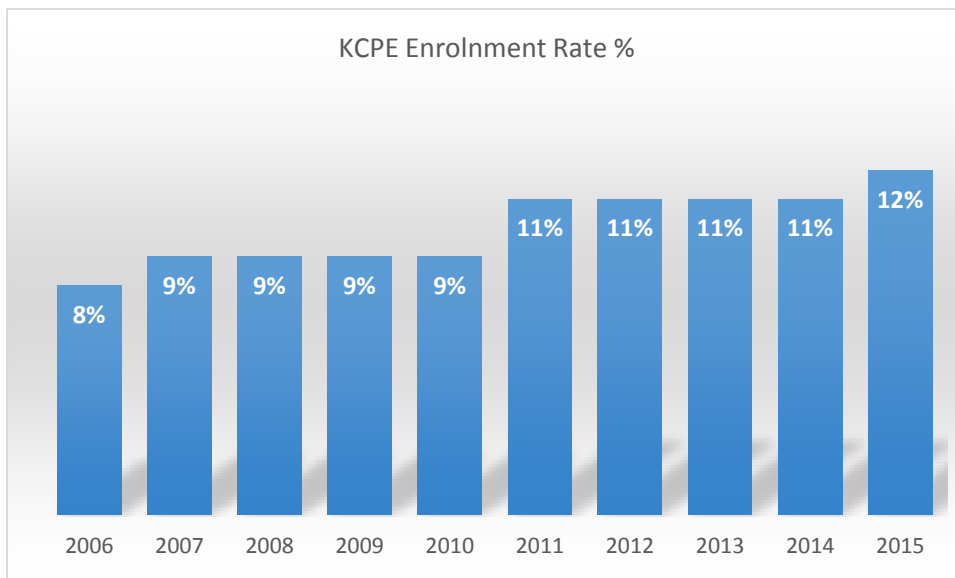
### 1.2.1 Primary School Education in Kenya

Kenya adopted the 8-4-4 System of education in 1985, replacing the 7-3-2-4 system that required seven years in elementary education (Primary School Education) followed by three years in ordinary level (Secondary School Education), two years in the high level (Senior Secondary School Education), and finally four years of university level (Bachelor's Degree Education). The 8-4-4 System of education required eight years of primary school education, four years of secondary school education and four years of university (first degree) education.

With the high expectations of the 8-4-4 education system, more enrolments at the primary level of education were witnessed.

The primary level of education has evolved over time registering more than a million graduates yearly. For example, in 2015 alone, 927,789 candidates enrolled for Kenya Certificate of Primary Education (KCPE), the final national examination in the eighth year of study. Out of this, over 70% of these candidates enrolled for secondary school education, Kenya Economic Survey, (2012). This implied that 30% of the candidates could not proceed to secondary school for a reason or the other. Kenya has an average primary school enrolment rate of 80% which is higher than the East African region average of 72%. From the Figure below, enrolment rates in the country's primary school education have been rising over time from a single digit in the early 2000 to double digit in 2015 which is a good sign of improvement.

**Figure 4: Primary School Examination (KCSE) Enrolment Rates**



**Source: Kenya Statistical Abstract, 2015**

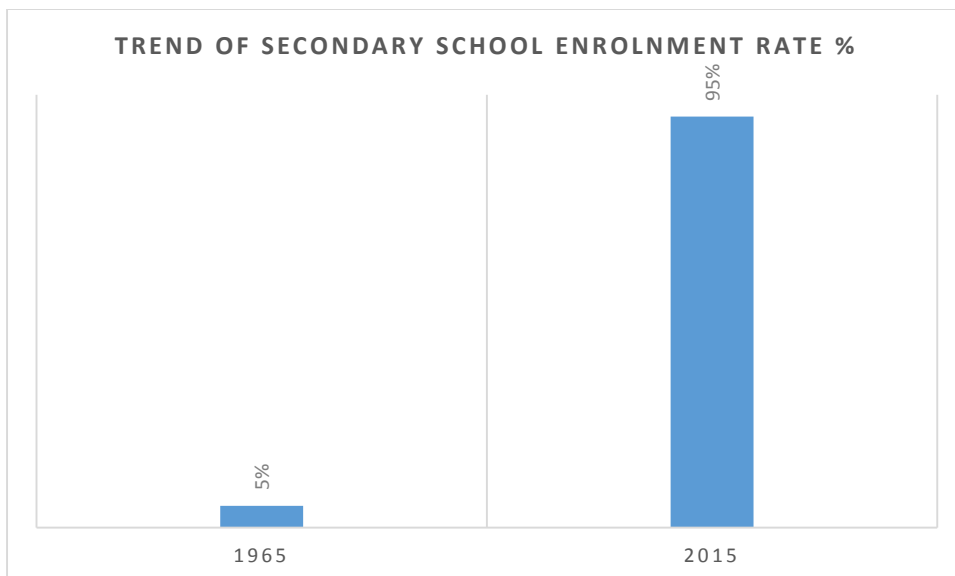


### 1.2.2 Secondary School Education in Kenya

In Kenya, the age limit to entry into secondary school education is starting to be considered as crucial factor, though many students especially from the rural areas of the country enter this level of education late, that is, when they are relatively aged. Secondary school education in the country is meant to absorb those who complete primary school education and offers a link for both tertiary and university education, Education Info Center, (2006). It takes a period of 4 years in which a student is expected to sit for the Kenya Certificate of Secondary Examination (KCSE) at the end of the fourth year.

The growth of the number of secondary schools since Kenya attained independence has been enormous. From 151 secondary schools in 1963 to over 3000 secondary schools in 2015 absorbing more than 620,000 candidates which are commendable strides for the country. The Figure below shows secondary school enrolment rates between 1963 and 2015.

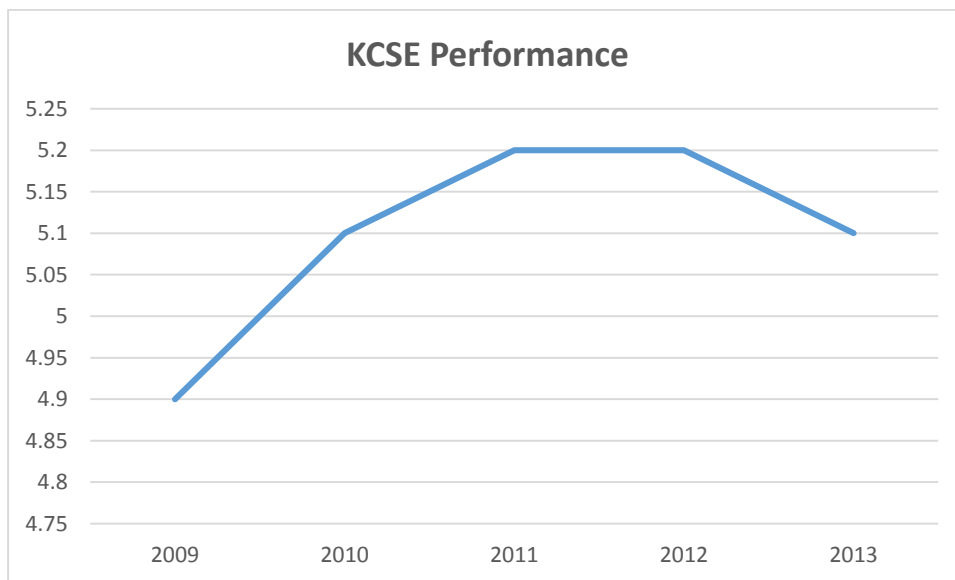
**Figure 5: Secondary School Enrolment Rates in Kenya**



**Source: Kenya Statistical Abstracts, 2015**

Despite these impressive strides, UNESCO (2008) reported that the ratio of boys to girls enrolling for secondary school education in the country was still a major concern with only forty percent of those enrolled in secondary schools being girls. The government in 2013 declared secondary education in all public secondary schools free and this improved the general intake of secondary school candidates to about 1.4 million students in 2017. However, as indicated in Figure 1.6 below, the performance at the final year of secondary education has not been steady but instead it has been rising and falling:

**Figure 6: Performance of Candidates in KCSE**



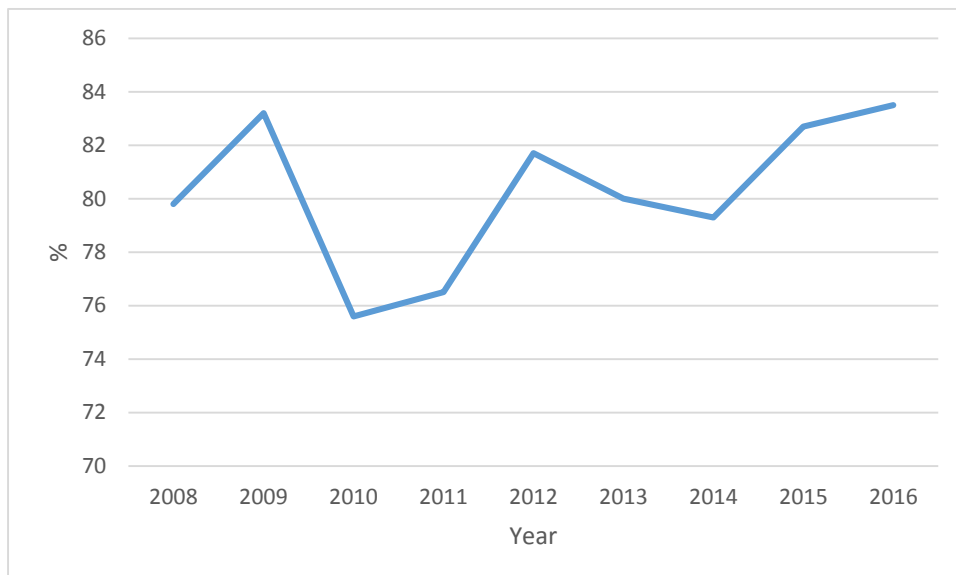
**Source: Author's Compilation.**

### **1.2.3 Transition from Primary School to Secondary School in Kenya**

Acheampong (2002) states that the transition rate is thought to be a good indicator of balanced or unbalanced development of education between two levels. Weya (2010) stated that transition from primary to secondary school is measured by the enrolment in secondary school. He further said that there is direct correlation between family incomes and the transition rates from primary to secondary schools. According to UNESCO (2006), out of the 99% of pupils who attended primary school education in Kenya, only 48% of them managed to complete primary

school level, and few of them enrolled for secondary school education. The transition rate is defined as the total number of pupils who moved from primary school upon successful completion of the required eight years of education to secondary school education, in proportion to those who sat the final examination at the primary school level, Babalola (2003). The government and donor agencies collect and document this information majorly conducted by collecting data of the numbers of those who join and complete primary school education every year and those who join secondary schools every year. As indicated in Figure 1.5 below, completion rates in Kenya's primary schools have not been encouraging.

