PUBLIC EXPENDITURE ON EDUCATION IN KENYA: ANALYSIS OF RECENT TRENDS, EDUCATION PROVISION, AND INCOME DISTRIBUTION

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A Dissertation Submitted in Partial
Fulfillment of the Requirements for the Degree of
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ABSTRACT

Title of Dissertation	Public Expenditure on Education in Kenya: Analysis of Recent Trends, Education Provision, and Income Distribution
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The study of public expenditure on education typically revolves and is designed around theories that try to explain why public expenditure keeps on increasing. The basis of these theories is to test and predict the various factors that affect the growth of public expenditure, predominantly for the purpose of providing public policy recommendations that will not only improve service delivery but also that is expected to improve the welfare of the poor household income groups and regions as well. This study used both qualitative and quantitative methods to collect the data from Kenya in order to research the factors that cause the growth of public expenditure on education, and to examine the education provision trends and effects of income distribution on the education sector. Standard multiple linear regression analysis (SMLR) and benefit incidence analysis (BIA) methods were used to analyze the growth of public expenditure and to assess the income distributive effects on public expenditure on education respectively. Four models were tested using SMLR, representing the education sector, and the primary, secondary, and university level.

The results obtained revealed different outcomes than what was expected from the theories and models formulated. Some of the factors tested were positively significant and therefore supported the expected theory predictions and others did not, as explained in Chapter 5. The study found that in the general education sector, five factors tested were positively significant: real GDP per capita, lagged expenditure, an increase in total public expenditure, budget deficit, and secondary teachers'

employment. This means that a number of factors tested in Model-1 were by a good margin of significant meaning and positively caused the growth of public expenditure on the education sector. On the other hand, the study used household survey data for 2005, 2008 and 2014, and the data were used to evaluate the effects of the free primary and free day secondary education policies that were introduced in 2003 and 2008 respectively. The main aim was to determine whether these policies are pro-poor or not.

In general, there is an attempt by the government of Kenya to enhance the position of poor households across all provinces. This is clear whereby the government has not only increased the income distribution to everyone but also other benefits, such as an increase in enrolments at all levels of education sector clear. The results of this study show that poor households have benefited from the government's two basic education policies. The poorest income quintiles have a large share of enrolment in primary whereas the richest income quintiles had higher enrolments at both secondary and university levels. This implies that the distribution of public expenditure on education favors the poor at the primary level and vice versa at both secondary and university levels, as revealed in Chapter 6.

Finally, there is little to smile about the government public policy on the education sector. It seems that the government lacks sustainable funding mechanisms and proper policy implementation frameworks in order to provide not only quality education but also to reduce the inequality in the country. The result of this study indicates that public expenditure policy is pro-poor at the primary education level while secondary and university education levels are pro-rich. This implies that primary education in Kenya is progressive while secondary and university education is regressive or pro-rich in nature. This study recommends that in order to promote equitable resource allocation, better policies and more budget allocation to the education sector are essential. This can only be achieved through investing more in basic education infrastructure, conducting frequent checks on the effectiveness of all education levels, and importantly in formulating sustainable education public policies. This study provides a guideline on how to understand the impact of these factors and also offers solutions on how to alleviate these effects in trying to utilize the limited financial resources efficiently and effectively through supporting education policies.

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David Kamar Imana

June 2017

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Kenya has been increasing its spending on the education sector in an attempt to achieve a balanced subsidy for all citizens, especially in cities' slums, and rural and marginalized regions. Rapid growth in resource distribution and public expenditure in the education sector, particularly in primary and secondary, has been witnessed recently in Kenya, according to Nicolai, Prizzon & Hine (2014). The redistributive policies of income and wealth are based on the principle of inequality reduction and empowerment of the poor and marginalized groups (Imana, 2016). Kenya has witnessed significant changes in the distribution of its financial resources and with the upward trend owing to factors such as: an increase in the population, government policies and operations, corruption, inflation, and an increase in public debt (Ndung'u, 1993; Jerono, 2009). The introduction of free primary and free day secondary education policies in 2003 and 2008 respectively has increased the public expenditure even more.

According to Ndonga (2017), the Ministry of Education, Science and Technology disbursed KES.22.4 billion to both public primary and secondary schools during the first term in 2017, which shows the government's effort to support free basic education. The amount disbursed to the Free Primary Education program was KES. 6.3 billion, and was expected to benefit 8, 879, 685 learners in 21, 953 schools nationwide. On the other hand, the secondary level was given KES.16.1 billion to support a Free Day Secondary School program, which the government of Kenya expects to benefit more than 2,496,735 learners in 8,361 public secondary schools (Ndonga, 2017). The education sector is among the top sectors in Kenya a huge financial allocation each year and this shows that basic education receives first priority on the part of the Ministry of Education. The pre-primary level has also been

given priority in an attempt to promote early childhood education through devolving it county governments which are closer to the citizens, unlike the national government. A number of studies conducted recently are in agreement that education expenditure may raise growth through promoting human capital accumulation (Glomm & Ravikumar, 1997; Blankenau & Simpson, 2004; Imana, 2016).

The government has the high task of finding additional sources of funding to supplement the deficit left by the traditional revenue collection and it will do so through seeking foreign aid, borrowing funds, and conducting reallocation of resources from other sectors such as health and social protection. According to Acosta-Ormaechea and Morozumi (2017), financial resource reallocations towards education from other sectors such as health and education strongly encourage growth across a broader range of countries' income levels. Poor household income groups can only break the cycle of poverty through education and therefore when children of poor parents access free basic education it enables them to take a step toward escaping the chains of poverty (Holyfield, 2002).

Public education provision at various levels by the government is one of the most important investments for creating broader public chances to help the poor and the underprivileged actively take part in a country's economic activities (Bwonda, 2013; Imana, 2016). Education and training for all empower citizens of a particular country to improve their living standards through participating greatly in economic productivity and growth, alleviating poverty, and utilizing the available socio-economic opportunities (Romer, 1990; Rosen, 1999; UNESCO, 2006; Bwonda, 2013). In the recent past, public expenditure studies have been framed around theories that attempt to explain public expenditure growth and redistributive policies so as to test and predict the factors responsible for expenditure growth, particularly for the purposes of public decision making and finding the resource distribution of a particular country (Imana, 2016).

Public spending on education in Kenya comprises the primary, secondary, and university level, and it also includes students' bursaries, loans, and scholarships. The fast-growing public spending on education with a big inequality gaps and little improvement in educational standards and the quality of education in Kenya has caused concern among policymakers and stakeholders. In addition, the education

system in Kenya is faced with internal inefficiencies, high dropout rates, and a low transition rate to secondary school even with international funding and increases in budgetary allocation (Farah, 2012).

Government funding is significantly reliant on political and social conditions, which are no longer consistent with the current prevalent economic reality, which makes it difficult to come up with better, reliable, and sustainable funding policies. The ruling and various political parties have been using free basic education policies to win votes from the electorates. The distribution of financial resources by the government has previously depended upon political affiliation, ethnicity, and geographical location. The regions that have supported the ruling party with the highest population have received more allocation than those that did not. This explains, in a nutshell, the reason why the inequality of income distribution in Kenya is widening instead of reducing 54 years after independence. The introduction of the New Constitution in 2010 and the Education Act of 2013 has given new hope and is changing by far the financial resource allocation partiality that existed in Kenya previously. The education system in Kenya comprises primary, secondary, and university levels (Table 1.1). This study has excluded pre-primary school and examines only the university level at the tertiary level of education.

Table 1.1 Education Levels in Kenya

School Level	Description
Primary Education	Lower and upper primary school
Secondary Education	Secondary/high school education
University Education	General public universities/higher education

The New Constitution has given County governments their own budget management and allocation obligations without direct influence from the national government or ruling party. This has promoted not only regionally-equitable resource sharing but it also has helped the poor household income groups to access essential

services such as education and health facilities. Although some progress has been made in promoting the welfare of all households income groups, there still exist inequalities in some regions and household income groups (Kinyanjui, 1974; Nicolai, Prizzon & Hine, 2014). This creasted the basis for conducting a benefit incidence analysis in order to determine the effect of basic education policy on public expenditure on education and if it is pro-poor or not.Introduction of both a free primary education policy in 2003 and a free day secondary education policy in 2008 meant to cover tuition has not only made some parents become reluctant to for pay school fees (in secondary schools) but has also made them not purchase essential items such as the books and uniforms required in school and that are not included in government funding policy.

It is worth observing that many times, a grant from the government is not distributed when schools need it most and the amount too might be insufficient for the schools' needs. The Kenyan education sector has three major problems: the problem of equity in resource redistribution, the rapid growth of public expenditure, and a policy implementation problem and how to determine sustainable educational policies (Imana, 2016). This study, therefore, analyzes the factors that have caused public expenditure growth in education, enrollment trends, and the distributional effects income on public expenditure on education. However, before going more deeply into the main subject, the study introduces the development of free primary and secondary education, public expenditure, enrolments, and the student-teacher ratio trend.

1.2 Expenditure and Enrolment Trends

1.2.1 Free Primary Education

Free primary education in Kenya was first introduced in the late 1970s though it was only for lower primary schools (class 1 – 4), which was later abolished in 1988 under the Structural Adjustment Programs (SAPs) after the government realized that it could not sustain it. The SAPs were about cost-sharing between the government and parents. The government role was to be responsible for recruiting and paying for teachers for their services while the parents' role was to pay for tuition fees and other essential educational materials. In addition to essential educational materials, parents

were left to contribute to major school developmental projects, for example, the building of classes, dormitories, water and electricity supplies, and the purchase of school buses. The developmental projects were guided and facilitated by the school board of governors and parent-teacher association committees.

The poor households found it difficult to contribute to the SAPs since it was found that parents contributed more to them than the government. This resulted in a nationwide uproar about how basic education had become unaffordable and stakeholders in education were recommending absolute free basic education. SAPs program of cost-sharing between the parents and the government led to a decrease in enrolments, high dropout rates, low completion rates, and very poor transition rates (Bedi, Kimalu, Manda & Nafula, 2002; Vos, Kimalu, Manda, Nafula & Kimenyi, 2004).

The government had to introduce free primary education in 2003 in an effort to increase enrollments, reduce dropout rates, and increase completion and transition rates. The third president of Kenya, H.E. President Mwai Kibaki, was the person that led this second free primary education in Kenya and this time around it covered all primary expenses. The free primary education programme has brought significant benefits to the country despite the challenges it has brought. Some of the poor and marginalized communities have been able to take their children to school, and if it were not for the free primary education program, the children could not have received basic education. The government's efforts in promoting and making education accessible can be seen in its ever-increasing financial allocation to the education sector.

1.2.2 Free Day Secondary Education (FDSE)

The Free Day Secondary education policy was introduced and implemented in 2008 with the aim of making education affordable to all. The idea of free day secondary education was first supported in the Kenya Education Sector Support Program (KESSP), which was began in July 2005 by the Ministry of Education, Science, and Technology. This program was necessary in order to create a smooth transition from primary to secondary schools so as to accommodate the ever-increasing primary enrolments caused by the free primary education policy (Kenya, 2008). Under the free day secondary education policy, each student receives KES.10,625.00 per year and the rest of the secondary expenses are left to the parents.

According to Viviline, Enose and Ayoda (2015), the main aim of Free Secondary Education was to provide an equal chance to all students irrespective of their social class, gender, ethnicity, or region background. The impact of free day secondary education policy has yet to yield desirable outcomes. The results of this study show that secondary education still favors the rich and slowly is about to be neutral. Therefore, more government interventions, especially regarding funding, are required for this policy to be successful and sustainable. The impact of this policy can be evaluated through checking the accessibility, transition, and completion rates, and students' general academic achievements (Ndolo, Simatwa & Ayodo, 2016).

1.2.3 Trend of Public Expenditure

In the Financial Year 2016/17 budget, Kenya's total budget was KES.2,479.4 billion and the education sector was allocated KES.339.3 billion, which was the third largest allocation after the Consolidated Fund Services and Energy, Infrastructure and Information and Communication Technology (ICT) sectors, which received KES.527.3 and 506.6 billion respectively (TNT, 2016). The education sector received a large budget to support both free primary and free day secondary education policies (see Table 1.2.). There has been a slight but steady increment in education-sector financial allocation. The general public expenditure on the general education sector increased from KES.3.21 billion in 1980 to KES.339.08 billion in 2014, while the total public expenditure was KES.1,925 billion in 2014, as indicated in Figure 1.1.

Table 1.2 Government Sector Expenditure in Financial Year 2016/2017

(KES Billion)

	Government Sectors	**KES. Billion**
1.	Education	339.3
2.	National Security	124.0
3.	Health	60.3
4.	Social Protection, Culture, and Recreation	33.7
5.	Public Administration and International Relations	232.0

Table 1.2 (Continued)

	Government Sectors	KES. Billion
6.	County Shareable Revenue	284.8
7.	Governance Justice Law and Order	188.0
8.	Consolidated Fund Services	527.3
9.	Economic and Commercial Affairs	20.9
10.	Environmental Protection, Water, and Natural Resources	92.9
11.	Energy, Infrastructure, and ICT	506.6
12.	Agriculture, and Rural and Urban Development	69.6
	Total Budget	**2,479.4**

Source: The National Treasury, 2016.

There has been a slight but steady increment in education-sector financial allocation. The general public expenditure on the general education sector increased from KES.3.21 billion in 1980 to KES.339.08 billion in 2014, while the total public expenditure was KES.1,925 billion in 2014, as indicated in Figure 1.1. The highest allocation was witnessed in the 2003 and 2008 allocations during the introduction of Free Primary Education and Free Day Secondary Education policies. The question that education stakeholders continue to ask is, do these two policies benefit the entire country? Further, the government's general financial governance, efficiency, and financial resource management are also under public inquiry. In 1980, education sector expenditure was almost at per with the total public expenditure. This suggests that the government was giving more attention to the education sector by allocating more financial support to it in an attempt to reduce vliteracy rate, increase education accessibility, and enhance quality education.

The government realized later that other key sectors, such as health, transport, agriculture, and planning and administration, were left behind. In relation to this, the government began to give more consideration through the allocation of more financial support to these identified sectors. This explains why the gap between total public expenditure and education sector ependiture kept on widening each year. In addition,

the government of Kenya has been conducting reforms and restructuring of the education system, which requires greater funding and time. This explains why there exists a big gap between total public expenditure and total education sector expenditure currently, unlike in the early 1980s (see figure 1.1).

The total Ministry of Education, Science, and Technology expenditure was KES.64.11 billion in 2002, while in 2003 was KES.76.72 billion during the introduction of the free primary education program. This scenario was the same during the introduction of free day secondary education, whereby expenditure increased to KES.138.25 billion in 2008 from KES.121.78 billion the previous year. The government of Kenya is trying hard to keep the two education programs running despite limited and unsustainable funding.

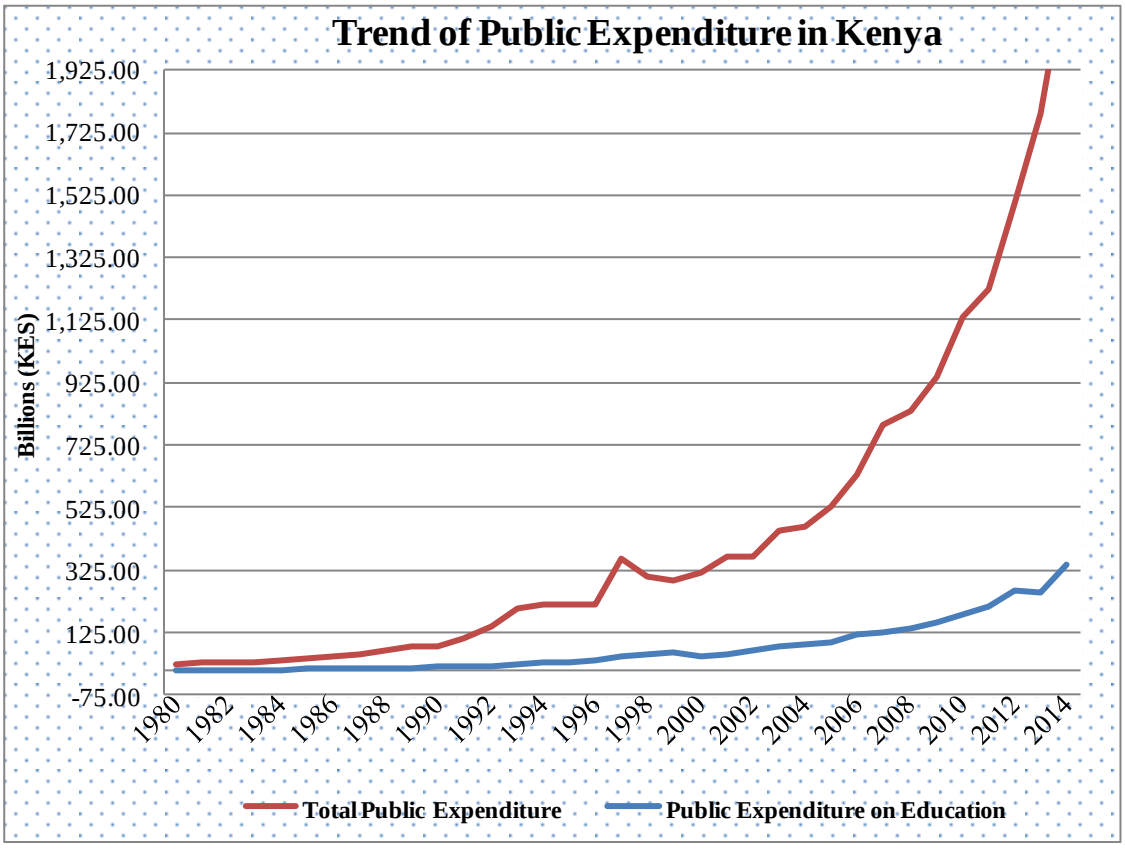

Figure 1.1 Trend of Total Government and Education Expenditure in Billions Kenya Shillings

Source: KNBS, Various Economic Surveys, 1985 – 2016.

The government of Kenya started giving the transport sector more priority beginning in 2003 and by the year 2014, the transport sector was the second largest beneficiary of government funding after the education sector (see figure 1.2). The grants from foreign countries and international organizations to developing countries have been decreasing recently. This means that those countries dependent greatly on grants to support their free basic education programs are at risk of being unable to make free education policies sustainable. The education sector in Kenya received the largest allocation compared to sectors (Figure 1.2).

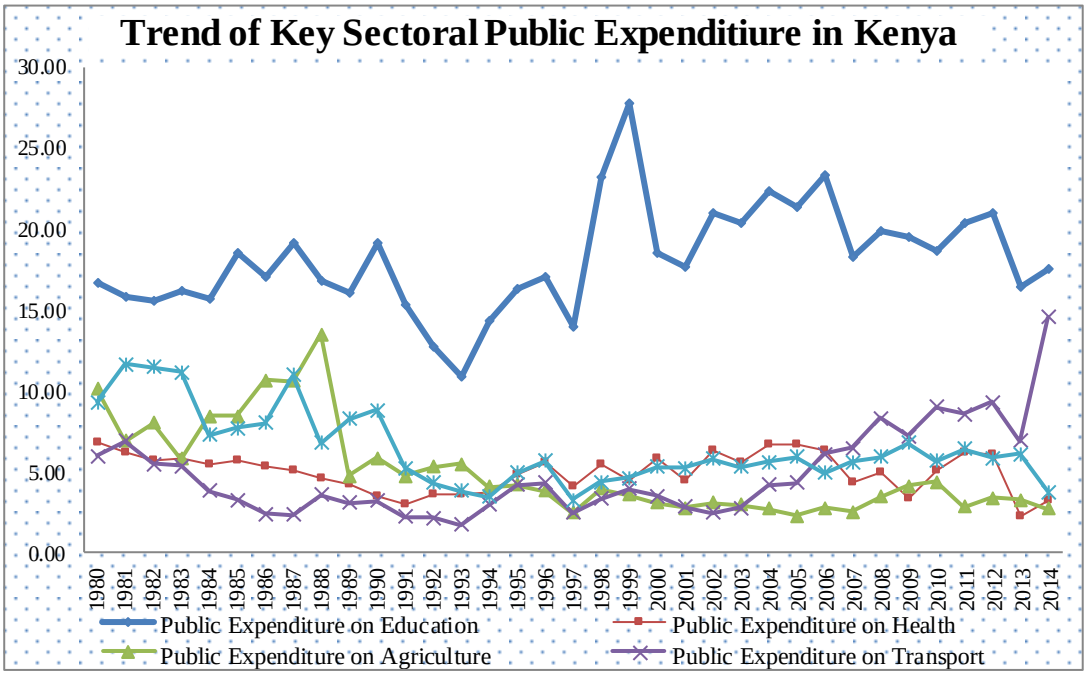

Figure 1.2 Public Expenditure on Five Key Sectors in Billions Kenya Shillings Expressed as a Percentage of Total Public Expenditure

Source: KNBS, Various Economic Surveys, 1985 – 2016.

Public expenditure on defense and agriculture is the second and third largest recipient of government financial allocation. The transport sector started to get government attention beginning in 2003, whereby the government allocated 10.40 Million (converted to 2.76 per cent) in the grapgh. The government believed that improvement of transport infrastructure would contribute immerselly to economic

growth. This means that good road networks would enable farmers and traders to transport their farm produce easily.

1.2.4 Student Enrolment Trend

The implementation of the free primary education program has largely increased the number of enrolments across all levels of education; for example primary-level enrolments increased from 3.9 million pupils in 1980 to 13 million pupils in 2014, as shown in the enrolment figure 1.3 below.

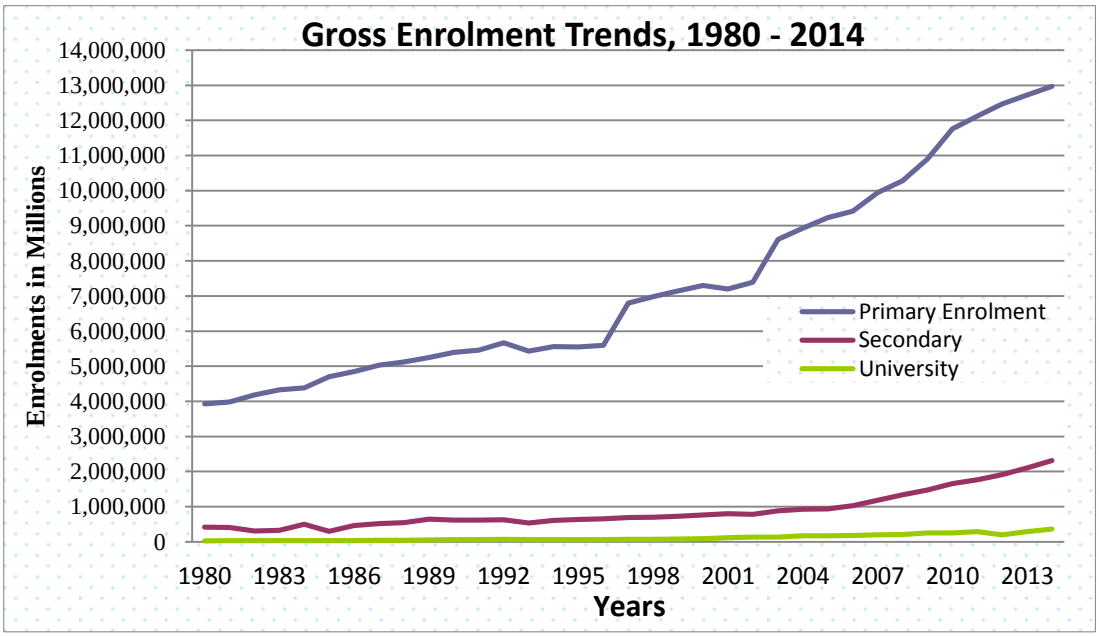

Figure 1.3 Gross Enrolment (Primary, Secondary, and University Education)
Source: KNBS, Various Economic Surveys, 1985 – 2016.

Primary-level enrolments achieved notable growth of 8.6 million pupils in 2003 and since the introduction of free primary education, the average enrolment was 10.7 million pupils that are from 2003 to 2014. At the secondary level, enrolment increased from 400 thousand pupils in 1980 to 2.3 million pupils in 2014 while at the tertiary level, which include higher/university, enrolment increased from 29 thousand students in 2003 to 600 thousand in 2014 (Figure 1.3). University enrollment was steady from 1980 to 2000 before increasing sharply from 2000 to 2014, and total

enrolment was 29,469 and 631,795 in 1980 and 2014 respectively. The University Act of 1985 established the commission for higher education, which promotes university education and recommends that both public and private universities enable all students finishing secondary schools to join institutes of higher learning. The increasing enrolments across all levels of education have caused the government of Kenya to allocate more financial resources to the education sector to meet ever-increasing expenditure.

1.2.5 Pupil-Teacher Ratio

Pupils-teacher ratio in Kenya is not something to be happy about, especially at the primary level. The pupil-teacher ratio has been increasing, especially with the introduction of the Free Primary Education Program in 2003.

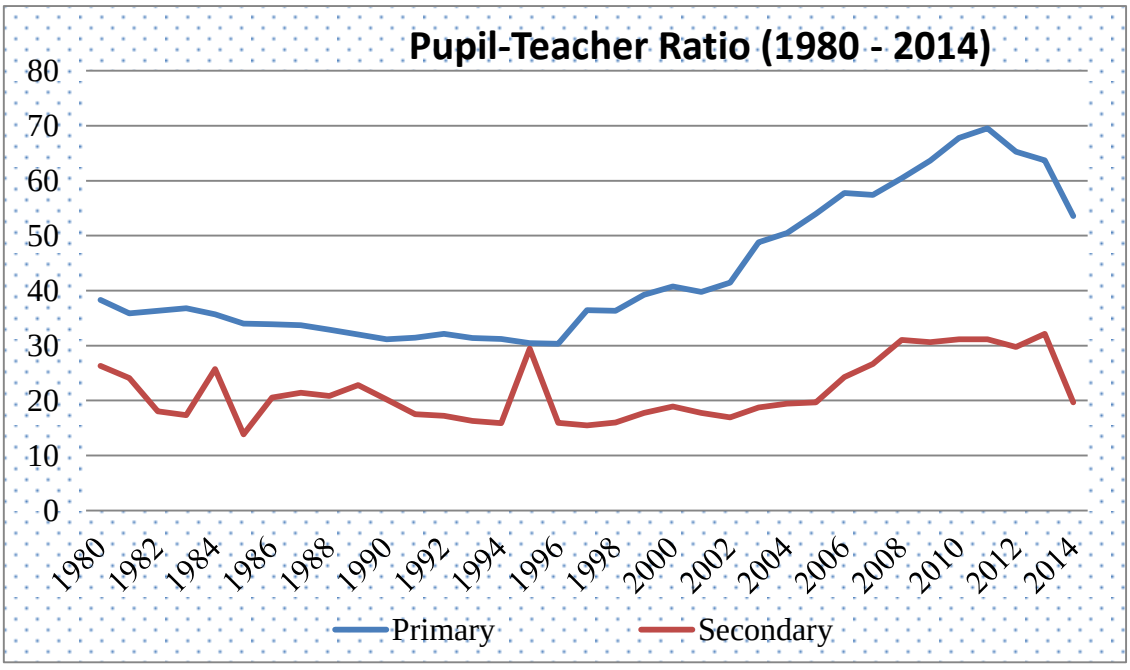

Figure 1.4 Pupil-Teacher Ratio for Primary and Secondary Levels of Education

The average pupil-teacher ratio in primary schools from 2003 to 2014 was 48:1, way above the international standards, which is 42.1 (Rawlings, 2014). The Pupil-Teacher Ratio shows how the enrolment of pupils in primary schools is matched with the employment of more teachers and the building of basic facilities, such as

classrooms. The secondary student-teacher ratio was 22:1, which is still a good ratio although ot implies that few pupils make it to the secondary level and this clearly shown in (Figure 1.4)

1.3 Statement of the Research Problem

Education expenditure has been increasing significantly in the past 54 years since Kenya's independence in 1963. Public expenditure on the education sector in Kenya accounts for a considerable proportion of the GDP and of public expenditure. On average, the education sector spent 6.4 percent of the GDP and 26 percent of total public expenditure, which ranged from fiscal year 2002/2003 to 2009/2010 (Bwonda, 2013). The increase in public expenditure on the education sector has led to increasing enrolments across all levels of education. Even though growth has been witnessed, funding and the cost of education have become a big problem in the education sector in Kenya. According to Bwonda (2013), although enrolment rates improved from 2002 to 2010 in both primary and secondary schools, still a good percentage of the children were not enrolled during the period and vast inequalities existed across regions in enrolment. Bwonda also added that a wide margin subsists in national examination performance across regions regarding both the Kenya Certificate of Primary Examination and the Kenya Certificate of Secondary Examination. The ever-increasing school enrolments and regional inequalities in education outcomes remain a big challenge and in this regard, the findings of the study will increase the understanding of mechanisms to improve efficiency in financial management, resource allocation county governments and in the entire country.

The problems of inequality and marginalization of many regions in Kenya are not recent—they began during the British colonization era and have contnied through independence and the current times. This was confirmed by Court (1979), who reported that, so long as access to higher quality schools is visibly related to factors other than individual ability, and regional and ethnic disparities in the provision of educational facilities are not restored, it is very difficult to accept that the Kenya government follows a philosophy of equal opportunity. The poor level of access to education by the majority of Kenyans living in rural and city slums despite many

government initiatives has caused serious concern among all education stakeholders. This raises many questions about government funding priorities, policy implementation, and its resource distribution policies, especially in the education sector. The total expenditure on education should be in line with increasing trends in major factors such as student enrolment, unit of education cost, government income, education funding priority, and inflation, just to mention a few. Kenya's education sector has three major problems: the problem of equity in resource redistribution, the rapid growth of public expenditure, and a policy implementation problem (Imana, 2016).

However, relatively poor funding and inequalities in education have been witnessed over time, especially during the introduction of free primary education in 2003 and free day secondary education in 2008, despite the upsurge of education at these two levels. Malechwanzi, Muthiani and Mbeke (2016), explained that, the ever-increasing enrolments in higher education and unmatched facilities initially intended for a few students experienced by a number of countries worldwide have created a conflict between quality and quantity, and Kenya is not an exception. Kenya has heavily invested in education, yet this is not yielding commensurate returns and not only that, there is a poor level of access to education by the majority of Kenyans living in rural and city slums. It is very sad that many regions still experience lack of basic education facilities and a low quality of education 54 years after Kenya's independence. A number of stakeholders in the education sector are also raising questions on the quality and relevance of current university courses and syllabi.

Kenya in recent decades came up with several education provision policies that have brought greater challenges to the government when it came to the implementation stages. There is a big disconnect between the anticipated education practices by the government and the actual educational practices on the ground. The observed poor education sector indicators and huge differences in the outputs across regions are not in line with government educational objectives (Bwonda, 2013). The government policies in Kenya have come to be as a result of election pledges and promises. Free primary education was reintroduced by the National Rainbow Coalition (NARC) government in 2003 immediately after winning the election in 2002, under the leadership of H.E. President Mwai Kibaki. Later in 2008, free day secondary education was introduced by the Party of National Unity (PNU), which

brought back H.E. president Mwai Kibaki to power for the second time and as one can see highest dynamic political ingenuities triggered the start and implementation of these education programs which in essence was driven by a social contract with the electorate (Avenstrup et al., 2004).

The latest and most controversial public policies on education include the following: free primary education in 2003, free day secondary education in 2008, and one laptop per child programs in the first grade in primary schools, which was not rolled out as expected despite the government allocating it a budget (Goodwin, 2014). The government purchasing tablets, which are cheaper, instead of the initial proposal of purchasing laptops, is an indication of poor planning and budgeting. A pretrial test of a tablets program was first rolled out in 150 primary schools countrywide, which ended on 12 May 2016, and the government was planning to reach out to 12,000 schools, which were expected to receive 600,000 tablets in the second phase (Wanyama, 2016).

It is very clear that the Laptop program as initially referred to was a weak public policy created by the current government and it shows how the government uses politicians to come up with public policies without looking into the technical aspects, such as funding, formulation, and the implementation of the project using the help of professionals in the same sector. This means that although the government and education stakeholders have come up with good policies to elevate poverty and promote equity, implementing these policies and getting the anticipated outcomes have never been easy (Demery & Gaddis, 2009). This raises questions about the effects of public expenditure on education and distributive income policies on education in Kenya. It does not matter much if public education expenditure is pro-poor or not since this depends on how education expenditure benefits are distributed across household groups. This formed the main idea of carrying out this comprehensive research in order to find out the factors that cause rapid public growth on education expenditure, the trends in public expenditure and enrolments, and the effects of income distribution on education expenditure in Kenya.

1.4 Research Questions

1) What is the enrollment and public expenditure trend in public schools in Kenya?

2) What factors affect the growth of public expenditure on education in Kenya?

3) In Kenya, is the government expenditure on the education sector progressive or regressive at all levels of education? And who are the main beneficiaries?

4) What kind of inequalities exist in the distribution of government subsidies amongst different levels of income groups?

1.5 Objectives of the Study

The main objective was to find out the trends and factors that affect the growth of public expenditure on education, and whether government expenditure on education is meant to benefit everyone in the country or not. In order to achieve this main objective, this study focused on three main distinct and related specific objectives, as shown below.

1) To examine the public expenditure and enrollment trends in the public schools in Kenya

2) To find out the factors that affect the growth of public expenditure on education in Kenya

3) To analyze the income distribution effects on the education sector usingv benefit incidence analysis method. Sub-objectives are as follows:

(1) To analyze the incidence of public expenditure on education in realtion to various income/wealth groups in Kenya so as to determine whether public expenditure on the education sector in Kenya is progressive or regressive

(2) To find out the kinds of inequalities that exist in the distribution of government subsidies amongst different levels of income groups

1.6 Importance of the Study

The evaluation of benefit incidence and the growth of public expenditure on education can aid the government in developing effective targeting of public financial resources and with coming up with an inclusive fiscal policy framework. The approximation of benefit incidence will not only help in measuring the effect of education sector policy reforms but it will also lead to the improvement of resource utilization in the public education sector and the enhancement of the welfare of household income groups in the long run. The results obtained from this study will be beneficial to all education stakeholders, policy makers, implementers in Kenya, and other interested parties such as UNESCO, World Banks, and IMF. The analysis of the factors that cause the growth of public expenditure on education across different levels of the education sector and the distributive effects of income across household income groups quintiles and provinces in Kenya justify education policy analysis and public expenditure policy analysis. This study will also contribute to the development strategies of Kenya, which may lead to efficient and equitable financial resource distribution. In order for the government of Kenya to provide better sustainable policy advice for better allocation of education expenditure, policymakers and implementers will find the recommendations in the study useful. The major target beneficiaries of this study are: the government of Kenya through the ministry of education, education institutions, the ministry of finance, policymakers, implementers, and other parties interested in education, such as NGOs and donors fraternity.

This study, therefore, makes a contribution to the literature of education policy and education expenditure in Kenya across all levels of education. It also supports and contributes to the financial theoretical assumptions that support the increase of public expenditure, especially in the African context. Further and future research at the country level will be motivated by the results of this study since it explains in detail expenditure theories, why education expenditure continues to increase in Kenya, and who and which regions benefits the most, despite the fact that the number of education policies and inequality gaps in Kenya keep widening.

1.7 Scope and Limitations of the Study

This study focuses for the most part on the trends of education policies and public expenditure, the factors affecting the growth of public expenditure on education, and the income distribution effects of public spending on education in Kenya. The researcher used theories that helped to explain the factors that affect the growth of public expenditure on education across the three levels of education; namely, primary, secondary, and university levels. The researcher only capitalized on those factors associated with the theories and included theories such as the economic-demographic, the political business cycle, incrementalism, compensation, and illusion theories of public finance. This means that the study was limited to a number of theories due to inadequate availability of data, financial support, and time, which by themselves are one of the scopes of this study. The study used both primary and secondary data collected from various sources, as the study used mixed research methods, including both qualitative and quantitative approaches.

The study focused mostly on the annual data of Kenya's budget allocation and expenditure in finding out the relationship that existed between the independent variables and the dependent variables covering a number of years, from 1980 to 2014. The study also made use of national household surveys, which included integrated household surveys and various demographic health surveys in order to determine the education inequalities using the benefit incidence analysis approach. This study was limited to the availability of data, which might be incomplete or inaccurate since they were obtained from multiple sources. Schwartz and Minassian (2000) stated that "Typically, these data are note fully (sometimes hardly at all) available, especially in developing countries." Generally, in developing countries, data are not collected frequently and sometimes proper ways of collecting and storing information does not exist. According to Buchman (1996, p.3), data limitations in poor countries may be a disincentive to researchers interested in conducting empirical and quantitative research in the Third World. The limitation of collecting the data was that there was no consistency of data across various institutions; for example, the researcher had sometimes to harmonize the Ministry of Finance, Ministry of Education, and World Bank data since sometimes they provided different figures.