**Figure 7: Primary School Completion Rates in Kenya**

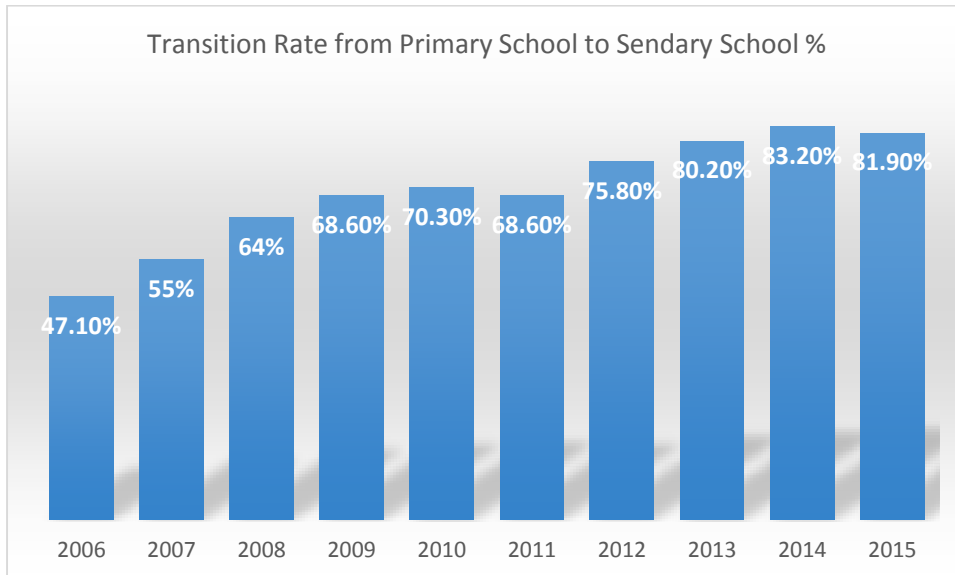


**Source: Author's Compilation.**

In Kenya, as indicated in Table 1.1, pupils' rates of transition from primary school to secondary school between the years 2006 and 2015 have generally been fluctuating. Despite all the immense efforts by the government to make secondary education affordable and accessible to as many primary school pupils as possible, the transition rates have remained just above

average. However, between 2013 and 2015, the country began to experience a steady increase of above 80% in transition rate.

**Figure 8: Transition Rates from Primary to Secondary School, Kenya**



**Source: Kenya Statistical Abstract, 2015**

### **1.3 Statement of Problem**

Any government whose citizens are well educated gets a highly productive and efficient labor force. Individual students also benefit from private returns when they get a source of income after completion of their studies. According to Cuaresma, Lutz & Sanderson (2014), each additional year of education is associated with 18% higher GDP per capita. Higher education levels are also associated with lower poverty rates globally (UNICEF 2015). Generally, the primary school students' enrolment numbers in Kenya at the national level have seen a steady rise over the years, with students' academic performance and completion rates at the national level showing a steady rise. However, these positive trends have not enabled the country to achieve its development goals of becoming an upper middle-income country, implying that the impacts of education are yet to be realized.

The Kenyan government has prioritized the education sector as one of its most important sectors to help her achieve its Vision 2030 blueprint. The Basic Education Act (2013), gives every child a right to free basic education which includes secondary education. Weya (2010) stated that the transition from primary to secondary school is measured by the enrolment in secondary school. He further said that there is direct correlation between family incomes and the transition rates from primary to secondary schools. However, looking at all school-going children in Kenya, about 85% are enrolled in primary schools; out of those who complete primary education, 75% continue to secondary education and only 60% of those who complete secondary school education proceed to tertiary institutions of education. These institutions comprise commercial and professional institutes, public universities, private universities, and polytechnics within the country. This Kenyan achievement is lower than the worldwide statistics with 85% of students in class eight transitioning to secondary school. Chege and Sifuna (2006) attribute the low transition rates from primary to secondary to the high cost of education. Primary school pupils consider education as a means of occupational mobility (Akinkunle, 2003). When the government rolled out free primary education in 2003, the completion rate for this cohort of students when they cleared class eight in 2010 was 76.8 percent, and transition rate was 72.5 percent, meaning about 4.3 percent of the students who completed secondary education did not transit to secondary schools. These inequalities of education are related to children's home background status, cost of education, household vulnerability and low levels of parental education often resulting in early desertion and high rates of repetition at school affecting transition rates (Ali, C. 2007).

The Kenyan policy on transition rate from primary to secondary school is 100% transition to secondary school by the year 2021. Students' academic performance in secondary school, which was measured using their performance at the KCSE examination showed a constant score of mean grade of about 5 (C-). This kind of performance is not very encouraging

especially for a country that intends to industrialize as captured in the country's blueprint, Vision 2030. This score is not adequate to allow entry into university, especially for technical courses such as engineering, which is necessary for industrialization. This study, therefore, intends to ascertain whether transition rates from primary to secondary schools' impact performance at secondary school.

Lastly, this study observed gaps with previous studies that were done on the subject matter in different parts of the country. The previous studies focused more on the determinants of transition from primary to secondary schools and the transition from secondary to college, but no study went further to investigate the effects of those transition rates into the next level of education. For this reason, this study is therefore unique.

#### **1.4 Research Questions**

The study intends to answer the following research questions

1. What are the determinants of the transition rates from primary school to secondary school in Kenya?
2. What are the effects of transition rates from primary school on secondary education in Kenya?
3. What are the appropriate policy recommendations that the study offers to enhance transition rates from primary school to secondary school in Kenya?

#### **1.5 Objectives of the study**

##### **1.5.1 General Objective of the study**

The general objective of the study was to investigate the correlation between primary school education and secondary school education in Kenya.

### **1.5. 2 Specific objectives**

1. To establish the determinants of transition rates from primary to secondary schools in Kenya.
2. To determine the effects of transition rates from primary school on secondary school education in Kenya.
3. Device appropriate policy recommendations based on the study findings to enhance the transition from primary school to secondary school.

### **1.6 Significance of the study**

Basic education is a fundamental human right and has been regarded by developmental economists as a tool that can be used to alleviate abject poverty in a universal manner. For instance, an educated citizen has a high probability of accessing employment opportunities, has the knowhow to take care of the young ones in a healthy way, thus higher living standards of the citizens. Therefore, the study findings will be significant in two folds; it will help both public and private policy makers to make rational policies as regards to education concerning transitional rates and it will add to the existing body of literature thus forming a basis for further research.

### **1.7 Scope of the study**

The study was carried out in the Kenyan education sector from 1983-2018. The range of years was selected in order to obtain the minimum sample size required for the analysis but also necessitated by the fact that these are the years when KCPE and KCSE exams were initiated in the country.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Theoretical Literature Review

##### 2.1.1 The Education Production Function

Much analysis in the economics of education lies in a simple production model. Teacher quality, school resources and family attributes are the inputs with the output being the achievement of the student. This knowledge can be utilised to assess and judge the efficacy and effectiveness of education policies and public resource allocation such as the model of school feeding programs.

$$Q = f(L, K, A) \dots\dots\dots (2.1)$$

Where, Q is Output, L is Labor Input, K is Capital Inputs, and, A is other factors influencing production. Output (Q) which is education achievement for a country consists of variables such as high academic performance, high transition rate from primary level education to secondary education and high enrolment rate is a function of various factors including, adequate teachers, and learning resources among other factors. That is, output Q, the dependent variable, is the outcome of the independent factors like school meals, adequate teachers, learning resources among other factors.

Analysis of the role of school resources in determining achievements begins with the Coleman Report, the US government's monumental study on educational opportunity released in 1966. That study's greatest contribution was directing attention to the distribution of student performance – the outputs as opposed to the inputs. Historically, the most frequently employed measure of schooling has been attainment, or simply years of schooling completed. The value



of schooling attainment as a rough measure of individual skill has been verified by a wide variety of studies of labor market outcomes (Mincer, 1970; Psacharopoulos and Patrinos, 2004).

Transitioning from one level of education to another level of education is a process that has specifically been dominated by two theories namely; the attachment theory and the stress theory. The attachment theory is a model that attempts to describe the dynamics of both short term and long term interpersonal relationships between the human races. Utilizing this theory, the transition from primary to secondary has been cited by many scholars such as Griebel and Niesel (1999). Olaniyan, et al (2008) observe that the level of the economy's development and that of human capital developments are highly correlated.

### **2.1.2 Theory of Human Capital**

This theory was formulated by Theodore Schultz in 1961. According to Schultz, human capital is a measure of skills, education capacity and attributes or labor which influence the productive capacity and earning potential. The basic concept is that investments in individuals can be mathematically measured based on economic value they are able to contribute to society. It has a practical implication for determining the value of training and education. It allows individuals to calculate the expected future returns of an investment in education. He argues that the central purpose of education is to increase a student's future productivity and earning capacity. He opines that governments have an essential role to play in both funding and regulating public education. If any country wants to develop and reduce poverty among its citizenry, it must be prepared to invest in education.

Ensuring high transition rates between different levels of education is a way of investing in the young generation through initiatives such as free primary and free secondary education for all children without discrimination of their social and economic status that will ensure access to

basic education for all. There is a need for the government, parents and all development partners to ensure that all children have access to basic education and can fulfil their dreams regardless of their economic, social, cultural and physical environment. In Kenya, serious emphasis should be addressed to the less privilege households in the arid and semi-arid areas and in the major slum areas in the country. To these disadvantaged children, education is the only hope to enable them play a role in development and economic growth in the country. This theory is relevant to the study of transition rates from primary school to secondary school and the effects of the same in education performance at secondary school level with the ultimate aim to promote equality in access to basic education and the consequent development of children.

## **2.2 Empirical Literature Review**

Lloyd *et al*, (1996) and Ainsworth *et al*, (2006) analyzed the effect of correlation between school enrollment and transitions based on the orphan status of a child across Sub-Saharan Africa using DHS data sets of 17 countries. The study established that being orphaned by both parents significantly impacts on a child's school enrollment and transition. The findings were corroborated by Rutstein *et al*, (2003) which analyzed the same variables in West Africa and East Africa, though this impact was more in West Africa than in East Africa.

A study carried out by K'oliech and Otieno (2007) whose work of analyzing the secondary school inflow rates in Africa revealed that the main factors behind the poor transition rate was in four folds: inadequate financing, the family connectivity and its household composition, the quality and the relevance of the education, as well as the distribution characteristics of the secondary schools. The study adopted descriptive statistics to analyze the data collected from primary sources. Questionnaires were used to collect the data after purposive sampling has

been done. The study found out that financing is a significant hindrance to direct transition rate from primary to secondary schools.

Lewin and Caillods (2001), while investigating the factors influencing the primary-secondary school transitional rate, revealed that there was a low participation rate both at primary education level at 65 percent while the secondary level at 6 percent in 1995 alone. The high inability of a large number of candidates to attain the basic requirements needed to transition to the secondary school is alluded to the low numbers of poor participation in the primary levels, effectively due to low enrolment levels rate in the primary school. During the period under observation by Lewin and Caillods (2001), the rates of students dropping from schools and repeating were approximated at 15-20% and 18% respectively.

Hardjono, (2004) established that funding high school education poses a real challenge to both the household and the state, as secondary schools in Africa are funded by almost 15-20% of state allocations. Despite the costs of secondary school being funded by extended families, the burden still remains a tall order. In spite of costs of primary and university education being subsidized in Kenya, households still have to shoulder a considerable burden of educating their children to the tune of 60% of the entire education costs (UIS, 2005). This cost is hence a massive hindrance for children from deprived backgrounds who are also the majority in Sub-Saharan African to get admission into secondary schools after completing primary education. From empirical literature, the age group composition of a family also determines a child's access to secondary school as this decline with the reduction in the number within the same age set. The study used parents' level of education, pupil/students' parental status and principal awareness level concerning the bursary funding as variables of the study. The study found out that awareness of bursary funding facilitates transition rates from primary to secondary schools

in Kenya. The study adopted descriptive survey design and structured questionnaires both open-ended and closed-ended to collect the data from schools' principals and students.

Suryadarma et al, (2006), investigated the causes of minimum secondary school enrolment in Indonesia. This is despite the close universal primary school attendance. The study found that attrition during the changeover from elementary and children's secondary education level is a significant problem limiting the direct transition. The author investigated the causes of attrition by means of a longitudinal domestic survey dataset. He found that firstly, household welfare level is a significant cause of the low school admissions. Through a survey, the study established factors that lead to low secondary school admissions. The variables the study used include paternal academic level, consumption expenditure levels, the gender of the child and their own innate capabilities. The study found that paternal academic level has a major influence on transition rate from primary to secondary school. Similar findings were found by Connelly et al (2003) in an effort to evaluate school enrollment and completion for an age set between 10 and 18 years reached similar conclusions. The study adopted descriptive research design where both qualitative and quantitative data were collected and analyzed using SPSS.

Werunga, et al (2011) established that on average, only 40% of pupils in Taita Taveta district fail to successfully move from primary to secondary school, with girls composing a considerable percentage of this fraction. Child marriage in girls, poverty and the proximity of the learning institutions were established to be the main contributing factors to these low school enrollment levels. The lack of proper jobs by parents and high costs of education were found to be the main reasons as to why there are low enrollment and transition levels in Rangwe Division of Homabay District in Kenya in a study by Ogolla (2013)

### **2.3 Overview of Literature**

Studies reviewed clearly show that the transition rate from primary to secondary schools in Kenya is affected by various factors. These factors range from adequate financing, parents' education level, awareness level of both parents and students, gender disparity and schools' accommodation level. The results from these studies found that financing level and awareness level are the major determinants of transition rate from primary to secondary education. Most studies reviewed adopted descriptive research design where both qualitative and quantitative data were collected and analyzed using SPSS. The studies also used both primary and secondary data. Times series data were collected from both primary and secondary schools to help supplement the primary data.

Virtually all the empirical studies that were reviewed had a common set of variables that determined the transition rate from primary school education to secondary school education. These variables included adequate financing, gender issue, levels of education of parents and school facilities, generally poverty related factors. As much as these factors cannot be ignored in determining transition rates, the model ought to be expanded to include other none-poverty or non-income related variables so that the influence of such factors is not ignored. This study included other non-income factors such as the influence of HIV in determining the transition from primary education to secondary education.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter presents the methodological approach utilized in establishing the determinants of transition rates on primary and secondary school education in Kenya. The first part of the chapter presents the theoretical framework of the study. The second bit presents the empirical model while the third section focuses on the diagnostic tests to be conducted. The last section presents the data, data types and data sources.

#### **3.3 Theoretical Framework**

The study was theoretically underpinned in the Education Production Theory originally developed by James S. Coleman (1966). The Education Production Function is an application of the economic concept of a production function to the field of education. It relates various inputs affecting a student's learning (school's facilities, social factors and economic factors) to measured outputs including attendance rates, completion rates and performance. Mathematically, this argument was stated as follows:

$$Y_i = f(X_i) \dots\dots\dots (3.1)$$

Where,

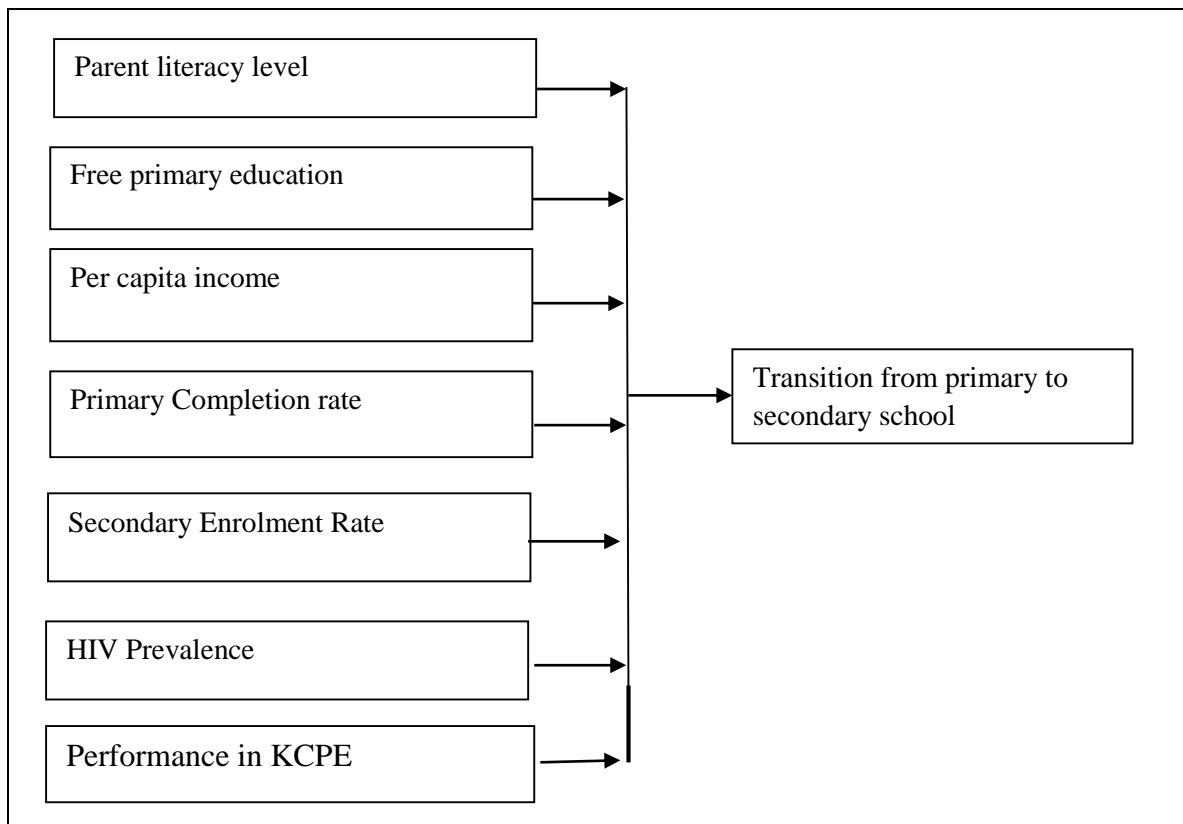
$Y_i$  = represents all positive outputs of education such as pupils' transition rate from primary school to secondary school, etc.