This study concentrated only on the public education institutions that provide education services in Kenya and did not capture private education institutions. This means that private education stakeholders or institutions were left out, though they are of great significance across many nations when it comes to spending on education. The study, therefore, did not go into details examining private spending on education in Kenya, even though it significantly contributes to the education development there. Standard multiple linear regression analysis was used to find out the effects of government expenditures on education while the benefit incidence analysis (BIA) approach was used in analyzing if public expenditure on education is pro-poor or not.

The use of these two methods of Benefit Incidence Analysis and Standard Multiple Linear Regression in getting facts about the above-mentioned objectives was limited in itself, due to time constraints, the non-inclusivity of some factors, missing information and data, and less funding at the data collection analysis stages. Therefore, this study used available information and secondary data, which again were limited to the availability of the same in analyzing the impact of public spending policies on resource allocation, quality of education, and beneficiaries across all education levels. Another limitation of this dissertation is that, model-4 was changed completely from the initial formulation and prediction assumptions since the initial yielded a negative R squared. This implied that some variables were meaningless, data had collinearity problem and therefore, the model was unable to give good prediction.

1.8 Definitions of Terms

The study used a number of theories and factors to explain the growth of public expenditure and the effects of income distribution on education. In order to provide and explain vividly the scope and meaning of this dissertation, defining some of the key words was necessary. The following are some of the definitions provided in the study.

1) Public expenditure is expenses that the government incurs for running daily operations or making decisions on spending in order to improve its

economy and the standard of living of its citizens, and that of other countries (Mzonde, 2013; Bhatia, 2008; Baleeiro, 1978).

2) Benefit incidence concerns the share of benefits received by different groups from a given public expenditure or the benefits that a citizen obtains from the services and resources provided by a particular government (Mzonde, 2013; Glick, Rumki & Stephen, 2004; Demery, 2000, pp. 43-66; Meerman, 1979, pp. 44-45).

3) Recent trends refers to the pattern of the steady propensity of a series of data points let us say of input (expenditure) or outcome (enrolments and passing examinations) which covers a period of time

4) Education provision refers to the ability of the country to make education services available to its citizens.

5) Income distribution reveals what percentage of individuals or groups can receive government benefits and provides information that can reveal more about overall wage patterns than average income can (Karim, 2015).

Note: The above-defined terms are not the only factors used in this dissertation. Throughout this study, a number of factors have been defined, especially under the operationalization definitions provided in Chapter 3, which focuses on the research methods.

1.9 Organization of the Study

The study has seven chapters. Chapter 1 in this study consists of the introduction, the problem statement, objectives, research questions, scope and limitations, and significance of the study. It is in this chapter that a brief picture of the intention, problem focus, and objectives is clearly provided. Chapter 2 of this study comprises a literature review regarding theories and empirical evidence, as well as a formulation of the conceptual frameworks and hypotheses that form the basis of this study. Chapter 3 covers the research methodology and techniques that helped in providing precise justification for the variable selections on which empirical analysis was conducted.

Chapter 4 shows cased the qualitative analysis, which enabled this study to provide information and explanations about the education system and reforms in

Kenya before, during, and after independence. Chapter 5 concerns the empirical results for the factors affecting the growth of public expenditure on the education sector. This chapter includes general education and subsectors such as primary, secondary, and university analysis. On other hand Chapter 6 covers the empirical results on income distribution on education, showing the results of the benefit incidence analysis and various trends in relation to enrolments and public expenditure; and lastly, Chapter 7 provides a summary of the results and contributions of this study, and discusses possible policy implications of the findings from this study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This study reviews both the theoretical and empirical literature with a view to revealing the theoretical underpinning in examining the factors that determine the growth of public expenditure at different levels of education and the income distribution effects on the education sector in Kenya. There are a number of public finance and economic theories that have attempted to explain why general expenditures, especially regarding education, continute to increase each year. This study conducted an inclusive literature review through examining various publications that included government reports, published researches, articles, and evaluation reports to assess the previous and current situation in an attempt to ascertain the policy arguments for public expenditure in the education sector in Kenya.

This study relied upon previous works so as to discover the gaps not yet researched in public expenditure on education in the Kenyan context. There is no doubt that education is the key to a better life, and public spending on education may promote economic growth through promoting human capital accumulation in the long run (Blankenau & Simpson, 2004; Glomm & Ravikumar, 1997). There is no doubt that the work of Wagner (1958), Peacock and Wiseman (1967), and Musgrave (1969) are key pieces of work at the early stage of public expenditure analysis. The work of these scholars explain in detail why public expenditure continues to increase. Adolf Wagner for example stated that government old and new functions require more financial resources and thus more expenditure. Wagner unvailed his law using the following words:

> Comprehensive compraisons of different countries and different times show that among progressive people, with which we alone are concerned an increase requlary takes place in the activity of the both the central and the local governments. This increase is both extensive and intensive. The central and local governments constantly undertake new functions, while they perform both old and New functions more efficiently and completely.

Wagner's hypothesis came up with the following conclusions in his 'Wagner Law of Increasing State Activities,' which explains why states' expenditures continue to increase as follows. First, "[a]s the national income increases in amount, the percentage of outlay for government supplied goods is greater." Second, "[i]ncreased public expenditure was the natural result of economic growth and continued pressure for social progress." This means that as the economy of a country continues to grow, government activities grow as well to meet the social demands of the public. Public expenditure in any country should support the welfare of the society, and expenditure should be utilized in the order of priority of welfare, for example, providing free basic education and better health. More recently, studies on public expenditure have focused more on specific-purpose expenditure. Some examples of these studies include the study of the determinants of public education expenditure (Sagarik, 2013; Buracom, 2011; Fernandez & Rogerson, 2003) and cross-country analysis studies supported by the work of Hanushek and Rivkin (1997).

In order to create appropriate public expenditure policies on education, this study was conducted to explain the trends and factors affecting the growth of public expenditure on the education sector in Kenya. The growing social demand for quality and equitable and better education in Kenya has brought pressure on education due to inadequate education infrastructure (Muricho & Changach, 2013). This study provides a thorough empirical research on public expenditure in order to find out the effects brought by the introduction of free primary education in 2003 and free day secondary education in 2008. In Kenya, there are few if any such studies that cover all education levels to reflect the true facts about the current effects of public expenditure on the entire education sector.

2.2 Public Expenditure Theories Arguments

The following theories of public spending and economics were used to explain this argument; economic-demographic, incrementalism, political business cycle, compensation, and fiscal illusion amongst other theories. Many researchers have used a few or all of the theories mentioned here but the results have differed from country to country and some studies have used a few variables trying to explain and justify their findings.

2.2.1 Compensation Theory

This theory explains the link between globalization that an increase in international trade and financial flows between countries and public policy on expenditure. This theory was originally been proposed by several international trade scholars (Rodrik, 1998; Garret, 2000; Segura-Ulbiergo, 2002). According to the Compensation Theory, the amount of welfare spending, for example on education, can be influenced by globalization (Mzonde, 2013; Yoon, 2009). This theory claims that due to increases in external trade, there is stiff competition in the nations involved in free trade agreements. In such a scenario, weak domestic companies suffer in the form of reduced sales and may cause huge losses for these companies. The reduction in sales volumes and huge losses by these companies are due to the increase in imported cheap commodities. which leads to price depression, difficulties in the foreign exchange market, reduction of exports, unemployment, and even their closure.

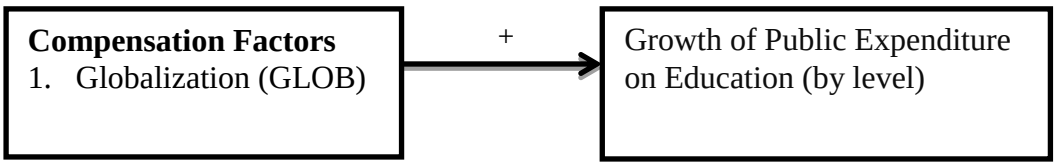

Figure 2.1 Factor(s) Derived from Compensation Theory

The best thing that the government can do is to intervene by compensating those that have lost their jobs as a result of trade liberalization and this forces the

government to increase its budget (Yoon, 2009; Ventura, 2006; & Rodrick, 1998). The question that comes to mind is, would the government fully compensate the people that have their jobs? As predicted before this was not the case since the government might not have the capacity or enough resources to facilitate the compensation. The idea of globalization actually speeds up the transfer of the trade from the local point to the international dimension. In a normal scenario globalization leads to the growth of social expenditures, though these expenditures are cumulatively by extent funded by taxes on labor. In traditional governments, both social expenditures and taxes on labor increase due to globalization. Globalization retrains governments by encouraging increased budgetary pressure. Due to this pressure, governments may attempt to curtail the welfare state, which is often seen as a drag on international competitiveness, by reducing especially their expenditures on transfers and subsidies.

2.2.2 Economic-Demographic Theory

The economic-demographic theory explains that public expenditure in many cases increases more than the collected revenue that supports it. The politicians in a particular country are faced with pressure and demands from the public. These demands might not be easy to control and include population growth, basic service demands, and tax remittance ability by the citizens (Dye, 1978; Musgrave & Musgrave, 1989). As a result of an increase in the population, the number of pupils and students joining various education levels will increase as well. This will force the government to increase financial allocation to the education to the sector to cater for high enrolments and this means that education expenditure will definitely increase as well. The expansion of the government's role in promoting education in the long-run reduces illiteracy rates and enhances quality education (Tanzi & Schuknecht, 2000).

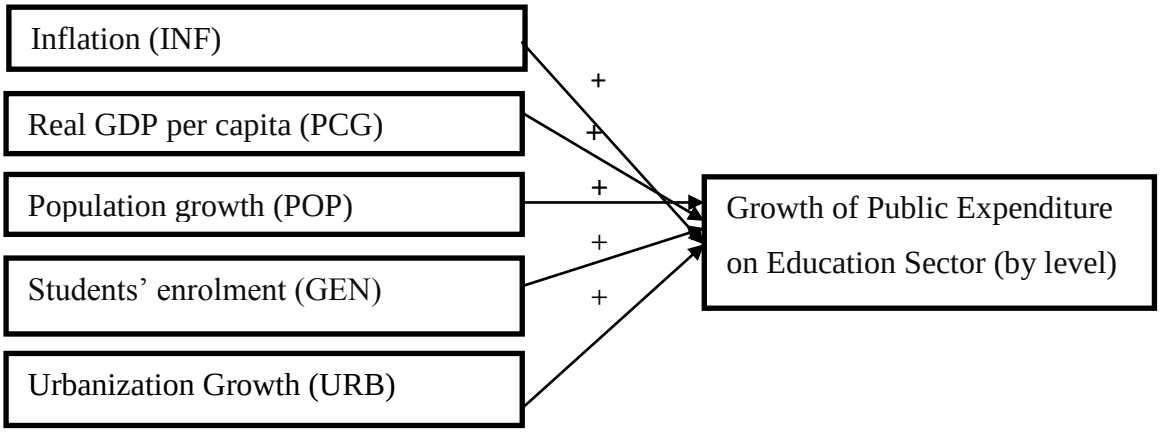

Figure 2.2 Factors Derived from Economic-Demographic Theory

There are many kinds of literature and publications explaining the economic-demographic theory and its effects on the growth of public expenditure, for example, Mzonde (2013); Lindert (2009, p. 33); Al-Samarrai (2003); Dye (1978); and Levit and Joyce (1987), to name but a few. There are a number of factors associated with the Economic-Demographic Theory and in this study, the following factors were used: inflation, Real GDP per capita, population growth, enrolments across all educational levels (primary, secondary, and university), and finally, urbanization (Figure 2.2). These factors are assumed to have a positive effect on the growth of public expenditure on education. The results on the other hand were not wholly as predicted in the hypotheses and models tested, as discussed in Chapter 5.

2.2.3 Quantity Theory of Money

The quantity theory of money states that the overall price level of goods and services is directly proportional to the amount of money in circulation (Friedman, 2010). The upsurge in money supply is mirrored by an equal increase in nominal output, or gross domestic product (Figure 2.3). Increased money supply causes a reduction in interest rates and further spending and therefore an increase aggregate demand (Irving, 1911; Foville, 1907; Newcomb, 1885). Normally, aggregate demand is the total sum of consumer and government expenditure, investment, and net exports. This means that an increase in money supply leads to an increase in consumer spending. In theory an increase in money supply causes inflation only if the

money supply increases faster than real GDP. However in practice the link between money supply and inflation is weak because the velocity of circulation is volatile tends to follow the business cycle.

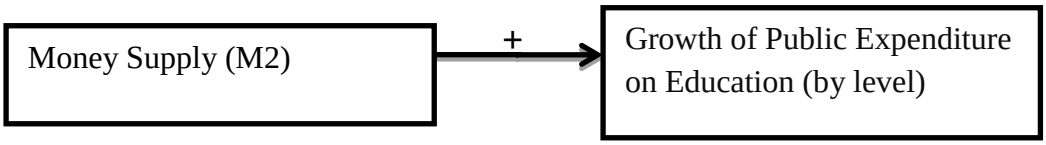

Figure 2.3 Factor(s) Derived from the Quantity Theory of Money

2.2.4 Fiscal Illusion Theory

The fiscal illusion concept has been proposed by many public choice scholars such as Buchanan and Wagner (1977) and Oates (1988). The premise is that the tax system design could lead to underestimation of the costs of public expenditure, with the public not the public not fully informed of taxation total costs. According to Niskanen (2004), Fiscal illusion also can be seen in deficit spending, and he found that there exists a strong negatively relationship between the relative of government spending and the tax revenues collected. Niskanen's explanation was that tax reduction and deficit spending cause the cost of government look as if it is cheaper than it or else would be. The burden of indirect taxes would also be systematically underrated by means of fiscal instruments (Puviani, 1903; Mill, 1848).

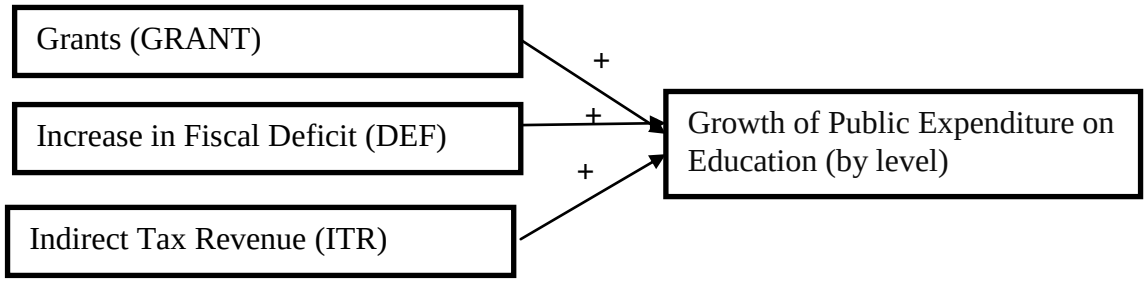

Figure 2.4 Factors Derived from the Fiscal Illusion Theory

According to the Fiscal Illusion Theory, politicians respond to the demands of voters that put them into office in different ways under different conditions. The

interesting thing worth being noted is that politicians tend to serve their own interests by making sure that they win the next election (Lindert, 2004). Politicians tend to please voters by increasing public expenditure in response to the demand of the low-income voters that through ballots demand equality in the country by voting for politicians that are likely to respond to their demands. This means that for the part in power to remain in the next election, politicians come up with good policies to benefit the voters for the sake of re-election (Dye, 2005; Lindert, 2004; Musgrave & Musgrave, 1989).

This study also explained how grants affect the growth of public expenditure as explained by the Fiscal Illusion Theory. According to McGillivray and Morrissey (2001), aid or grant illusion is a condition whereby a country misperceives the actual value of the grant inflow, or the expenditure situations attached to the inflow. The explanation given was that aid illusion occurs in an environment of imperfect information and weak public expenditure management. Therefore, the increase of foreign grants increases the government's revenue, which in turns entices the government to increase expenditure.

2.2.5 Incremental/Growth Theory

Public spending can also be influenced by using routine government methods of budgeting whereby the current public spending can be obtained by a marginal or incremental increase from what was spent during the previous year as in the argument provided by the incremental theory (Lindblom, 1959). According to this theory, public expenditures increase since it is based on past trends of the expenditure. This means that in order to create a new budget, one needs to refer to the previous budget allocation and only a narrow range of increases or decreases is considered for the next budget (Dye, 1978).

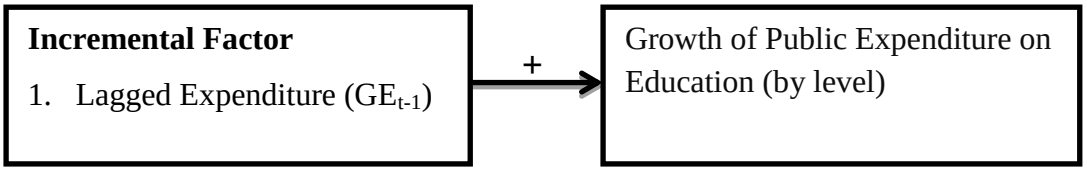

Figure 2.5 Factor(s) Derived from Incremental Theory

Policymakers have limited information regarding the citizens' needs and are not responsive to the demands of the environment. This explains the reason why policymakers tend to use the previous year's expenditure as their base and only slightly adjust the present one from that of the previous year. According to Lindblom's rational model of decision making emphasized that decision makers are constrained by time, information, costs in identifying the full range policy alternatives and their consequences. Legislators are faced by a number of political constraints that hamper the identification of clear societal goals and the estimation of costs and benefits (Dye, 2005). These political constraints cause legislators to sometimes seek expert help (Etzioni, 1967, p. 386; Lindblom, 1959, p. 84).

2.2.6 Political Business Cycle Theory

The election cycle was taken into account in the present study in order to test the political business cycle in the country. A number of researches such as that of Potrafke (2006) have indeed used the election cycle factor to explain the effects of an election on the country's expenditure, especially the education sector. Therefore, as Kenya is a democratic country, and elections are conducted every 5 years, in this study it was necessary to test the effects of elections on educational expenditure. This concept is attributed to the great work of Kalecki (1943). According to Kalecki, governments are subject to pressure from the entrepreneurial class to maintain the discipline of the workforce through the fear of unemployment. Therefore, the ruling government has to intervene by coming up with policies to alleviate the worst effects of a recession in order to gain support from its citizens. This idea is not favorable to entrepreneurial class especially during economic upsurge.

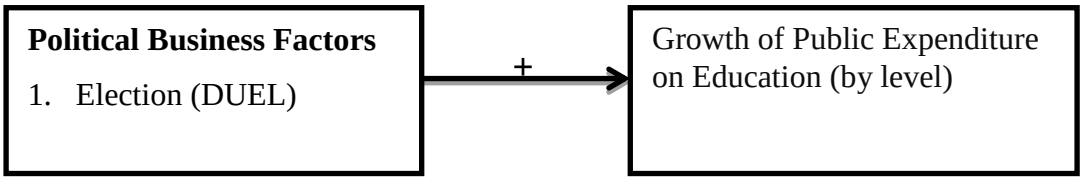

Figure 2.6 Factor(s) Derived from Political Business Theory

The political business cycle theory explains why the government in power tends to spend more during the election years and retrenches the trends to normal levels after elections. This means that public expenditure, fiscal deficit, and money supply increase in the year before and the year of the elections, and these factors contract after the elections, forcing public expenditures up and down respectively. A number of scholars have tried to give an explanation of this theory and they include Block (2002), Allen, Suloch, and Sabo (1986), Hibbs (1977), Heckelman and Whaples (1996), Synder and Yackovlev (2003). According to Allen, Suloch and Sabo (1986), presidents prefer having low inflation and high unemployment during the first two years in office and reverse this to having low unemployment and high inflation during the last two years before the next election.

Table 2.1 Factors Affecting the Growth of Public Expenditure and Possible Effects

Factors	Effect	Source
A. Compensation Theory		
1. Globalization	+	Mzonde (2013), Yoon (2009), Ventura (2006) and Rodrick (1998).
B. Economic-demographic Theory		
2. Inflation	+	Sagarik (2013), Musgrave and Musgrave (1989), and Dye (1978).
3. Real GDP per capita	+	Musgrave and Musgrave (1989), Ramajo, Márquez, Pedraja, & Salinas (2007), She (2004), Fisher (1964) & Dye (1989)

Table 2.1 (Continued)

Factors	Effect	Source
4. Population growth	+	Musgrave and Musgrave (1989), and Dye (1978).
5. Students' enrolment	+	Hanushek and Rivkin (1997), and Al-Samarrai (2003)
6. Teachers' employment	+	Symeonidis (2015) and Alexander (1974)
7. Urbanization growth	+	Musgrave and Musgrave (1989), and Dye (1978)
C. Quantity Theory of Money		
8. Money supply	+	Friedman (2010) and Fisher (1911)
D. Fiscal Illusion Theory		
9. Grants	+	Oates (1988) and Sinitsina (2011)
10. Increase in fiscal deficit	+	Musgrave and Musgrave (1989), Oates (1988) and Dye (2005)
11. Indirect tax revenues	+	Musgrave and Musgrave (1989), Oates (1988) and Dye (2005)
E. Incrementalism Theory		
12. Lagged budget expenditure	+	Dye (2005) and Lindblom (1959)
F. Political Business Cycle Theory		
13. Election	+	Potrafke (2006), Allen et al. (1986), and Hibbs (1997)

Source: Author's Works

Note: + Means growth in the factor increases public expenditure

2.2.7 Income Distributional Effects on Education

The Benefit Incidence Analysis (BIA) method normally describes the impact of welfare on different groups of people or individual households of government spending (Demery, 2000). According to Karim (2015), benefit incidence analysis is a

tool used to evaluate the impact of government subsidy policy on the distribution of welfare in the population. The benefit incidence analysis method was pioneered by two World Bank studies in 1979 conducted by Selowsky (1979) for Colombia and Meerman (1979) for Malaysia. The benefit incidence analysis is considered a classic approach or a non-behavioral approach used to explain the income distributive effects of public expenditures. In a nutshell, benefit incidence analysis estimates the extent to which income or wealth needs to be raised if the household individuals or groups are to pay for government-funded public services (Brasington, 2002; Cuenca, 2008). In order to reduce both inequalities in income or wealth distribution and poverty in any particular country, the provision of social welfare services such as education is important (Karim, 2015; Sarkar, Rana, & Zitu, 2013; Buracom, 2011).

The analysis on whether public expenditure is either progressive or regressive is quite evident in the previous work of researchers – Son (2006) ; Sakellariou and Patrinos (2004); Martinez-Vazquez (2001) — which showed that public expenditure is progressive, while Castro-Leal (2000), Chu, Davoodi, & Gupta (2000), and Gemmell (1985) showed that public expenditure is regressive. It worth noting that segments of different income groups vary depending upon the distribution of the public expenditure, Sakellariou, and Patrinos (2004). The incidence of public expenditure varies and is determined by region, religion, caste, gender, and political support (Selden & Welsylenko, 1992; Blejer & Guerrero, 1990; Gemmell, 1985). It is worth noting that different studies have provided different analyses using the benefit incidence analysis method, for example, primary education expenditures is seen as progressive, Heltberg, Simler and Trap (2001) and secondary and professional education expenditure is seen as either progressive or regressive, Younger, Sahn, Haggblade & Dorosh (1999). Benefit incidence analysis approaches hae been used widely by a number of scholars and researchers in their studies, for example, Sakellariou and Patrinos (2004) also analyzed the incidence of public support for the private education sector in Cote d' Ivoire. Castro-Leal, Dayton and Mehra (2000) analyzed public spending on healthcare in Africa using this method, while Martinez-Vazquez and Robert (2001) applied it to the measurement of the impact of budgets on the poor.

In Kenya a few scholars have used the benefit incidence method including work by Demery and Verghis (1994) and Deolalikar (1999). A study conducted by Deolalikar (1999) on educational spending in both primary and secondary schools in Kenya using a benefit incidence analysis showed that access to secondary schools is inequitable and on increases while access to primary education is equitable. Table 2.2 below shows some of the previous benefit incidence analyses. Deolalikar's (1999) study did not cover the tertiary level of education in order to provide the complete comparison of enrolment rates at primary, secondary and university levels and their completion rates. Ronald (2014) assessed the effects of free day secondary education or what is referred to by Ronald as the subsidized secondary education (SSE) program, which accessed education resources in public secondary schools in Kenya. This did not reflect the bigger picture of the effects that subsidies have on public secondary schools in Kenya; instead, he assessed the effects in one direction only.

Table 2.2 Summary of Some of Previous BIA Research

Author/Year	**Country and Area of Research**	**Results**
Mzonde, Rodwell Sitembala Beni Kaipa. (2013)	**Malawi –** Evaluated incidence for public spending on education using BIA	Generally public expenditure on education was progressive at the primary level while regressive at secondary and tertiary levels.
Zahid Asghar and Mudassar Zahra (2012)	**Pakistan –** used the PSLM data set to analyze public spending on education	Basic education (primary and secondary) was progressive while higher education spending was regressive.
Buracom Ponlapat (2011)	**Thailand –** Public Education, Health and Welfare spending	Public spending on basic education was pro-poor while regressive on the tertiary level.
Chris Sakellarious and Partinos (2004)	**Cote d' Ivore** – Assessed the Private education in Cote d' Ivore	The result was progressive for the entire education system (only the rich took their children there).

Table 2.2 (Continued)

Author/Year	Country and Area of Research	Results
Takako Yuki (2003)	**Yemen –** government spending on education in Yemen using BIA	Basic education (primary and secondary) was pro-poor, even though secondary was almost neutral and Tertiary education was regressive.
Heltberg, Simler, and Tarp (2001)	**Mozambique** - Measured the prevalence of public spending on education in Mozambique	Education spending favoured the poor. The poorest half receives 36 percent while the richest quintile receives 33 percent.
Castro-Leal, Demery, and Mehra (2000)	**Africa** – Public spending on healthcare in Africa	Presented disparities in various household levels
Demery and Verghis (1994)	**Kenya** - use a dataset on Kenya to conduct their own research	University level education was regressive while primary education spending was strongly progressive.
Selowsky (1979)	**Colombia** - World Bank Studies on education	The subsidies on primary education were strongly progressive, but subsidies on higher education were regressive.
Meerman (1979)	**Malaysia** – World Bank Studies on education	The public spending on primary education was progressive while other levels were regressive.

These education programs (FPE and FDSE) require sustainable, reliable funding and better policies in order to attain desirable educational outcomes. In many nations, poor people are frequently the last to enrol in basic education, thus government outlay that improves access to education strongly favours poor households, World Bank (2004). This is not really the case in Kenya since students in some regions are unable to enrol in schools due to a lack of basic educational facilities, which is caused by inequitable resource allocation. There is no doubt that the government has been overwhelmed by the fast-growing population and the increased number of enrollments since the introduction of free primary and free day secondary education in 2003 and 2008 respectively.

According to Mathooko (2009), it has been estimated that 1.5 million children, who were previously out of school, had turned up to attend classes. Major concerns arising with such kind of high-rate enrollment are access, retention, equity, quality, relevance, and the internal and external efficiencies within the education system (MOEST, 2005). Therefore, the benefit incidence analysis approach in this study was used to determine the distributional effects of public expenditure on the education sector in Kenya. The study unlocked the criteria used while allocating budget to various sectors by the Ministry of Finance and how the Ministry of Education, Science and Technology allocates funds to its subsectors such as primary, secondary and University levels.

2.3 Conceptual Framework I, Models Used and Hypotheses

2.3.1 Conceptual Framework I

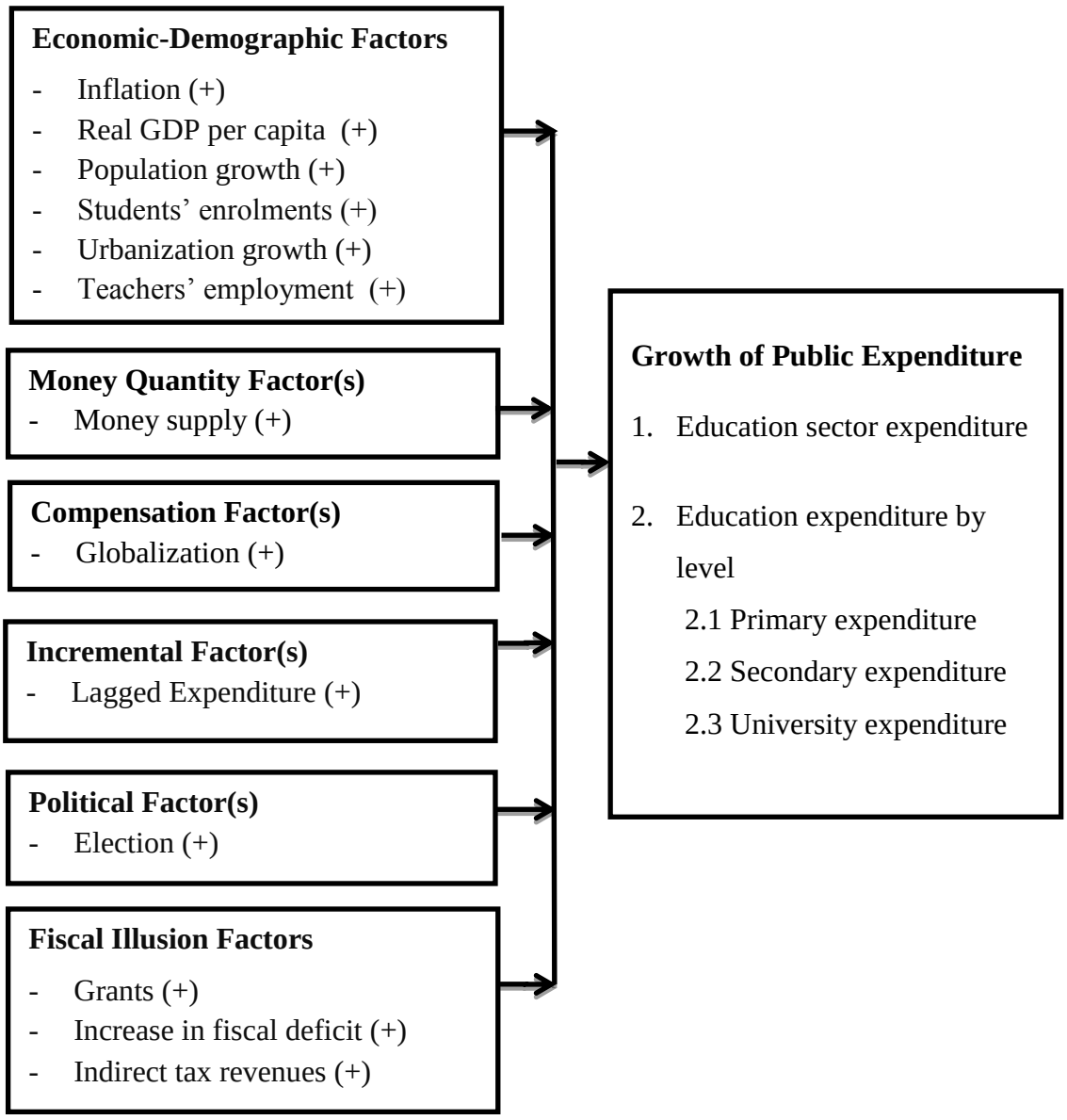

Figure 2.7 Multi-Dimensional Analysis of Factors Affecting Public Expenditure

Note: All of the factors are discussed in theories explanation part and Multiple Regression Analysis Method used to test these factors. Additionally, all of the independent variables have a positive effect on the dependent variables.

2.3.2 Models Used for Expenditure Growth

The study used various theories' factors as shown in conceptual framework I (Figure 2.6) to determine the changes in the amount of public expenditure with the intent of testing their effects on education provision in Kenya. As reported in a number of studies, some factors increase public expenditure while others reduce it, depending on certain situations, although the initial assumption was that all of the factors have a positive effect. This study used a number of variables, including per capita income growth, urbanization, inflation, student enrollment, election, lagged budget expenditure, globalization, increases in fiscal deficit, and indirect tax revenues and grants, just to mention a few factors. This study also used individuals and mean per capita expenditure since educational services accrue to the individual pupils that enjoy educational services. According to Davoodi, Tiongson and Sawitre Tiongson (2003, p. 8) and Selowsky (1979, p. 4), if government services are provided to individuals, they should be used in the analysis. This study investigated the effects of the factors that affect changes in public expenditure on education, that is, public expenditure at primary, secondary, and University levels.

According to Snyder, Jr. and Yackovlev (2000, p. 19), primary and secondary, and vocational and university expenditure, should be evaluated independently. This study used public expenditure as the main dependent variable, which was further subdivided into four variables: education spending as a percentage of total government expenditure (GE), primary education spending as a percentage of government expenditure (GP), secondary education spending as a percentage of government expenditure (GS), and university education spending as a percentage of government expenditure (GU). In relation to the theoretical arguments and empirical results, as well as the availability of variables, the models below have been developed at each level of education to carry out the investigations. Testing each education subsector or level separately was important since it was possible to know the impact of income distribution well. Further, the government had different programs for each level of education, for example, primary hard free education for all pupils, while secondary had the only tuition meant for day school goes. University on the other hand few poor students received bursaries and loans.

In order to test the impact of this policies the equations below represent subsectors or levels.

$$GE=a + b_1INF + b_2PCG + b_3URB + b_4DEF + b_5ITR + b_6GE_{t-1} + b_7PTEM + b_8STEM + b_9DUEL + b_{10}GLOB + b_{11}GRANT + b_{12}TGE$$

(Model-1)

$$GP = a + b1INF + b2PCG + b_3URB + b4DEF + b_5ITR + b_6GEt\text{-}1 + b7PTEM + b_8DUEL + b9GLOB + b_{10}GRANT + b_{11}TGE$$

(Model-2)

$$GS = a + b_1INF + b_2DEF + b3ITR + b_4GLOB + b5GSEN + b_6DEBT + b_7MS + b8AGRI$$

(Model-3)

$$GU= a + b_1PCG + b_2URB+ b_3GUEN+ b_4\ GE_{t-1}+ b_5DEBT + b_6GLOB + b_7GRANT + b_8DUEL$$

(Model-4)

Whereby:

GE, GP, GS, and GU stand for public expenditure on overall education; primary, secondary, and University levels; PCG = Real GDP per capital growth; URB = urbanization; INF = inflation rate; GRANT = foreign grants received by the government; DUEL = holding of general elections; DUPE = free primary education; GE_{t-1}= one year lagged public expenditure on education; GLOB = globalization; DEF = fiscal deficit; ITR = indirect tax revenue; GPEN = primary school gross enrolments; GSEN = secondary school gross enrolment; GUEN = university gross Enrolment; PTEM = Primary teachers employment; STEM = Secondary teachers employment; AGRI = public expenditure on agriculture; TGE = total public expenditure; DEBT = public domestic debt; MS = money supply (M2) growth.

a = constant, and $\mathbf{b_1}$ to $\mathbf{b_{11}}$ = the oefficients of each independent variable with the dependent variable.

2.3.3 Hypotheses Explaining the Growth of Public Expenditure

This study intends to test the following 14 hypotheses using the above models.

H1: An increase in per capita income will put pressure on the government to increase the provision of school facilities, hence the need to raise education expenditure.

H2: An increase in the population in urban centers will increase the demand for more schools, hence the need to raise education expenditure.

H3: An increase in enrolments across all levels of education pushes the government to increase public spending on education since the need for basic facilities and capacity becomes imminent.

H4: The introduction of free primary and free day secondary education programs increases the number of pupils and students in both primary and secondary respectively, which in turns pushes up total public expenditure on education in order to reduce class sizes and pupil/student teacher ratio.

H5: An increase in inflation causes essential goods and services to be expensive, which in turn puts pressure on the government to provide them, hence increasing public expenditure.

H6: An increase of foreign grants to the government from development partners causes the government budget on the education sector to go up, which raises public expenditure.

H7: Politicians in the government tend to come up with good public policies when the election year approaches, which forces the government to spend more in order to please voters to vote them back into office and this increases public expenditure.

H8: The government allocates a larger budget than what was allocated in the previous year as it uses the previous year's budget as a baseline and this increases public expenditure.

H9: Globalization causes the government to spend more on education and retaining retrenched employees in order for the economy to be competitive in world markets, and this causes public expenditure to increase.

H10: An increase in the rates of indirect taxes results in the growth of indirect tax revenue, which in turn leads to a rise in public expenditure on education.

H11: A rise in the budget deficit will positively affect the amount of public expenditure on education because the government has extra capacity to fund education programmes.

H12: An increase in money supply leads to the growth in economic activities, including that by the government, and this causes the public expenditure on education to be high.

H13: An increase in public debt raises the government's ability to finance public programmes and this hikes expenditure on education.

H14: Ever-increasing public expenditure on agriculture affects educational funding negatively since the agriculture sector is given a prioriety in terms of resource allocation, and therefore competition arises.

Note: H1 to H14 – means hypotheses

2.4 Conceptual Framework II, Income Distributive Effects, and Hypotheses

2.4.1 Conceptual Framework II

The researcher carried out a benefit incidence analysis (BIA) to find out whether public expenditure on education is pro-poor or pro-rich. The impact of government expenditure on the education section can be known through evaluating education equality, efficiency, accessibility, and coverage, as seen in Figure 2.7. The rationale behind this was that if public spending on education is pro-poor, then the government is expected to share the responsibility of providing elementary education to the poor and the marginalized. This study sought to answer the following questions: are government expenditures in education sector progressive, both at household income/wealth groups and regionally? Who are the beneficiaries of the government expenditures across different educational levels?

The education status in each subsector is not pleasing before government intervention. It is characterized by administrative internal inefficiency, poor school accessibility, high repetition and drop-out rates, and poor student retention rates. This typically changes when the government intervenes by allocating more financial resources to the subsector. This was true with the introduction of free basic education

in Kenya whereby the number of students completing school increased, and retention rates and enrolments at various levels of education increased as well (Figure 2.7). The researcher of this study evaluated how government subsidies affect the distribution of benefits among the population and the tools used information on the consumption of government services by the population and the cost of providing these services in order to assess the rate of benefits from government spending across income groups.

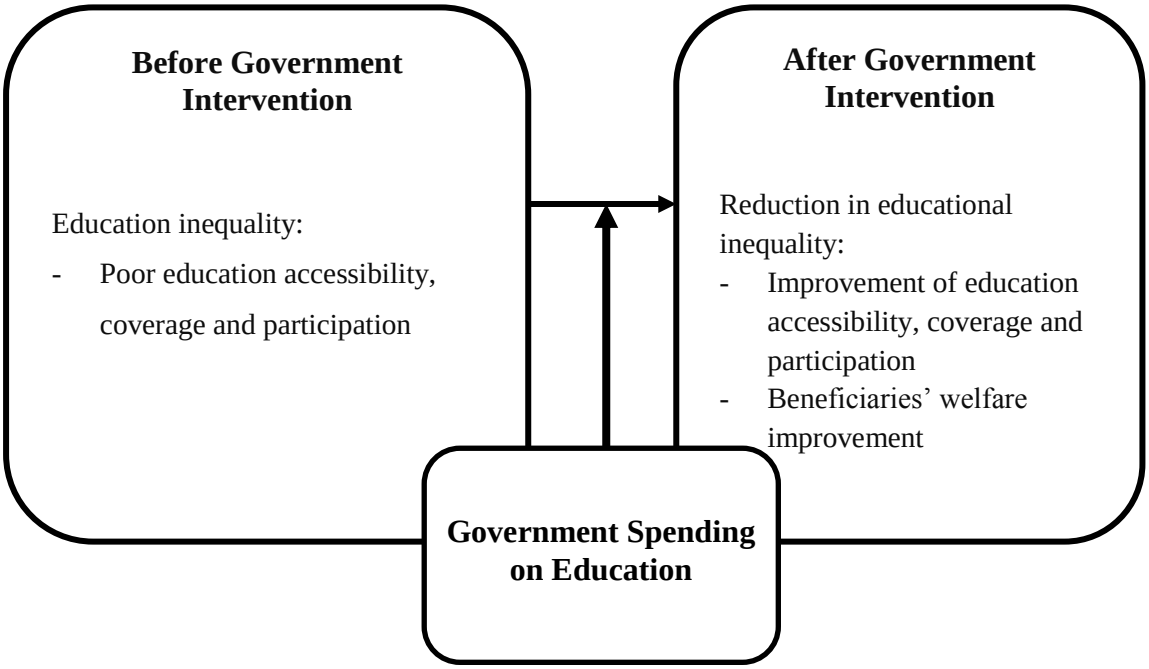

Figure 2.8 Conceptual Frameworks II, Concept of Benefit Incidence Analysis

The study results on the income distribution effects of public expenditure on the education sector in Kenya follow: public expenditure at the primary education level was progressive and supported the poorest household income groups, and this means that at free primary education program is pro-poor. Secondary expenditure was almost neutral and this implies that the free day secondary program started is yet to benefit the poor. Secondary expenditure, therefore, is not progressive, as found in the result contrary to hypothesis two (H2) and University in overall public expenditure on education favored the rich as well.

2.4.2 Income Distributional Effects' and Hypotheses

In order to understand the impact of the free primary and free day secondary education policy, four hypotheses were formulated in order to ascertain Kenya's effort to spread equity nationwide and regionally. This was made possible by making use of empirical reviews provided by previous studies, and the following formulated hypotheses were used in understanding the income distributional effects of public expenditure on education.

H1: Public expenditure on primary education in Kenya is progressive and improves the income distribution for the poorest household income groups.

H2: Public expenditure on secondary education is progressive and improves the income distribution for poor households.

H3: Public expenditure on the university education level benefits the richest household income group mostly, and increases income inequality.

H4: Overall, public spending on education in Kenya is pro-rich and does not improve income inequality among household income.

Note: H1 to H4 – means hypotheses

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This study used both qualitative and quantitative methods to collect the data from Kenya in order to carry out research on the factors affecting the growth of public expenditures on education, education provision and development, and the effects of income distribution on education. The researcher in this study used various approaches to explain the factors affecting the growth of public expenditure on the deducationsector in Kenya. The study used three separate analytical methods: first, standard multiple regression analysis (SMRA) was used to analyze the factors affecting the growth of public expenditure on education. Second, benefit incidence analysis (BIA) was used to assess the effects of income and wealth distribution policy on education. Third, descriptive and exploratory methods were used to examine education provision, education development, and policies and reform trends. These methods were designed to analyze the content and character of education expenditure, especially the enrolment trend, the growth of public expenditure, education provision, and lastly, the impact of income distribution government policy on the education sector.

3.2 Data Collection

The researcher collected both primary and secondary data on public expenditure on education. The data used for the factors affecting the growth of public expenditure covered expenditure on various education levels, primary, secondary and university levels from the past 35 years (1980 to 2014). The data were obtained from various domestic and international institutions, for example, from the Ministry of Education, Science and Technology, the Ministry of Finance, the Kenya National

Bureau of Statistics, the Ministry of Devolution and National Planning, the Central Bank of Kenya, and other government agencies such as the higher education board (HELB) and the commission of university education (CUE). The study also collected data from previous studies, survey reports, and international organizations such as the IMF and World Bank.

In order to conduct the benefit incidence analysis, data from various surveys were used and they included economic and demographic data on the Kenya Integrated Household Budget Survey (KIHBS), 2005/06, and Kenya Demographics and Health Surveys (KDHS) for the years 2008 and 2014 were also be used. The data mentioned covered the number of pupils, households, and the average number of members per household income group and region.

3.2.1 Quantitative Data Methods

The quantitative method typically uses random sampling and structured data collection which are suitable for the intended responses. It has been routine for a number of researchers to use this method since it is easy to summarize, compare, and generalize the results. It involves the testing of models and hypotheses derived from theories in order to carry out evaluation of the size of the phenomenon of interest, in this case the impact of public expenditure on the education sector. The use of secondary data for this kind of research was crucial since the data were previously collected by credible and reliable institutions, such as government agencies and international organizations such as the World Bank and the International Monetary Fund. It has been argued that vcollection of secondary data by individual researchers might not be credible or reliable, especially when it comes to government data on expenditures and budgets. Boslaugh (2007) explained that secondary data analysis normally involves the analysis of data collected by someone else. According to Vartanian (2010), other than the initial purpose of the collected secondary data, these data can be used to answer other research questions. Desk research was carried out where consolidated data were not available so as to extract data from various documents.

The collection of the research data initially was expected to take at least three months (August - October 2015) but instead, it took more than 10 months. The

researcher failed to meet expenditure experts at the ministry of finance and education on many occasions, and interviews were postponed many times, meaning interviews carried out on different days and even months. In Kenya, the online data and information of various government sectors are only available from the year 2000 onwards. This made it difficult to collect data for previous years and for this research, data from 1980 to 1999 mostly were found filed or kept in stores. The most difficult part was obtaining the filed documents, which were not easily located, and if they were found, copies or scans of the same were made, which was a bit costly. This made it difficult to collect the data, especially for the time series analysis, from government institutions such as the Ministry of Education, Science and Technology and the Ministry of Finance and National Treasury on the government financial year's expenditure and revenue.

3.2.2 Qualitative Methods

The qualitative data collection method was used to provide useful information in understanding how the government prioritizes financial resource allocation and expenditure processes. This was only possible through interviewing experts at the Ministry of Finance and National Treasury (MOFNT), and the Ministry of Education, Science, and Technology (MOEST). This method used both descriptive and exploratory methodologies to analyze the factors affecting the allocation of financial resources to education (as discussed in Chapter 4). This information was crucial in unearthing the impact of government educational policies on free primary and secondary day education, and the income/wealth distribution effects on household groups and across provincial regions.

A case study approach was used since it is one of the qualitative data methods that help in providing an in-depth understanding of the effect of education policies. The researcher was able to use a number of techniques in gathering information while using the case study approach, for example, use of interviews, observations, and the use of documented information were possible. According to Burawoy (1998), explained that the case study method is for discovering faults, and then modify the existing theories, which mean that it is a way to restructure or improve the theories instead of approving or rejecting them. A case study is appropriate for studying

phenomena in a particular setting when they are not mutually exclusive so long as the researcher's focus is to get deeper information in a complex situation (Yin, 2013). A case study's aim is to know what happens in a particular given area, for instance, knowing how something is being done, and under what conditions and why did it happen (Thomas, 2015).

The data obtained from the qualitative approach offered insight into and a deeper understanding of how the government allocates financial resource and at the same time gave a broader picture of the current situation regarding how the government distributes financial resources to households and regionally. In terms of the second objective, analyzing income distribution on education through benefit incidence analysis, secondary data were obtained from various household surveys. The income of households, the number of students enrolled in various levels of education, and government subsidies for basic education and higher education were crucial in knowing the impact of government expenditure policy regarding the education sector.

3.3 Data and Unit of Analysis

The researcher used different analysis techniques to assess the factors that affect the growth of public expenditure on education, and the income distribution effects of public expenditure on education in Kenya.

3.3.1 Factors Affecting the Growth of Public Expenditure on Education

The descriptive research design was adopted for this part of the present study, which was ex post facto in nature. The population of the study comprised the population of all public schools in Kenya at all levels of education; primary, secondary, and university. The main rationale for selecting the three levels of education was to determine the level of education and region (rural or urban) that had the highest public expenditure funding in Kenya during the period under study (1980 – 2014). Just as explained in the introduction to the data collection above, secondary data were used due to the focus of the study, and the data were obtained from various sources, for example, the Ministry of Education, Science, and Technology, the Kenya

National Bureau of Statistics, the Central Bank of Kenya, and international organizations such as World Bank.

The analysis included tests for outliers, tests for normality, linearity, and homoscedasticity, and tests for multicollinearity, amongst other techniques. The descriptive tools for this study included the use of graphs, tables, figures, and percentages, while the analytical tool used the contemporary co-integration test in the analysis of the data. The Standard Multiple Linear Regression Analysis Method using SPSS (21) software was used to determine factors that affect the growth of public expenditure on the education sector.

3.3.2 Tests for Outliers, Normality, Multicollinearity, and Autocorrection

This study conducted tests for normality, linearity homoscedasticity. Autocorrection, multicollinearity, and outliers were used. Preliminary tests were conducted to check the outliers on both the dependent and independent variables individually by using scores, histograms, and box plots. The reason why this was conducted was to make sure that the variables obeyed the requirements of normality and homoscedasticity. Linearity and homoscedasticity, when conducting a regression analysis, this study established that both the independent and dependent variables were normally distributed around their respective means. Here, levels of skewness and kurtosis that measure the distribution of values around the mean and the peaks of normal distribution curves in that respect were observed.

It is generally accepted that the correlation between any independent variables of values above 0.70 indicates the presence of multicollinearity. A test for multicollinearity and the values of the Pearson correlation coefficients were observed to see how they related to each other. Multicollinearity was checked at the model level through observing the values of both tolerance and the value of the inflation factor (VIF). According to Pallant (2007), the values of tolerance that is an inverse of the VIF should be above 0.10 to signify the absence of multicollinearity. In this study, the author assessed the values of the Durbin-Watson (DW) in order to check for serial correlation (autocorrelation) in the models that were run. The DW was expected to take a value of two in ideal cases, which means that there is no problem of autocorrelation.

Descriptive statistics were generated to show the specific characteristics of both the dependent and independent variables. This was in order to justify the use of standard multiple linear regression analysis methods to confirm the claims made in the theories. Hence, the annual averages of the variables in the period under study were observed and also the dispersions of variables around the mean were generated to see how the values of the variables were different from each other. Inferential statistics were used to assess how each factor affected the growth of public expenditure on education while controlling for other factors.

3.3.3 Operationalization Definitions of Variables

1) Dependent Variables (DVs)

This study has four main dependent variables: total public expenditure on education (GE), public expenditure on primary education (GP), public expenditure on secondary education (GS), and public expenditure on university education (GU). The information and data collected to analyze these variables came from different sources; for example, the total expenditure of whole education sector was obtained mainly from the Ministry of Education, Science, and Technology (MOEST) and the Ministry of Finance and National treasury (MOFNT). The primary, secondary, and university expenditures were extracted, examined, and added up. The expenditures incurred at each level of education and other related costs were used for the purpose of this analysis.

Table 3.1 Operational Definitions of Dependent Variables and Sources of Data

Factor	Operational Definitions	Sources
A. Dependent Variables		
GE	Education spending as percent of total government expenditure	Ministry of Finance and National Treasury; Ministry of Education, Science and Technology
GP	Primary education spending as percent of total government expenditures	,,

Table 3.1 (Continued)

Factor	Operational Definitions	Sources
GS	Secondary education spending as percent of total government expenditures	,,
GU	University education spending as percent of total government expenditures	,,

2) Independent Variables (IVs)

Table 3.1b below shows the definitions of the independent variables that were used in this part of the study according to the models expressed above.

Table 3.2 Operational Definitions of Independent Variables and Sources of Data

Factor	Operational Definitions	Sources
B. Independent Variables		
PCG	Per capita GDP growth rates	World Bank Website
URB	Percentage of population living in urban	Kenya National Bureau of Statistics
GLOB	Sum of exports and imports as a percent of GDP	Kenya National Bureau of Statistics
INF	Average annual inflation rates	Kenya National Bureau of Statistics
GEN	Total number of pupils enrolled per year at each level	Ministry of Education, Science and Technology
DUPE	Use of dummies, 0 = values for years before introduction of FPE and 1 =	Assigned by the researcher

Table 3.2 (Continued)

Factor	Operational Definitions	Sources
	values for years after introduction of FPE	
DUSE	Use of dummies, 0 = values for years before introduction of FDSE and 1= values for years after introduction of FDSE	,,
TGE	Total public expenditure as a percent of GDP	Ministry of Finance and National Treasury
AGRI	Public expenditure on agriculture as a percent of total government expenditure	,,
GRANT	Amount of monetary aid given to government per year as a percent of GDP	,,
DUEL	Use of dummies, 1= values for two years before, and a year of election, and 0= values for two year election.	Assigned by the researcher
GE_{t-1}	Lagged actual education expenditure as a percent of total expenditure	,,
DEF	Budget deficit as a percent of total expenditure	Central Bank of Kenya
DEBT	Domestic public debt as a proportion to total government expenditure	,,
ITR	Indirect tax revenue as a share of GDP	,,
MS	Growth rates of money supply (M2)	,,

3.4 Income Distribution Effects on Education

In order to determine the distributive wealth effects on education, the benefit incidence analysis approach was used in this study. Benefit incidence helps to know who is benefiting from various public services and describes the welfare impact on different groups of government spending. The behavior of both the household in their children enrolments to schools and government policies on education spending have a great impact on how education spending is being distributed across the country. According to Demery and Gaddis, (2009), the household behavior to enroll their children in schools and the government's behavior in trying to distribute income through subsidizing education costs at different levels determine education sector outcomes. It is worth noting that benefit incidence uses both public expenditure accounts and survey data to determine the public subsidized services in the country. The benefit incidence analysis approach was used since this method had a number of benefits at the macro level that met the needs of this study.

The household wealth groups were established by use of the Kenya Integrated Household Budget Survey 2005/06, and the Kenya Demographic and Health Surveys of 2008 and 2014. In order to calculate the annual income or wealth per year for each number of households and the average number of members per household in each household income or wealth group, the variables that were used included were: the average per capita expenditure per year; the number of households; the average number of members per household; and the number of pupils enrolled in school. This study also carried out an assessment of public spending policy on education concerning whether it benefits the poor or rich households in Kenya.

This was computed by the proportions of the benefits each region and household income or wealth group receives to the total expenditure on education. In order to assess the distributive effects of public spending policies in Kenya, income or wealth in a particular household and public spending per household were added together so as to come up with new cumulative household income or wealth after the execution of public spending policy on education. The study used both household income and wealth to determine who benefits from the government subsidies on the education sector. It is worth to note that the Wealth Index is a composite of a

household's cumulative living standard and is normally calculated using easy-to-collect data on a household's ownership of selected assets, such as televisions and bicycles, materials used for housing construction, and types of water access and sanitation facilities (DHS, 2017).

Wealth is a household characteristic that often has a large effect on a service such as education. A number of experts and researchers have argued in support or against the use of the wealth index in comparison to wealth income. This study supports the use of both household income and the wealth index, though it used demographic and health surveys in calculating household wealth in 2008 and 2014 since only one integrated household budget survey was done in 2005/06 with household income data. Just as recommended by the Demographic and Health Survey (DHS) that wealth index; first, allows for the identification of problems particular to the poor, such as unequal access to education or health; second, allows the governments to evaluate whether government funding on education and other interventions is reaching the poorest; third, the wealth index is principally valuable in countries that lack consistent data on income and expenditures, which are the traditional indicators used to measure household economic status; and fourth, wealth quintiles are expressed in terms of quintiles of individuals in the population, rather than quintiles of individuals at risk for any one education or population indicator.

This wealth quintiles approach has the benefit of creating information directly pertinent to the main question of concern, for example, access to services for the population as a whole (DHS, 2017). Kenya being is one among the countries without consistent and frequent household data on income and expenditure. It worth noting that the first and last time a survey on household income was done by the national government was in 2005. This study has used these data to make a comparison with the demographic and health surveys of 2008 and 2014. The Gini Coefficients for each level of education was calculated to check if changes in the proportions if wealth in each household income group was valid. The results from Gini Coefficient analysis showed whether the wealth inequality had declined or increased (Lorenz, 1905). When the proportion of the wealth of the poor households to national income decreases, the corresponding Gini Coefficient will increase, implying that income inequality has not declined and the opposite of this was true.

The Gini Coefficients model that was used in computing this was as follows:

Gini Coefficient = $1 + 1/N\text{-}2(Nx_1 + (N - 1)\ x_2 + \ldots + 2n - 1 + x_{n)/NX}$

Where by N = Represent the number of household income/wealth groups. There will be five household income groups;

X = It is a proportion of income of all household income groups, that is, 100 percent, and 1, 2 … n represent the numbers of house income group; and

X = The proportion of the income of each household income group to the total income

When using the BIA approach, in practice the conduct of the incidence analysis (BIA) generally involves three steps: first, obtain the estimates of the unit cost or subsidy – (data for this step usually come from public expenditure accounts, for example, budget data on per student costs or subsidy by level of schooling); second, impute the subsidies to individual or household identified as users of the service by using information available on use by different income groups (for example clinic visits as reported by different households in consumer expenditure surveys); and third, aggregate individuals or households in groups well-arranged by income or expenditure, and then distribute the benefits among the different groups and arrive at an estimate of the incidence of per capita subsidies accruing to each group.

3.4.1 Operational Definitions

1) The proportion of income for each household income/wealth group is the amount of income for each household income/wealth group that has to be expressed as a proportion of the total income of all household groups.

2) The per capita expenditure of each household income/wealth group is the expenditure for the household income divided by the number of individuals in that particular household income group.

3) Household income/wealth groups are groups in which the households are organized from the poorest to the richest in terms of average per capita expenditure and then they are in five groups, as indicated in Kenya's Integrated Household Survey (2005/06), and the Kenya Demographic and Health Surveys of 2008 and 2014.

4) The proportion of pupils enrolled at each level of education for household income/wealth group and region is the ratio of the number of pupils enrolled at each level of education for each household income group and region to the total number of pupils enrolled in all groups and regions.

Table 3.3 Operational Definitions of Income Distribution Effects on Education

Variable	Years of Study	Source of Data
1. Public expenditure on all education levels	1980 - 2014	MOFNT and MOEST
2. Household income groups and regional groups	2005 (KIHBS), 2008 & 2014 (KDHS)	Surveys (KIHBS & KDHS)
3. Average number of members per household in each group and region	,,	,,
4. Per capita expenditure	,,	,,
5. Proportions of pupils enrolled at each education level for each household income group and region	,,	,,
6. Proportions of income for each household income group to total national income	,,	,,

Source: Author's Work

Note: 1. MOFNT and MOEST represent the Ministry of Finance and National Treasury, and the Ministry of Education, Science and Technology respectively.

2. KIHBS and KDHS represent the Kenya Integrated Households Survey and the Kenya Demographic and Health Survey respectively.

CHAPTER 4

THE EDUCATION SYSTEM AND REFORMS IN KENYA

4.1 Introduction

The education sector transformation and restructuring can be traced back from the pre-colonial to the post-colonial era. The education system during pre-colonial era was based on the colonial system of education, which was a western form of education. Christian missionaries began the western form of education in Kenya in the 18th century, which initially aimed only to serve religious purposes (Sheffield, 1973) and to support western ideologies. The education aims were further widened to contain basic practical skills in order to meet the colonial government demands at the time. The colonial administration brought in a racially-based education system whereby Africans were taught separately from whites and other races mostly to study "industrial education," whose aim was to prepare them for their colonial masters.

There is no doubt that Kenya is striving hard to provide quality and affordable education for all. Kenya is amongst the best education providers on the African continent also this being undermined by limited educational financing, ethnicity politics, and poor income distribution policy that makes it difficult for Kenya to improve even further as expected. When a country invests more in education development, a number of benefits will be witnessed: an increase in economic growth, an increase in wealth and income distribution, more skilled and trained manpower, more quality opportunities, a drop in population growth, and high life expectancy and good health. Additionally, low crime rates, national peace, and political stability were witnessed (Abuya, & Musyoka, 2013; Ojiambo, 2009; Amutabi, 2003; Psacharopoulos, 1988).

4.2 Education System in Kenya

The government of Kenya has increased universal access to basic education in an attempt to support National Educational Goals, International Conventions on education, and UNESCO instruments by supporting fully free primary and Free Day Secondary Education (Ndonga, 2017). The education system in Kenya has undergone various reforms and restructuring. It first began with the 7-4-2-3 system, then became the current 8-4-4 system, and soon to the newly-proposed 2-6-6-3 system. It is worth noting that changes in educational policy affect not only the learning process but also the allocation of the education budget. Under this study, the two education systems mentioned above (7-4-2-3 and 8-4-4) were crucial in evaluating education expenditure, outcomes, and Kenya's economic needs.

4.2.1 Current Education System (8-4-4)

The second president of the Republic of Kenya, His Excellence President Daniel Torotich Arap Moi, introduced the 8-4-4 system of education in 1985. The 8-4-4 system was tailored to improve the problems related to academic education, for example, a scarcity of technical skills. The government of Kenya initially introduced vocational subjects at both primary and secondary education levels under "the umbrella" of the 8-4-4-system syllabus (Mwiria, 2002, Republic of Kenya, 2003). The current education system, 8-4-4-system, consists of eight years of primary, four years pf secondary, and four years of university education. At the end of 8 years of study at the primary level, pupils take a national examination (Kenya Certificate of Primary Education - KCPE). If a pupil passes the KCPE he/she will join a secondary school, which takes 4 years before the student will sit for the secondary school national examinations (Kenya Certificate of Secondary Education – KCSE) in order to study at a higher education level. Diagram 4.1 above shows the current education system and a brief explanation of each main phase in the system.

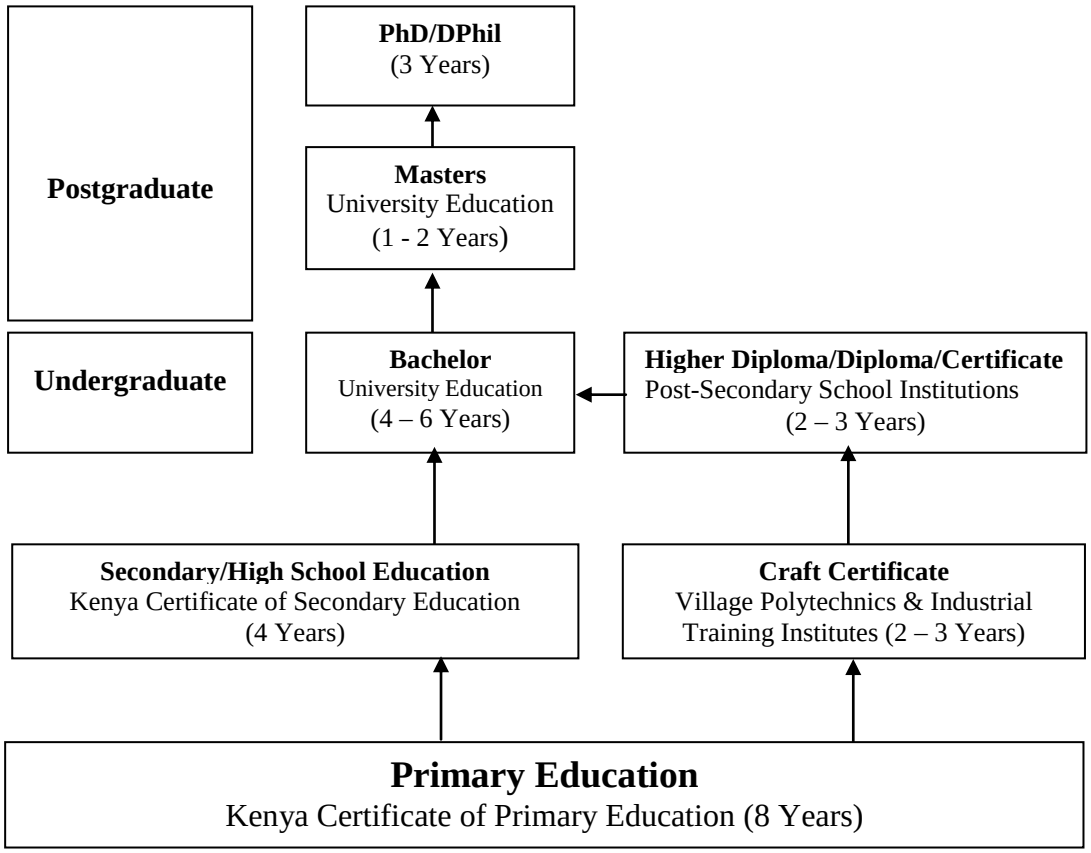

Figure 4.1 Current Education System (8-4-4 System)

Source: Nuffic, 2015.

Primary Level: This is the first stage of entry to the 8-4-4 education system and students normally take 8 years to complete it. The eight years are divided into three levels; lower primary (grade 1-3), middle primary (grade 4-5), and upper primary (grade 6-8). Grades one to eight are commonly referred to in Kenya as standard 1-8 or class 1-8. Primary education caters to children aged between six and thirteen years or above. The basic education provided at the primary level is meant to prepare students to contribute the talents, skills, and knowledge that they have acquired to the country's development in the future. Although primary education is free for all, it is not compulsory, which makes it difficult for all parents to have their children study. Primary pupils sit for their final examination after eight years of study; the pupils take the Kenya Certificate Education Examination (KCPE), which is controlled by the Kenya National Examination Council (KNEC) under the Ministry of

Education, Science, and Technology. Upon receiving the examination results, normally at the end of December of every year, students are able to know if they will be able to join national, provincial, or district secondary schools.

The government of Kenya has been overwhelmed and has faced fewer facilities and high students-teacher ratios due to the high number of students that are enrolled to primary schools. For example, in 1980 the number of public primary schools in Kenya was 10,255 with 3,926,629 pupils in comparison to 69, 671 schools and 12,970,611 students enrolled in 2014. The impact of free basic education (primary and secondary) in Kenya is explained in both chapters 5 and 6, which provide results and explanations in relation the distribution of educational resources. Primary education in Kenya is also provided by other education partners and stakeholders; namely, church missions, community-based groupings, and international organizations. The Ministry of Education, Science, and Technology through the Teachers Service Commission provides teachers for these schools, although the stakeholders manage them. The private sector also plays a major role in education sector development and improvement. As witnessed recently, there have been both basic and higher institutions of higher learning across the country owned by private entities. This study did not include the contribution made by these private education stakeholders since it was limited to public-provision education policy.

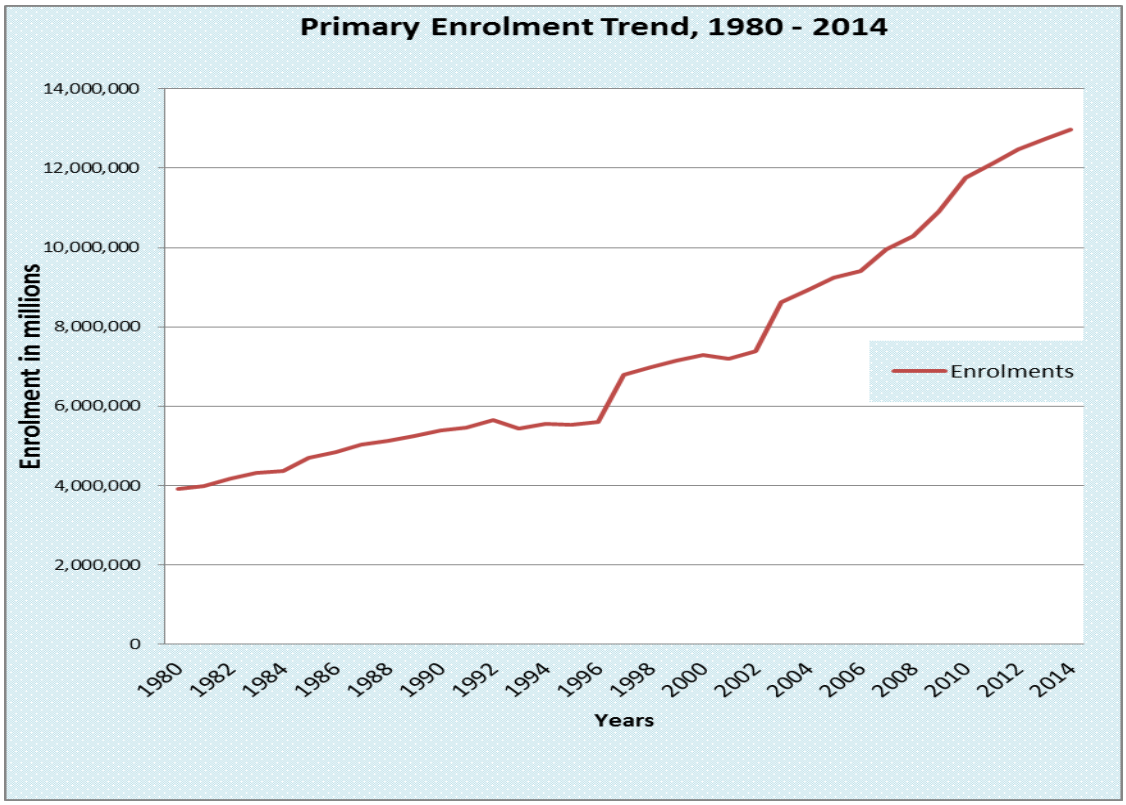

Figure 4.2 Primary Enrolment Trend

Secondary Level: This is the second phase of the education system in Kenya whereby students take four years before sitting for their final national examinations, commonly referred to as Kenya Certificate of Secondary Education (KCSE). When students pass the KCSE examinations, it enables them to go to university after attaining the required pass points. Public secondary schools in Kenya are categorized into national, provincial, and districts schools. In order for a student to get admitted to above-mentioned categories of secondary schools, he/she needs to have passed the primary school leaving examination (KCPE) where the selection is made according to the students' scores and grades. This means that students that score the highest scores/points get admitted to nationals schools while those that get scores slightly above average or average get admitted to provisional and districts secondary schools respectively.

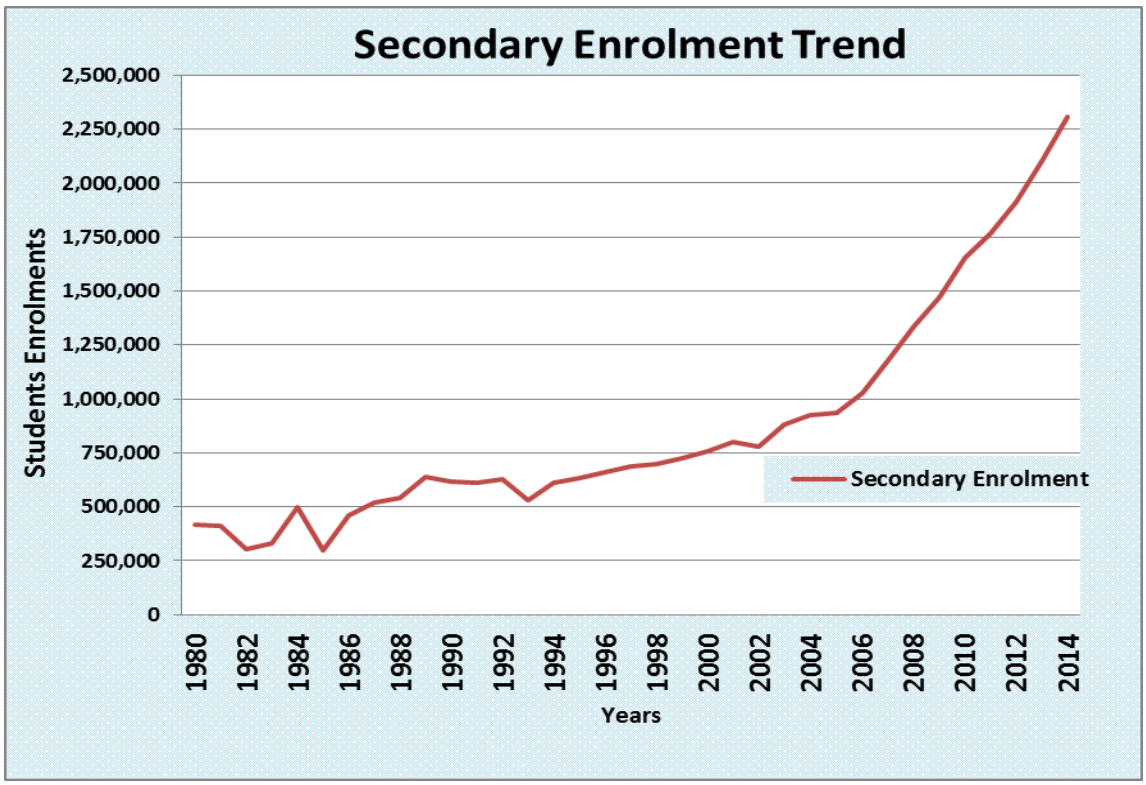

Figure 4.3 Secondary Enrolment Trend

The secondary school curriculum was tailored in a way that was to meet the needs of students that proceed to university levels or colleges and those that end their studies at this level. The number of students seeking admission at the secondary level is huge at the moment and keeps on increasing each year. This has been explained according to two main reasons: the introduction of free primary education in 2003 and the introduction of free day secondary schools in 2008. For example, in 1980 there were 1,785 public secondary schools in Kenya with 419,201 students, while in 2014 the number of secondary schools was 8,734 with 2,331,697 enrolled students. The introduction of free day secondary education in 2008 was not really free since parents were to pay for indirect costs (which included textbooks, pens, school uniforms, and other essential items) was higher than what the government was paying as tuition fee. What is clear with this form of government subsidy at the secondary level is that more needs to be done and improved in order for every poor child to benefit maximally.

University Education Level: This is one of the higher education sector levels in Kenya that includes universities, higher professional education institutes,

polytechnics, and industrial training institutes. In this study, the university education level was used as a representation of the higher education level and the study concentrated more specifically on public universities. In order to propel Kenya's economy, there is a need to educate more people at higher levels of learning, such as universities. According to Wanjala and Malechwanzi (2016), there are many individual and social benefits when one obtains a higher education, which has been directly linked to social and economic development as witnessed in rising economic giants such as China. Regarding Kenya's university programs, undergraduate study takes 4 to 6 years, postgraduate (master) study takes 1 to 3 years, and the Ph.D. programs take 3 years, as indicated Figure 4.1.

The university enrollment was steady from 1980 to 2000 before increasing sharply from 2000 to 2014, and total enrolment was 29,469 and 631,795 in 1980 and 2014 respectively. The University Act of 1985 established the commission for higher education, which promotes university education that recommended the formation of both public and private universities to enable all students finishing secondary schools to join institutes of higher learning. Therefore, the universities in Kenya offer bachelor, master, and doctoral degree programs. It is also worth mentioning that universities in Kenya have not left out students that have not met the university pass mark or points by introducing diploma and certificate courses.