$X_i$  = represents the factors that this study identified to influence the transition rates.

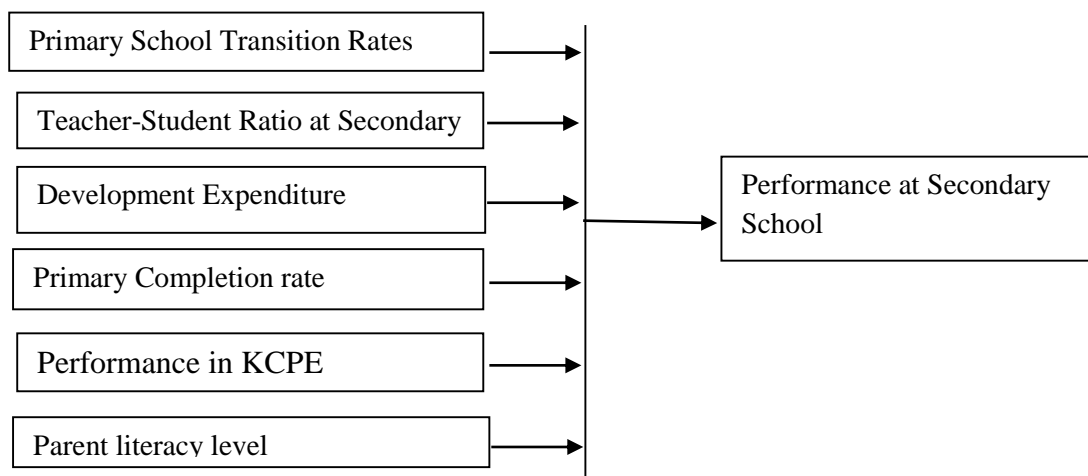
The effects of  $X_i$  on  $Y_i$  was estimated using the VAR estimation technique.

### 3.4 Conceptual Framework of the Study

**Figure 3.1: Conceptual Framework**



**Figure 3.2: Conceptual Framework**



### 3. 5 Estimation Techniques.

Following Maduka et al., (2017), Meraj, M. (2013) & Owusu & Odhiambo (2014), this study will investigate the stated model empirically using the Autoregressive Distributed Lag (ARDL) technique. This is informed by the fact that ARDL estimates both long-run and short-run time series parameters more efficiently as opposed to the OLS estimation technique. In Addition to that, this technique is preferable when dealing with variables with different integration orders, i.e., I (0) and I (1). Researchers such as (Ghatak & Kargbo, 2012; Mall, 2013; Pattichis, 1999) agree that the ARDL approach yields robust results, irrespective of sample size. The specific equations to be estimated are as follows;

$$TranR = f(PCI, PCompR, HIVp, FPE, SecEnrIR, ParL, PerfK) \dots \dots \dots 3.1$$

Where;

- TranR*: Transition Rate
- PCI*: Per Capita Income
- PCompR*: Primary Completion Rate
- HIVp*: HIV Prevalence rate
- FPE*: Dummy variable to capture the effect of FPE (0= when there is no FPE and 1= when there is FPE)
- SecEnrIR*: Secondary School Enrolment Rate
- ParL*: Parents’ Literacy rates (adult rates)
- Perf K* Performance in KCPE
- $\varepsilon$  : Is the error term

Equation 3.1 transformed into a logarithmic form of the equation as shown in equation 3.2 below

$$\ln TranR = \beta_0 + \beta_1 \ln PCI + \beta_2 \ln PCompR + \beta_3 \ln HIV_P + \beta_4 \ln FPE + \beta_5 \ln ParL + \beta_6 \ln PerfK + \beta_2 \ln SecEnrIR + \varepsilon \dots \dots \dots 3.2$$

$$SSP = \beta_0 + \beta_1 \ln TSR + \beta_2 \ln Dev-exp + \beta_3 \ln CompR + \beta_4 \ln ParL + \beta_5 \ln FPE + \beta_6 \ln PerfK + e \dots \dots \dots 3.3$$



Where,

SSP = Secondary School Performance for each year of study.

TSR = Teacher-Student Ratio at Secondary School.

Dev-exp = Development Expenditure.

### 3.6 Definition and Measurement of Variables

**Table 1: Definition and Measurement of Variables**

Variable name	Variable proxy	Description	Expected sign	Source
<b>Transition Rates from Primary to Secondary School.</b>	TransR	Measured as a percentage of pupils who completed primary school and went to secondary school	-/+	KNEC Statistical abstract
<b>Primary Completion Rate</b>	PCompR	The proportion of the total number of students who successfully completed KCPE	-/+	KNEC Statistical abstract
<b>HIV Prevalence Rate</b>	HIVp	Percentage of people with HIV from recorded data	-	World Bank World Development Indicators
<b>The ratio of Primary to Secondary Schools</b>	Rprsec:	The number of primary schools divided by the number of secondary schools	-/+	KNEC Statistical abstract
<b>Primary School Teachers' Pupil Ratio</b>	PTPrat:	The number of students per teacher at primary school.	+	KNEC Statistical abstract
<b>Per-capita income</b>	PCI	Total national income divided by the total population	+	World Bank World Development Indicators
<b>Primary School Performance</b>	PSP	Measured by the national mean score at KCPE.	(+ OR -)	KNEC Statistical abstract
<b>Secondary School Performance</b>	SSP	Measured by the national mean score at KCSE.	Dependent	KNEC Statistical abstract

<b>Teacher Student Ratio at Secondary School.</b>	TSR	The number of students per teacher at secondary school.	-	KNEC Statistical abstract
<b>Development Expenditure</b>	Dev-exp	This was measured by the amount of development expenditure to secondary schools.	+	World Bank World Development Indicators

### **3.7. Time Series Properties**

#### **3.7.1. Unit root and stationarity test**

Most macroeconomic datasets are non-stationary. They tend to showcase a stochastic or deterministic trend. Unpredictable results in time series analysis can be as a result of unit-roots. Therefore, Stationarity (unit root) test is recommended in examining the Stationarity for each time series before the Cointegration test. The unit root test was used to test for the stationarity or non-stationarity of the variables used in the study (Nelson and Plosser, 1982). A stationary variable has a constant mean and variance over time. The test was carried out to ensure that spurious results are not obtained which is so common with stationary variables. The study used Augmented Dickey-Fuller (1979, 1981). ADF was used because it is more powerful than the Dickey-Fuller tests and can handle more complex models.

#### **3.7.2. Co-integration test**

To test whether the considered variables had a long-run relationship between them. A cointegration test was carried out using the Johansen Cointegration. This was preferred because it can be used to check for the existence of a long haul connection between variables that are differentiated of different orders. Therefore, it makes it most suitable to capture the long-run relationship between time series variables in a stationary model.

### **3.7.3 Diagnostics Tests for Normality and Serial Correlation**

In order to make sure that all coefficient estimates were consistent, this study conducted the necessary diagnostic tests. Breusch-Pagan test was carried out to test for heteroscedasticity while Goldfeld-Quandt was employed to test for multicollinearity. Durbin Watson test was used to check for serial autocorrelation as well as the construction of a correlation matrix. Moreover, the Jarque-Bera test was used to test for the normality of the error term.

### **3.8 Data Collection Procedure**

Secondary time-series data spanning 1980-2018 from Kenya National Examinations Council (KNEC) and World Bank were used to collect data for parent literacy level, HIV prevalence rate, transition rate, per capita income, student-teacher ratio, pupil-teacher ratio, and primary completion rate.

### **3.9 Data Processing and Analysis**

Augmented Dickey-Fuller (ADF) test was employed to test for stationarity. Nonstationary variables were either differentiated ones or twice in order to attain stationarity. ARDL-Bounds test was adopted to check for a long haul relationship between the variables. To fulfill the first and second research objectives, this study conducted a regression analysis to analyze the effect of transition rate from primary to secondary schools and performance at secondary level in Kenya

## CHAPTER FOUR

### MODEL ESTIMATION, EMPIRICAL FINDINGS AND DISCUSSION.

#### 4.1 Introduction

This chapter presents a comprehensive analysis of the empirical results and the interpretation of the time series data adopted. It commences with descriptive statistics that give a summary of the variables, diagnostic tests which are then followed by the results of the model.