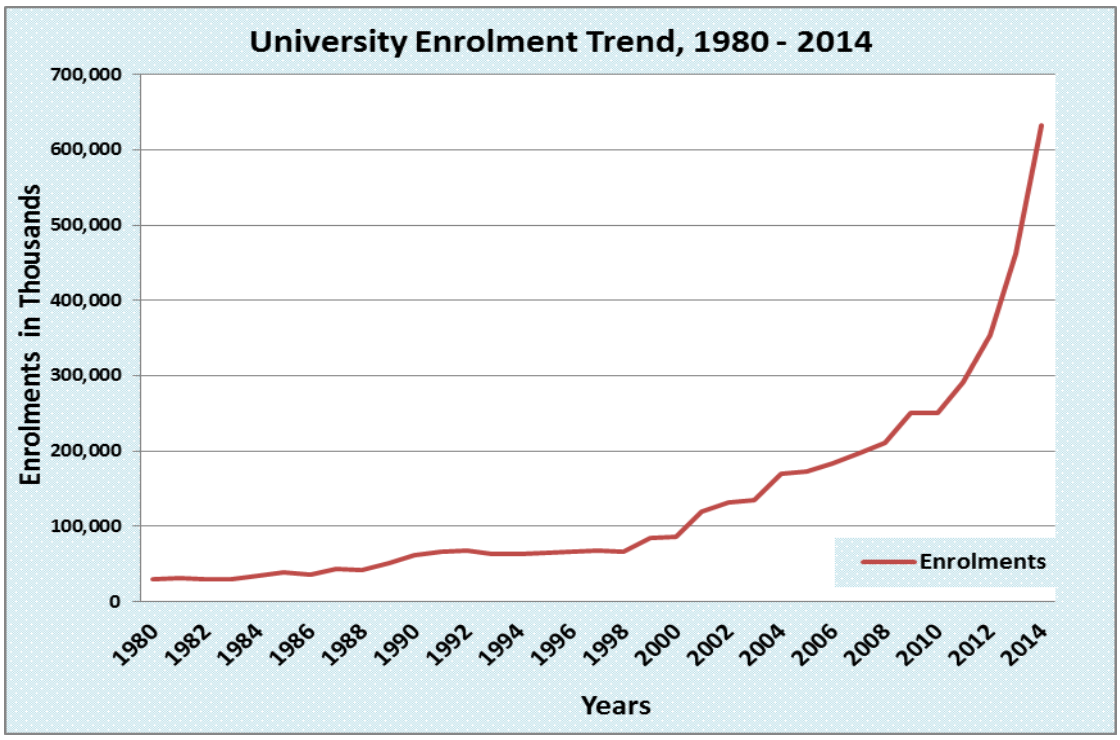

Figure 4.4 University Enrolment Trend

Source: Ministry of Education, Science and Technology, and University Websites

In Kenya, bachelor degree programs take between 4 to 6 years, depending on the discipline and faculty one chooses. The bachelor's programs frequently end with a research project and without it one would not be allowed to graduate. Apart from engineering, architecture, veterinary science, and medicine programs, which take 5 to 6 years, the rest of the disciplines take 4 years. At the masters level one studies between 1 and 2 years and in most cases, the first year is for lectures and the second year is for doing thesis/research work. The highest level in the education hierarchy is the doctoral program, which takes 3 years to complete. Upon successful completion of this program titles Ph.D. and DPhil) are awarded to graduates.

In addition to the bachelors, master's and doctoral program provided at the universities, the national polytechnics offer higher professional education and confer diplomas and certificates. Upon completion of a diploma course at the national polytechnics, one can then move on to enroll in a university bachelor's program. In

order to understand who benefits from government education policies and the quality of education in Kenya, this study discussed two important education bodies; namely, the Higher Education Loans Board (HELB) and the Commission for Higher Education (CUE), which are authorized to provided loans and bursaries to needy children and mandated to regulate, coordinate, and assure the quality of higher education respectively. The responses of education experts at the Ministry of Education, Science and Technology on why the Kenyan education sector is experiencing high enrolment increases across all levels of education are very clear.

In short, the experts' answers basically rotated around the following four points. First, enrolments increased due to the introduction of free primary and free day secondary education, whereby more students enrolled in school. Second, the government created awareness on the part of the public in terms of requesting every parent or relative to encourage school students that had dropped out of school due to a lack of school fees and female students that had become pregnant to study again. Third, the government built more schools through the help of the Constituency Development Fund (CDF) kitty and donations from foreign organizations.

This attracted more students to join the school since they could get where to study from and most importantly where they can sleep for many schools in Kenya are boarding schools. Fourth, the University Act of 1985 promoted university education funding for both public and private universities. The needy students and those that could not afford to pay their university tuition fees could get student loans from the Higher Education Loan Board (HELB), which they were expected to pay back after they completed their studies. This initiative encouraged many students from secondary levels to join the university level, thereby increasing enrolments at this level. The Following is a statement by one of the senior education experts in response to why Kenya has experienced rapid enrolments at all levels of education.

> The higher enrolments experienced across all levels of education in Kenya especially in primary and secondary levels are as a result of government's recent education policies. Free primary education which was introduced in 2003 and free day secondary education which was introduced later in 2008 has immensely contributed to higher numbers joining primary and secondary

education. The government has also improved schools accessibility in Kenya by building more schools and this has encourage more students to join schools. Also, university students' loan provided by the government has by far allowed the poor majority students to join university level. As you can see, these were the main factors that led to the increased of enrolments in all levels of education in Kenya

4.2.2 Higher Learning Funding Institution and Commission

The Kenya government has two key education bodies or institutions that are mandated to regulate, coordinate, provide funding solutions, and insure the quality of higher education as a result of the growth and expansion of the university sub-sector there. One is the higher education loans board and commission for higher education. The Higher Education Loans Board (HELB) was established by the Higher Education Loans Board Act. of 1995. It came into being on the 21st day of July 1995 through the Kenya Gazette Supplement (Cap 213A). The Board (HELB) gets its roles from the Act that defines the conditions for loan disbursements, bursaries, and scholarships for university students in public and private universities. Its obligation has since been extended to award loans and bursaries to Kenyan students at public Technical Vocational Education and Training (TVET) institutions and at universities within the East Africa Community member states. Since the HELB plays a major role in promoting higher education in Kenya it was important to explain how it performs its duties, especially in disbursing loans, as explained below.

The Higher Education Loans Board (HELB): This is divided into two categories, loans for direct entry students and Alternative loans (for salaried students). Direct entry loans are given to new students from high schools that directly join both public and private universities, not only in Kenya but also within the East African Community. The Higher Education Loan Board awards loans to students ranging from a minimum amount of KES.35,000 to a maximum of KES.60,000. This loan generally attracts an interest of 4 percent per annum and the beneficiaries are required to repay their loans upon completion of their studies. On the other hand, alternative loans are given to salaried students that want to study for undergraduate and postgraduate (master and Ph.D.) degrees. The loan is awarded according to the ability

of the student to repay the loan while studying and it attracts an interest rate of 12 per annum, 3 times higher than direct entry student loans. Alternative loans are repayable within 48 months, basically 4 years after obtaining them (HELB, 2016a).

Other higher education loans board products include bursaries, postgraduate, the Training revolving fund (TRF), and lastly, the Afya elimu fund loans (AEFL). HELB provides bursaries to extremely needy undergraduate students, for example, orphans in the community. On the other hand, the postgraduate scholarship is awarded based on merit to students pursuing masters or doctoral studies. The applicants are required to pay a processing fee of KES.3, 000. The training revolving fund (TRF) is Kenya's effort to assist public servants access funds at subsidized interest rates in order to enable them to develop skills and knowledge to perform their duties effectively. The TRF amount awarded basically ranges from a minimum of KES.30, 000 to a maximum of KES.500, 000 repayable within 72 months. Lastly on the HELB product list is the Afya Elimu Fund loans (AEFL) which is tailored to benefiting students pursuing certificate and diploma studies in health-related courses, for example, nursing clinical medicine laboratory technologists, technicians' pharmacists and pharmaceutical technologists' experts (HELB, 2016b).

The Commission for Higher Education (CHE): This is one of the crucial education commissions that begun by an Act of Parliament in 1985, which is clearly defined under the Universities Act Chapter 210B. The purpose of this commission is to regulate, coordinate, and insure the quality of higher education, especially with the rapid expansion of the university level in Kenya. It is also authorized to carry out the following tasks. First is to certify the kind of courses offered at the universities. Second is to guarantee the maintenance of standards, quality, and relevance in all aspects of university education. Third is to encourage continued improvement in the management of the quality of the university. Fourth, it receives applications from sponsors and investors that want to establish universities in Kenya. It is also worth mentioning that universities in Kenya are independent self-governing institutions responsible for standards and the quality of the academic awards and programs they provide. How is this possible? Each university has established internal procedures for the implementation of appropriate standards for guaranteeing and enhancing the quality of the education that students get.

4.2.3 Previous Education System (7-4-2-3)

In 1967, three countries comprising Kenya, Tanzania, and Uganda formed what came to be known as the East Africa Community. The three countries adopted a single system of education, the 7-4-2-3, which was similar to the British system of education. The 7-4-2-3 systems meant seven years of primary education, four years of secondary education, two years of high school, and three-five years of university education. Under the 7-4-2-3 system of education, children were to do three kinds of examinations before joining the university. First, the East African Certificate of Primary Education (EACPE), for primary education that was done at the end of every seven years. Secondly, the East African Certificate of Education Examination (EACE) for secondary education done at the end of four years. Thirdly, the East African Advanced Certificate of Education (EAAC) for high school education was done after two years.

Table 4.1 Education Systems in Kenya (1967 - 1984)

Education Level	**Examination (1967 – 1977)** (With Regional Identity)	**Examination (1978 – 1984)** (With National Identity)
Primary	EACPE, 7 years	CPE, 7 years
Secondary	EACE, 4 years	KCE, 4 years
High School	EAACE, 2 Years	KACE, 2 years
University	University based, 2-5 years	University based, 3-5 years

Source: Author's Works Based on Various Reports from the MOEST

Note:
1. EACPE means the East African Certificate of Primary Education while CPE is the Certificate of Primary education;
2. EACE means the East African Certificate of Education Examination while the KCE is the Kenya Certificate of Education;
3. EAACE means the East African Advanced Certificate of Education while the KACE is the Kenya Advanced Certificate of Education;
4. Universities were left to come up with their own examinations and management of them.

4.2.4 Proposed Education System (2-6-6-3)

In the proposed new system of education (2-6-6-3), pupils will spend two years at pre-primary, six years at primary, six years at secondary and three years at the university levels. This is meant to replace the current systems of education (8-4-4) discussed above. If the current system is removed it means that both the Kenya Certificate of Primary Education and the Kenya Certificate of Secondary Education examinations will be scrapped too. According to the new scheme task force led by former Moi University Vice-Chancellor Douglas Odhiambo, it was recommended that primary and secondary examinations be terminated by 2018 and 2021 respectively. H.E. President Uhuru Kenyatta approved the proposals for the new system of education.

The following were the reasons provided for scrapping the current education system (8-4-4). First, it keeps pupils in primary school for so long. Secondly, pupils were taught more subjects which required more textbooks and funding. Thirdly, learning amenities were overstretched with the implementation of the 8-4-4 system. Fourth, pupils and teachers needed more time to complete the syllabus, which forced them to have extra learning hours during the schools' closure. Despite the task forces' recommendations on the benefits of the new form of educations system, parents and major stakeholders criticized it by saying that it was costlier than the current system. In reply to their claims that the proposed system would be costly, the head of the task force provided recommendations on the new system of education, saying that education is an essential investment that a country makes for its people and that the cost should not be a factor in dismissing the proposed system.

The planned education system was tailored to accommodate other disciplines, for example, technical work, self-employment, and wealth creation in the country. The Kenya pupils would benefit more if only the new system of education would be well organized and implemented. The appraisal for the new education system would be through continuous assessment tests, offered by the respective schools, to enable the learners' transition by evaluating the students' skills, capabilities, and abilities. This is the major reason for scrapping the national examinations for the primary and secondary levels in Kenya by 2018 and 2021 respectively.

4.3 Trends of Education Policies and Reforms

Education reforms have been continuing since Kenya's independence in 1963 and it is good to mention that education was among the top three things in the government's developmental plan. The government immediately after gaining independence vowed to eliminate or reduce the three "enemies" of development: poverty, illiteracy, and disease. In developing countries such as Kenya, education provision and the training of citizens are crucial for economic and social development. For example, Kenya's vision 2030 blueprint, sessional paper No.1 of 2005, and the new constitution of 2010, clearly explained the education policy framework and the county's developmental plans. In order to vividly explain the trend of the education policies and reforms in Kenya, this study divided the explanation into four presidential eras.

The education sector in Kenya has undergone several changes and challenges since independence. In order to overcome these challenges, the government through the past five decades has formulated and implemented various policies under the four presidents' eras. It is worth noting that various educational commissions, committees, and task forces in most cases were formed to address the education sector problems (see Table 4.7 – 4.9). Since the education system was adopted from the colonial British government during independence, the education commissions and reports at first were tailored towards promoting national unity and the creation of adequate human capital. Later in the 1980s, reports in addition to national unity and sufficient human capital focused on social, economic, and cultural undertakings. The national goals and vision towards the education sector focused on a wider dimension. Just as shown in Table 4.1 below, the 1990s' and 2000s' education policies and reports focused on education funding, quality, relevance, and general education problems such insufficient teachers, school infrastructure, and cultural-related issues.

It is important to note that until today, the majority of Kenyans, about 74.4 percent, live in rural areas (World Bank, 2015) with limited access to well-resourced primary and secondary schools and only between 24 and 36 percent of the students that finish primary school join secondary schools. Inequality complex physical terrain without access to infrastructure and poverty are among the leading factors that limit

access to education among the majority of the Kenyan rural population five decades after independence. Furthermore, politics played a major role in determining the way in which resources were distributed until 2010. In the past, the executive used state power to distribute resources to regions that were perceived as loyal to the ruling political party, while he denied resources to regions that were perceived to oppose the ruling party. As a result, many regions did not have access to state funding for infrastructure, including health, education, roads, and electricity because they were perceived to be in the opposition. During this time, bureaucratic agencies were weekend and misused to serve the political agenda of the ruling party, instead of delivering services to the public as required by the law. In policy decision-making, loyalty to the ruling party was prioritized over data (Wasonga, 2013).

Since 2007, the government has extended free basic education to secondary schools. In this case, the government provides funding for tuition and learning materials. The parents on the other hand are required to pay for other costs such as lunches and infrastructure development (Millingan, 2011). This policy has been unable to address the inequality in education because in most cases, the cost of infrastructure development is often more expensive than the majority of rural poor parents can afford. As a result, schools that have already developed their infrastructure tend to do better than the majority of those that have not. Among the most critical challenges that the education sector faces still today are increased inequality, lack of access to education, high costs of basic and higher education, and quality (Somerset, 2011).

4.3.1 Education Policies During Early Missionary, Colonial and Independence

In order to understand the colonial education policies in Kenya and how their legacies have continued to impact the context of education policies today, three historical events are important: 1) early Christian missionary activities, 2) early European and in particular British interest in Kenya, and 3) education during independence. Education during the early missionary period in Kenya: Christian missionaries who built schools, hospitals and churches in Kenya in the 1800s started the first and dominant education for Africans. German missionaries were the first to

establish schools along the Kenyan Coast in the 1840s. Access to education provided by Christian missionaries was limited to the areas that the missionaries had reached and the resources they had since missionary activities were not funded by governments. It is also important to note that most dominant missionary communities, namely German, American, and British, settled in different parts of the country, and came from different Christian denominations, for instance, Catholic, Anglican, Methodist, Lutheran, Quaker, and Presbyterian. Since missionaries came from different countries, they came with different education policies, approaches, and resources. Each provided education independent of the others (Keshavjee, 2010). By the 1920s, for example, a number of Christian missionary organizations had established schools in Kenya for example (Amatsimbi, 2013). Even though early British settlers had arrived in Kenya by 1846, and had in 1891, education for Africans was not funded by the first British education department therefore making difficult for African children to join schools.

Table 4.2 Early Christian Missionaries' Schools

No.	Name of School
1.	Church Missionary Society (CMS)
2.	Friends Africa Mission (FAM)
3.	Mill Hill Order of the Roman Catholic Church (MHM)
4.	Consolata Catholic Mission (CCM)
5.	Gospel Mission Society (GSM)
6.	Seventh Day Adventist (GOG)
7.	African Inland Mission (AIM)
8.	Church of Scotland Mission (CSM)
9.	Pentecostal East Africa Mission (PEAM)
10.	Salvation Army (SA)

Source: Amatsimbi, 2013.

As a result, Christian missionaries remained the sole financiers of education for Africans. They owned all of the schools and financed public education (Mwiria, 1991). At the end of the First World War, Kenyan soldiers returning from the war abroad had been exposed to global politics. They had been recruited into the British Army, fought alongside their British counterparts, and learned English as well as about political organizations. They used their skills in war and politics to mobilize and organize the local people to form political organizations to resist British racial policies. Local political organizations such as the Kikuyu Association and Young Kavirondo Association were formed. These groups were instrumental in pressuring the colonial government to fund education and to provide equal quality education for all since it was collecting high taxes from the locals (Amatsimbi, 2013). In the 1920s local political pressure and resistance pushed the colonial government to get involved in education. However, not much was achieved until Kenya's independence in 1963.

Early European/British Interest in Kenya: In 1884, Germany's imperial chancellor, Otto von Bismarck, convened the Berlin conference (November 1884-February 1885). The goal of the conference was to partition Africa among European powers. This would prevent conflict and possible war among the European powers over Africa. Before 1884, European powers such as the U.K., Spain, France, Portugal, Belgium, and Germany had been involved in different parts of Africa where they made trade treaties with local kingdoms and councils. Africa had been all along a great source of resources, including minerals and raw materials. However, this was culminating into a conflict among the European powers as each European nation sought to expand its territory in Africa (Okeke-Agulu, 2010). It is important to note that the 19th century was the peak of industrialization in Europe. Raw materials, most of which were drawn from Africa, were essential for the European economy and a long-term strategy to control these resources was necessary.

Prior to the Berlin Conference, two European nations were dominantly involved in East Africa (Present Kenya, Uganda, and Tanzania). These were the United Kingdom, which occupied present Kenya and Uganda, and Germany, which had occupied Tanzania. Their early involvement was tied to commercial explorations and interests that were based on treaties with local community councils and kingdoms. These treaties were viewed as temporal and were hence exposed to

uncertain change if and when a new European nation would come into the region with a more lucrative trade deal. A common understanding among the European powers was to find a international political and economic mechanism that would enable them to protect the resources in the areas in which they were involved in Africa for the benefit of their countries. In the United Kingdom, the economy was on the decline following the impact of, among other things, the United States of America's independence. Establishing protectorates in Africa as a source of free or cheap raw materials was a necessary alternative.

In the 1884/85 Berlin Conference, the U.K. acquired Kenya and Uganda as a British East Africa protectorate. From that time on, the U.K. established a formal presence in and occupation of this region. Its economic and political structure was basically one multinational company, Imperial British East Africa (IBEA), backed by a lean British Authority. The company brought together a swath of British investors with interest in agriculture, mining transport etc. The local British authority was meant to build the confidence of the British people in investing in East Africa (Gjersø, 2015). In 1888, Imperial British East Africa was granted the Royal Charter to exploit the British spheres of influence in East Africa. In 1895, the U.K. declared Kenya a British protectorate. Soon afterward, white settlers from the U.K., Australia, and South Africa began to arrive and settle in Kenya (Mwiria, 1991). It is important to note that from the start, the U.K. did not have a clear policy for developing an economic development strategy for East Africa but rather a policy to extracted resources and protected this extraction.

The inequality in education in Kenya is rooted in the fact that right from the start, the British state did not have a definitive education financing policy for all of its 47 colonies around the world, Kenya included. This approach to education prevailed until the 1960s. As a result, the education sector was guided by flexible general principles controlled by the Secretary of the State for the colonies. Therefore, education financing policies depended on 16 well-outlined factors such as the attitude of the colonial governor towards educating local people in the colony, the status of the director of education in the colony, the influence of Christian missionaries in the colony and in London, the conditions of the local economy, and Strength of Local African pressure groups amongst other factors (Whitehead, 2007). In 1920, Kenya

was declared a British colony and Africans opposed the decision. At the time, a sizable number of British settlers had settled largely in the Kenya highlands and in major towns where infrastructure was centralized. Education soon became a key instrument of colonization. A number of measures formed early British education policies: 1) the Kenyan society was categorized into three racial categories, namely Africans, Asians (mainly Indians), and Europeans; 2) national values were organized along racial ideology that became the ruling ethic; and 3) resources allocated to the education sector were distributed. While all Kenyans were taxed, more revenue to the education sector was allocated to European followed by Asian (Indian) schools even though these were the minority. European schools used a different curriculum, which was defined as superior to the one used in African schools (Mwiria, 1991).

By 1925, there was no single public high school for Africans in the country. In response, the Kiambu Local Native Council decided to build the first high school in Githunguri for the community. Mobilized by the Kikuyu Association, they sought permission from the colonial government, which at the time controlled licensing. Other Local Native Councils countrywide, namely, Nyeri, Murang'a, North Nyanza (Abaluhyia), Central Nyanza (Luo), and South Nyanza (Kisii), each voted to raise £ 10,00 for the construction of the schools. Even though local communities had their own resources to build schools, the colonial government refused to grant the permit. In protest and civil disobedience, the Local Native Councils began to raise funds for the schools and opposed the government authority in their areas. The resistance took 5 years until 1930 when the colonial government granted the permits, having realized the growing agitation (Wamagatta, 2008).

Access to primary education was also restricted for Africans. Colonial policies limited the number of primary schools for Africans on the basis of cost control. On the other hand, European and Asian children were entitled to open access to seven years of primary and four years of secondary education. In 1947 for example, European children received 60% of government funding compared to 0.4 % allocated to African children. In order to curb the inequality, missionary schools provided 41% of the funding to African children through missionary schools while African communities through community self-help organizations provided 54% of the funding for African children. However, inequalities prevailed. By the 1950s, about a decade

to independence, 98% of Europeans were attending secondary school. In 1953, 90% of the students enrolled in schools public and private combined were Africans. However, only 10.7% of the total expenditure, recurrent and non-recurrent, was allocated to the education sector. Furthermore, only 49% of this was allocated to the education of Africans even though Africans constituted the majority of the population in need (Somerset, 2011).

Education during independence: This was the turning moment of education provision, especially for the black Kenyan population. All Kenyans were now able to attend schools without racial or any restrictions as existed during colonial masters. This study has divided education reforms and development into four presidential eras as discussed below.

4.3.2 Education During the First President (1964-1978)

The first president of Kenya and founding father was His Excellence the Later Mzee Jomo Kenyatta and he was the president from 1963 to 1978. He had just taken power from the British Imperial colonizers and it was during his leadership that many sectoral policies were put into place, including education policies. Kenya established an education commission in 1964 immediately after its independence in 1963 (see Table 4.3). This commission was to meet for two goals; one was to develop reliable and skilled "manpower" to propel the economy, and second, to help in eradicating poverty in the country (Eshiwani 1993). A number of education policies and reforms to kick-start the education sector after the colonial masters had left were formed during this period.

His Excellence the late President Mzee Jomo Kenyatta was at the forefront to fight three main "enemies" of development: illiteracy, poverty, and disease. This essence was meant to improve human power through the provision of education and the improvement of poor citizens' welfare during independence. The elimination or reduction of these three "enemies" of development was crucial for a young nation that needed more skilled and enough manpower in order to improve its economy. In the first decades after independence, the approach to education policies did not change much. A number of reforms and changes in education policies relied deeply on the recommendations of education commission reports (Opondo, 2000).

Table 4.3 Education Policies During the First President (1964 – 1978)

Year	Policy Reforms	Purpose
1964	Ominde Report	National unity and the creation of sufficient human capital for national development were the main focus and replacement of the colonial masters' education system
1965	The Sessional Paper No. 10	Focused on improving domestic skilled manpower and equalizing economic opportunities for all citizens and gave recommendation on the need for the Universal Primary Education
1967	Teacher Service Commission Act	Established a single teachers' employer and unified teachers' welfare body
1968	Education Act	Introduced measures and controls to streamline the administration of the Ministry of Education, and the Minister for Ministry of Education became in charge of management
1970	University of Act , Nairobi	This Act led to the establishment of a National University (University of Nairobi - UoN).
1974	Presidential Decree	Introduction of FPE, and the government abolished fees for the first four classes of primary school
1978	National Council of Science and Technology Act	Authorized to coordinate research and direct research policy in Kenya. All researchers conducted in Kenya were approval by this body

Source: Author's Analysis Based on Various Research and MOEST Publications.

The first education reforms were based on the 1964 Ominde Report, which basically provided recommendations on reforming the colonial education system. It was meant to provide a policy framework for restructuring the education system in Kenya, from a colonial-oriented system to one that would foster national unity and development during the post-independence era. The commission had 160 policy recommendations on different aspects of the education system.

As a result of the report, the government brought to an end racial schools and a racial education system. It also granted bursaries for African students to join former European and Asian schools (Soft Kenya, 2011). By 1966, the number of community-owned and financed schools (Harambee Schools) had increased to 226 compared to 199 government funded schools. As a result, the government in 1967 began to assist the Harambee schools by paying qualified teachers. Under the First president of Kenya and the founding father, His Excellence the later Mzee Jomo Kenyatta and who was the president from the year 1963 – 1978. He had just taken power from British Imperial colonizers and it was during his leadership time that many sectoral policies were put into place, including education policies.

4.3.3 Education During the Second President (1978 – 2002)

Since independence, investment in education was based on the belief that education would trigger economic growth and development. This idea prevailed in the second era of Kenya's presidential regimes (1978 - 2002). After 14 years of Kenyatta's post-independence regime (1963 - 1978), Kenya was still facing pressure to meet the social demand for education since the education infrastructure was still inadequate to meet the growing demand for education at the time (Muricho & Chang'ach, 2013). The provision of subsidized education in Kenya has been a major "tool" for political party campaigns to gain fame and to be voted in. The previous governments' manifestos placed the provision of free or subsidized education as a top priority.

The leadership of the former second President of Kenya, President Daniel Torotich Arap Moi, failed to expand education in a sustainable way even though key policy reforms were formulated and implemented during this period. The reports of Mackay (1981), Kamuge (1988), and Koech (1999) were crucial during this era and

led to the recommendation of the 8-4-4 education system, the cost-sharing of school costs, and the introduction of research policy in that order (Table 4.8). Another notable reform was the introduction of the Kenya National Examination Council (KNEC) in 1980 to manage and conduct examinations for primary, secondary and some tertiary institutions. This was in an attempt to regulate examination management and to raise education standards and trust in the system. Foreign aid played a significant role in financing Kenyan education policies.

Foreign aid in part reduced the direct cost of education that had in the earlier years become a burden to parents, especially since parents were required to pay infrastructure levies that kept increasing. As a result, enrolment rates fell during the early years of this period because many poor parents could not afford the levies. Furthermore, structural adjustment programs forced the government to reduce spending on education and to re-introduce use charges. The government also halted the expansion of public schools in areas that did not have access to education. In this case, areas formerly marginalized remained largely without access to education.

Table 4.4 Education Policies During the Second President (1978 – 2002)

Year	Education Policy/Reform	Purposes
1980	1) Kenya National Examination Council (KNEC) - 1980	Led to the establishment of a national examination body (for primary and secondary schools and some tertiary colleges) to manage and conduct examinations
	2) Kenya Literature Act of 1980	This Act led to the formation of a publishing body to print, publish ,and distribute educational materials
1981	Mackay Report 1981/82	Removed A-Level education and recommended the formation of the 8-4-4 education systems and Commission for Higher Education

Table 4.4 (Continued)

Year	Education Policy/Reform	Purposes
1985	1) University Act, 1985	Led to the formation of the commission for higher education to promote university education at both public and private universities in Kenya
	2) 8-4-4 Education System, 1985	Restructured education whereby the education system changed from the previous one of 7-4-2-3 to 8-4-4
1988	Kamunge Report	Focused on education financing, quality, and relevance. This led to cost sharing among the government, parents, and local communities.
1998	Master Plan for Education and Training (MPET)	An internal audit that was carried by the Ministry of Education to try to introduce reforms in the 8-4-4 system of education
1999	Koech Report	Established to coordinate research and direct research policy

Communities, however, continued to build more community (Harambee) schools, and the community schools continued to absorb more students than government schools even though they had limited infrastructures. From the late 1980s to the early 1990s, Kenya was transitioning to a multi-party democracy. Politicians made access to education a political campaign agenda, forcing a shift in government education policy, and the government began to embrace and support community schools (Colclough & Webb, 2012).

4.3.4 Education During the Third President (2002 – 2013)

Just like his predecessors, the third president of Kenya, H.E. President Mwai Kibaki, made education a centerpiece of his electoral manifesto and without finding the best ways to sustain free education, his party quickly implemented a third FPE initiative in 2003. The introduction and implementation of FPE in 2003 was tricky because of the fact that sound analysis and assessment were superseded by political expediency, which led to inadequate preparation, consultation, planning, budgeting, and a smooth implementation of the program (Sifuna, 2007). Even with the above mistake, the expansion of access to basic education was the cornerstone of this presidential era and can be explained by the following reasons. First, the foreign aid for education that had been frozen in the late 1980s to early 1990s was reintroduced and increased.

Second, Kenya had domesticated the Millennium development goals and had additional support as a result of that. Third, Kenya's vision 2030 was strategically anchored in improving access and quality of education as an instrument of socio-political transformation. Fifth, Kenya's 2010 constitution made access to education a constitutional right and obligated the government to re-distribute and devolve resources to the education sector on the basis of constitutional imperative measures.

Table 4.5 Education Policies During the Third President (2002 – 2013)

Year	Education Reform	Purpose
2003	Free Primary Education Program	Introduction of Free primary education for all primary schools in Kenya (8 Years)
2005	The Sessional Paper No 1 of 2005	The Policy Framework for Education, Training and Research constitutes the Government policy on education and training and is based on the recommendations of this conference.
2006	1) ICT Education Policy	Led to the introduction of National ICT strategy. ICT to be used in schools, colleges, and to improve quality of teaching and learning.

Table 4.5 (Continued)

Year	Education Reform	Purpose
	2) National Early Childhood Development Policy Framework, 2006	The Government recommended the development of a comprehensive ECD policy framework and service standard guidelines.
2008	1) Free Day Secondary Education Programme	Establishment of free day secondary education program. It is aimed to help the poor access high school education
	2) Kenya Vision 2030 of 2008	The overall goal is to provide globally-competitive quality education, training and research for development to reduce illiteracy, improve the transition rate from primary to secondary schools, and raise the quality and relevance of education.
2010	New Constitution of Kenya, 2010	The constitution has provided for free and compulsory basic education at the primary level.
2012	Technical and Vocational Education and Training (TVET)	The government is to provide, promote and co-ordinate TVET and to assure quality, inclusiveness, and relevance.

Source: Author's Analysis Based on Various Research and MOEST Publications

In the years 2003 and 2007, the NARC government reversed the cost-sharing policy that included user charges and infrastructure levies. The policy was unpopular and had been a key component of the NARC campaign agenda in 2002. Basic education was meant to be free of indirect and direct charges. This resulted in the increase in primary school enrolment (Somerset, 2011). Despite all these changes, access to secondary education remained low. In 2009 for instance, secondary school enrolment rate was at about 50 percent while the primary to secondary school transition rate remained low at 55 percent (Odhiambo, 2016). Free Day Secondary Education was introduced in 2008 under the leadership of President Mwai Kibaki and

Prime Minister Raila Amolo Odinga in their coalition government. This secondary education policy was introduced to help the students from poor household access secondary education, which was low in terms of enrolments. Also, during this period, the introduction of Kenya's blueprint (Vision 2030) was introduced in 2008 and the New Constitution of 2010, both of which supported education initiatives and emphasized equitable resources (Table 4.5).

4.3.5 Education During the Fourth President (2013 – to date)

The current government under the leadership of H.E. President Uhuru Kenyatta has done much in the last 5 years on education policies and reforms. The notable education policies include provision of a Laptop/Tablet project for class one pupils in lower primary schools country wide, and the Basic Education Act (2013). This is an Act of parliament to give effect to Article 53 of The Constitution and other enabling not the provisions to promote and regulate free and compulsory basic education but also to provide room for the establishment of the National Education Board and the Education Standards and Quality Assurance Commission.

4.4 Public Expenditure on the Education Sector

The budget making and resource allocation process by the national government is set out under Section 35 of the Public Finance Management Act. The National Treasury leads the process at the national level and it is through this process that various sectors get the allocation of funds to enable them to run their operations. The National Treasury originates its mandate from the 2010 constitution, the Public Management Act 2012, and Executive Order No. 2/2013. The main functions of the National Treasury include the formulation, implementation, and monitoring of macroeconomic policies involving expenditure and revenue. It handles budget formulation for all state agencies apart from the Legislature and the Judiciary, which create their own budgets in line with the principle of separation of powers.

The Cabinet Secretary in charge of the National Treasury submits to the cabinet the national budget estimates and other related documents, and drafts bills for implementation of the national budget, excluding estimates for the parliament and the

Judiciary. The budgeting process is carried out throughout the year through the filing of quarterly and yearly expenditure returns from various ministries. The Ministries such as the Ministry of Education, Science, and Technology are required in advance to prepare a Medium Term Expenditure Framework (MTEF) budget to help the Ministry of Finance and National Treasury prepare the following year's budget proposals to be approved by parliament and the executive arms of the government.

In order to get a in-depth picture of the education sector funding criterion, this study not only studied the factors that cause the growth of public expenditure and who benefits from it but also went further to collect first-hand information about education expenditure by the Ministry of Finance and National Treasury (MOFNT) and the Ministry of Education, Science, and Technology (MOEST). The feedback of these two ministries helped to give a clear picture of how the education sector normally allocates funds to sustain its operations. Therefore, a number of departmental officers, especially in the Director Budget's offices and finance, were interviewed or given open-ended questions to answer.

4.4.1 Allocation of the Financial Resources to the Education Sector

General financial resource allocation: Generally in 2008 Worldwide, public expenditure on education was approximated to account for about 4.7 percent of the world's GDP and expenditure on primary education alone was at 1.5 percent. The Sub-Saharan African region used 5.0 percent of its GDP for public education expenditure, making it the second highest region after the North American and European regions combined, which had 5.3% (UIS, 2011). Even with this highest allocation of public financial resources to the education sector, there is still a need to increase expenditures on education, especially in the developing countries that are faced with enrollment increases. The allocation of public financial resources cannot be explained vividly without mentioning the budgeting process.

The budgeting process: This is the management and forecasting of both the revenues and expenditures of a state and normally encompasses three major stages: planning, preparation, and evaluation. The budgetary process commences with sound planning, which defines the goals and objectives of the ministry concern and the programs to attain those goals and objectives put in place. The budgetary resource

allocation is made to support the proposed plans and programs and it is worth noting that budgetary resource allocation is the preparation stage of budgeting. The distribution of resources cannot be made, however, until plans and programs have been recognized. Finally, the evaluation of the entire budget is done and typically includes an investigation of how funds were spent, and what outcomes resulted from the expenditure of these funds.

The government budgeting and resource allocation: This is a process that requires considering not only the political level, which is mostly the executive arm of the government, but also the proposals forwarded by various spending ministries. The government is able to accommodate new policies after instructing the ministries concern first to prioritize their requests. It should be stated that the financial allocation of resources across various programs is mostly a political decision, although they seek advice from those preparing the budget. In recent years, the political influence on the budget has been under less inspection, perhaps because measurement is uneasy and mostly indirect (Hillman and Swank, 2000). The Ministry of Finance and National Treasury (MOFNT) has confirmed that the implementation of budget allocations is often affected by the informal practices of public administration, political exchanges, and personal contacts (Kornai, Maskin, & Roland, 2003; Rodden, Eskeland & Litvack, 2003). The Ministry of Finance and National Treasury has the role of reviewing and commenting on the cost estimates presented to them by various ministries. Independently, each ministry as a tradition is asked to identify what policies and programs would be enhanced or cut back. MOFNT officers, personal communication, in January 5, 2017 explained the following:

> At Ministry of Finance and National Treasury, we carry out more consultations from other government arms especially in deciding which ministry or sector needs more allocation and which one requires less funding. Sometimes compromises are reached and priorities are made in making the allocation of financial resources. We normally allocate resources to each sector or ministry as per need, government policies, and of course with the availability of financial resources. In addition, we consider economic factors that influence financial allocation and they include; economic cycles, inflation, interest rates and various ministries and agents' competition.

There are four main factors that influence the government's financial decisions and allocation: political involvement, economic influences, social and demographic changes, and legal and intergovernmental matters, which emerged during the interviews. The allocation of public resources is not a simple process, especially at the macro level, as explained by a number of officers at the Ministry of Finance and National Treasury since the above factors are always considered. As mentioned above, apart from ministries' proposals and the political influence on financial allocation, other factors such as inflation, economic cycles, interest rates, and inter-ministries competition, which influence the economic environment, cannot be ignored in the process of resource allocation and budget forecasting. The economic cycles sometimes cause revenue declines that affect the financial allocation in the country. Revenues inform of sales or income taxes for example mostly are sensitive to economic cycles and may cause a decline in revenue collection.

On the other hand, during a recession, the government revenues are often hit hard and ministry allocations will definitely decline. Inflation generates uncertainty regarding the government revenue and expenditure predictions. This means that when the cost of living increases quickly, planned labor professionals are pressured to keep remunerations current with inflation. The changes in interest rates and competition in various government ministries may also affect the budget, and the deficit created in the budget may force the government to seek other sources of finance, such as borrowing. In relation to the above answer from the Ministry of Finance and National Treasury officer, the state places its interests and priorities first during the resource-allocation exercise. Since budgeting involves various stakeholders within the state, there is no doubt that stakeholders' priorities are not the same and each of them fights and competes to get more allocations to meet its goals and objectives. For example, the executive arm of the government may increase the number of ministries in the government in its passion for creating jobs and providing better services for citizens. This essence increases the demand for more enumerations and ministries' operational budgets.

On the other hand, the government may come up with more policies that may require huge funding and which cannot be facilitated by revenues alone. In Kenya, Free Primary Education, Laptops for pupils in the class 1 program, and Free Day

Secondary Education are some of the government policies on education requiring huge funding. Taking into consideration the two examples given above, such policies may end up causing an imbalance of resource allocation in other sectors in the state and thereafter affecting the education sector in the long run. The feedback from the Ministry of Finance and National Treasury' officers was in agreement—that government policies without considering sustainable sources of revenues and better management frameworks are not healthy for the economy since the government may be forced to seek alternative sources of revenue. MOFNT officers, personal communication, in January 5, 2017 explained the following:

> We are forced to seek for foreign aids, borrow both domestically and internationally in order to meet the budget deficit created by huge government spending. The government needs more capital to run state affairs and revenue it gets in most cases is not enough to meet the huge expenditures brought mostly by aggressive government policies. We are trying to find ways to reduce borrowing and interdependence from foreign grants hoping that everything will remain constant as it is.

It is clear that the public resources for the financing education sector in Kenya come from two main sources—national funding and international grants. This is in agreement with a UNESCO (2014) report in which it was reported that education funding in low-income countries, especially in Sub-Saharan Africa and Central Asia, depend upon national funding and international aid. The statement above, which is a summary of what the officers said at the Ministry of Finance and National Treasury during the interview, clearly explains the inability of the government to meet all of its expenditure, resulting in heavy borrowing and high taxation in the country. The government requires a consistent and sustainable source of income and preferable revenue from taxation so as to meet huge wage bills and various project expenditures. The implication is that government taxes will increase and household incomes will reduce and the end result is that the education sector will be affected as well, where some parents may not be in the position to send their children to colleges or universities.

There is no doubt that Ministry of Finance and National Treasury leadership considers the Ministry of Education, Science, and Technology first during financial allocation time. This means that government agendas and policies come first during the allocation of the resource. It is clear that the FPE and FDSE programs are creating pressure on the government as far as funding is concerned. The sources of revenue in Kenya seem to be increasing slightly compared to the expenditure brought by huge wage bills, various government projects and programs, increases in the population, and school enrollments, just mention a few factors. As echoed by the Ministry of Finance and National Treasury officers during the interviews, the financial management committee is coming up with revenue and expenditure framework plans so as to come up with a sustainable solution. MOFNT officers, personal communication, in January 5, 2017 explained the following:

> The current sources of revenue are not sustainable compared with ever-increasing government expenditure. We have come up with sustainable framework plan and soon we will share it with other arms of government to help us reduce expenditure. We are going to seek for public opinion and participation in order to develop a more comprehensive and sustainable plan. We expect it to include ways of managing limited resources and reducing expenditure.

The observation made during the interviews with the Ministry of Finance and National Treasury officers, in summary, is that the education sector gets more priority during the fund-allocation process and is normally influenced by the national government public policies on education. It was clear that allocation is based on the number of sub-sectors within the Ministry of Education, Science and Technology, the enrolments of students at each level of education, teachers, and supportive staff enumerations. Other factors that the National Treasury considered while carrying out financial resource allocation were the availability of funds, foreign donors' pledges and commitments, and households' capabilities to have their children study.

4.4.2 Allocation of the Financial Resources within the Education Sector

Allocation of financial resources at the ministry of education, science, and technology: The government since independence in 1963 and the introduction of free primary and free day secondary education has been the principal source of funding for the provision of education in Kenya. The public expenditure on education, especially at primary and secondary levels, is focused on financing inputs, which include physical investment, human resource investment, and recurrent inputs regarding the supply and development of education. The financial resources made available for meeting the public expenditure for education subsectors flow from the provisions made in the annual expenditure estimates of the budget of the National Government. The departments of personnel and administrative officers at the MOEST have a duty to regulate and control the number of teachers, educational administrators, and employees in education. Taking frequent checks and controls helps the MOEST to estimate the expenditure that is made by its finance department.

The Finance Department at the MOEST checks the budget and summarizes all of the budget plans of each sub-sector, which is then approved by the Minister of the MOEST before sending it to the Ministry of Finance and National Treasury for consideration. The Ministry of Education, Science and Technology has the role of allocating financial resources to various sub-sectors under its jurisdiction, although the Ministry of Finance and National Treasury has the final say concerning the amount of financial resources that the education sector will finally receive. From the interviews with the Ministry of Education, Science and Technology officials, although there seemed to be no standard procedure used to allocate the financial resources to the education subsectors, certain priorities were considered first. MOEST officers, personal communication, in April 14, 2017 explained the following:

> We check a number of priorities during allocation of funds; it starts from sub-sectors within the ministry of education and local governments (county governments). The budget committees prioritize on what should be allocated funds first. We then forward the proposed budget or spending of these priorities to the Ministry of Finance and National Treasury for consideration. The National Treasury leads in this process of resource allocation and in this

> case, it first consults and checks with the Ministry of Education, Science and Technology proposed spending in its Medium-Term Expenditure Framework Budget figures.

Allocation of financial resource to the Ministry of Education, Science, and Technology: This ministry is allocated more financial resources since its subsectors require enough financing and mechanisms to ensure fairness and efficiency. Education subsectors require sufficient resources in order to achieve better outcomes and equity, especially in making the free primary and free day secondary programs a success. The ministry of education despite the huge allocation it gets needs more consistent and reliable funding. The government of Kenya majorly supports free basic education from both the revenue collected and from foreign education grants. In recent years, foreign grants have been reduced due to the economic challenges that the world is facing at the moment, especially in United States and the European Union members. The government of Kenya, therefore, needs to come up with sustainable funding sources to enable it to support basic education fully. There is no clear criterion is used during allocation of financial resources, any clear frameworks or plans, as explained by one of the MOEST officers, personal communication, April 14, 2017:

> There is no permanent or standard formula for allocating financial resources to education subsectors but we design funding formula that is appropriate for a particular level of education requires careful consideration of policy aims and objectives which sometimes change. At the MOEST, we normally allocate funds to subsectors and schools by considering the following components; first, we check a basic student provision containing a base amount per student. Second, we give priority to students with special needs. Third, we check if teachers and support staff require salary increment and fourth, we check if some schools need to be constructed or expanded.

4.4.3 Trends of Public Expenditure on Education

Total education expenditure is the total sum allocated to the MOEST which is later reallocated to subsectors within itself. In Kenya, public education expenditure has been increasing during the period of this study (1980 – 2014). The highest allocation was witnessed during the introduction of free primary education in 2003 and free day secondary education in 2008. The total expenditure of the Ministry of Education, Science and Technology was KES.64.11 billion in 2002, while in 2003 it was KES.76.72 billion during the introduction of the free primary education program. This scenario was the same during the introduction of free day secondary education, where the expenditure increased to KES.138.25 billion in 2008 from KES.121.78 billion the previous year.

In general, public education expenditure grew from KES.3.21 billion in 1980 to KES.339.08 billion in 2014 (Figure 4.5). The increase in public education expenditure is because of the increase in enrolments, political influence, ever-increasing school fees, teaching staff, and an increase in the number of schools across the nation. This is supported by the government, which allocates more funds to the education sector in order to meet the demand and pressure brought by citizens. Education expenditure the three subsectors: It is clear from Figure 4.6 below that public expenditure at the primary and secondary level has not been consistent while university expenditure seemed steady through the years under study.

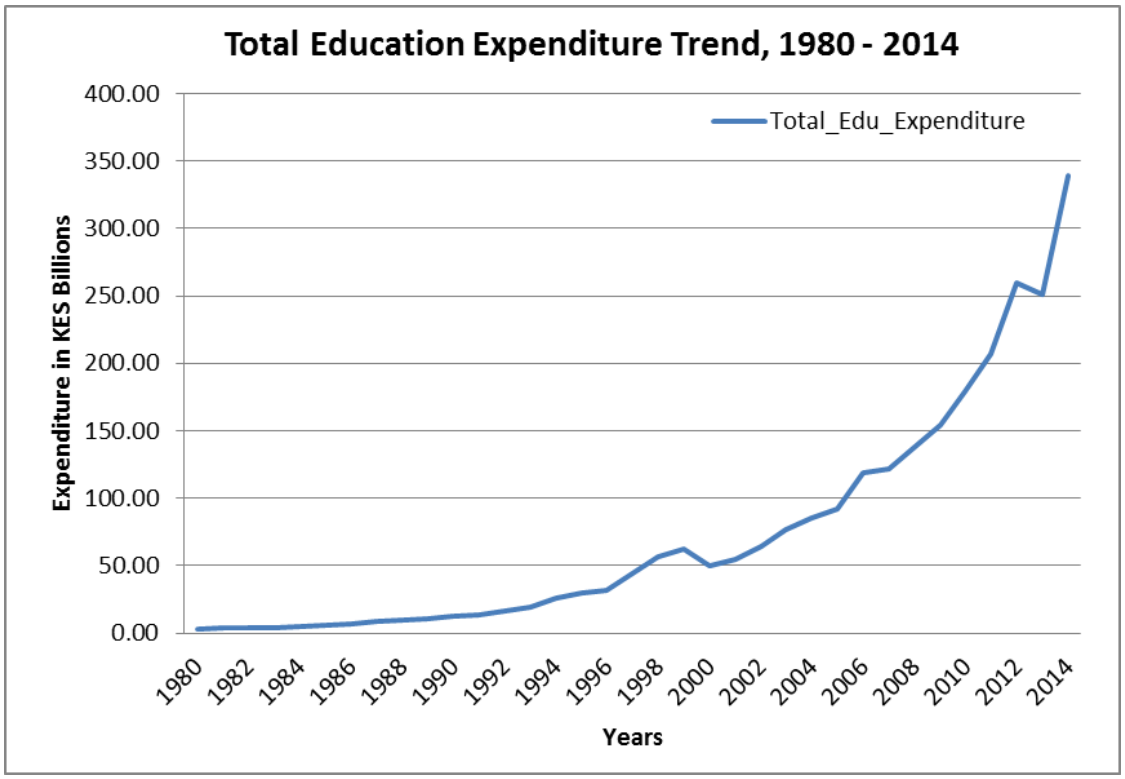

Figure 4.5 Total Education Expenditure Trend, 1980 – 2014

Source: KNBS, Various Economic Surveys, 1985-2015.

Primary public expenditure increased from KES.3.35 billion in 2002 to KES.8.18 billion in 2003, translating to a 244 percent increase. Primary expenditure's sudden increase was due to the introduction of free primary education in 2003. The primary expenditure has not been increasing steadily as expected due to such factors as limited financial resources and an increased number of primary enrolments. For example, primary education expenditure was KES.10.83 billion in 2011, KES.9.72 billion in 2012, and KES.16.60 billion in 2013. The government of Kenya could not allocate more financial resources to primary education in 2012 due to less collection of revenue and fewer foreign grants and probably due to the preparation for the general election year in 2013.

The secondary education level was not left behind in terms of increase in expenditure; its expenditure increased from KES.0.40 billion in 1980 to KES.28.78 billion in 2014. In 2008, the government of Kenya introduced the free day secondary education program for the secondary education level immediately secondary

expenditure increased to KES.15.37 billion in 2008 from KES.8.17 billion in 2007 translating to a 188 percent expenditure increase. The free day secondary education program was formed to increase the primary-secondary transition rate that was far below the required standards. The program was also meant to allow less privileged and poor households take their children to the secondary level for which if not for the subsidized program they could not have taken their children to school. In addition, some students from the poor household income group had dropped out of school due to early pregnancy and the parents or relatives could not take them back to school. Therefore, free day secondary education gave them a second chance to pursue their dreams and expectations through rejoining the secondary schools.

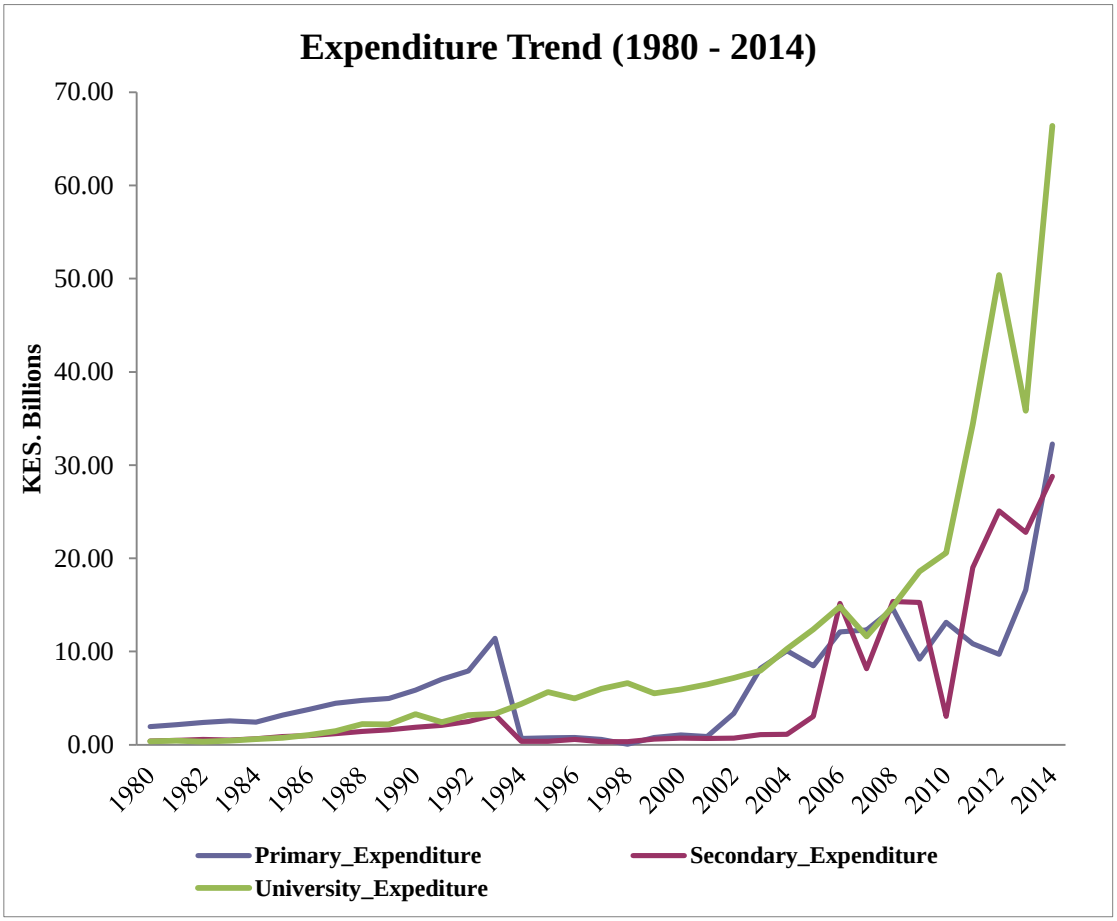

Figure 4.6 Primary, Secondary and University Expenditure Trend, 1980-2014

Source: KNBS, Various Economic Surveys, 1985 – 2015.

The university education level received the highest allocation across the many years under study here, especially from 1994 to 2014. The reason has been that the university student pays higher fees compared to both primary and secondary levels. It is estimated that the university student pays 6 times more that the primary pupil and 3 times more than secondary students. The government of Kenya is trying to bring equity to the institutions of higher learning such as universities, and it has introduced bursaries for the poor, and student loans and scholarships for the needy students in the society. This explains vividly why university level expenditure has been much above other levels of education. The university expenditure grew from KES.0.36 billion in 1980 to KES.66.40 billion in 2014. On average, university expenditure increased by KES.10.65 billion from 1980 to 2014.

4.5 Conclusion

The trend of public expenditure across all levels of education in Kenya has not been consistent from 1980 to 2014. Public expenditure on education dropped instantly after the general election in 1992, which was also the time that Kenya started to practice multi-party democracy after a long period of one-party democracy (Figure 4.6). The drop in education expenditure has been attributed to the donor nations refusing to fund various sectors in Kenya's education included and more funds were also used during the election campaigns and Election Commission's restructuring and printing of ballot papers.

In 2003, immediately after the 2002 general election, a sharp rise was witnessed in public expenditure on primary education was witnessed, which was due to the introduction of free primary education government policy. A sharp drop in primary education expenditure was witnessed in 2010 thousand during the collusion government between H.E. President Mwai Kibaki and H.E. Prime Minister Raila Odinga. During this time the country had plunged into post-election violence when many people died and others were internally displaced. The government had to cut spending in a number of sectors in order to respond to the unexpected outcomes of the election.

In summary, the Ministry of Education, Science, and Technology uses various criteria to design or evaluate funding formula, but what emerged from the interviews was that there are six key criteria commonly used: enrolment increases, effectiveness and efficiency, equity, political effect, accountability and transparency. These standards are not always followed to the letter; sometimes they are ignored or left due to other factors such as political influence. Effectiveness hereby refers to the sufficiency of funds for anticipated outcomes, while efficiency on the other hand refers to the process of effective budgeting, expenditure, and successful management of the outputs realized and inputs used. Equity is when the government decides to address cost disparities in regions or subsectors and mostly is done through political judgments, as witnessed in Kenya where free basic education programs came into existence through political promises and fulfillments. Therefore, the government considers a number of things before allocating financial resources, as mentioned above.

CHAPTER 5

EMPIRICAL RESULTS: GROWTH OF PUBLIC EXPENDITURE

5.1 Growth of Public Expenditure on Education

This chapter is the most crucial one since it provides the outcomes of the models and hypotheses tested for all of the factors that affected public expenditure in the education sector. The results were realized through conducting regression on the four models developed in this study, as previously discussed in chapter three. The public expenditure trend in Kenya has been increasing since independence. The fall of enrolment rates, especially at primary and secondary levels during the introduction of the 8-4-4 education system, was due to the following factors; first, the new system of education required students and parents to buy additional books, thereby increasing the costs (Amutabi, 2003; Eshiwani, 1993). Second was the reintroduction of user charges in the year 1988 mainly as a result of the World Bank's newly-energized neo-liberal position against "excessive" government spending.

Table 5.1 below shows the trends of public expenditure on education and it is easy for anyone to see the relation of public expenditure policy with the education sector from 1980 to 2014 as researched in this study. In order to find out the exact government commitment to funding and promoting the improvement of all public education levels, this study analysed each level separately and keenly. For example, public expenditure on the education sector has been on average 18.15 percent of the total government expenditure, with a minimum range of 10.93 percent to a maximum range of 27.79 percent over the period.

Table 5.1 Descriptive Statistics of All Variables

Variables	N	Mean	Standard Deviation	Minimum	Maximum
Dependent Variables					
GE	35	18.15	3.29	10.93	27.79
GP	35	4.15	3.89	0.02	10.20
GS	35	1.46	0.99	0.10	2.98
GU	35	2.58	0.73	1.46	4.88
Independent Variables					
PCG	35	0.66	2.33	-3.95	5.56
MS	35	35.02	4.66	26.68	42.23
GDP	35	3.72	2.34	-0.80	8.40
URB	35	5.93	2.62	2.54	11.30
POP	35	29.29	8.46	16.27	44.86
GPEN	35	6410.98	1848.71	3926.63	9950.75
GSEN	35	878.06	525.38	300.60	2309.90
GUEN	35	133.56	134.44	20.60	631.80
PTEM	35	6.61	6.46	0.05	32.26
STEM	35	5.17	8.09	0.32	28.78
INF	35	12.62	8.82	1.55	45.98
AGRIC	35	5.06	2.83	2.29	13.54
GEt-1	35	15.50	4.25	0.00	24.94
DEBT	35	46.36	17.75	8.70	77.32
DEF	35	-11.61	9.27	-30.24	5.32
TGE	35	16.42	1.71	13.86	19.80
GLOB	35	120.91	77.18	36.13	346.89
GRANT	35	3.91	4.07	0.19	18.19
ITR	35	30.36	25.82	4.05	113.81
DUPE	35	0.34	0.48	0.00	1.00
DUEL	35	0.60	0.50	0.00	1.00
Valid N (Listwise)	35	-	-	-	-

On the other hand, public expenditure on primary, secondary, and university education has had annual averages of 4.15 percent, 1.46 percent, and 2.58 percent, respectively. The maximum and minimum values of all education levels are also shown in Table 5.1. For example, primary, secondary and university have maximum ranges of 10.20 percent, 2.98 percent, and 4.88 percent from the minimum values of 0.02 percent, 0.10 percent, and 1.46 percent respectively of the total government expenditure for the period of 35 years under review. Table 5.1 also contains the means and minimum and maximum values of the independent variables used in this study.

In Kenya, the primary education level is given first priority in each year's budget allocation in the education sector and during the introduction of free primary education program in 2003, and even more, it was given to this level of education. In order for anyone to ascertain the government education policy implications in relation to budget allocation and funding is clearly seen by having a look at the means and the functional structure of the education sector's public expenditure. Secondary and university education levels are also given significant precedence in budget allocation and it is worth mentioning that Kenya is also in the run to provide not only free day secondary education but also boarding schools as well in the near future. The demand for higher education has forced the Kenyan government to increase its budget allocation for all public universities and the includes bursary funds, government scholarships and education loans for undergraduate students through the higher education loan board, commonly known in Kenya as the HELB.

5.2 Explanation and Test of MRAM Assumptions

In this study, various assumptions were defined and evaluated, which is mandatory when one uses the Multiple Regression Analysis Method (MRAM). The assumptions checked in this study included linearity, homoscedasticity, independence of error terms, and normality and outliers. Here briefly the researcher explains each assumption as mentioned; firstly, the check of linearity in a regression analysis is typically based on the concept of correlation, and the linearity of the relationship between dependent and independent variable is crucial. The researcher checked the linearity by examining the residual plots of all the models tested and variables used.

Secondly, homoscedasticity is the assumption of equal variances between pairs of variables, which can easily be detected by observing residual plots. Thirdly, the independence of the error terms in a regression is the assumption that the predicted value is not related to any other prediction, meaning that each predicted value is independent.

Violation of this assumption can be detected by plotting the residuals against a sequence of cases. If the residuals are independent, the pattern should appear random and a violation is shown by a steady pattern in the residuals. The violation of this assumption is normally detected using the Durbin-Watson statistical values. If the Durbin-Watson d statistic is between the two critical values of $1.5 < d < 2.5$, it can be assumed that there is no linear autocorrelation in the data. Lastly, outliers and normality were also checked and are explained as follows: the check for normality is the assumption that errors of prediction (which is the difference between the obtained and predicted dependent variable scores) are normally distributed. The violation of this assumption can be detected through examination of the residual plots. On other hand, outliers are cases with very large z (standardized) scores on the variables. The cases with z-scores of 3.29 or greater ($p<.001$) are potential outliers.

Therefore, the assumptions of linearity, homoscedasticity, normality, and independence of error terms were assessed through the regression analysis. The scatterplots of the standardized residuals against the standardized predicted values for all four dependent variables (GE, GP, GS, and GU) showed no clear pattern of a relationship between the residuals and the predicted values. This is consistent with the assumptions of linearity and homoscedasticity. From the Normal P-P Plot of Standardized Residuals, it can be seen that the plots of the residuals for the four dependent variables fit the expected pattern well enough to indicate a relatively normal distribution.

The Durbin-Watson statistic is used to test the assumption of the independence of error terms (residuals). The Durbin-Watson d values of the four models tested were 2.279 (GE), 1.810 (GP), 2.167 (GS), and 2.217 (GU), which were between the two critical values of $1.5 < d < 2.5$, and it can be assumed that there is independence of residuals for the four dependent variables. The standardized z values are used to test for outliers. Looking at the transformed z values in Appendix C, it can be seen that there are no variables with z-scores of 3.29 or greater ($p<.001$).

5.3 Factors Affecting Growth of Public Expenditure on Education Sector

Kenya tops the East Africa region in putting the education sector first in many aspects, including budget allocation and formulating various policies to maintain better standards and quality. To justify this, it has the highest budget allocation in the region, and better school facilities and standards in comparison to East African member states such as Uganda, Tanzania, Rwanda, Burundi and newly-admitted member South Sudan. This study had to conduct Standard Multiple Regression Analysis (SMRA) so as to evaluate the factors affecting public education expenditure through ensuring that all of the assumptions required to carry out the regression were met. Model-1, which has twelve independent variables, was run and yielded R2 of .815, The adjusted R2 of .714 with an F-value of 8.072 showed that in total the model-1 contributed about 71.40 percent growth to the general public expenditure growth on the education sector. In order to evaluate and analyze the contributions that each independent variable (factors) made to the increase of public education expenditure, observation of the regression coefficients results was used.

A number of factors as used in Model-1 were by a good margin significant, meaning that they affected the growth of public education expenditure, as shown in Table 5.2 below. This is well explained by unstandardized beta coefficient figures. For example, the following factors were positively significant: Real GDP per capita (PCG=.062), budget deficits (DEF=.030), education lagged expenditure (GEt-1=.001), secondary teachers' employment (STEM=.032), and total public expenditure (TGE=.007). On the other hand, the following factors were negatively significant: primary teachers' employment (PTEM=.095), dummy election figures (DUEL=.042), and education monetary aid (GRANT= .053). Initially, the study made an assumption that all of the independent variables would have positive effects on the growth of public expenditure on education as provided by the theories used, but after testing Model-1, some of the independent variables had negative effects, for example, DUEL and GRANT. The equations below show Mode-1 before and after testing (with imputed figures).

Before Testing Model-1

$$GE = a + b_1INF + b_2PCG + b_3URB + b_4DEF + b_5ITR + b_6GE_{t-1} + b_7PTEM + b_8STEM + b_9DUEL + b_9GLOB + b_{10}GRANT + b_{11}TGE$$

Table 5.2 Factors Affecting Public Expenditure on Education Sector

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-8.759	8.641		-1.014	.322		
INF	.062	.069	.167	.899	.378	.243	4.119
PCG	.369	.188	.262	1.967	.062*	.476	2.102
URB	.297	.442	.236	.671	.509	.068	14.701
DEF	.135	.058	.379	2.312	.030**	.313	3.194
ITR	.027	.049	.214	.558	.582	.057	17.540
GEt-1	.376	.099	.486	3.812	.001***	.517	1.933
PTEM	-.169	.097	-.331	-1.743	.095*	.233	4.292
STEM	.257	.112	.633	2.291	.032**	.110	9.076
DUEL	-1.492	.691	-.225	-2.159	.042**	.772	1.296
GLOB	.008	.014	.188	.566	.577	.076	13.128
GRANT	-.415	.203	-.514	-2.049	.053*	.134	7.479
TGE	1.240	.413	.644	3.001	.007**	.183	5.465
R2 =.815	**Adjusted R2** =.714		**F - Change** = 8.072		**Durbin-Watson** = 2.279		

a. Dependent Variable: Z Scores (GE)

b. All Predictors (IVs): Z Scores

Note: * Significant at 10%. **** Significant at 5%. ***** Significant at 1%**.

After Testing Model-1

$$GE = - a + b_1INF + b_2PCG + b_3URB + b_4DEF + b_5ITR + b_6GE_{t-1} - b_7PTEM + b_8STEM - b_9DUEL + b_9GLOB - b_{10}GRANT + b_{11}TGE$$

This can be rewritten as:

$$GE = -8.759 + .062INF + .369PCG + .297URB + .135DEF + .027ITR + .376GE_{t-1} - .169PTEM + .257STEM - 1.492DUEL + .008GLOB - .415GRANT + 1.24TGE$$

The total increase in general public expenditure (TGE) significantly and positively led to the increase in public expenditure on education. The government's

commitment to ensuring that everyone in the country gets basic education, is reflected by this result. There is no doubt that free day secondary education led to the employment of more secondary teachers after commencing in 2008, and increased secondary teacher employment (STEM), which led to the significant growth of public education expenditure. The government of Kenya place has made primary and secondary education a priority, especially during the allocation of the budget. The introduction of free primary and free day secondary education demonstrates Kenya's commitment to providing basic education to all. The per capita income was significant with general public expenditure on education, as observed in Table 5.2 above. Therefore, a rise in per capita income in addition to both the free primary and free day secondary education enactment led to the growth of public education expenditure.

The increase of the budget deficit positively led to a significant increase in public expenditure on education, indicating that an increase in government borrowing increases revenue. Additional government borrowing normally happens at the low point of the cycle and is commonly known as the cyclical deficit. The assumption is that a cyclical deficit is expected to be repaid by a cyclical surplus at the peak of the following cycle and this becomes an automatic stabilizer. An increase in government revenue means greater budget allocation and spending to key government sectors such as education. In addition, an increase of foreign grants, the employment of more teachers to increase primary teachers' employment (PTEM) in primary education and the effects of elections after every five years were significant though they reduced public expenditure on education, as opposed to the initial assumption in Model-1 of increasing public expenditure on education. Therefore, these factors that reduce public expenditure on education and are at the same time significant will require policy interventions in the near future, especially the free primary education program.

In Model-1 above, the main factors that influenced the growth of public expenditure on education sector were per capita growth, budget deficit, incremental budget/lagged budget, secondary teachers' employment, and total public expenditure. On the other hand, factors such as the effects of election each year, free primary education, and an increase of foreign though significant did not influence the growth of public expenditure but instead reduced public expenditure on education. The effect

of globalization, inflation, indirect tax revenue, and urbanization as shown in Table 5.2 above was positive though not significant. This is contrary to many theories and models that support the idea that their increase will lead to an increase in public expenditure on education. Take for example the fiscal illusion theory, which states that an increase in indirect tax revenue will lead to an increase of public expenditure, which is not the case here. It is clear that the government of Kenya needs to identify the best ways to promote and make education programs sustainable. This can be achieved through the introduction of policy interventions that will enable the government to effectively meet its obligation of providing basic education to all, especially during the policy formulation and implementation stages.

5.4 Factors Affecting Growth of Public Expenditure on Primary Education

In 2003, the government of Kenya introduced free primary education for all. In this study, therefore, Model-2 was used to test and examine the effects of the factors on public expenditure at the primary level in Kenya using Standard Multiple Linear Regression Analysis. The results obtained significantly explain 92.20 percent of the change in public expenditure on education, with a Durbin-Watson of 1.810 and an F-change of 37.562. This means that Model-2 contributes immensely to the growth of public expenditure on primary education in Kenya and therefore, the null hypothesis was rejected.

In this study, three factors were positively significant in Model-2 and they included inflation, primary teachers' employment, and total government expenditure, as shown in Table 5.3 below. The introduction of free primary education, which led to the employment of more primary secondary teachers, the increase in total government expenditure, and an increase in inflation, had positive effects of 35.70 percent, 21.20 percent and 18.60 percent respectively, holding everything constant (ceteris paribus). It is worth noting that there were other factors that had positive effects on public expenditure on education in Model-2, though they were not significant. These factors included a budget increment which contributed 9.8 percent, per capita growth, which contributed 8.6 percent, elections year effects (dummy figures), which contributed 6.8 percent, and lastly, an increase of foreign aid (GRANT), which contributed 1.6

percent. These factors require the government to pay more attention, especially in creating education policies that will promote equity and quality.

Table 5.3 Factors Affecting Public Expenditure on Primary Education

Independent variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.079	5.231		-.015	.988		
INF	.082	.042	.186	1.944	.064*	.252	3.974
PCG	.110	.115	.066	.953	.351	.481	2.080
URB	-1.258	.243	-.847	-5.179	.000***	.086	11.661
DEF	-.081	.033	-.194	-2.454	.022**	.366	2.729
ITR	-.005	.030	-.031	-.155	.878	.057	17.478
GEt-1	.090	.061	.098	1.475	.154	.518	1.931
PTEM	.215	.058	.357	3.701	.001***	.247	4.054
DUEL	.490	.425	.063	1.152	.261	.777	1.287
GLOB	-.011	.009	-.219	-1.296	.208	.080	12.442
GRANT	.016	.124	.016	.125	.901	.135	7.386
TGE	.484	.238	.212	2.038	.053**	.211	4.743
R2 =.947	**Adjusted R2 =.922**		**F - Change = 37.562**		**Durbin-Watson = 1.810**		

a. Dependent Variable: **Z Scores (GP)**

b. All Predictors (IVs): Z Scores

Note: * Significant at 10%. **** Significant at 5%. ***** Significant at 1%**.

There is no doubt that inflation has become education's nemesis in the sense that parents pay more school fees and other school requirements. Due to high inflation, the prices of essential items such as textbooks, pens, uniforms, and shoes have doubled or tripled. This means that poor parents with little income cannot afford to take their children to school because they will be unable to purchase these crucial school items. The employment of primary teachers due to the introduction of free primary education has forced the government of Kenya to increase its budget allocation to all public primary schools. The implementation of this program has not only increased the number of enrolments but has also created problems such as the

lack of basic facilities and the number of teachers has increased, which the government was not prepared for. On the other hand, ever-increasing total government expenditure has forced the government to increase the budget allocated to the Ministry of Education, Science, and Technology.

This study also found that the growth of the urban population and the increase of the budget deficit have reduced public expenditure on primary education significantly. The urban population mostly comprises young professionals that have relocated to towns for jobs. This increases the cost of living in the area due to the high population and basic amenity problems, which in turn makes staying in urban areas expensive. On other hand a budget deficit is a situation whereby a government spends more than it collects as revenue. In order to collect more revenue, the government has to increase taxes, which in turn will reduce income for those that are employed and at the same times increases the prices of products. This in overall reduces public expenditure on primary education since the majorities of Kenyans are poor and live in rural areas and cannot sustain the high cost of living. In 2014, the World Bank approximated Kenya's rural population to be 74.80 percent and this explains the reason why the urban population and budget deficits do not facilitate the increase of the public expenditure concept on primary education. This study also found in Model-2 that though not significant, globalization and indirect interest rates had negative effects of 21.90 percent and 3.10 percent respectively on public expenditure on primary education, holding other factors constant.

Generally, in Model-2, five factors caused significant changes in public expenditure on primary education, reflecting the Kenyan government's efforts and commitment to providing basic education for all. These factors included inflation, urban population, budget deficit, secondary teachers employment, and total government expenditure. In these five factors, three factors (inflation, free primary education, and total government expenditure), as mentioned above, positively increased public expenditure on primary education, while two factors (urbanization and budget deficit) negatively decreased public expenditure on primary education. The government through the ministry of education, science, and technology needs to come up with well-defined funding frameworks and plans to meet the ever-increasing free primary expenditure.

Before Testing Model-2

$$GP = a + b_1INF + b_2PCG + b_3URB + b_4DEF + b_5ITR + b_6GE_{t-1} + b_7PTEM + b8DUEL + b_9GLOB + b_{10}GRANT + b_{11}TGE$$

After Testing Model-2

$$GP = - a + b_1INF + b_2PCG - b_3URB - b_4DEF - b_5ITR + b_6GE_{t-1} + b_7PTEM + b8DUEL + b_9GLOB + b_{10}GRANT + b_{11}TGE$$

This can be rewritten as:

$$GP = -.079 + .082\ INF + .110\ PCG - 1.258\ URB - .081\ DEF - .005\ ITR + .090\ GE_{t-1} + .215\ STEM + .490DUEL + .011\ GLOB + .016\ GRANT + .484\ TGE$$

5.5 Factors Affecting Growth of Public Expenditure on Secondary Education

Model-3 was used to test the factors that affect public expenditure on secondary education using Standard Multiple Linear Regression Analysis. This model explains 75.20 percent of the variance of public expenditure on secondary education and the F-change of 13.881. Secondary education is the most crucial level of education in Kenya since it is at this stage that students join the tertiary level or the employment sector. The free and day secondary education program introduced in 2008 was commissioned towards meeting the needs of both the students that intend to complete the secondary school level and those who intend to proceed to an advanced level. In this context, the secondary school curriculum emphasized job-tailored courses such as technical education, business, and information technology skills. In a nutshell, secondary education is meant to prepare students to positively contribute to the country's development and on top of that be self-reliant, supportive, self-discipline, and always be patriotic in matters related to national interests (Sifuna, 1990).