#### 4.2 Descriptive Statistics

A symmetric distribution is one where the left and right hand sides of the distribution are roughly equally balanced around the mean. Skewness indicates how symmetrical the data is if it looks the same both to the left and to the right from the center. Symmetric values are skewed towards the zero value. Positive values showcase that the data is skewed towards the right while negative values showcase the data is skewed towards the left. Kurtosis measures whether the data is heavy or light-tailed in comparison to a normal distribution curve. A normal distribution standard kurtosis is between zero and three. Data with very high kurtosis tend to have outliers or heavy tails. Those with low kurtosis or lack of outliers or tends to have light tails. Table 2 indicates that HIV prevalence, teacher-pupils ratio and parent literacy level were negatively skewed indicating that the tail of the distribution is longer on the left hand side than on the right hand side. The ratio was positively skewed indicating that the tail of the distribution is longer on the right hand side than on the left hand side. Kurtosis is a measure of the combined weight of the tails relative to the rest of the distribution. The kurtosis decreases as the tails become lighter and increases as the tails become heavier. HIV prevalence, teacher-pupils ratio, parent literacy level, transition rate, per capita income, primary completion rate, primary to secondary school ratio, free primary education, and teacher-student had a kurtosis between 2 to 3 meaning

they have lighter tails than in a normal distribution. KCSE performance had a kurtosis of 33.7 meaning that it has heavier tails than a normal distribution

**Table 2: Descriptive Statistics Analysis**

	KCSE1	LN_PCI1	LNDEV_EXP1	LNHIVP1	LNKCPE1	LNP CR1	LNPTPRAT1	LNS_TRA TIO1	LNSECE NROL1	PAR_LITE RACYRAT E1	TRANR1	TRANTN_ RATE1
Mean	8.433333	7.793553	9.688084	2.133984	5.625668	4.299915	3.712298	7.645965	13.56246	0.506556	21.66398	44.73056
Median	6.300000	8.180375	8.042373	2.109754	5.580522	4.310777	3.736478	7.609215	13.39279	0.532000	18.67475	42.00000
Maximum	81.00000	11.42506	15.80674	2.631889	5.931024	4.510640	4.036009	8.074932	14.75512	0.548000	54.41657	83.20000
Minimum	5.100000	4.604970	7.029973	1.648659	5.472145	4.110874	3.332205	7.107979	12.16065	0.447000	7.067774	20.00000
Std. Dev.	12.46971	2.719299	2.771940	0.314065	0.132778	0.108287	0.184940	0.268193	0.583407	0.041140	10.07717	18.11198
Skewness	5.703881	0.110874	0.854571	-0.023939	1.123648	0.093584	-0.464839	0.234017	0.274996	-0.374889	1.008766	0.753929
Kurtosis	33.70614	1.197430	2.134997	1.778551	2.961014	2.091980	2.468090	1.931609	2.866118	1.310445	4.170299	2.600785
Jarque-Bera	1609.506	4.947646	5.504098	2.241346	7.577787	1.289299	1.720846	2.040772	0.480622	5.125144	8.160057	3.649508
Probability	0.000000	0.084262	0.063797	0.326060	0.022621	0.524847	0.422983	0.360456	0.786383	0.077106	0.016907	0.161257
Sum	303.6000	280.5679	348.7710	76.82341	202.5240	154.7969	133.6427	275.2548	488.2486	18.23600	779.9034	1610.300
Sum Sq. Dev.	5442.280	258.8105	268.9278	3.452292	0.617046	0.410414	1.197100	2.517458	11.91273	0.059239	3554.226	11481.54
Observations	36	36	36	36	36	36	36	36	36	36	36	36

### 4.3 Times Series Properties Test Results

#### 4.3.1 Unit root test

The study employed Augmented Dickey-Fuller (ADF) to test for the stationarity of all the variables. The test was done both at the level and first difference at intercept and at trend and intercept to determine the order of integration. The results were presented in table 3 below;

**Table 3: Stationarity Test Results**

Variable	Form of Test	t-Statistics	P-Value	Remarks
FPE (1st difference)	Intercept	-5.8309	0.0000	Stationary
	Trend and Intercept	-5.777	0.0002	Stationary
Secondary school performance (1st difference)	Intercept	-9.8006	0.0000	Stationary
	Trend and Intercept	-9.6803	0.0000	Stationary
PCI (1st difference)	Intercept	-6.2366	0.0000	Stationary
	Trend and Intercept	-6.1638	0.0001	Stationary
dev-exp (1st difference)	Intercept	-5.8309	0.0000	Stationary
	Trend and Intercept	-6.4683	0.0000	Stationary
HIVP (1st difference)	Intercept	-7.4266	0.0000	Stationary
	Trend and Intercept	-7.3269	0.0000	Stationary
Primary school performance (1st difference)	Intercept	-7.4240	0.0000	Stationary
	Trend and Intercept	-7.5358	0.0000	Stationary
PCR (1st difference)	Intercept	-7.7207	0.0000	Stationary
	Trend and Intercept	-7.7970	0.0000	Stationary
PTPRAT(Level)	Intercept	-4.8505	0.00004	Stationary
	Trend and Intercept	-4.8033	0.0024	Stationary
S/T ratio (1st difference)	Intercept	-9.5645	0.0000	Stationary
	Trend and Intercept	-9.5222	0.0000	Stationary
ParLrat(level)	Intercept	-5.5498	0.0001	Stationary
	Trend and Intercept	-5.7393	0.0002	Stationary
TransR (1st difference)	Intercept	-3.9519	0.0044	Stationary
	Trend and Intercept	-5.0582	0.0012	Stationary
TrantRat (1st difference)	Intercept	-3.7349	0.0007	Stationary
	Trend and Intercept	-3.7200	0.0008	Stationary

**Source: Author Computation**

### 4.3.2 Johansen Cointegration Test

Trend: Constant	Johansen Test for Cointegration.				No of Observations =35
Sample 1980- 2015					Lags=2
Maximum Rank	Parms	LL	Eigen Value	Trace Statistic.	5% Critical Value.
0	30	-155.24952		75.4693	68.52
1	39	-134.42671	0.87307	33.8237*	47.21
2	46	-125.46834	0.73045	15.9070	29.68
3	51	-120.87841	0.50038	6.7271	15.41
4	54	-117.75678	0.36544	0.4838	3.76
5	55	-117.51486	0.30544		

At zero rank  $H_0$ : There's no cointegration vector.

$H_1$ : There's at least 1 cointegrating vector.

Decision: We compare the trace statistic and critical values. If the trace statistic > critical values we reject  $H_0$ . In the case for rank 0, trace statistic 75.4693 > than critical value 68.52 hence we conclude that there's at there's at least 1 cointegrating vector

At Rank 1:  $H_0$ : There's 1 cointegration vector.

$H_1$ : There's more than 1 cointegrating vector.

Decision: Trace statistic 33.8237\* < critical value 47.21 hence we fail to reject  $H_0$  and conclude that there is only 1 cointegrating vector.

## 4.4 Diagnostic Tests

### 4.4.1 Test for Multicollinearity

A correlation matrix was constructed to show the correlation coefficients between explanatory variables. The study found out that all correlation matrix coefficients were less than 0.8 in absolute terms hence the variables had no serial correlation among them, therefore, they were



used to achieve the two objectives of the study as the variables did not show any form of singular matrix problem Boy (2006). The correlation matrix results are shown in Table Below

	FPE1	LN_PCI1	LNHIVP1	LKNCPE1	LNPCR1	LNPTPRA T1	PAR_LITER ACYRATE1	LNSECENRO L1
FPE1	1.000000							
LN_PCI1	0.443886	1.000000						
LNHIVP1	-0.231992	-0.663890	1.000000					
LKNCPE1	-0.399398	-0.495662	0.407051	1.000000				
LNPCR1	0.084525	0.509181	-0.494745	-0.129271	1.000000			
LNPTPRAT1	0.222168	0.006736	-0.328528	-0.038503	0.172225	1.000000		
PAR_LITERAC YRATE1	0.209253	0.349054	-0.073616	0.028142	0.116981	-0.145681	1.000000	
LNSECENROL OL1	0.526451	0.153977	-0.381580	-0.549589	0.378396	0.053879	0.299758	1.000000

#### 4.4.2 Serial Correlation Langrage Multiplier (LM) Test

Breusch-Godfrey Serial Correlation LM test was conducted to check for serial correlation with the assumption that errors are serially independent. The study found out that at 5 per cent significance level the p-value was greater than 0.05, therefore, the model was suitable for the analysis. The results are shown in tables 4.3 and 4.4 below

**Table 4: Breusch-Godfrey Serial Correlation LM Test Results for Transition Rate**

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	0.026587	Prob. F(2,28)	0.9738
Obs*R-squared	0.076408	Prob. Chi-Square(2)	0.9625

**Source: Author's Computations from research data**

**Table 5: Breusch-Godfrey Serial Correlation LM results for Secondary school performance**

Breusch-Godfrey Serial Correlation LM Test-2			
F-statistic	1.016539	Prob. F(2,28)	0.3748
Obs*R-squared	2.437007	Prob. Chi-Square(2)	0.2957

**Source: Author's Computations from research data**

The results in table 4 and 5 above, both show that there was no presence of autocorrelation as the probability of F-statistics were both greater than 0.05 at 5 per cent level of significance thus the study concluded that there was no serial correlation among the variables.