As indicated in Table 5.4, both inflation and money supply factors are positively and negatively significant respectively. The inflation factor has a positive effect education and therefore supports the growth of public expenditure on secondary education and contributes 43.40 percent, holding other factors constant. The high inflation effect is normally enormous since it will make the price of commodities and

services rise. Just as explained in Model-2 above, parents taking their children to high school may not in the position to buy essential secondary school requirements, for example, uniform and textbooks. This becomes even worse for the parents that send their children to boarding schools, where they are required to meet boarding fees on top of exceedingly higher. Interestingly, an increase in money supply reduced the growth of public expenditure on secondary education since it had a negative effect of 52.20, percent as shown in Model-3. The increase in money supply, in general, stimulates public expenditure since more money becomes available to the consumers. The availability of more money at their disposal makes them feel like spending more and therefore, this motivates them to escalate their expenditure.

Table 5.4 Factors Affecting Public Expenditure on Secondary Education

Independent Variables	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**	**Collinearity Statistics**	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	4.298	1.531		2.808	.009		
INF	.049	.012	.434	4.192	.000***	.680	1.471
DEF	-.007	.014	-.068	-.524	.605	.435	2.297
ITR	-.007	.009	-.184	-.746	.462	.120	8.336
GLOB	-.003	.004	-.225	-.748	.461	.081	12.396
GSEN	.001	.000	.340	1.546	.134	.151	6.627
DEBT	.001	.006	.010	.089	.930	.594	1.682
MS	-.111	.049	-.522	-2.264	.032*	.137	7.273
AGRI	.061	.051	.173	1.200	.241	.349	2.867
R2 =.810	**Adjusted R2 =.752**		**F - Change = 13.881**		**Durbin-Watson = 2.167**		

a. Dependent Variable: **Z Scores (GS)**

b. All Predictors (IVs): Z Scores

Note: * Significant at 10%. ****** Significant at 5%. *** Significant at 1%**.**

Source: Author's Analysis

In the long-run, the prices of commodities and services increase, hence reducing consumers' demand for the same commodities and services. Thinking in the

same line, parents sending their children to secondary school will have less to spend and therefore it will be difficult for them to meet high tuition fees and required item expenses. A number of scholars are in agreement, that there is a direct link between money supply and price inflation. In Model-3, four factors were also found to support the growth of public expenditure on secondary education: inflation, secondary enrolment, agriculture expenditure, and domestic debt with the positive effect of 43.4 percent, 34 percent, 17.3 percent and 1 percent in that order.

Nevertheless, these factors were insignificant as far as public expenditure on secondary education is concerned. The reason why secondary reduces expenditure is because the government does not pay for all of the school expenses and instead parents dig deep into their pockets in order to send their children to school. In addition, the government of Kenya does not give secondary education more priority as with primary education. Agriculture expenditure reduces secondary expenditure since they are like competitors during budget allocation by the government.

Agriculture is the backbone of Kenya's economy, and therefore the government tends to allocate greater budgets there than it does to secondary education. Finally, domestic borrowing, as mentioned above, reduces the growth of public expenditure on secondary education since more debts and unpaid ones by the government makes creditors lose faith and stop lending to the government. Despite their being insignificant, the government is tasked to pay more attention to these factors because they play a big role when it comes to secondary spending. On the other hand, globalization, indirect tax rates, and budget deficit had a negative effect of 22.50, 18.40 and 6.80 percent respectively. These factors were insignificant, as shown in Table 5.4 above, and therefore they did not support the initial concept of increasing growth of public expenditure on secondary education but instead reduced it. The effect of globalization, which is the international openness to trade, reduces government expenditure on secondary expenditure perhaps due to much attention being given to the purchase of essential equipment such as railway engines and infrastructure, agricultural equipment and fertilizers, and fossil fuels, which take a big chunk of Kenya's budget.

Indirect tax rates increase the cost of living, where people will be taxed on every item they purchase and therefore parents become unable to meet all of their

secondary expenses, forcing them to reduce their expenditures. In addition, budget deficits such as indirect tax rates will force the government to raise taxation and this will reduce secondary parents' income. Again, the cost of living will be high and the payment of school tuition will definitely become difficult. As seen above, only inflation was positively significant, therefore increasing public expenditure on secondary education. In addition, secondary enrolment, domestic debt, and agriculture expenditure had a positive effect though insignificant. On the other hand, money supply was negatively significant and reduced public expenditure on secondary education. Additionally, budget deficit, indirect tax rates, and globalization had a negative effect though they were not significant. The introduction of the day secondary education program in 2008 has not yielded the much-desired outcomes since more than half all the schools in Kenya are boarding schools. The government needs to improve its budget allocation and management of secondary education.

Before Testing Model-3

$$GS = a + b_1INF+b_2DEF+b_3ITR+b_4GLOB+b_5GSEN+b_6DEBT+b_7MS+b_8AGRI$$

After Testing Model-3

$$GS = a + b_1INF - b_2DEF - b_3ITR - b_4GLOB + b_5GSEN + b_6DEBT - b_7MS + b_8AGRI$$

This can be rewritten as:

$$GS = 4.298 + .049\ INF - .007\ DEF - .007\ ITR - .003\ GLOB + .001\ GSEN + .001\ DEBT - .111\ MS + .061)AGRI$$

5.6 Factors Affecting Growth of Public Expenditure on University Education

University education receives subsidies and immerse funding inform of student loans, bursaries and scholarships. The result in Model-4 shows that only one factor had been positively significant (PCG) and four factors had positive effects though not significant, namely; university enrollment (GUEN), incremental budget (GE_{t-1}), general election (DUEL) and foreign aid contributing (GRANT). These outcomes mean during allocation of financial resources to university level, the decision makers based their resolutions regarding whether to increase the budget or not on the above mentioned factors that had positive effects. As a result, real per

capita income growth, university enrollment, lagged budget, general election and foreign aids are the major factors influencing the growth of public expenditure on general education. Model-4 yielded an adjusted R2 value of .295, with an F-statistic of 1.361. This means that the model explains 25.90 percent growth in public expenditure on university education in Kenya.

In developing countries, the trend of real per capita expenditure for education has been increasing in the past decades (Sagarik, 2013). The increase in real per capital leads to improvements in social indicators which includes increase in education spending that not only promotes equity but it also accelerates individuals' general developments**.** Increase in the real per capita income in the long-run leads to the improvement of citizens' living standards and also increases their demand for better public services. When resources of a particular population increase, the population is not only able to pay more taxes to the government directly or indirectly but they also able to pay for their children's school fees. The Economic-Demographic Theory concept comes to play in both in the increase in per capita income and education policy implementation. University enrolment had a positive effect of 77.50 percent though it was not significant and this could be due to a few students from secondary level joining university whose parents are able to pay high tuition fee. The government of Kenya through higher education loan board (HELB) provides university loans to students from the poor background and marginalized areas. The formula or criteria used to allocate this loan is not clear and has been questioned by many education stakeholders.

The results in Model-4 shows that lagged budget (GE_{t-1}) which is incremental in nature had positive effects on public expenditure on education. This is normally the case in purely democratic nations whereby it takes time and a long process for parliamentarians to agree on issues of national interests such as passing a budget. Therefore, previous undertakings or programs are preferred since it would not follow normal path of debating and approval. The allocation of financial resources is purely political and majorly depends upon the initial allocation on the project (Lonjouw & Ravallion, 1999). The new projects and undertakings are normally avoided since they take time to do cost-benefit analysis and collecting important information on the same (Lindblom, 1959, pp. 84-87). Traditionally, many countries or ministries prefer using

the previous financial year budgets to determine the current financial year budgets (Dye, 1978; Etzioni, 1967, p. 387; Lindblom, 1959, p. 84).

The effect of foreign aid at the university level was positive although not significant and led to the increase of public expenditure on university education. When grants are targeted to education sector, public expenditure on education increases significantly (Mzonde, 2013; Stasavage, 2005, p. 352). As seen in this study, grants have not been targeted directly to the education sector but a number of tertiary institutions have benefited indirectly from government development programs. These programs mostly, they are supported by donor nations through providing donations to the institutions and this explains why public expenditure on university education increases. This is in agreement with Fiscal Illusion Theory that explains how grants increase government's revenue and expenditure. According to McGillivray and Morrissey (2001), aid or grant illusion is a condition whereby a country misperceives the actual value of the grant inflow, or the expenditure situations attached to the inflow. The explanation given was that aid illusion occurs in an environment of imperfect information and weak public expenditure management. Therefore, the increase of foreign grants increases government's revenue which in turns entices the government to increase expenditure. General elections increases public expenditure on education including university level during electioneering period and this study has confirmed this since the effects of holding general elections account for 14.10 percent growth in public expenditure on university education, ceteris paribus. Henceforth, politicians in the government gather support through increasing public expenditure on basic services such as education during the election periods; mostly, a year before and during election year. This is in agreement with Political Business Cycle Theory and formulated hypothesis that stated that during elections public expenditure increases including public education expenditure.

In this study, three factors namely; urbanization, globalization and debt had negative effects on public education expenditure therefore; they led to the reduction of expenditure on education. The results show that growth of urban population in Kenya led to the reduction of public expenditure on university education. Urban population typically includes of young professionals who move to towns in search for jobs. This increases the costs of living in the area due to high populace and basic facilities

problems which in turn makes staying in urban areas expensive. When a reason percentage of the populations lack jobs it means the government will be unable to collect taxes to provide basic amenities and lack of jobs is characterized by increase of crimes and robbery.

Globalization opens a nation products and services to the World. According to Mzonde (2013), globalization is the state at which a country's domestic economy is integrated into the international market and involves external trade and international capital flow. In this study, globalization had a negative effect on university education expenditure meaning it reduced the university expenditure. Nevertheless, the outcome of trade liberalization leads to a significant reduction of public expenditure on education by 34.50 percent ceteris paribus. This is in breach to the Compensation Theory and hypothesis formulated which said globalization increases public expenditure. This is in agreement to works a number of researchers who also found that globalization reduces public education expenditure (Mzonde, 2013; Yoon, 2009; Omotor, 2004, p. 108). This suggests that developing countries' democracy is not well developed and lobbying for better social services such as education is not easy. This explains why politicians are less committed and accountable to people especially on compensation requirements in developing countries.

Domestic borrowing in university level reduces the growth of public expenditure on university education since more debts and unpaid ones by the government makes creditors lose faith and stop lending to the government. Despite them being insignificant, the government is tasked to pay more attention to these factors because they play a big role when it comes to university or even general education spending. Debts may lead to higher levels of inflation and reduction of the investment by the private sector through upsurges in the interest rate, which in turn crowds out the private sector (Ouanes & Thakur, 1997, pp. 63-65). Investment reduction leads to low productive capacity and some deficiencies in supply is created, which again aggravates incidents of inflation in the long run which literally corrodes the value of income and welfare (Mzonde, 2013; Hubbard, 2005, p. 477).

Table 5.5 Factors Affecting Public Expenditure on University Education

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.048	.164		.290	.774		
PCG	.366	.200	.366	1.829	.079*	.677	1.477
URB	-.581	.673	-.581	-.863	.396	.060	16.691
GUEN	.861	.712	.775	1.210	.237	.066	15.136
GE_{t-1}	.452	.286	.408	1.583	.126	.408	2.453
DEBT	-.286	.229	-.286	-1.248	.223	.518	1.932
GLOB	-.345	.322	-.345	-1.073	.293	.262	3.823
GRANT	.630	.388	.508	1.624	.116	.277	3.614
DUEL	.141	.170	.141	0.831	.414	.941	1.063
R2 =.295	**Adjusted R2 = .078**		**F - Change = 1.361**	**Durbin-Watson = 1.786**			

Note: a. Dependent Variable: Z Scores (GU)

b. All Predictors (IVs): Z Scores

The introduction of the free primary in 2003 and free day secondary education in 2008 resulted in the university education benefiting less. The pressure the government is getting with the implementation of the two programs at primary and secondary levels will soon be felt at the university level as well. The number of students completing secondary or high school level and joining university keeps on increasing each year and therefore, the government needs to put plans in readiness for it. The government university loans and bursaries to the poor student need to increase and given a priority as well.

Before Testing Model-4

$$GU = a + b_1 PCG - b_2 URB + b_3 GUEN + b_4 GE_{t-1} - b_5 DEBT - b_6 GLOB + b_7 GRANT + b_8 DUEL$$

After Testing Model-4

$$GU = a + b_1 PCG - b_2 URB + b_3 GUEN + b_4 GE_{t-1} - b_5 DEBT - b_6 GLOB + b_7 GRANT + b_8 DUEL$$

This can be rewritten as;

$$GU = 0.048 + .366\ PCG - .581URB + .861GUEN + .452\ GE_{t-1} - .286\ DEBT - .345\ GLOB + .630\ GRANT + .141\ DUEL.$$

5.7 Conclusion

This Chapter tested factors that have effects on public expenditure in an attempt to answer why government expenditures keep on increasing. The four models were used and mix results were obtained in comparison to theories prediction and hypotheses formulated. There are a number of factors which affected public expenditure on education sector as illustrated in Table 5.1 to 5.4 above. As seen in the models above and factors tested through regression, there are some factors that increase or decrease public expenditure on education sector either in agreement with hypotheses formulated or disagreeing with them. What was clear is that effects of factors influencing education expenditure were not uniform in each education sub-sector, for example, inflation was significant in both primary and secondary sub-sectors but not in general education sector and university level. In order to bring to the clear picture on factors that increase or decrease the growth of public expenditure on education is explained next.

The study found out that generally there are a number of factors that significantly affect public expenditure on education sector and sub-sectors. Free primary and free day secondary education policies' implementation in 2003 and 2008 respectively led to the increase in public expenditure on education as a whole. The government of Kenya since the adoption of FPE education in 2003 has continuously supported this policy through allocating more financial resources to this education sub-sector. In support of this, Kenya has witnessed not only the increase of financial resources to education but also seen the increase in; schools' enrollments, new schools, and employment of teachers around the country. The increase of enrolments in schools is in agreement with Economic-Demographic Theory which says that increase of enrolments forces the government to increase financial allocations to Ministry of Education, Science and Technology in order to enable children not only pay for their fees but also expand studying facilities.

A government budget deficit in most cases forces the government to print more money to finance the deficit. The budget deficit allows the government to raise its GDP and continue to deliver the services that permitted it to secure loans from other nations. In this study, the growth of budget deficit was positive and it led to a significant increase in public expenditure on education by 37.90 percent and therefore, agreeing with the Fiscal Illusion Theory. This implies that an increase in government borrowing increases revenue which in turn is distributed to various sectors such as education sector. Therefore, an increase in government revenue means more budget allocation and spending to key government's sectors.

Generally, incremental budget (lagged budget) and total public expenditure increase each year had a positive effect on the education sector. Lagged budget and total public expenditure were significant at 0.001 and 0.007 respectively. Incremental budgeting is in agreement with an incremental theory which says the increase of current year budget basing the previous year's budget has a positive effect on the growth of the general budget. The government of Kenya has been using incremental theory concept to come up with various sectors budget and the introduction of both FPE and FDSE policy on education forced the government even to add a more financial allocation to the education sector. On the other hand, total public expenditure has been positively significant to general education sector and sub-sectors within the ministry of education. The budget allocation increase by the government to various sectors such education sector makes the expenditure of these sectors to increase as well.

The Table 5 shows summary of initially expected theory effects of factors to growth of public expenditure and this study results as per the models tested representing all education sectors. The models results represent the four sectors tested in this study namely; general education sector (model-1), primary subsector (model-2), secondary subsector (model-3) and lastly, university subsector (model-4). The Theory major assumption was that all factors will have a positive effect on public expenditure on education. It worth noting that the result shows some factors have positive effects on education though not significant. These factors are also important and the government needs to pay more attention to them in order to know exact trends of public expenditure on education as explained at the start of this chapter giving

results of each model representing dependent variables. In summary, a good number of factors identified for this study had a positive effect on public expenditure on education. Kenya public expenditure on education is determined majorly by the political will of the leading majority and party in power. The ruling regime decides on their priorities, anticipated government model, and understanding of the current economic and political stage. Previous years decisions have a pertinent influence towards public expenditure on education because of inertia and incrementalism allocation practice. This implies that the public expenditure on education is fully in the hand of political decision-makers without necessary dependency from the economic context.

Table 5.6 Expected Theory Effects and Models Results

Independent Variable	**Expected Theory Effects and Models Results**				
	Expected Theory Effect	**Model-1 Results**	**Model-2 Results**	**Model-3 Results**	**Model-4 Results**
PTEM	+	-	+	*	*
GLOB	+	+	-	-	-
GSEN	+	*	*	+	*
GUEN	+	*	*	*	+
PCG	+	+	+	*	+
URB	+	+	-	*	-
AGRI	+	*	*	+	*
DEBT	+	*	*	+	-
DEF	+	+	-	-	*
DUEL	+	-	+	*	+
GEt-1	+	+	+	*	+
GRANT	+	-	+	*	+
INF	+	+	+	+	*
ITR	+	+	-	-	*

Table 5.6 (Continued)

Independent Variable	Expected Theory Effects and Models Results				
	Expected Theory Effect	**Model-1 Results**	**Model-2 Results**	**Model-3 Results**	**Model-4 Results**
MS	+	*	*	-	*
TGE	+	+	+	*	*

Note: 1. (+) Means agreement with the theory and **(-)** Means contradiction with the theory.

2. (*****) Means not included in the model.

Free primary education of 2003 and free day secondary education of 2008 policies came to existence in Kenya through political promises and fulfillments by the National Alliance of Rainbow Coalition (NARC) government in 2003 and Party of National Unity (PNU) in 2008 respectively. Politicians during elections period are sensitive to the electorate opinion and demands. They tend to please voters by increasing public expenditure in response to the demand of the low-income voters who through ballot demand equality in the country by voting politicians who are likely to respond to their demand which is in agreement with Fiscal Illusion Theory. The implication is that low-income social groups are in favor of increasing public expenditure on social issues, for example, provision of subsidized services such as education and health. There are other factors that are negatively significant on general public expenditure on education sector as discussed above. These factors instead of increasing public expenditure on education as explained by expenditure theories they decrease expenditures.

CHAPTER 6

EMPIRICAL RESULTS: INCOME DISTRIBUTIVE EFFECTS

6.1 Introduction

This chapter discusses the results of the income distribution in Kenya in relation to education using benefit incidence analysis. The public education sector has reliably received considerable budget support from the government since the government believes that the provision of education to every citizen is not only important to the country's economic growth but also enables individuals to benefit as well. This is one of the reasons that led to the introduced Free Primary Education (FPE) policy in 2003 and later the introduction of the subsidized day secondary school tuition in 2008. Despite these achievements the government of Kenya has realized that in the education sector there are a number of challenges still making it difficult to get the best outcomes and quality of education. This study through conducting benefit incidence analysis unveiled education redistributive policy and the existence of marginalization in the household groups and across regions.

6.2 Education Levels Analysis

This study categorized education into three broad levels: primary, secondary, and university. The primary level comprises kindergarten, and the lower primary and upper primary level. A pupil spends three years in kindergarten, four years at the lower primary level, and four more years in upper primary education. In this study, kindergarten was not included due to a lack of reliable data in a number of years. The second level of education level is secondary/high school which takes students four years to complete their studies, and lastly is the university level which students take 4 to 6 years to complete. In order to calculate the benefit incidence analysis to determine the effects of income distribution, this study used both wealth and income

index to find out who benefits from government funding on education. The study used both income and wealth index analysis since Kenya, like many sub-Saharan African countries, lack consistent data or rarely conduct household income surveys, and the last time Kenya conducted an integrated household survey was in fiscal year 2005/2006.

This study, therefore, used income group data from the 2005/06 Kenya Integrated Household Budget Survey (KIHBS) and wealth group data from both 2008 and 2014 Kenya Demographic and Health Surveys (KDHS) in examining the distributive effects of government policy on education. This chapter begins with examining the enrolment trends at each level of education, expenditure incidences by quintile and regions, and also shows the income/wealth distribution of public expenditure on education in order to vividly explain who benefits from government subsidies and who is not benefiting.

Overall, enrollments have been increasing since independence in 1963 across all levels of education for the following reasons: an increase in the population, an increase of household wealth or income, and the government policy of fund allocation to schools. The government funding policy in both primary and secondary has improved basic education access levels (Bwonda, 2013). Therefore, the trend of each education level's enrolment is influenced by the behavior of both the household decision to enroll one's children in school and government spending policies (subsidies) on the education sector. In this study, the examination of the outcome of the decisions made by both the households and the government as presented by the Ministry of Education, Science and Technology, and surveys such as Kenya Integrated Household Budget Survey (KIHBS) of 2005/06, and the Kenya Demographic and Health Surveys (KDHS) for the year 2008 and 2014. This was important especially in deciding what to do with ever-increasing enrolments and the allocation of funds to various levels of education in Kenya.

6.2.1 Trend of Primary Enrolments (1993 – 2014)

Primary enrolments have been increasing substantially over the past recent years as shown by various surveys and the ministry of education, science, and technology (MOEST) enrollment trends on primary education. There has been a

significant increase in school enrolments in Kenya since independence in 1963 and primary enrolments alone reached 7.6 million pupils in 2006 from 0.89 million pupils in 1963 (Demery & Isis, 2009). Table 6.1 below shows that there have been uneven enrollment trends over time at the primary level. The enrollment in the early 2000s was the reverse of the 1990s since enrollment grew from 19 to 17.8 percent in 1993 to 1998 respectively while it dropped meaningfully to 16.4 percent in 2014 in the poorest quintile. On the other hand, the richest quintile enrolments increased from 21.7 percent in 1993 to 21.8 percent in 2008 before decreasing to 21.2 percent in 2014.

The enrolment trends immediately changed when the policy of Free Primary Education (FPE) was implemented in 2003 where the households responded by taking more children to primary school. The increase in the enrolment in primary schools was also noted in most provinces. For example, the enrolment in 2005 in provinces such as Nairobi, North Eastern, Nyanza, and Rift Valley had 14.3, 8.1, 13.2 and 12.1 percent, in that order, which was a significant increase from the previous KDHS survey of 2003. According to Demery and Isis (2009), the increases in primary enrolments in 2003 mainly came from the poorer groups and most provinces in Kenya had shown a significant increase in the early 1990s. This is in agreement with the results presented in Table 6.1 below where after the introduction of free primary education in 2003, the poorest quintile enrolment considerably increased. Just like net enrolment, the gross enrolment in the primary was also uneven as shown in Table 6.2 below.

Table 6.1 Primary Net Eenrolment by Quintiles and Province (1993-2014)

Quintile & Province / Year Survey	1993 (KDHS)	1998 (KDHS)	2003 (KDHS)	2005[a] (KIHBS)	2008[b] (KDHS)	2014 (KDHS)
Quintile						
Poorest	19.0	17.8	15.4	17.7	16.2	16.4
Second	19.8	19.9	20.0	19.5	20.2	20.3
Third	19.3	20.5	21.0	20.4	20.8	20.9
Fourth	20.2	20.9	22.0	20.9	21.0	21.2
Richest	21.7	20.9	21.6	21.5	21.8	21.2
Province						
Central	16.2	15.6	15.0	14.2	14.3	14.1
Coast	11.5	11.7	11.6	11.4	11.4	11.7
Eastern	14.8	14.6	14.0	13.7	13.2	13.7
Nairobi	13.7	14.6	14.0	14.3	14.4	13.8
North Eastern	*	*	5.9	8.1	8.6	8.3
Nyanza	15.0	15.1	13.2	13.2	13.8	12.6
Rift Valley	14.3	14.2	12.0	12.1	11.4	12.6
Western	14.5	14.2	14.3	13.0	12.9	13.2

Source: KDHS (various years) and KIHBS, 2005/06 Survey

Note: 1) * Indicates survey did not include North Eastern Province.

2) 2005a and 2008[b] represents fiscal years 2005/06 and 2008/09 respectively.

The primary gross enrolments regionally in provinces were also uneven and the pattern was similar to that of net enrolments. The North Eastern province recorded the lowest net and gross enrolments on average, an indication that this province is marginalized as far as education funding is concerned. The North Eastern province, for example, had an average of an 8 percent gross enrolment compared with the Central province, which had a gross average of 13.65 percent. This clearly demonstrates the regional inequalities in the education sector. The Western, Eastern

and Nyanza provinces enrolled more pupils in primary school with average enrollments of 14.35, 14.05 and 13.78 percent respectively (see Table 6.2).

Table 6.2 Primary Gross Enrolment (%) by Province (2003-2014)

Province / Year / Survey	2003 (KDHS)	2005[a] (KIHBS)	2008[b] (KDHS)	2014 (KDHS)
Central	14.6	13.3	13.5	13.2
Coast	11.2	12.3	11.6	12.3
Eastern	14.8	14.0	13.3	14.1
Nairobi	12.0	12.1	11.7	12.5
North Eastern	6.3	8.0	9.1	8.6
Nyanza	14.1	13.9	14.5	12.6
Rift Valley	12.1	12.5	11.6	12.8
Western	14.9	13.9	14.7	13.9

Source: KDHS (various years) and KIHBS, 2005/06 Survey

Note: 2005[a] and 2008[b] Represents Fiscal Years 2005/06 and 2008/09 Respectively.

6.2.2 Trend of Secondary Enrolments (1993 – 2014)

Secondary enrolment has not been left behind as far as enrollment is concerned; it is evident from the ministry of education and households surveys, that households have sent more children to secondary schools in the recent decades especially with the introduction of Free Day Secondary Education in 2008. The creation of many secondary schools across the country under the Constituency Development Fund (CDF) and the county government support of needy the children has not only helped to expand access to secondary schools but has also assisted in increasing enrolments as well.

Table 6.3 Secondary Net Enrolment (%) by Quintiles and Province (2003-2014)

Quintile & Province	**Year** Survey	**2003** (KDHS)	**2005**[a] (KIHBS)	**2008**[b] (KDHS)	**2014** (KDHS)
Quintile					
Poorest		7.6	6.6	8.5	9.2
Second		16.0	14.0	14.3	16.2
Third		18.5	20.6	18.2	20.4
Fourth		23.5	24.3	27.4	23.9
Richest		34.4	34.5	31.6	30.3
Province					
Central		17.8	19.6	15.2	20.1
Coast		9.3	7.2	11.0	8.2
Eastern		6.5	9.8	9.9	11.6
Nairobi		29.9	26.1	30.8	18.3
North Eastern		1.9	4.6	6.4	7.5
Nyanza		13.1	12.4	11.6	14.2
Rift Valley		9.4	11.8	8.7	10.4
Western		12.1	8.5	6.4	9.7

Source: KDHS (various years) and KIHBS, 2005/06 Survey

Note: 2005[a] and 2008[b] Represents Fiscal Years 2005/06 and 2008/09 Respectively.

Secondary schools' enrolments have increased greatly in the early 2000s in both households' quintiles and at the provinces. The poorest quintile enrolments slightly increased from 7.6 percent in 2003 to 9.2 percent in 2014, while richest quintiles enrolments decreased from 34.4 percent in 2003 to 30.3 percent in 2014 (see Table 6.3). Regionally, the Coast and North Eastern provinces recorded the lowest enrolments in both nets and gross enrolments in secondary educations compared to other provinces, as shown in Table 6.3 and Table 6.4. This implies that there was less funding for these provinces and the welfare of the poor has not improved, making the gap between the poor and the rich continue to widen. Again, just like primary

enrolments, secondary enrolments were uneven from the early 2000s to the end of 2014.

Table 6.4 Secondary Gross Enrolment (%) by Province (2003-2014)

Province / **Year** / Survey	**2003** (KDHS)	**2005**[a] (KIHBS)	**2008**[b] (KDHS)	**2014** (KDHS)
Central	16.7	16.3	15.2	18.8
Coast	8.1	7.1	8.5	9.6
Eastern	7.5	10.8	12.8	12.4
Nairobi	24.2	23.7	24.7	15.1
North Eastern	2.7	4.9	5.9	8.0
Nyanza	16.1	14.5	12.2	13.5
Rift Valley	9.1	12.0	11.7	11.3
Western	15.6	10.7	9.0	11.3

Source: KDHS (various years) and KIHBS, 2005/06 Survey

Note: 2005[a] and 2008[b] Represents Fiscal Years 2005/06 and 2008/09 Respectively

The Nairobi province had more secondary enrolments compared to with provinces and this is because Nairobi province is the capital city of Kenya and is entirely urban. A number of people staying in the city are civil servants, workers of various companies, and business owners. This means that they are able to take their children to various secondary schools around the city easily.

6.2.3 Education Expenditure Trend in Kenya

Public expenditure on the education sector has been increasing generally each year in Kenya. Recurrent expenditure at the three levels of education has been growing in a consistent and steady manner while on other hand development expenditure for these education levels has been inconsistent for many years, as shown in Table 6.5 below. Primary recurrent expenditure increased from KES.7,148.58

million in fiscal year 2005/06 to KES.14,319.70 in 2015/16. There is no doubt that total primary expenditure in general (which includes recurrent and development expenditure) has been progressive in recent years. Total primary expenditure increased from KES.8,460.18 million in 2005/06 to KES.18,078.31 million in 2015/16.

Secondary recurrent expenditure on other hand was at KES.2,893.70 million in 2005/06 and by the 2015/16 it had increased to KES.32,550.12 million, which is an increase of 1.125 times. This increase was due to the introduction of Free Day Secondary Education (FDSE) policy in 2008. A sharp increase of recurrent expenditure in secondary education was witnessed 2008 whereby expenditure increased to KES.14,622.35 million from KES.2,893.70 million in 2005/06. The government of Kenya through the FDSE programs is trying to bridge huge transition gap of students joining secondary from primary level. When it comes to university level, the cost of sending a child to university is very high in Kenya, only favoring the rich household incomes or wealth groups, and as seen in Table 6.5 below, university education has huge expenditure in terms of both recurrent and development expenditure. The government needs to not only increase university tuition funding but also increase the loan schemes facilitated by the Higher Education Loan Board (HELB) in order to enable children from poor household income groups to study at universities.

Table 6.5 Primary, Secondary, and University Expenditure Trend (2005/06 – 2015/16)

Amounts (KES. Million)

Expenditure & Year	2005/06	2008/09	2011/12	2012/13	2013/14	2014/15+	2015/16*
Recurrent Expenditure							
Primary Education	7,148.58	7,298.79	9,705.76	9,393.13	10,533.76	13,408.00	14,319.70
Secondary Education	2,893.70	14,622.35	17,142.23	21,261.42	22,165.73	27,849.59	32,550.12
University Education	11,885.24	12,899.20	29,197.80	42,389.23	32,884.54	44,133.38	45,168.30
Sub-Totals (KES)	**21,927.52**	**34,820.34**	**56,045.79**	**73,043.78**	**65,584.03**	**85,390.97**	**92,038.12**
Development Expenditure							
Primary Education	1,311.60	7,284.67	1,122.57	329.96	6,061.89	334.13	3,758.61

Table 6.5 (Continued)

Expenditure & Year	2005/06	2008/09	2011/12	2012/13	2013/14	2014/15+	2015/16*
Secondary Education	170.00	750.19	2,055.90	3,814.51	637.15	2,012.30	446.39
University Education	487.70	1,967.00	5,183.24	7,998.72	2,944.68	9,455.01	7,678.94
Sub-Totals (KES)	**1,969.30**	**10,001.86**	**8,361.71**	**12,143.19**	**9,643.72**	**11,801.44**	**11,883.94**
Grand-Total (KES)	**23,896.82**	**44,822.20**	**64,407.50**	**85,186.97**	**75,227.75**	**97,192.41**	**103,922.06**

Source: The National Treasury and Kenya Economic Surveys (Various)

+ Revised Estimates

***** Printed Estimates

The development expenditure trend regarding the education sector as seen in Table 6.5 is not allocating sufficient financial resources to enable development of the education sector's infrastructure and increasing accessibility. The expenditure has been varying since 2005. For example, general development expenditure in 2005/06 was KES.1,969.30 million while in 2011/12 and 2014/15 it was KES.8,361.71 and KES.11,801.44 respectively.

6.3 The Targeting of Public Expenditure on Education (by Household)

Targeting is a tool usually used with the objective of properly identifying entitled households or individuals, in order to provide the benefits from government spending on a service. When it comes to targeting methods, all targeting has a common objective—that of appropriately classifying which households or individuals are poor and which are not. In order to find facts about the education sector in Kenya, especially when it comes to government policy on education expenditure, this study found it necessary to analyze how various household groups get a share of education expenditure policy and this was achievable through finding how each level of education and household groups was targeted. It is clear from Table 6.9 that each household group and region did not receive an equal proportion of total education expenditure.

Therefore, this study unearthed the true picture of the income distribution of public resources for household income groups and regions, referred to here as provinces, through calculating pre-expenditure and post-expenditure at each education level. Post-expenditure was obtained by adding pre-expenditure to the total benefits equivalent to what each household income or wealth group receives. The basis of conducting this exercise was to determine whether marginalization and inequality in Kenya continue to increase or not.

6.3.1 Expenditure Incidence by Household Wealth/Income Groups

It was in the year 2003 that the government of Kenya introduced Free Primary Education (FPE) policy for every household group in Kenya. This policy meant that parents had to take their children to primary schools without paying tuition fees or for other learning materials from primary one to primary eight (1-8), which are the official years that a pupil spends in primary school. It has emerged that FPE does not cover all primary expenses; for example, schools still need parents to buy books and other essential learning materials for their children since the free primary education policy at the moment only covers tuition fee. The government of Kenya, 6 years after the introduction of the Free Primary Education Policy, introduced the Free Day Secondary Education policy in 2008. This was meant to make secondary education not only accessible to poor household income groups but also to cater to the increasing number of enrolments at secondary levels. In relation to the FPE and FDSE government policy on education, it was necessary for evaluating the impact of this policy across all levels of education in order to know who the beneficiaries are and who are not.

This study found that public expenditure for household wealth groups was not reliable for the period from 2003 to 2014 since it has been fluctuating. In Kenya, poor households generally do not benefit fully from government expenditure policy on the education sector. In 2014 alone, the poorest household quintile received 6.5 percent of the total education expenditure while the richest household quintile received 46.5 percent of the entire education budget, and this trend was not different in the previous under study (Table 6.6).

Table 6.6 Expenditure Incidence by Household Income Groups (2014, 2008 & 2003)

School Level and Year of Survey	Total Expenditure (MOEST)	Poorest Quintile	Second Quintile	Middle Quintile	Fourth Quintile	Richest WQuintile
KDHS - 2014						
Primary Education	**13,408.00**	2,346.40	2,855.90	2,882.72	2,762.05	2,560.93
Percentage	**100**	17.5	21.3	21.5	20.6	19.1
Secondary Education	**27,849.59**	2,562.16	4,511.63	5,709.17	6,683.90	8,382.73
Percentage	100	9.2	16.2	20.5	24	30.1
University Education	**44,133.38**	485.47	1,546.4	3,972.0	8,914.95	29,304.56
Percentage	100	1.1	3.3	9.0	20.2	66.4
Total Education	**85,390.97**	5,394.03	8,913.93	12,563.89	18,360.90	40,248.22
Total Percentage	100	6.3	10.4	14.7	21.5	47.1
KDHS – 2008[b]						
Primary Education	**7,298.79**	1,240.80	1,605.73	1,605.73	1,474.36	1,372.17
Percentage	100	17.0	22.0	22.0	20.2	18.8
Secondary Education	**14,622.35**	1,228.28	2,076.37	2,675.89	3,991.90	4,649.91
Percentage	100	8.4	14.2	18.3	27.3	31.8
University Education	**12,899.20**	154.79	296.68	619.16	2,321.86	9,506.71
Percentage	100.00	1.2	2.3	4.8	18	73.7
Total Education	**34,820.34**	2,623.86	3,978.79	4,900.79	7,788.11	15,528.79
Total Percentage	100.00	7.5	11.4	14.1	22.4	44.6
KIHBS - 2005						
Primary Education	**7,148.58**	1,765.70	1,808.59	1,551.24	1,301.04	722.01
Percentage	100.00	24.7	25.3	21.7	18.2	10.1
Secondary Education	**2,893.70**	280.69	494.82	642.40	792.87	682.91
Percentage	100.00	9.7	17.1	22.2	27.4	23.6
University Education	**11,885.24**	225.82	237.70	820.08	2,281.97	8,319.67
Percentage	100.00	1.9	2.0	6.9	19.2	70.0
Total Education	**21,927.52**	2,272.21	2,541.12	3,013.72	4,375.89	9,724.59
	100.00	10.4	11.6	13.7	20.0	44.3

Source: Author's Computation Based on MOEST and Various Surveys (Economic Surveys, KDHS & KIHBS)

Note: 1. Expenditure used is for 2005/06, 2008/09 and 2014/15 for 2005, 2008 & 2014 respectively

2. 2005[a] and 2008[b] – For ease of reference this represents fiscal year 2005/06 and 2008/09 respectively.
3. KDHS – Short form of Kenya Demographic and Health Survey
4. KIHBS – Short form of Kenya Integrated Household Budget Survey

The results generally show that in the three years (2005, 2008 and 2014), the expenditure policy did not targeting well the poor households in the education sector though at a specific education level, for example primary school, it was progressively targeted. In 2005, the poorest and second household income quintiles received the largest allocation, each getting 24.7 and 25.3 percent respectively, amounting to a total of 50 percent of the entire primary school allocation for the households. This shows that government funding through the introduction of the Free Primary Education policy is well targeted and pro-poor at the primary level. The middle household income quintile had 21.7 percent benefits compared to the richest and fourth household income quintiles, which received 18.2 and 10.1 percent respectively in the same year.

The richest household income group received the lowest government expenditure (10.1%) of the entire primary allocation in 2005, which is an indication that this household income group did not benefit much from government primary education funding. The main reason to explain this scenario is that the richest household income group sent its children to private primary schools where quality education is guaranteed compared to public primary schools, which lack a number of things, for example desks, classes, and enough teachers. The government's main reason for introducing Free Primary Education in 2003 was to reduce or eliminate the education inequalities that exist across household income groups and regions, as explained by various government ministry officials during the interviews with them.

In 2008, primary education's recurrent expenditure slightly improved to KES. 7,298.79 million, which is a 2 percent increase compared to KES.7,148.58 in 2005. The fourth and richest household quintiles had 20.2 and 18.8 percent of public recurrent expenditure respectively, which was a huge improvement compared to 2005

public recurrent expenditure, where both the fourth and richest household quintiles had 18.2 and 10.1 percent respectively. Although public recurrent expenditure decreased in both the poorest and second household quintiles, their sum totals were above those of both the fourth and richest household quintiles. For example, the sum total of primary recurrent expenditure for the poorest and second household quintiles in 2008 was 39 percent, while the sum total for the fourth and richest household quintiles was 38.4 percent. The primary education funding remained relatively the same in the year 2014, especially as the government of Kenya gave more priority to the free day secondary education it had introduced 2008 and the government policy of opening more universities to accommodate a higher number of student enrolments in university from the secondary level. In 2014, the poorest and second quintiles had 17.5 percent and 21.3 percent primary funding from the government respectively.

Secondary education in many countries is considered as the most important education level, where one is able to join the workforce directly or choose to join tertiary level of education. In Kenya for example, upon completion of secondary education, one can choose to join security forces such as the police and army or decide to get clerical jobs. In the year 2005, the household groups that benefited a lot from secondary education were the fourth and richest household quintiles incurring 27.4 and 23.6 percent of secondary public recurrent expenditure respectively. On the other hand, the poorest and second quintiles received 9.7 percent and 17.1 percent of secondary public recurrent expenditure respectively in the same year. In 2008, education funding for secondary schools increased due to the introduction of free day secondary education (FDSE) in 2008. For example, total recurrent expenditure went up from KES.7,148.58 million in 2005 to KES.7,298.79 in 2008. The poorest and second household quintiles received 8.4 and 14.2 percent respectively in 2008, an indication that poor households could not sent all of their children to the second level and the level of transition from primary to secondary school was low as well. On the other hand, the fourth and richest quintiles benefited a great deal from primary funding, which received 27.3 and 31.8 percent respectively.

The secondary expenditure in 2014 remained almost the same as far as the household ratio funding is concerned, even though there was an increase in public secondary funding from KES.14, 622.35 million in 2008 to KES.22,165.73 million in

2014. The fourth and richest quintiles still received the "lion's share" of funding of 24 and 30.1 percent respectively in 2014. This was quite the opposite in the poorest and second quintiles, which received 9.2 and 16.2 percent respectively. Generally, as seen in 2003, 2008 and 2014, a good number of poor households were unable to send their children to secondary schools due to high tuition and boarding fees since most secondary schools in Kenya are boarding schools, explaining the low primary transition to secondary schools.

In October 2016, Kenya had a total of 70 university institutions comprised of 33 public chartered universities and constituent colleges, 23 private chartered universities, and constituent colleges, and in addition, there are 14 institutions with letter of Interim Authority (LIA), for example, GRETSA, Aga Khan, Riara, UMMA, and Zetech universities just to name a few (CUE, 2016). University education in Kenya still benefits the richest quintile households. According to Bwonda (2013), enrolment rates are very low at post-secondary education and only 2 percent of the pupils enrolled in primary grade one make it to the first year at university level. The fourth and richest household quintiles benefited exclusively from the university education in the years under this study. In 2005, the richest quintile household received a total of 70 percent while in 2008 and 2014, the richest quintiles received 73.7 and 66.4 percent respectively of the entire university public expenditure, which is an indication that only the rich and able households can send their children to university level, therefore benefiting from government subsidies wholly. The poorest, second, and middle households quintiles received a total of 10.8 percent in 2005 while the same quintiles received a total of 8.3 percent in 2008 and 13.4 percent in 2014, which clearly demonstrates the failed or poor redistributive education policy, especially at the higher or universities level in Kenya.

6.3.2 Expenditure Incidence by Provinces

Kenya has 8 provinces or regions, which currently encompass 47 local governments (county governments) in total. As seen from the household wealth and income groups above, the enrolments of students across all levels of education remain the same in the provinces as well. This study considered it necessary to analyze region benefit incidence in order to ascertain which region or province in Kenya receives

more or less government funding for the education sector. According to Mzonde (2013), regional level analysis is important just as household income groups in making informed decisions on the education sector policy. Public expenditure for primary schools has been increasing since the introduction of free primary education in 2003. For example, primary recurrent expenditure increased from KES.7,148.58 Million in 2005 to KES.13,408 Million in 2014 respectively. The eastern province received the highest recurrent expenditure compared with other regions at the primary level; it received 14 percent and 14.1 percent in 2005 and 2014 respectively. The North Eastern province had the lowest expenditure in the three years (2005, 2008 and 2014) under study, making it benefit the least from the government expenditure policy of free primary education. The North Eastern region is one of the marginalized regions in Kenya; it is characterized by a semi-arid climate and the entire region is sparsely populated.

There has been expenditure and budget funding inconsistency in many regions in Kenya. Primary recurrent expenditure was not only inconsistent in the 8 regions from 2005 to 2014 but also a significant decrease in expenditure was witnessed in these regions in 2008. The decrease in expenditure and funding was mainly due to the following two points; first, the introduction of free day secondary education policy of 2008 forced the government to allocate more funds to the secondary level compared with the primary level; second, the government had a revenue deficit that was caused by the 2007-08 post-election violence witnessed in Kenya after a disputed general election. This violence left approximately 1,133 persons dead and more than 600,000 people displaced from their homes. The GDP annual growth dropped from 6.9% 2007 to 0.2% in 2008, and the Kenyan economy was at stake literally many government operations were becoming at a standstill due to a lack of peace and fewer collection taxes. This led to the six prominent persons thought to have participated in fueling the killing of people to be taken to the International Criminal Court (ICC) in the Hague, including the current president and his deputy president, although the case collapsed in 2016 due to a lack of evidence on the the prosecutor's side.

Secondary education's recurrent expenditure grew rapidly from 2005 to 2014. The public secondary recurrent expenditure increased from KES.2,893.70 million in 2005 to KES.27,849.59 million in 2014. A sharp rise in public expenditure was

witnessed in 2008, when secondary expenditure rose to KES.14, 622.35, which was a 405 percent rise from the 2005 secondary recurrent budget, which was KES.2, 893.70 million due to the introduction of the free day secondary education policy for all public schools in Kenya. The Coast and North Eastern provinces not only had consistent secondary recurrent expenditure but also had a gradual expenditure increase from 2005 to 2014. The Coast province's recurrent expenditure increased from 7 percent in 2005 to 9.6 percent 2014 respectively, while the North Eastern province increased from 4.8 (the lowest of all the expenditure) to 8% in 2003 and 2014 respectively. These two provinces have been marginalized since Kenya's independence in 1963. What the government is trying to do now is to improve the living standards of the households in these regions through redistributing resources by use of education funding and better healthcare. The other six provinces showed no consistency in secondary recurrent expenditure in the entire period under study.

Last, at the secondary level, this study found out that Central and Nairobi provinces received the highest secondary public expenditure in the entire period under study. There are three reasons to explain this: first, these regions are mostly urban and developed; second, Nairobi province is the capital city of Kenya and it is entirely urban, and this explains why it received the highest expenditure of 23.8 percent in 2005 and 24.9 percent in 2008; and third, out of the four Kenyan presidents, three came from the central province and all of them favored developing where they came from. This is a true reflection of bad leadership controlled by tribalism, political party affiliation, nepotism, and regional marginalization in modern Kenya. Therefore, there is a need to promote secondary education in rural and marginalized areas such as the North Eastern province, which received the lowest expenditure from 2005 to 2014.

At the university level, all provinces showed inconsistency in public expenditure growth. It is worth noting that Nairobi province received the highest university expenditure in the entire period under this study. It received 35 percent in 2008 and 25.4 percent in 2014 respectively, which was far from the other seven provinces. The reasons behind this higher expenditure are the following. Nairobi province hosts major public universities and colleges, and a number of the richest households are found in Nairobi province as well. This means that the majority of the rich benefit more from university education compared with the poor household

members. Take for example the North Eastern province; it received the lowest average recurrent university expenditure of 1.4 percent followed by the Western province, which had 7.3 percent in the three years (2005, 2008 and 2014).

Table 6.7 Public Expenditure on Education in the Provinces (2014, 2008 & 2005)

Amount (KES.Millions)

	Total Expenditure	Central Province	Coast Province	Eastern Province	Nairobi Province	North Eastern	Nyanza Province	Rift Valley Province	Western Province
KDHS – 2014									
Primary Education	**13,408.00**	1,783.26	1,635.78	1,890.53	1,662.59	1,166.50	1,676.00	1,729.63	1,863.71
Percentage	100	13.3	12.2	14.1	12.4	8.7	12.5	12.9	13.9
Secondary Education	**27,849.59**	5,235.72	2,673.56	3,453.35	4,233.14	2,227.97	3,759.69	3,147.00	3,119.15
Percentage	100	18.8	9.6	12.4	15.2	8	13.5	11.3	11.2
University Education	**44,133.38**	6,620.01	3,001.07	4,722.27	11,209.88	308.93	4,589.87	10,724.41	2,956.94
Percentage	100	15	6.8	10.7	25.4	0.7	10.4	24.3	6.7
Total Education	**85,390.97**	13,638.99	7,310.41	10,066.15	17,105.61	3,703.40	10,025.57	15,601.05	7,939.80
Total Percentage	100	16.0	8.6	11.8	19.9	4.5	11.8	18.1	9.4
KDHS – 2008[b]									
Primary Education	**7,298.79**	985.34	846.66	970.74	853.96	656.89	1,058.32	846.66	1,080.22
Percentage	100	13.5	11.6	13.3	11.7	9.0	14.5	11.6	14.8
Secondary Education	**14,622.35**	2,237.22	1,257.52	1,857.04	3,640.97	833.47	1,769.30	1,710.81	1,316.01
Percentage	100	15.3	8.6	12.7	24.9	5.7	12.1	11.7	9
University Education	**12,899.20**	1,238.32	902.94	1,148.03	4,514.72	116.09	1,973.58	2,437.95	567.56
Percentage	100.00	9.6	7.0	8.9	35	0.9	15.3	18.9	4.4
Total Education	**34,820.34**	4,460.88	3,007.13	3,975.81	9,009.64	1,606.46	4,801.21	4,995.42	2,963.80
Total Percentage	100.00	12.8	8.6	11.4	25.9	4.6	13.8	14.3	8.5
KIHBS – 2005[a]									
Primary Education	**7,148.58**	957.91	879.28	1,000.80	864.98	564.74	993.65	900.72	986.50
Percentage	100.00	13.4	12.3	14.0	12.1	7.9	13.9	12.6	13.8
Secondary Education	**2,893.70**	471.67	202.56	309.63	688.70	138.90	416.69	353.03	312.52

Table 6.7 (Continued)

	Total Expenditure	Central Province	Coast Province	Eastern Province	Nairobi Province	North Eastern	Nyanza Province	Rift Valley Province	Western Province
Percentage	100.00	16.3	7.0	10.7	23.8	4.8	14.4	12.2	10.8
University Education	**11,885.24**	1,687.70	1,010.25	1,806.56	1,247.95	309.02	1,723.36	2,816.80	1,283.61
Percentage	100.00	14.2	8.5	15.2	10.5	2.6	14.5	23.7	10.8
Total Education	**21,927.52**	3,117.29	2,092.08	3,116.98	2,801.63	1,012.65	3,133.71	4,070.55	2,582.63
Total Percentage	100.00	14.2	9.5	14.2	12.8	4.6	14.3	18.6	11.8

Source: Author's Computation Based on MOEST and Various Surveys (Economic Surveys, KDHS & KIHBS)

Note: 1. Expenditure used is for 2005/06, 2008/09 and 2014/15 for 2005, 2008 and 2014 respectively

2. 2005[a] and 2008[b] – For ease of reference this represents fiscal year 2005/06 and 2008/09 respectively

3. KDHS – Short form of Kenya Demographic and Health Survey

4. KIHBS – Short form of Kenya Integrated Household Budget Survey

Contrary to secondary expenditure, which decreased in 2008 due to the post-election violence witnessed in Kenya, university expenditure was not wholly affected, especially at regional levels. University expenditure increased instead in provinces such as Nairobi, Nyanza, and the Coast. The reason given is that universities were not affected by the violence directly; after all universities were considered safe havens due to the heavy security deployed to all university campuses.

6.4 Gini Coefficient and Lorenz Curve

The study used both Lorenz curves and the Gini coefficient to determine the benefit incidence of household income groups. The Gini Coefficients for each level of education was calczulated to check if the changes in the proportions of income or wealth in each household group were valid. The results from the Gini Coefficient analysis normally show whether the wealth inequality has declined or increased, Lorenz (1905**).** When the proportions of the income or wealth of the poor households to the national income decreases, the corresponding Gini Coefficient will increase, implying that income inequality has not declined and the opposite is true.

Area **A,** which is between a perfect distribution line and the Lorenz curve, shows the degree of income inequality and sometimes is referred to as a "gap" between the rich and the poor. In order to calculate the Gini Coefficient of area **A** in simple terms is equal to areas **A** divide by area **A** plus area **B;** that is, **(A/A+B)** as shown in figure 6.1. The Gini coefficient can be calculated easily using the formula below.

Gini Coefficient = $1 + 1/N\text{-}2(Nx_1 + (N - 1)\ x_2 + \ldots + 2n - 1 + x_{n)/NX}$

Where **N** = Represent the number of household income/wealth groups. There will be five household income groups:

X = the proportion of income of all household income groups, that is, **100** percent, and **1**, **2** … **n** represent the number of house income groups, and

x = the proportion of the income of each household income group to total income

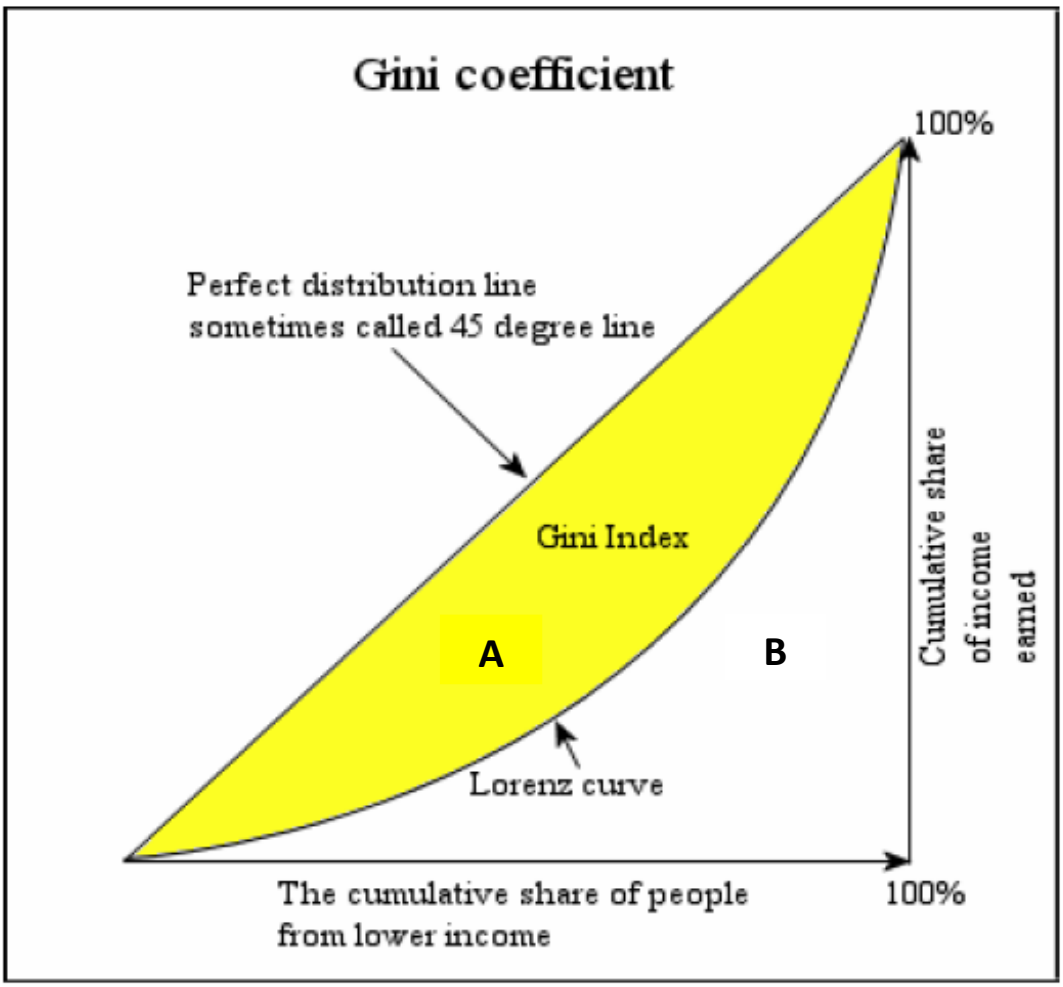

Figure 6.1 Lorenz Curve and Perfect Distribution Line

The Lorenz curve generally represents a likelihood distribution of statistical values, and is mostly related to the income distribution in a country. The Lorenz curve is one way of graphically demonstrating the distribution of benefits to assess the targeting of government subsidies. The cumulative distribution of income is plotted on the Y-axis, while the cumulative distribution of the population is plotted on the X-axis. This means that it is valuable in evaluating the relationships of households groups in an economy with regards to government subsidies in providing essential services, such as education and health. The area A, which is the line of perfect equity, and Lorenz curve, show the degree of wealth inequality in the households. This is sometimes called the "Gap" between the rich and the poor. The Gini Coefficient

ranges from 0 to 1. A low Gini Coefficient can be interpreted to mean an equal distribution of wealth (zero = perfect equality), while a high Gini Coefficient means an unequal distribution of income (1= perfect inequality).

6.5 Pre and Post-Expenditure Income Distribution

The public expenditure policy in any given country is meant to benefit all and in most cases much consideration is given to the underprivileged and marginalized household groups. This explains why one can find differences in income or wealth across household groups. This study therefore analyzed the impact of both free primary education, which started in 2003, and free day secondary education, which commenced in 2008, in order to determine the income or wealth distribution before and after public funding policy was introduced. Through adding the total benefits to the equivalent household incomes gives post income distribution or wealth for that matter which in essence give a new contribution figures. The rationale for doing this exercise is to show whether the marginalization and inequality in Kenya has continued to increase or not. This was further tested using the Gini coefficient, where the pre- and post-expenditure in a given income group was calculated, as shown in Table 6.8. There have been variations in the contributions made by the household income groups to the national income. In general, in 2014 the proportions of household income to the national income decreased due to the increase in the poorest population and the over-dependence on limited government funding in both primary and secondary education. The poorest household pre-expenditure was 7.50 percent in 2014, while total post-expenditure was 6.58 percent. This implies that the poorest households did not benefit from the government's basic education financial policy.

In 2008, the poorest household pre-expenditure was 6.30 percent, while total post-expenditure was 6.03 percent. In 2005, the trend of the poorest household was a little different from 2008 and 2014 since the poor benefited from the government policy. This is an implication that the policy was pro-poor in general and household welfare improved as expected in 2005. This means that during the introduction of this free primary education program, household welfare improved and therefore the policy at this very stage was progressive. It is worth noting that similar patterns regarding the

poorest household income group were witnessed in the second and middle household income groups in the three years under study. In the fourth household income group things were different since in the three years under study, the share of contribution to the national income decreased in 2005 and 2014, which is an indication that inequality widened between the poor and rich.

Table 6.8 Pre and Post-Expenditure Income Distribution and Gini-Coefficient

Types of Expenditure	Poorest HH	Second HH	Middle HH	Fourth HH	Richest HH	Gini Coefficient
Kenya Demographic and Health Survey – 2014						
Pre-Expenditure	7.50	9.80	11.70	20.00	51.00	0.3888
Post-Primary Expenditure	9.70	12.70	15.15	19.10	43.35	0.2913
Post-Secondary Expenditure	5.75	8.60	14.15	21.50	50.00	0.4056
Post-University Expenditure	4.30	6.55	10.35	20.10	58.70	0.4894
Post-Total Expenditure	**6.58**	**9.28**	**13.22**	**20.24**	**50.68**	**0.3966**
Kenya Demographic and Health Survey – 2008						
Pre-Expenditure	6.30	10.20	12.50	19.00	52.00	0.4008
Post-Primary Expenditure	7.35	12.20	15.40	23.15	41.90	0.3202
Post-Secondary Expenditure	7.00	8.65	10.10	21.00	53.25	0.4194
Post-University Expenditure	3.75	6.25	8.65	18.50	62.85	0.5218
Post-Total Expenditure	**6.03**	**9.03**	**11.39**	**20.88**	**52.67**	**0.2748**

Table 6.8 (Continued)

Types of Expenditure	Poorest HH	Second HH	Middle HH	Fourth HH	Richest HH	Gini Coefficient
Kenya Integrated Household Budget Survey – 2005						
Pre-Expenditure	5.40	9.70	13.80	19.10	52.00	0.4104
Post-Primary Expenditure	7.90	12.00	20.00	23.70	36.40	0.2748
Post-Secondary Expenditure	5.45	8.20	12.35	21.00	53.00	0.4316
Post-University Expenditure	3.65	5.85	10.50	19.55	60.45	0.5092
Post-Total Expenditure	**5.67**	**8.68**	**14.28**	**21.42**	**49.95**	**0.4052**

Source: Author's Computation

Note: Expenditure in Each Level is in Percent (%) and HH Represent Households

In 2014, the share of the fourth household group to the national income marginally increased from 20 percent to 20.24 percent while in 2008 it increased from 19 percent to 20.88 percent despite the introduction of the Free Day Secondary Education policy in the same year. The pattern of the fourth and richest quintiles did not change much in 2008 because the introduction of free day secondary education had minimum effects on enrolments, unlike the poor households, which sent their children to day secondary schools. The possibility getting such results is that despite the introduction of both free primary and secondary day education policies, the government funding was not sufficient enough to meet the enormous enrolments of students at these levels of education, which in itself has become a big challenge to the government of Kenya.

The proportions of the income or wealth of the households in the richest household income group to national income slightly decreased from 51 percent to 50.68 percent in 2014. This means that the richest household income group share

lightly decreased in 2014. The pre-expenditure Gini Coefficient increased from 0.3888 to the post-expenditure Gini Coefficient of 0.4894, indicating that there was an increase in income inequality the poorest and the richest household's income group. In 2005 and 2008 things were not different; the richest household income groups' contribution to the national income increased after the implementation of public expenditure policy on education. The richest household income group share to the national income slightly increased from 52 percent to 52.67 percent in 2008, while in 2005 things were different, when the richest household contribution decreased to 49.95 percent from 52 percent. This confirms that at the initial stages of public expenditure policy on education, there was a decrease of inequality between the poor and rich household groups in 2005.

Looking across the education levels, similar patterns of mixed outcomes were witnessed just as with the household income groups discussed above. The Gini coefficient results gave a true reflection of which educational level benefited from the government funding policy on education, as shown in both Table 6.8 and Figure 6.2. In 2005, the Gini coefficient for both secondary and university education increased after the government funding policy. The pre-expenditure Gini Coefficient was 0.4104 while for the post-secondary and post-university expenditure the Gini Coefficients were 0.0.4316 and 0.5092 respectively. This means that government public expenditure policy on both secondary and university levels did not lead to welfare improvements for the poor households in 2005. On the other hand, the primary post-expenditure Gini Coefficient decreased to 0.0.2748 from the pre-expenditure Gini Coefficient, which was 0.4104 in 2005. This implies that the poor benefited more than the rich households and the public expenditure policy on education was pro-poor at the primary level.

In 2008, the same pattern was seen, where the Gini-coefficient of both secondary and university education increased after the government funding. The pre-expenditure Gini Coefficient was 0.4008 while the post-expenditure Gini-coefficients for both secondary and university education was 0.4194 and 0.5218 respectively. This suggests that the government policy of free day secondary and university funding did not improve the welfare of the poor households and therefore it was pro-rich in nature. Again, the primary education post-expenditure Gini Coefficient was 0.3202, which as a decrease compared with pre-expenditure in 2008. This implies that the poor households benefited from free primary education that was begun in 2003.

At the university level, the post-expenditure Gini-coefficient was 0.5218, which is an increase compared to the pre-expenditure Gini-coefficient of 0.4008. Again, this implies that the rich households benefited more at the university level at the expense of the poor. In 2014, the post-expenditure Gini-coefficient for secondary and university levels also increased compared with the pre-expenditure shares, while that of the primary level decreased. Secondary and university levels had a post-expenditure Gini Coefficient of 0.4056 and 0.4894 respectively, while primary post-expenditure was 0.2913. This shows that poor households benefited fully from government subsidies of primary education while they did not at secondary and university funding policy. In other words, primary education policy improved the welfare of the poor, implying that it is pro-poor, while secondary and university education were regressive from 2005 to 2014. This result is clearly seen from the Lorenz curves (Figure 6.2-6.5).

Lorenz Curves (a-b) for Pre- and Post-Expenditure on Education

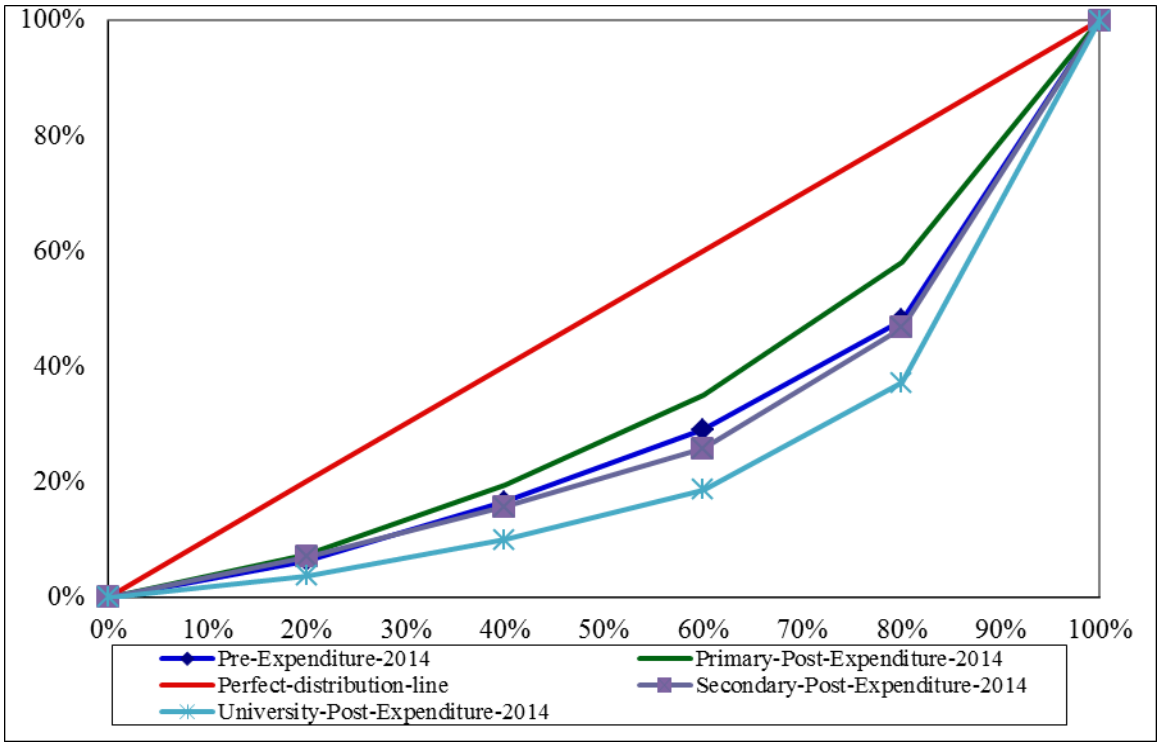

Figure 6.2 Pre- and Post-Expenditure Lorenz Curves (2014)

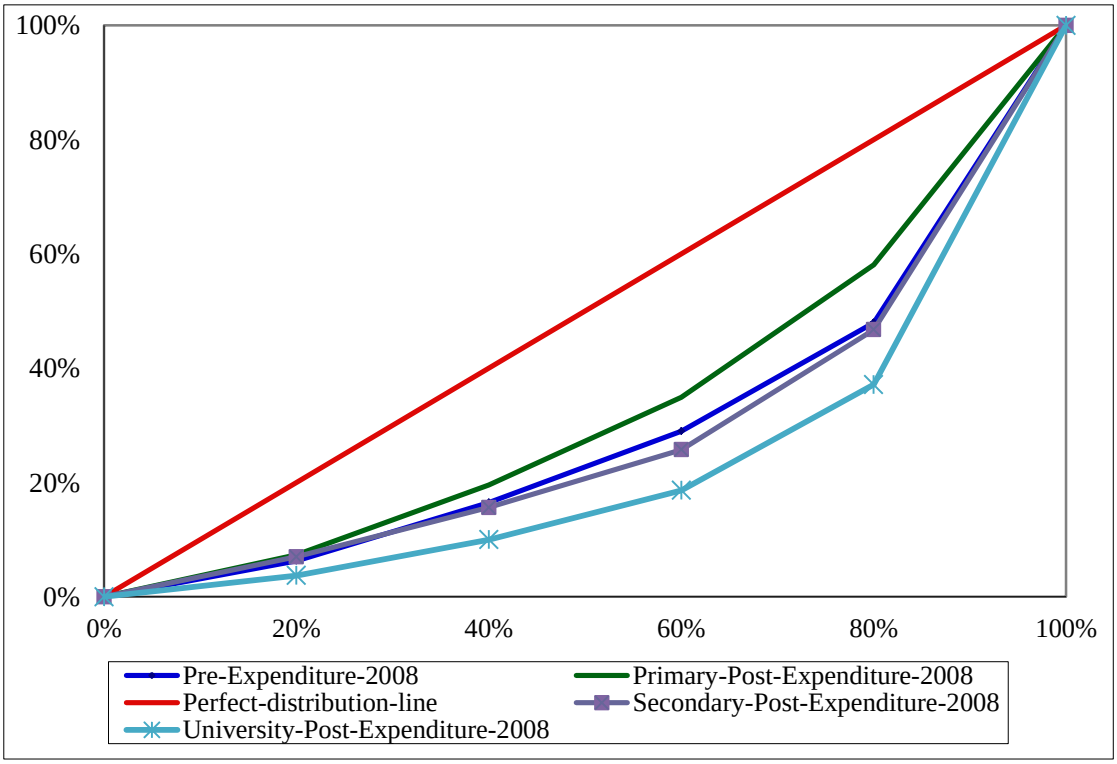

Figure 6.3 Pre- and Post-Expenditure Lorenz Curves (2008)

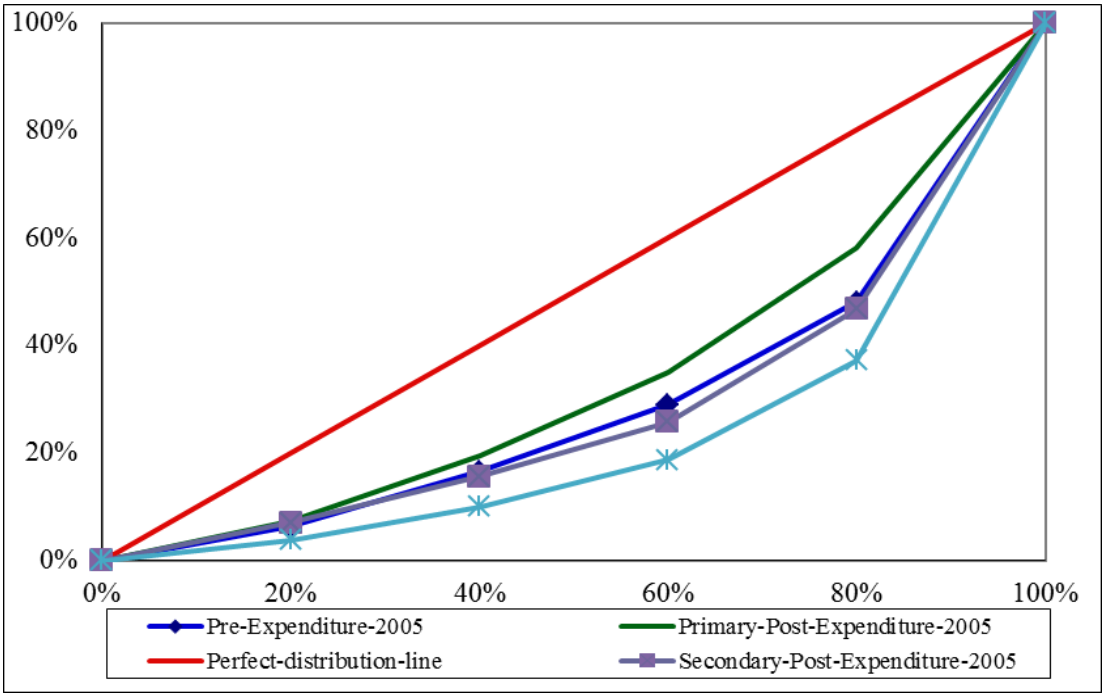

Figure 6.4 Pre- and Post-Expenditure Lorenz Curves (2005)

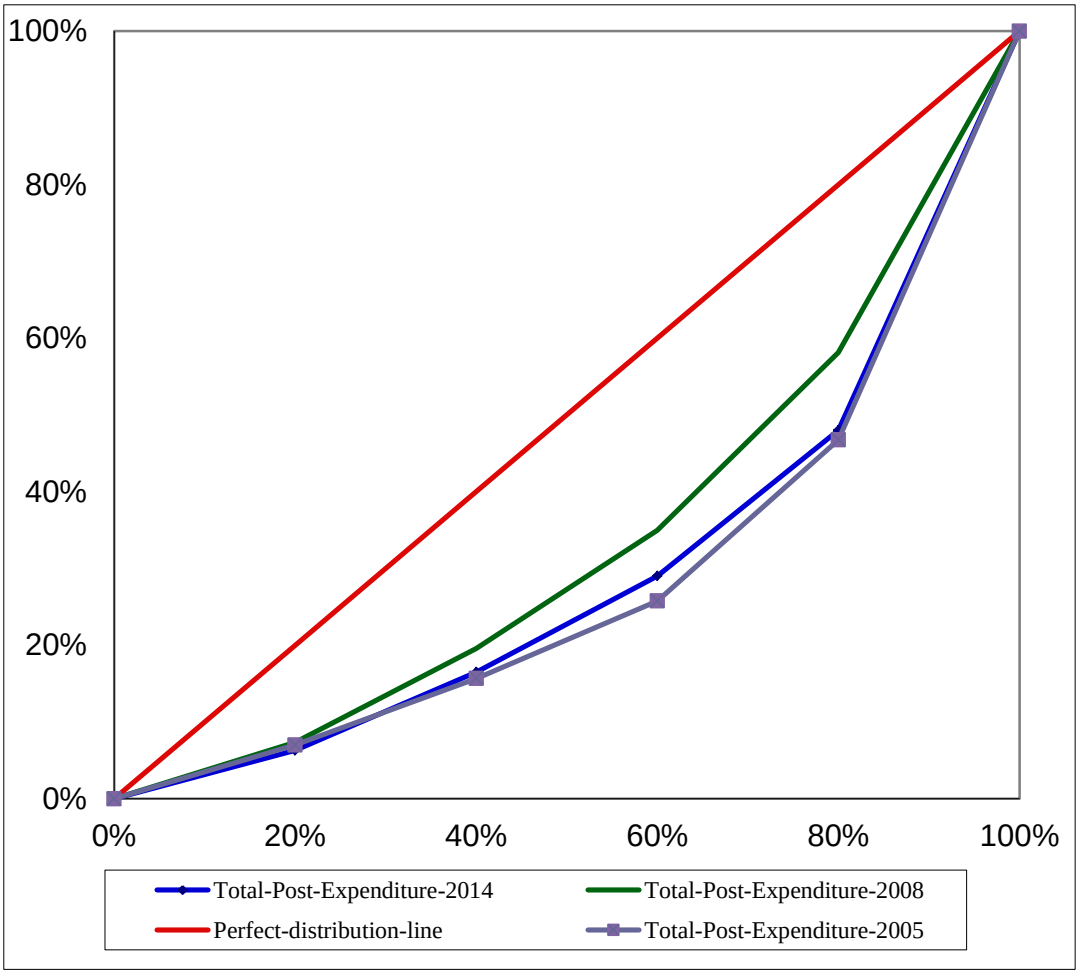

Figure 6.5 Total Post-Expenditure for 2005, 2008 and 2014

6.6 Conclusion

In summary, in the three years (2005, 2008 and 2014), there was little to smile about concerning the government public policy on the education sector in Kenya. It seems that the government lacks sustainable funding mechanisms and proper policy implementation frameworks in order to provide not only quality education but also to reduce the inequality in the country. The inconsistency witnessed in the government of Kenya in its struggles to reduce poverty and illiteracy speaks volumes. The result of this study indicates that public expenditure policy was pro-poor at the primary education generally meaning primary education is pro-poor while secondary and university education is pro-rich.