#### 4.4.4 Stability Test

Ramsey RESET test was carried out to check for linear specification against the non-linear specification. The study held a correct specification is linear since the value for F-statistics was greater than 0.05 at 5 per cent level of significant as shown in tables 6 and 7 below

**Table 6: Ramsey RESET Test (Equation 3.2)**

	Value	Df	Probability
F-statistic	11.16056	(1, 26)	0.0625
Likelihood ratio	12.85745	1	0.0576

**Source: Author's Computations from research data**

**Table 7: Ramsey RESET Test (Equation 3.3)**

	Value	Df	Probability
F-statistic	5.865447	(1, 29)	0.0719
Likelihood ratio	6.631217	1	0.0570

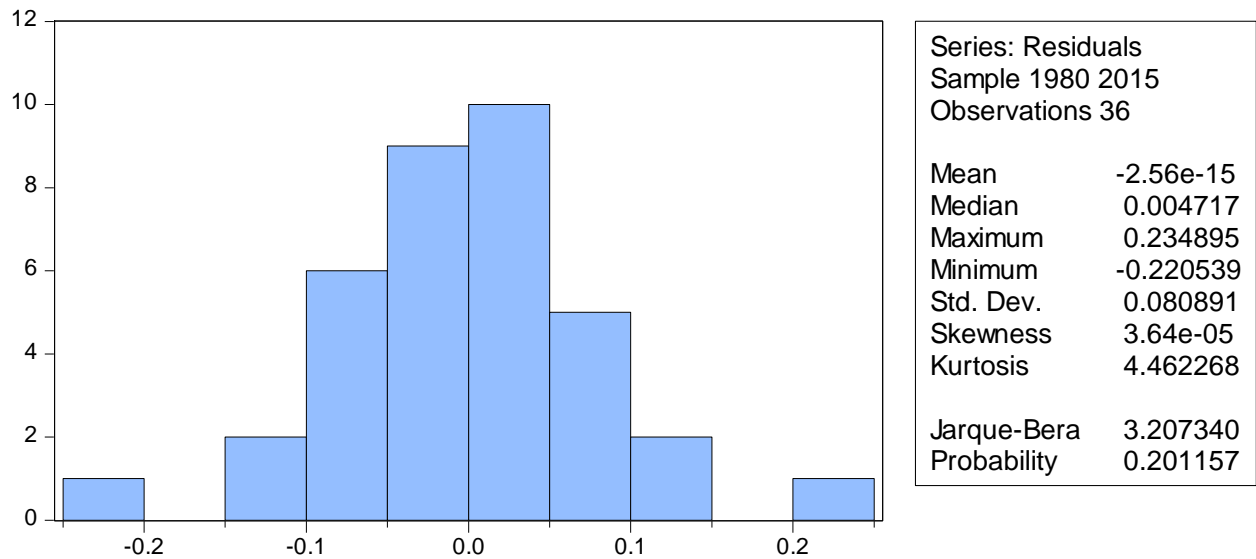
**Source: Author Computation**

Table 6 and 7 show that the F-statistics were 0.0625 and 0.0719 for both transition rate and secondary school performance respectively which were greater than 0.05 at 5 per cent significance level hence the study concluded that the model was well specified and stable.

#### 4.4.5 Normality Test

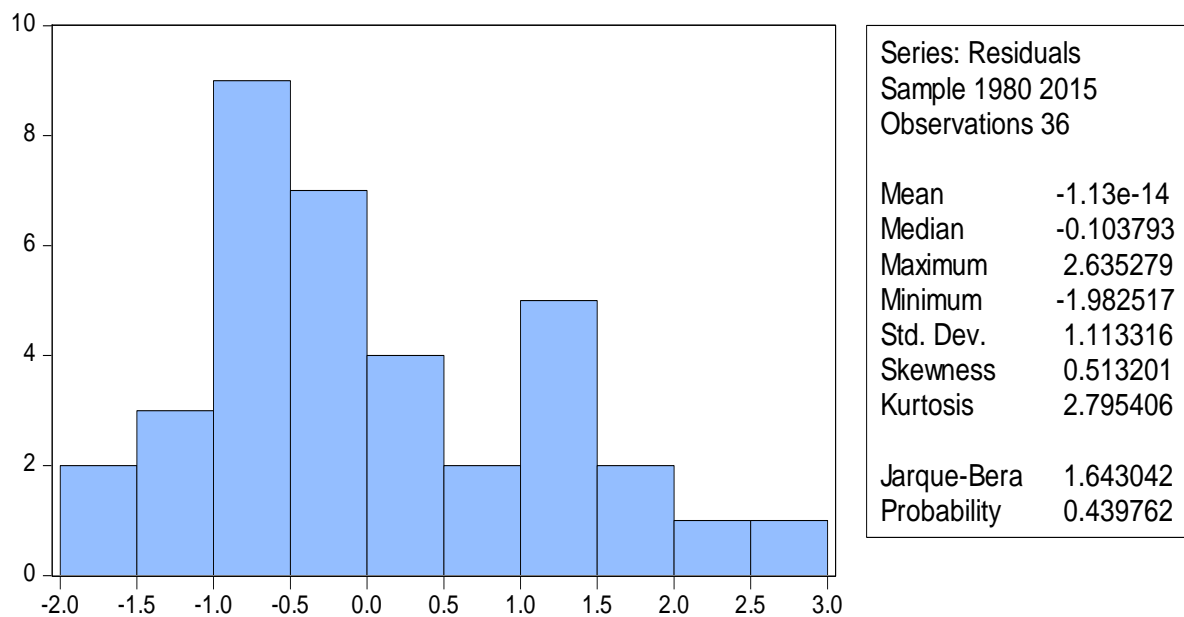
To ensure that the residual values in the model were normally distributed, the study carried out a normality test. The histogram-normality test was carried out and the results are shown in figure 8 and 9 below

**Table 8: Histogram-Normality Test for Transition Rate**



Source: Author Computation

**Figure 9: Histogram-Normality Test for Secondary School Performance**



Source: Author Computation

Both the probability of Jarque-Bera statistics in Figures 8 and 9 were 0.201157 and 0.439762 respectively and greater than 0.05 at 5 per cent significance level. This implied that the residuals were normally distributed for both transition rate and secondary school performance (KCSE) thus the assumption of normality of the residuals was not rejected at 5 per cent level of significance.

#### 4.5 Empirical Results

**Figure 10: Results on Determinants of Transition Rate from Primary School to Secondary Schools in Kenya**

Dependent: Transition Rate				
Method: Least Square				
Sample: 1980-2015				
Included Observation: 36				
Variable	Coefficient	Std. Error	t-Statistics	Probability
C	-2.022375	2.020271	-1.00101	0.0325
Free Primary Education	0.023234	0.101944	0.22791	0.8214
HIV prevalence	0.19267	0.106622	1.80702	0.0819
Primary Performance	0.448862	0.149671	2.99899	0.0058
Primary Completion Rate	0.047885	0.097113	0.49309	0.6259
Parent Literacy Level	0.533292	0.439217	1.21418	0.0259
Per Capita Income	0.563207	0.05953	7.3964	0.0476
R-Squared	0.868824	Mean dependent var	3.723537	
Adjusted R-Squared	0.846623	S.D dependent var		0.398637
S.E of regression	0.092099	Akaike info criterion		-1.719593
Sum square residual	0.229019	Schwarz criterion		-1.323713
Log Likelihood	39.95267	Hannan-Quinn Criterion		-1.58142
F-Statistics	78.58965	Durbin-Watson Statistics		1.978193
Prob (F-statistics)	0.0000			

**Source: Author (2019)**

The results show that the value of the adjusted R-squared was 0.8466. This implies that 84.66 per cent of the changes in transition rate from primary to secondary schools in Kenya are explained by the changes in the independent variables listed in table 10 above while the remaining 15.34 per cent are explained by other variables that were beyond the scope of the study. The probability of the F-statistics was found to be statistically significance at 5 per cent level of significance implying the fitness of the model in estimating the determinants of transition from primary school to secondary schools in Kenya. The intercept (constant value) was also found to be statistically significant at 5 per cent significance level implying that without the explanatory variables the study considered the transition rate decreases by 2.022. The value of Durbin-Watson of 1.978 showed non-serial autocorrelation among the variables that the study considered for the analysis.

#### **4.5.1 Determinants of Transition Rates from Primary to Secondary Schools in Kenya**

The coefficient of annual primary performance 0.4488 was found to be statistically significant at 5 per cent level of significance and was positively related to transition from primary to secondary schools. This means that one-unit increase in primary performance results to an increase in transition of 0.45 implying that as primary performance increases transition from primary to secondary schools increases but at a decreasing rate. The findings are in agreement with the theory of education production function and with the findings of Caillods (2001).

The results also showed that parent literacy level with a coefficient of 0.5333 was found to be statistically significance at 5 per cent level of significance and positively related to transition from primary to secondary schools in Kenya. The findings resonate with those of Otieno (2007) who found out that a learned parent always send their children to secondary school to acquire knowledge unlike unlearned parent or semi-literate parent. Also according to (Connelly et al.,

2003) parents in the modern world would wish that their children get blue and white collar jobs that pay better hence the reason for sending them to school.

Transition rate was also found to be affected by the per capita income of the parents or guardians with a coefficient (0.563207) is positive and statistically significance at 5 per cent significance level implying that parents or guardians with a robust financial base would wish to send their children to secondary schools regardless of the performance at primary level of education, the findings resonate with those of Surya *et. Al.*, (2006), who found out that students transit from primary to secondary levels of education provided that there is enough finance to cater to the fees and other necessities regardless of the performance that warrants such transition.

Another factor that determines transition from primary to secondary schools in Kenya that the study found is secondary school enrolment which was found to statistically significant at 5 per cent significance level with a positive coefficient of 0.6178 indicating that as enrolment in secondary schools increases so does the transition from primary to secondary schools. The findings resonate with those of Llyod *et. Al.*, (1996), and Ainsworth *et. Al.*, (2006), this implies that as the capability and capacity of secondary schools to accommodate more and more students, transition rate is also expected to increase as more student will be registered in secondary schools. This can also be explained in the sense that secondary school have a spacious environment to expand in terms of infrastructure development in terms of classrooms and dormitories.

#### 4.5.2 Effect of Transition Rate from Primary Schools on Secondary Education in Kenya

**Table 9: Effect of Primary School Transition Rates on Secondary Education**

Dependent: Secondary School Performance				
Method: Least Square				
Sample: 1980-2015				
Included Observation: 36				
Variable	Coefficient	Std. Error	t-Statistics	P>   t
C	-43.86432	18.08893	-2.424926	0.0212
Free Primary Education	1.87307	0.968706	1.9344237	0.0332
Primary Performance	2.446769	2.048911	1.19418	0.0122
Primary Completion Rate	2.071176	2.635662	0.785828	0.0286
Parent Literacy Level	-4.804946	4.509401	-1.06554	0.0157
Transition Rate	-3.499244	0.950489	-3.681518	0.0421
Student-teacher ratio	2.573003	0.969479	2.654007	0.0013
R-Squared	0.81596	Mean dependent variance		9.688084
Adjusted R-Squared	0.79994	S.D dependent variance		2.77194
S.E of regression	0.999593	Akaike info criterion		3.030192
Sum square residual	27.97719	Schwarz criterion		3.382085
Log Likelihood	-46.54346	Hannan-Quinn Criterion		3.153012
F-Statistics	34.44958	Durbin-Watson Statistics		2.139278
Prob (F-statistics)	0.0000			

**Source: Author's Computations from research data**

The results show that the value of the adjusted R-squared was 0.8160 implying that 81.60 per cent of the changes in secondary performance is explained by the change in variables that the study considered while the remaining 19.4 per cent of the change is taken care of by the error term. The p-value of the F statistics is 0.0000 is statistically significant implying that there was different among the independent variables hence each variable influence secondary school performance independently and Durbin Watson is 2.139 showing that there was non-serial correlation among the variables (Werunga, *et. Al.*, 2011).

The coefficient of primary school performance of 2.4467 is positive with a probability of 0.0122 is statistically significance at 5 percent level of significance implying that 1 per cent change in primary school performance results to 2.4467 per cent change in secondary

education, the findings were in agreement with the findings of Caillods (2001), it could be explained by the fact that students who perform well in primary schools get admission to national and county schools which also perform extremely well.

On the other hand, the study found out that primary school transition rate is also a factor that affects secondary school performance with a coefficient of -3.499 and statistically significance at the 5 per cent level of significance implying that as the rate of transition increases secondary school performance decreases. It is as a result of promoting students so long as there was space to the next level of education hence affecting the performance negatively Babalola (2003) and Hardjorio (2004), that found out that as long as there were finances and opportunities students would join secondary schools regardless of the performance at primary level.

The student-teacher ratio is also a factor found to affect secondary school performance with a coefficient (2.573) is positive and statistically significance at the 5 per cent level of significance. This implies that secondary school performance would increase by 2.573 as a result of 1 per cent change in student-teacher ratio, the finding is in agreement with the findings by Tooley (2006), that found out as the ratio of student-teacher decreases, teacher have enough time to devolved to a student and the student pays much attention as compared when the ratio is high.



## CHAPTER FIVE

### SUMMARY, CONCLUSION AND POLICY IMPLICATION

#### 5.1 Introduction

The chapter presents a summary and conclusion of the study findings as well as the policy implications and areas for further research

#### 5.2 Summary of the study

Despite the tremendous improvement in transition rate from primary to secondary schools in Kenya due to various factors such as allocation of development expenditure to secondary schools, free primary education, subsidized secondary education, the government policy of direct transition, curriculum development and lowering of entry grade to the Universities. Education system progress in the country has continued to be quite impressive as the country moves towards education for all as enshrined in the sustainable development goals 2015. The study sought to investigate the determinants of transition rate from primary to secondary education in Kenya as the first objective and to determine the effect of transition rate from primary school on secondary education in Kenya as the second objective. Secondary time series data for the period 1980 - 2015 was used to analyze the study from economic survey, statistical abstract and Kenya National Examination Council (KNEC). Ordinary Least Square (OLS) method was used to estimate parameters in the linear equation for both the first and second objectives.

The study results indicate that free primary education, HIV prevalence and primary completion rate does not determine transition rate from primary to secondary school in Kenya. However, primary performance, parent literacy level, secondary school enrolment and parent per capita income determine transition rate. In regard to second objective, the study found out that

primary performance, transition rate and student-teacher ratio affect secondary school performance while parent literacy level, free primary education and primary completion rate were found to be insignificant in influencing secondary school performance.

### **5.3 Conclusions of the study**

The study objectives were to investigate the determinants of transition rate from primary to secondary schools in Kenya and also to determine the effect of transition rate from primary schools on secondary school education in Kenya. The study therefore concludes that the primary completion rate does not significantly contribute to the increase in transition rate from primary to secondary education similarly to the improvement of secondary school education performance in Kenya.

### **5.4 Policy Implications**

The government through the Ministry of Education should re-engineer efforts in the following issues:

- i. Secondary school enrolment rates.
- ii. The income per capita in the country.
- iii. Performance at the primary school level.
- iv. Parents' literacy rates.
- v. Transition rates from primary school to secondary school.
- vi. Student-teacher ratios.

### **5.5 Areas for further study**

There is room for further studies in the area of transition from primary to secondary school aimed at unique issues in different parts of the country. Other interventions include school feeding programs implemented in various locations within the country, a study needs to be done to analyze the impacts of these programs on education standards in Kenya.

## REFERENCES

- Acheampong (2002). Factors that impede females from attaining high level education: A case study of females in schools and dropouts in Mataneko University of Ghana, Legon.
- Adesina, S (1980). *The Wastage Factor in Primary Education: a Case Study of Lagos State Primary School Leavers*, W Afr. J. Educ., XXI (1):
- Ainsworth, M. and Filmer, D. (2002) Poverty, AIDS and Children's Schooling: A Targeting Dilemma. *Policy Research Working Paper 2885. World Bank, Washington DC.*
- Ali, C. (2007). Wastage in primary school education and their implication for curriculum development in the Central Division of Marsabit District – Kenya. Unpublished m. phil. Thesis, university of Bristol
- Avoseh O (1975). *Constraints on Efficient Schooling in Sub-Saharan Africa*. Afr. J. Educ. Res., 2(1): 23-34.
- Babalola, J.B. (2003) *Budget Preparation and Expenditure Control in Education*. In Babalola J.B. (ed) Basic Text in Educational Planning. Ibadan Awemark Industrial Printers.
- Bauer, A., F. Brust, and J. Hubbert (2002) Expanding Private Education in Kenya: Mary Okelo and Makini Schools, *Chazen Web Journal of International Business*, Fall.
- Becker, G. (1991) *A Treatise on the Family*. Enlarged edition.
- Bedi, A. S., Kimalu, P. K., Mandab, D. K., & Nafula, N. (2004). The decline in primary school enrolment in Kenya. *Journal of African Economies*, 13(1), 1-43.
- Bicego, G., S. Rutstein, and K. Johnson (2003) Dimensions of the Emerging Orphan Crisis in Sub-Saharan Africa. *Social Science and Medicine* 56 (6): 1235-1247.
- Bowman, M.J. and Anderson, C.A. (1982). The Participation of Women in Education in Third World; *Women's Education in the Third World: Comparative Perspectives*. Ny: State University of New York.
- Boy J. (2006). *Free Primary Education and its Effects on Student Performance in Bungoma District*. An Unpublished Research Thesis, Moi University.
- Bronchi, C. (2003); the Effectiveness of Public Expenditure in Portugal; *Economics Department Working Paper 349; OECD*.
- Calcott D (1967). *Interim Report on Education in Rural Area of Western Nigeria*. Ibadan: International Labour Office Mission, Ministry of Economic Planning and Social Development.
- Case, A., C. Paxson, and J. Ableidinger (2004) Orphans in Africa: Parental death, Poverty, and School Enrollment. *Demography* 41 (3): 483-508.
- Chege F. N. and Sifuna D. N. (2006). Girls and women's education in Kenya: gender perspectives and Trends: Nairobi.

- Connelly, R. & Zheng, Z., (2003) Determinants of School Enrollment and Completion of 10 to 18 year olds in China. *Economics of Education Review* 22 (4), 379-388.
- Cuaresma, J. C., Lutz, W., & Sanderson, W. (2014). Is the demographic dividend an education dividend? *Demography*, 51(1), 299-315.
- Cynthia B and Lloyd, et. al. (2001) Determinants of Educational Attainment Among Adolescents in Egypt: Does School Quality Make a Difference? *Population Policy Research Division Working Papers. No. 150*. Population Council, New York.
- Deininger, K. (2003). Does Cost of Schooling Affect Enrollment by the Poor? Universal Primary Education in Uganda. *Economics of Education Review* 22 (3), 291-305.
- Dre`ze, J. and Kingdon, G. (2001) *School Participation in Rural India*. Review of Development Economics, 5(1), 1-24.
- Duze CO (2005). *The Production Theory in Education*. The Nig. Academic Forum: A Multi-Disciplinary J., 8(2): 11-16.
- Education Info Center, 2006. *Kenya High Commission*, Ottawa Canada.
- Elkogali, S. and Suliman, E (2001) *Poverty, Human Capital and Gender: A comparative Study of Yemen and Egypt*. ERF Working Paper (forthcoming).
- Evans, D and Edward M (2005) *Orphans and Schooling in Africa: A Longitudinal Analysis*.
- Evans, D., M. Kremer, and M. Ngatia (2008) *The Impact of Distributing School Uniforms on Children's Education in Kenya*, Harvard University Mimeo.
- Fagerlind, A. and Saha, L.J. (1997) *Education and National Developments*. New Delhi. Reed Educational and Professional Publishing Ltd.
- Famurewa, I. O. (2014). Inadequate funding as the bane of tertiary education in Nigeria. *Greener Journal of Economics and Accountancy*, 3(2), 20-25.
- Fanuel, P. (2010). *The benefits of Education*. London: Oxford University Press.
- Federman, M and David I. L (2003) *Does Industrialization = "Development? the Effects of Industrialization on School Enrollment and Youth Employment in Indonesia.*' CIDER Working Paper No. C03-132. Berkeley CA: University of California
- Fergany, N. (2000) *Towards High Quality Universal Basic Education for Girls in Egypt*. Almishkat Center for Research, Cairo, Egypt.
- Filmer, D. (1999) *the Structure of Social Disparities in Education: Gender and Wealth*. World Bank, Washington DC.
- Gacheru, J. (2012) *Factors Influencing Transition Rates from Public Primary Schools to Secondary School Level in Murang'a East District, Kenya*. Masters Research Paper. Jomo Kenyatta University of Technology.

- Gaurav, S (2011). Access, Equity and Transitions in Education in Low Income Countries  
*International Journal of Educational Development, Volume 31, Issue 4, Pages 394-401*
- Gertler, P, David I. L, and Minnie A (2003) Schooling and Parental Death.' *CIDER Working Paper No. C03-128*. Berkeley CA: University of California
- Glewwe, P. & Jacoby, H. (1994) Student Achievement and Schooling Choice in Low-Income Countries: Evidence from Ghana. *Journal of Human Resources* 29(3), 843-864.
- Glewwe, P. & Jacoby, H. (1995) An Economic Analysis of Delayed Primary School Enrolment in a Low Income Country: the Role of Early Childhood Nutrition. *Review of Economics and Statistics* 77(1), 156-169.
- Hardjono, J (2004) *The Integration of Poverty Considerations into the Nine-year Basic Education Program in Bali and West Nusa Tenggara*. Unpublished Report for the Asian Development Bank, Manila
- Hueblar, F. (2011). *International Education Statistics*, London, Macmillan Publishers.
- Hunt, F., (2008) *dropping out from School: A Cross Country Review of Literature*. Create Research Monograph 16, University of Sussex, Brighton.
- Jones, G. (2003) Pengamatan Cepat SMERU Tentang Permasalahan Pendidikan Dan Program JPS, Beasiswa, dan DBO di Empat Provinsi' (SMERU Rapid Assessment on Education Problems and Social Safety Net, Scholarship, and Operational Subsidy Programs in Four Provinces). Jakarta: SMERU Research Institute
- Kikechi, W., Musera, G. and Sindabi, O. (2011) *Factors Affecting Transition Rates from Primary to Secondary Schools: A Case Study of Taita Tavetta, Kenya*. Masters Research Paper. Kenyatta University. Nairobi - Kenya
- Kremer, M., Miguel, E., Thornton, R. (2007). *Incentives to learn*. Harvard University.
- Levin A (1971). In Oguntoye OO (1999). *Input Output Analysis in a Nigerian Secondary School System*. J. Stud. Educ., 3(1): 18-25.
- Lunenburg, F,C & Ornstein A, C (1991). *Educational Administration: Concepts and Practices*. California: Wadsworth Publishing Company.
- Martinez P (1997). Student Persistence and Dropout: Implication. *Paper Presented at the America Educational Research Association Annual Conference*, University of Florida.
- Nishimura, M., T. Yamano, and Y. Sasaoka (2008) Impacts of the Universal Primary Education Policy on Educational Attainment and Private Costs in Rural Uganda, *International Journal of Educational Development*, 28, 161.175.
- Ogolla, J. O. (2013) *Factors Influencing Transition Rate of Learners from Primary to Secondary School in Rangwe Division of Homa Bay District, Kenya*. Masters Research Paper. Kenyatta University.

- Oguntoye A, O (1983). *Input Output Analysis in a Nigerian Secondary School System*. J. Stud. Educ., 3(1): 18-25.
- Okereke, V, E (1995). *Differential Attrition Rate for Some Selected Primary Schools in Delta State of Nigeria*. J. Res. Educ., 1(1): 165-170.
- Olaniyan. D.A and Okemakinde. T (2008) Human Capital Theory: Implication for Educational Development, *European Journal of Scientific Research*, Vol.24 No.2 (2008), pp.157-162
- Onsomu N.E., Muthaka D., Ngware M.,Kosimbei G. (2006). *Financing of Secondary Education in Kenya: Costs and Options*. Discussion Paper No. 55, 2006 Kenya Institute of Public Policy Research and Analysis.
- Otieno W. and K'oliech D. (2007) *Factors Affecting Transition to Secondary Education in Africa*, APHRC Policy brief
- Pauli, L & Brimer MA (1971). *Wastage in Education: A World Problem*. New York: UNESCO/IBE.
- Payne J, C (2000). *Student Success Rates in Post-16 Qualifications: Data from the England and Wales Cohort Study*. London: Department of Education and Employment.
- Pitt, Mark M., Mark R. Rosenzweig, and Donna M. Gibbons (1993) The Determinants and Consequences of the Placement of Government Programs in Indonesia.' *The World Bank Economic Review* 7(3), 319-348
- Ravinder. R (1995) *The Performance of Overseas Development Agency (ODA) Assisted Project on Andhra Pradesh Primary Education with Special Reference to Warangal District*, Dissertation submitted for the award of M.Phil. Degree in Economics, Department of Economics, Osmania University, Hyderabad, India.
- Rose, P., 2002. *Cost-sharing in Malawian Primary Schooling: From the Washington to the Post-Washington Consensus*. Unpublished DPhil thesis, University of Sussex, Brighton.
- Sayed, Haneen (1996) 'Investing in Junior Secondary Education in Indonesia: Rationale and Public Costs.' *Indonesia Discussion Paper Series* No. 2. Washington DC: World Bank
- Schultz, T. P., 2004. School Subsidies for the Poor: Evaluating the Mexican PROGRESA Poverty Program. *Journal of Development Economics* 74(1), 199-250.
- Sharma, M. P. 2006. Orphanhood and Schooling Outcomes in Malawi. *American Journal of Agricultural Economics* 88 (5): 1273-1278.
- Sparrow, R., Haneen, S, Saadah, F, Pradhan, M and Lanjouw, P (2001) Poverty, Education, and Health in Indonesia: Who Benefits from Public Spending?' *Policy Research Working Paper* 2739. Washington DC: World Bank
- Suryadarma, D., Suryahadi, A., Sumarto, S., 2006. *Causes of low secondary school enrollment in Indonesia*. SMERU Research Institute, Indonesia.
- Tilak, J. B. G., (1987) *Economics of Inequality in Education*, Sage Publications, New Delhi.

- Too, J .K (2005) *Quality of free primary Education in Kenya, The Educator*, School of Education Moi University, Moi University Press, Eldoret.
- Tooley, J. (2005) *Private Schools for the Poor, Education Next*, 5, 22.32.
- UNESCO (1972). *Studies and Survey in Comparative Education: A Statistical Study of Wastage at School*. UNESCO Office of Statistics/IBE.
- UNESCO (2005): *Education for All Global Monitoring Report: Literacy for Life*. UNESCO, Paris.
- UNESCO, 2008a. *EFA Global Monitoring Report 2008*.
- UNESCO, 2008b. UNESCO Institute for Statistics: UIS Statistics in Brief.
- UNESCO, 2008c. *Kenya Basic Education Indicators*.
- Unicef. (2015). *The investment case for education and equity*. UNICEF.
- United Nations Education Commission for Africa (UNECA) (1994). *Manual for the Integration of Population Factors in Human Resource Development with Particular Reference to Educational Sector Planning*. Population Studies Series. Addis Ababa: UN.
- Van de Walle, Dominique (1992) *The Distribution of the Benefits from Social Services in Indonesia, 1978-87.' Policy Research Working Paper WPS871*. Washington DC: World Bank
- Wax, E. (2003): *Too Many Brains Pack Kenya.s Free Schools: Lack of Teachers, Inadequate Funding Hamper Escorts to Full President's Campaign View*, Washington Post Foreign Service, p. A24.
- Weya, C. (2010). *The unemployment situation in Kenya as a contributor to apathy and antisocial behavior in learners*. Kenya Institute and Research.
- World Bank (1991), *Women in Development: A Progress Report on the World Bank Initiative*. Washington: The World Bank
- World Bank (2004) *Strengthening the Foundation of Education and Training in Kenya: Opportunities and Challenges in Primary and General Secondary Education*, .Report No. 28064-KE.
- Yamano, T., Y. Shimamura, and D. Sserunkuuma. 2006. *Living arrangements and schooling of orphaned children and adolescents in Uganda. Economic Development and Cultural Change* 54 (4): 833-856.
- Yoloye EA (1975). *The Pattern of Dropout in Ibadan Primary Schools*. Afr. J. Educ. Res., 2(1): 1-9.