The pro-poor bias of primary education mostly stems from the following reasons. First, the poor households tend to have more children, and second, the rich households sent their children to expensive private and mostly international primary schools. Therefore, the nearness of the government services to underprivileged groups should be reconsidered and resources shifted from the rich to the poor or from urban to rural areas. It seems that the government of Kenya is far from reducing both illiteracy and poverty in the poor household groups and regions. The government needs to encourage equitable economic growth and macro-economic stability through upholding public expenditure with sustainable capabilities (World Bank, 2014) in order to improve the welfare of the poor households. The government should also initiate measures in order to improve the quality of services rendered and monitor the performance of each education sub-sector and of all projects. This in long-run will improve the rate of utilization of government services in general.

CHAPTER 7

CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

This study focused for the most part on the factors affecting the growth of public expenditure on education, and the distributive effects of public expenditure on education in relation to household income or wealth groups in an attempt to find ways to reduce the poverty gap between the rich and the poor. The main reason for evaluating the expenditure trends, the factors affecting the growth of expenditure, and the income distributive effects was to find ways of coming up with better policy recommendations. This is expected to help all stakeholders in the education sector utilize well the limited resources, have strong management frameworks, and more importantly help in promoting equality in all households and across all regions in the country.

This study tried to create an understanding regarding the real behaviours of government expenditure policies on education. The main focus was on how the government formulates and implements these policies. In order to get the whole picture of education public expenditure, it was necessary to ascertain the factors that affect growths of public expenditure, the trend of public expenditure on education, and the income distribution effect regionally and nationally at each level of education. A number of researches have been conducted recently on the factors affecting the growth of public expenditure on education but most of them have concentrated on one or two levels of education, mostly doing cross-sectional or time-series analysis, which does not show all of the dimensions of education sector expenditure.

This study was exploratory in the sense that it categorized public expenditure as the dependent variable so as to explain the behaviour pattern of factors used in relation to the objectives and hypothesis formulated. In Kenya, comprehensive study that incorporates all levels of education is scarce, as the literature depicts. A number

of theories and hypotheses were chosen after reviewing various relevant literature to check for their credibility in clarifying Kenya's educational expenditures. As mentioned previously, the explanatory research was aimed at analysing the behaviour pattern, education development and reforms, effects of income distribution on education, as well as the factors affecting the growth of public expenditure on education in Kenya. Therefore, this study attempted to answer the following questions. First, what is the enrolment and public expenditure trend in the education sector? Secondly, what factors affect the growth of public expenditure on the education sector? Thirdly, is public expenditure on education progressive or regressive, and who benefits from it? Fourthly, what kind of inequalities exists in the distribution of government subsidies amongst different levels of income groups?

7.2 Research Questions and Answers

In order to explain vividly this study's obtained results, going through the research questions was necessary. To start with, what is the enrolment and public expenditure trend in Kenya? Kenya has witnessed both school enrolments and public expenditure increases on education since independence. Notably, the enrolments at all levels of education have greatly increased in the last three decades. Kenya's government has been in support of the National Educational Goals and UNESCO instruments through increasing universal access to basic education (Ndonga, 2017). Basic education here refers to free primary and free day secondary education. In 1980, the public primary schools in Kenya had 10,255 with enrolments of 3,926,629 pupils while in 2014, the number of public primary schools had reached 69,671, with a total number of 12, 970,611 pupils enrolled. This sharp increase is attributed to the introduction of free primary education in 2003. Primary enrolment was 8.6 million in 2003 compared to 7.3 million in 2002; this implies that more pupils joined primary school as a result of the free primary education policy. Additionally, the government encouraged school dropouts, which included children from poor household income groups and those that got pregnant while at school, to begin their studies again. This increased primary enrolments by huge margins.

Secondary enrolments increased from 400 thousand students in 1980 to 2.3 million students in 2014. On the other hand, public university enrolments increased from 29 thousand students in 2003 to 600 thousand students in 2014. The university enrolments were steady from 1980 to 1999 before increasing sharply from 2000 to 2014. Due to the introduction of free day secondary education in 2008, more students joined the university level therefore increasing university enrolments. A number of policy reforms and restructuring has been going on over the last 3 decades in an attempt to improve the efficiency and effectiveness of public spending on education. Kenya's pattern of resource allocation and expenditure is not too dissimilar to that found in other developing countries. There has been growing demand for quality, equitable, and better education in Kenya, which has brought pressure on education due to inadequate education infrastructure and teaching staff (Muricho & Changach, 2013).

Public expenditure on education has been growing rapidly of recent, which leads to the question, what is the trend of public expenditure on education in Kenya? On average, the education sector spent 6.4 percent of the GDP and 26 percent of total public expenditure ranging from fiscal year 2003/2003 to 2009/2010 (Bwonda, 2013). The government has been witnessing a rapid increase in education expenditure, although a sharp increase was seen from 2003 onwards due to the introduction of free primary and free day secondary education policies. Public expenditure on the education sector increased from KES.3.21 billion in 1980 to KES.339.08 billion in 2014, while total public expenditure was KES.1,925 billion in 2014. Primary expenditure increased from 10.83 million in 2011 to KES.16.60 million in 2013. The secondary level was not left behind in terms of the increase in expenditure, as secondary expenditure increased from KES.40 million in 1980 to KES.28.78 billion in 2014. During the introduction of free day secondary education in 2008, secondary expenditure reached KES.15.37 billion compared with 8.17 billion in 2007. This was a huge and sharp increase, and this translated to about a 188 percent expenditure increase at the secondary level. The government explanation for the huge budget allocation in 2008 was to increase the primary-secondary transition rate, which was low, and to support the new program fully. On the other hand, university education

expenditure grew from KES.36 million in 1980 to KES.66.40 billion in 2014. On average, university expenditure increased by KES.10.65 billion from 1980 to 2014.

Apart from knowing the trend of public expenditure on the education sector, it was important to find out what factors affect the growth of public expenditure. In a nutshell, there are many factors that affect the growth of public expenditure on education and they include demographic factors, technological changes, increases in consumption, and political and social influence. The demographic factors for example include the real GDP per capita, population growth, urbanization growth, increases in student enrolments, and inflation trends, to name but a few. For this study, a number of factors were used, which were obtained from various theories and concepts, as shown in Chapter 5. These factors were tested in four different models representing the education sector, and the primary, secondary, and university level.

Lastly, this study answered the following three questions; is government expenditure on the education sector progressive or regressive, and who are the main beneficiaries of government education subsidies? What kind of inequalities exists in the distribution of government subsidies amongst different levels of income groups? In order to answer these three questions, the benefit incidence analysis method was used to explain how financial resources are being targeted and its impact on the education sector. The results obtained here show that the poor household groups had a large share of enrolment in basic education while the rich household groups enjoyed benefit at the university level. This implies that government spending in Kenya is progressive at primary and secondary levels, meaning that lower household income groups benefited the most from the basic education policies that were begun in 2003 and 2008, even though secondary education was slightly to the middle and needs more funding interventions to enable more poor households to benefit.

The result of the Gini coefficient and Lorenzo curve also showed that basic education in Kenya is progressive, while university education is regressive. The post-expenditure Gini-coefficient for 2005, 2008 and 2014 for primary and secondary education reduced compared to the pre-expenditure figures. For example, in 2005, pre-expenditure was 0.4048 while primary and secondary post-expenditure were 0.1298 and 0.2786 respectively, and university post-expenditure increased to 0.5092. This trend was similar to the 2008 and 2014 results. In order to understand well how

the results were arrived at, what methodology was used and how the data were collected it was necessary to link the results with theories of public finance, education, and development administration, as discussed in the following sub-topics.

7.3 Effects of Education Reforms and Development

The education sector in Kenya has experienced numerous changes and challenges since independence in 1963. The government of Kenya in the past five decades has formulated and implemented various educational policies and reforms during the four presidents' eras in order to overcome the challenges experienced in the sector. The government came up with various educational commissions, committees, and task forces to address the education sector problems (see Table 4.7 – 4.9). The study divided the explanation of education policies and reforms into colonial, pre-independence, and independence. The independence explanations were further divided into four presidential eras. In order to understand the colonial education policies in Kenya and how their legacies have continued to impact the context of education policies currently, two historical events were discussed in Chapter 4: first, early Christian missionary activities and second, early British interest in Kenya.

Educational policies and reforms during independence are divided here into four presidential rules**.** The analysis in Chapter 4 was very clear; the three previous presidents and the current president of Kenya had different focuses on education policies. The first president of Kenya, H.E. the late President Jomo Kenyatta, literally had the mandate to replace colonial policies and rules that never favored Kenya's black citizens, who formed the majority of the population. The Second president of Kenya, H.E. President Daniel Torotich Arap Moi, promoted the establishment of education governing institutions such as the Kenya National Examination Council (KNEC) and the establishment of the current education system (8-4-4) in Kenya. The third president of Kenya, H.E. President Mwai Kibaki, on other hand is the person that established free basic education, which includes free primary and free day secondary education through general election campaign promises and implementing them after winning general elections. Lastly, the fourth president of Kenya, H.E.

President Uhuru Kenyatta, continued from where his predecessor left off. He fully implemented free primary and free day secondary education programs and in addition, introduced laptop projects for class one pupils for all primary schools in Kenya in a move to promote information, communication, and technology (ICT) which is key to any country's development.

The education sector has encountered a number of constraints and challenges recently. These challenges include inaccessibility of education facilities, low quality of education, education inequality, improper policy and legal frameworks, and poor implementation. The analysis of the factors that affect the growth of public expenditure on the education sector and income distribution effects across the provinces in Kenya justified the element of education policy analysis and public expenditure policy analysis. The study's purpose was to contribute to education development strategies that are expected to create more efficient and equitable outcomes if implemented.

In order for the government of Kenya to provide better policy advice for better allocation of education expenditure, the policymakers and implementers will find the recommendation in this study useful. The targeted beneficiaries of this study are the government of Kenya through ministry of education, education institutions, policymakers, implementers, and other interested parties in education such as NGOs and donor fraternities. This formed the main idea of carrying out this comprehensive research that contains the causes of public expenditure growth on education and an analysis of the income distribution effects on the education sector in Kenya.

7.3.1 Free Primary Education (FPE)

Free primary education in Kenya has been a government plan since 1974 and later in 1979, when the government introduced free primary education programmes that aimed at achieving free and universal primary education. The two proposed free education programmes were derailed by a lack of funds. This is the very reason that the government had to wait until 2003 to implement it. There is no doubt that the education system has increased rapidly since independence and has availed numerous challenges, for example, mass enrolments and funding problems. The free primary education program had two aims; first was to attain free education for all and to meet

the Millennium Development Goals by 2015. Whether Kenya achieved it is a matter of discussion. Some education scholars are in agreement that Kenya already achieved it and others do not agree. Second was to follow the 2010 Constitution and Education Act of 2013 requirements. The legal documents promotes are distributive in a way since they promote equity for all through equitable financial resources, especially in the provision of free basic education.

7.3.2 Free Day Secondary Education (FDSE)

Free Day Secondary Education, which was introduced in 2008, has contributed significantly to improving not only enrolments and equity but also it has enhanced the quality of education and the retention rate in secondary education. Nonetheless, the program needs additional subsidy in order to realise the constitutional obligation of providing free and compulsory secondary education. The free day secondary education program during commencement the government was to meet tuition fee amounting to KES.10,265 per student enrolled in public secondary school, while the parents to meet other necessary requirements, which included boarding, lunches, development, transport and uniform fees. Parents and guardians pay more than what the government offers as a subsidy. The free day secondary education program policy was expected to allow students from poor household income groups to benefit from it by enabling them to complete their secondary education levels. This has not been achieved fully, as explained, since secondary schools fees are still high for the poor socio-economic households groups. There is no doubt the current government does not have sustainable financial mechanisms to keep this program in place for a long period or to allow everyone to benefit from it fully.

7.3.3 University Education

The quality of university education in Kenya has decreased each year. According to Materu (2007), the decline of education quality is caused by the decrease in government subsidies, enrolment increases in higher education each year, and insufficient qualified academic staff in higher education. The lack of enough academic staff is caused mostly by the “brain drain,” retirements without immediate replacements, and lack of efficiency and poor governance. The University Act of

1985 that led to the formation of the commission for higher education promoted university education in both public and private universities in Kenya. This act not only led to the expansion of university education but also increased university accessibility. Kenya witnessed the creation of new public and private universities, but the stakeholders in the education sector have raised concerns about the courses and the quality of education offered in these universities (Nkunya, Bienefeld & Hansert, 2009). University just has witnessed in Chapter 5 and 6, benefits more than the middle and higher household income groups. Therefore, the government needs to provide subsidies to this education sector through offering scholarships, bursaries, and student loans to the poor household income groups in the society.

7.4 Growth of Public Expenditure on Education

These are the factors that affect the growth of public expenditure on education and normally influence the government's decisions in allocating financial resources to the education sector. The study conducted a thorough literature review on public expenditure on education and came up with a number of factors that affect the growth of public expenditure. The study used four models to test the factors that have had an effect on the growth of the public expenditure education sector. The formulation and usage of these models were driven from various theories and past publications on public expenditure, especially on education. Apart from obtaining the factors affecting the growth of public expenditure from the literature review, other factors were added after carrying out the interviews with experts from the Ministry of Education, Science and Technology (MOEST), and Ministry of Finance and National Treasury (MOFNT). For example, agriculture expenditure was added, which is the backbone of Kenya's economy. In order to test the four models representing level, hypotheses were formulated to aid in examining the impact of public expenditure on the education sector.The results in Chapter 5 revealed that the factors affecting the growth of public expenditure had varying impacts on each education sub-sector.

In order to run a successful regression analysis for this study, various assumptions were defined and evaluated. The assumptions checked included first, checking the linearity variables, that is, evaluating the relationship between the

dependent and independent variables. This was possible through examining the residual plots for all of the models tested and variables used. Secondly, a homoscedasticity check was done, which is the assumption of equal variances between pairs of variables that can easily be detected by observing the residual plots. Thirdly, the independence of the error terms in the regression was checked, which is the assumption that the predicted value is not related to any other prediction; meaning that each predicted value is independent. Fourthly, a normality check was carried out, which is the assumption that errors of prediction are normally distributed and their violation can be detected by examining the residual plots. Fifthly, a check of outliers, which are cases with larger Z scores for the variables (the cases with z scores of 3.29 or great ($p<.001$) are potential outliers. In addition to the assumption rules followed, the general procedures and rules for Standard Multiple Linear Regression were also followed.

This study provides a guideline on how to understand the impact of these factors and also offers solutions on how to alleviate their effects in trying to utilize the limited financial resources efficiently and effectively through supporting education policies. The secondary data used in this study were collected from various government agencies in Kenya and from MOEST, MOFNT, and International Organizations websites, such as the World Bank from September, 2015 to January, 2017. The primary data were also collected, especially in an attempt to get experts' views from the ministry of education and finance on what causes expenditure increases and how the financial resources are allocated to each sector. Therefore, the following is a brief discussion of the model results and implications.

7.4.1 Discussion of Model-1

The government of Kenya has made the education sector a priority, especially during the allocation of budgets, and this demonstrates Kenya's commitment to providing not only basic education but also tertiary education. According to the results in Chapter 5 above, Model-1, which tested the factors that affect growth of the general education sector, yielded R^2 of .815, an adjusted R^2 of .714 with an F-value of 8.072, showing that in total the model 1 contributes about a 71.40 percent growth to the general public expenditure on the education sector. The total increase in general

public expenditure (TGE) significantly and positively led to the increase of public expenditure on education while secondary teachers' employment (STEM) led to the significant growth of public education expenditure.

The factors tested in Model-1 were by a good margin significant, meaning that they affected the growth of public education expenditure (see Table 5.2). The unstandardized beta coefficient figures explained this clearly and the results showed that a number of factors were positively significant and they included per capita income (PCG=.062), budget deficits (DEF=.030), education lagged expenditure-incremental (GE_{t-1}=.001), secondary teachers employment (STEM=.032), and total public expenditure (TGE=.007). On the other hand, the following factors were negatively significant: primary teachers' employment (PTEM=.095), dummy election figures (DUEL=.042), and education monetary aid (Grant= .053).

The real GDP per capita is the real productivity per person in the country. In Model-1, real GDP per capita (PCG) was positively significant, meaning that it caused public expenditure on education to increase. This was in agreement with the Economic-Demographic Theory, which says that an increase in real GDP per capita increases government expenditure. According to this theory, as a country becomes richer, the population demands for essential services increase, hence increasing public expenditure. The GDP per capita somehow reflects the average revenue per person in the economy. This means that as the GDP grows it is presumed that everyone in the chain will benefit and the growth will have a trickle-down effect on the population, thus improving the standard of living. In a nutshell, when the real GDP per capita increases, the standard of living increases as well.

The budget deficit (DEF) is positively significant in Model-1, meaning that it causes the public expenditure to increase, which is in agreement with Fiscal Illusion Theory. The following are the two main reasons why the budget deficit increased public expenditure on education; first, the budget deficit might have forced the government to cut spending on other sectors, such as agriculture, and support education more. This means that the government mostly uses budget overruns and borrowing from the economy to fund the education sector. Secondly, the government was forced to borrow more to meet the ever-increasing school enrolments by allocating more financial resources to the education sector.

In Kenya, during budget preparation there has been a tendency of the government sectors and subsector to arrive at the next financial budget by increasing the previous year's budget by 10 percent. Of course, this means that the following year's budget will be up by 10 percent. When the budget allocation increases, it encourages more spending since financial resources are available. This explains why the education lagged expenditure (GE_{t-1}) was positively significant, therefore causing an increase of public expenditure. This is in agreement with the Incremental Theory, which states that public expenditures increase since they are based on the past trends of the expenditure. Therefore, the current spending is arrived at by a marginal or incremental increase from what was spent during the previous year (Lindblom, 1959).

Total public expenditure (TGE) increase was positively significant in Model-1. An increase in government revenue means more budget allocation and spending in the key government sectors, including education, which agrees with the Incremental Theory, which says that increases in revenue lead to more budget allocations, which in turn leads to more spending. On the other hand, the employment of more secondary teachers to cater to the ever-increasing secondary enrolments made the government through the Ministry of Education, Science and Technology increase the expenditure. This explains why the employment of secondary teachers (STEM) was positively significant and this is in agreement Economic-Demographic Theory, which explains that an increase in the population, in this case the increase of secondary teachers, increases public expenditure.

Initially, the study made an assumption that all independent variables would have positive effects on the growth of public expenditure on education, as provided by the theories used, but after testing Model-1, some of the independent variables were negatively significant, for example, PTEM, DUEL, and GRANT. It was a surprise that primary teachers' employment (PTEM) did not have a positive effect on general education expenditure, which is against Economic-Demographic Theory. This is probably because the government was unable to employ more teachers and even those that were currently employed were receiving little. This clearly explains why there have been many teachers' strikes due to the government's reluctance to promote and increase teachers' salaries. The election dummy (DUEL) factor used had a negative effect on public expenditure on education, probably because of the few fields used,

and this had a big impact on the results after running the regression. Lastly, GRANT had a negative effect simply because donor nations had cut or reduced their foreign aid to Kenya.

The effect of globalization (GLOB), inflation (INF), indirect tax revenue (ITR) and urbanization (URB) was positive although not significant. This was contrary to the theories and the model's initial assumption, that these factors increase the growth of public expenditure. Therefore, these factors that have a positive effect but do not significantly require government intervention and probable policy definition. The interventions will allow the government to successfully meet its responsibility of providing basic education to all, especially during the policy formulation and implementation stages. It is now clear that the government of Kenya needs to identify the best ways to promote and make basic education programs sustainable. The equations below, shows Mode-1 after testing (with imputed figures).

$$GE = -8.759 + .062INF + .369PCG + .297URB + .135DEF + .027ITR + .376GE_{t-1} + .257STEM - .169PTEM - 1.492DUEL + .008GLOB - .415GRANT + 1.24TGE$$

7.4.2 Discussion of Model-2

The government of Kenya introduced free primary education for all. This study used Model-2 to test and examine the factors having an effect on public expenditure at the primary level using Standard Multiple Linear Regression Analysis. This was done in order to ascertain the impact of free primary education policy that the government of Kenya introduced in 2003. The results obtained significantly explain 92.20 percent of the change in public expenditure on education, with a Durbin-Watson of 1.810 and an F-change of 37.562. This means that Model-2 contributed immensely to the growth of public expenditure, especially at the primary education level, and therefore the null hypothesis was rejected in this case.

Generally, in Model-2, five factors caused significant changes in public expenditure on primary education, reflecting Kenya's government efforts and commitment to providing basic education for all. These factors included inflation, urban population, budget deficit, primary teachers employment, and total government

expenditure. Three factors—namely inflation, primary teachers' employment, and total government expenditure—positively increased public expenditure on primary education while two factors, which included urbanization and budget deficit, negatively decreased public expenditure on primary education.

Inflation (INF) was positively significant in Model-2, meaning that it caused public expenditure on primary education to increase which supports the Economic-Demographic Theory, which says that an increase in inflation increases public expenditure. When inflation is high, the prices of essential items increase, and therefore parents are forced to pay more schools and other school requirements in order to keep their children at school. This explains why inflation was positively significant in Model-2. The employment of more primary teachers to cater to the ever-increasing primary enrolments made the government through the Ministry of Education, Science and Technology increase expenditure. This explains why the employment of primary teachers (PTEM) was positively significant and this is in agreement Economic-Demographic Theory, which explains that an increase in the population, in this case the increase of primary teachers, increases public expenditure. Further, the Total public expenditure (TGE) increases were positively significant in Model-2. An increase in government revenue means more budget allocation and spending in the important government sectors, such as education, which agrees with the Incremental Theory, which says that increases in revenue leads to more budget allocation, which in turn leads to more spending.

On the other hand, urbanization (URB) and budget deficit (DEF) were negatively significant. In Kenya, youth and active people have been seen of recent going to urban centers and cities. This increases the cost of living in the long-run because increases in the urban population essentially make basic amenities difficult to access. The end results is that staying in urban areas becomes expensive and insecurity increases as well. The government, due to limited revenues, becomes unable to meet the urban centers' demands for basic amenities such as clean water, good drainage system, affordable health and education services, just to mention a few. The urbanization result in Model-2 was opposite that offered by the economic-demographic theory, which assumes that increases in urbanization cause an increase in public expenditure.

Budget deficit (DEF) was also negatively significant; this means that the budget deficit reduced primary expenditure. Normally a budget deficit is when the state decides to spend more than it collects, and in this case, budget deficit forces the government to increase taxes and this reduces incomes and at the end it increases products' prices. This means that some parents will be unable to buy school-required items and pay for tuition fees. This result was contrary to the Fiscal Illusion Theory, which says that tax system design could lead to underestimation of the costs of public expenditure, where the public is not fully informed of the total costs of taxation. According Niskanen (2004), Fiscal Illusion can be seen as deficit spending, and Niskanen explained that there exists a strong negative relationship between the relative of government spending and tax revenues collected.

The factors that had a positive effect and not significant require government intervention especially in coming up with better and sustainable education policies that will promote not only equity but also the quality of education. In Model-2, the following factors were the real GDP per capita (PCG), lagged budget (Get-1), election effect (DUEL) and foreign aid effect (GRANT). The government needs to empower its citizens by raising the minimum wage and by creating a good business environment. By doing so, revenue per person will increase, which in turn will increase the real GDP per capita of a country, therefore improving the economy. The government in addition to using the previous year's budget to arrive t the current year's budget should consider other factors, such as the availability of revenue and which sectors require more funding. In the recent past, foreign aid to the education sector has been reduced in Kenya due to the government's inability to stop corruption and the embezzlement of funds given as grants. This explains that government intervention is necessary for raising donors' confidence and trust. This means that the free primary education policy provided by the government needs continuous funding for it to be successful and sustainable over a period of time (Mzonde, 2013; Busemeyer, 2007).

This overall reduces public expenditure on primary education since the majority of Kenyans are poor and live in rural areas and cannot sustain the high cost of living. In 2014, the World Bank approximated Kenya's rural population to be 74.80 percent and this explains the reason why the urban population and budget deficits

have not facilitated the increase of public expenditure concept regarding primary education. The new Model-2 is presented with the equation below, which gives the results of factors that affect the growth of public expenditure on primary education.

$$GP = -.079 + .082\ INF + .110\ PCG - 1.258\ URB - .081\ DEF - .005\ ITR + .090\ GE_{t-1} + .215\ PTEM + .490\ DUEL + .011\ GLOB + .016\ GRANT + .484\ TGE$$

7.4.3 Discussion of Model-3

Model-3 was used to test the factors that affect public expenditure on secondary education and it 75.20 percent of the variance of public expenditure on secondary education and an F-change of 13.881. It is significant to note that secondary education is the most crucial level of education since it is at this stage that students join the tertiary level of education or join the employment sector. The free secondary education program introduced in 2008 was commissioned towards meeting the needs of both the students that intend to complete the secondary school level and those that intend to proceed to an advance level. In this context, the secondary school curriculum in Kenya emphasizes job-tailored courses such as technical education, and business and information technology skills, which prepare them for job market.

Inflation (INF) was positively significant in Model-3, meaning that it caused public expenditure on secondary education to increase and this supports Economic-Demographic Theory, which says that an increase in inflation increases public expenditure. When inflation is high, the prices of essential items increase, and therefore parents are forced to pay more schools and other school requirements in order to keep their children at school. The pressure from the public slowly increases, forcing the government to introduce subsidized secondary education. In 2008, the government of Kenya had to introduce free day secondary education (FDSE) policy to meet the public demand. Definitely with the government subsidy, the government had to allocate a greater financial budget and at the same time it increased expenditure on the same. This explains why inflation was positively significant in Model-2.

The results further indicate that money supply (MS) was negatively significant showing that it reduced public expenditure on secondary education, contrary to the

theory and model initial prediction. An increase in the money supply will lead to an increase in the amount of money that people and firms will hold and they will spend more. Therefore, aggregate demand will increase. An increase in money supply causes inflation, which results in the increase of the prices of commodities and services, including education. In addition to inflation, secondary enrolment, domestic debt, and agriculture expenditure had a positive effect though insignificant. Other factors were not significant and had negative effect, namely budget deficit, indirect tax rates, and globalization. These factors require government intervention, especially in coming up with better and sustainable education policies that will promote not only equity but also the quality of education. The new equation for Model-3 (includes the figures) appears as follows:

$$GS = 4.298 + .049\ INF - .007\ DEF - .007\ ITR - .003\ GLOB + .001\ GSEN + .001\ DEBT - .111\ MS + .061AGRI$$

7.4.4 Discussion of Model-4

Model-4 in the study tested the factors that had a impact on the growth of public expenditure at the university level. Model-4 yielded an adjusted R^2 value of .119, with an F-statistic of 0.811. This means that the model explains 11.90 percent of the growth in public expenditure on university education in Kenya. The results indicate that university education receives fewer or no subsidies compared to both primary and secondary levels. The main reason is that university loans through the higher education loan board are given to students that join public universities and the students are expected to pay back the loan after completion of their studies. It is important to note that only a few students from the poor household income groups make it to the university level, leaving only the rich to benefit from it. The new Model-4 equation is as follows:

$$GU = 0.048 + .366\ PCG - .581URB + .861GUEN + .452\ GE_{t-1} - .286\ DEBT - .345\ GLOB + .630\ GRANT + .141\ DUEL.$$

It surprising to see that the effects of many of the factors tested in Model-4 were not significant and at the same time a number of factors in Model-4 had positive

effects, namely, budget deficit, Grants, University Enrolments (GUEN), Total Education Expenditure and Agriculture. This implies that the Model-4 was weak and probably required additional factors to improve the effects on public expenditure on university expenditure. The government therefore should put forward transparent and balanced frameworks to allow each needy student to benefit from government loans and bursaries. The higher education loan board institution,which is mandated to provide guidelines and to distribute loans to students, does not have clear formula or criteria for allocating loans and this has been a question raised by many education stakeholders. The Ministry of Education, Science and Technology needs to do something about this problem in order to enhance the equal distribution of resources across all households and regionally.

7.4.5 Final Remarks

The government of Kenya is committed to providing not only basic education but also tertiary education, which includes university education. The basic education policies by the government are clear evidence that the government gives special priority to the basic education sector, especially during the distribution of financial resources. There is a need for the government to pay more attention to and to introduce better policy interventions in the near future for the factors that are significant but reduce public expenditure across all levels of education. The interventions will allow the government to successfully meet its goals of providing basic education for all and by so doing it will be promoting equity and developing sustainable education programs.

There is no doubt that basic education, which includes both primary and secondary levels, has forced the government of Kenya to increase its budget allocation each year. The implementation of the free primary education program has not only increased the number of enrolments but it has also created problems such as the lack of basic facilities and has increased the teacher-student ratio, which the government was not prepared for. The government through the ministry of education needs to come up with well-defined funding frameworks and plans to meet the ever-increasing basic education public expenditure demands. The introduction of the free day secondary education program in 2008 has not yielded the much desired outcomes

since approximately half of all schools in Kenya are partially or completely boarding schools. The government needs to improve its budget allocation and the management of the secondary education level as well.

7.5 Effects of Income Distribution on Education

This study used Benefit Incidence Analysis (BIA) to determine who benefits from the government policy regarding the education sector. In relation to this, three national household surveys were used and included KIHBS (2005/06) and KDHS for 2008 and 2014 respectively. As seen in Chapter 6, the poor household income/wealth groups hard a large share of the enrolment in primary education while the rich household income groups enjoyed the benefit of higher education, including the university level. This implies that government spending in Kenya is progressive at the primary level, meaning that the lower household income groups benefit the most from the free primary education policy, which was begun in 2003. However, the rich households in Kenya benefit more in terms of university education, implying that the government re-distributive policy is regressive at the higher education level. The same results were witnessed regionally and as the expenditure was unveiled, it seemed that public expenditure for primary education was too little compared with university education, where few individuals benefit; and in relation to the above statement, free primary education has to some extent reached its goal, while both secondary and university levels need greater attention and interventions. The government of Kenya needs proper planning, clear goals, quality assurance strategies, and good governance, especially concerning the utilization of the available limited financial resources.

This study explained the income distribution results under the three surveys. In 2005, the Gini Coefficient for both secondary and university education increased after the government funding policy. The pre-expenditure Gini-coefficient in 2005 was 0.4104 while for the post-secondary and post-university expenditure the Gini coefficient was 0.4316 and 0.5092 respectively. This means that the government public expenditure policy for both secondary and university levels did not dead to welfare improvements for the poor households in 2005. On the other hand, the primary the post-expenditure Gini-coefficient decreased to 0.2748 from the pre-

expenditure Gini-coefficient, which was 0.4048 in 2005. This implies that the rich benefited more than the poor households at secondary and university levels and the public expenditure policy on education was only pro-poor at the primary level.

In 2008, the same pattern was seen, where the Gini-coefficient for both secondary and university education increased after the government funding. The pre-expenditure Gini-coefficient was 0.4008 while the post-expenditure Gini-coefficients for both secondary and university education was 0.4194 and 0.5218 respectively. This suggests that the government policy of free day secondary improved the welfare of the poor households and therefore it was pro-rich in nature. Lastly, in 2014, it seems that nothing really big changed because the secondary and university post-expenditure Gini-coefficient increased while primary decreased. This shows that poor households did not benefited fully from the government's secondary and university funding policy just as seen in 2005 and 2008. The pre-expenditure Gini-coefficient in 2014 was 0.3888 while for the primary, secondary, and university levels it was 0.2913, 0.4056 and 0.4894 in that order. In other words, primary education policy improved the welfare of the poor while secondary and university education did not.

In summary, in the three years (2005, 2008 and 2014), there was little to smile about concerning the government public policy on the education sector in Kenya. It seems that the government lacks sustainable funding mechanisms and proper policy implementation frameworks in order to provide not only quality education but also to reduce inequality in the country. The results of this study indicate that public expenditure policy was pro-poor at the primary education, generally meaning that it was progressive while secondary university education was pro-rich. It seems that the government of Kenya is far from reducing both illiteracy and poverty in the poor household groups and regions. Therefore, it is the government's responsibility to develop better and sustainable policies in order to improve the improve welfare of the poor households.

7.6 Study Theoretical Contributions

The theories of public expenditure on national services have received a lot of attention in the recent past, especially in an effort of each country to promote equitable resource distribution. The results of this study have been supported to a large degree by the assumptions of many theories studied, although there have been varying results when it comes to specific education subsectors. As seen in Model-1 and Model-2, representing general the education sector and the primary education subsector respectively, they were in agreement by a large margin (see Table 7.1) with theories initial predictions of factors having a positive effect on the growth of public expenditure on education. This implies that the results of these two models supported the theoretical assumptions initially expected from the theories. There is no doubt that the results of these models agree with financial theories' expectations and predictions, meaning that they too apply to Kenya's scenario. On the other hand, the results seen in Model-3 and Model-4, representing secondary and university levels respectively were partially in agreement with the expectations offered by the financial theories. This means that these two models did not agree with the principles of the theories used in this study. Take for example, Model-3 (used at the secondary level); it had four factors that were not in agreement with the theoretical assumptions and expectations; namely, budget deficit, indirect tax rates, money supply, and globalization. Model-4, which was used in university, had two factors with a negative impact, indicating that they reduced public expenditure on the education sector.

In summary, this study adds value to the theoretical knowledge sphere not only to the concepts of financial theories but also to the public financial expenditure theoretical literature. The study results confirm that indeed these financial theories do apply to developing countries such as Kenya. The study used Multiple Regression Analysis Method (MRAM) to test more than fourteen independent and four dependent variables never done before in the Kenyan context, and this means that the researcher explored more causes of public expenditure growth in Kenya.

Mosoti (2014) used the Ordinary Least Squares Method (OLSM) to analyze six causes of general public expenditure growth in Kenya; namely, population, foreign aid, inflation, gross domestic product, free primary education, and coalition

government. Mosoti therefore used few factors and this did not provide sufficient factors that caused the growth of public expenditure. In addition, the study looked in detail at the trend of education policies and reforms before, during, and after Kenya's independence, showing both the progress and challenges that the education sector has encountered. The education policies have had a big effect on the predictions and expectations of financial theories and therefore it will be easy for researchers to develop or modify the current theories to meet the ever-changing national and global trends.

7.7 Policy Implications and Recommendations

The public expenditure on education in Kenya, as seen from the results, still needs a lot of overhaul to enable the poor households to see that their children can attend all levels of education. The incidence analysis results in this study showed that generally primary education in Kenya is progressive, while secondary is not, despite the introduction of the free day secondary education policy. In addition, university education favors the rich, meaning that it is regressive. In summary, the government of Kenya needs to improve its financial resource allocation and utilization of education expenditure. This improvement can be achieved through the following policy recommendations.

7.7.1 Conduct Frequent Reviews of Resource Redistribution Policy

The philosophy of resource redistribution, especially in the education sector, requires frequent reviews and re-examinations. The policymakers and interested parties need to review and re-examine the philosophies and purposes of the free primary and fee day secondary education. This means that they should direct their efforts and capacities towards enhancing efficiency and effectiveness, especially in utilizing the limited resources in the country. The concept of cost sharing at both primary and secondary levels, whereby the government pays tuition fees and the parents pay for essential schools items such as books, uniforms, and boarding fee, is by larger questionable since parents are left with no otherwise but bear the cost. According to Rose (2002), the policy reforms of abolishing fees at primary and

expanding of the provision of secondary education is pro-poor reform in nature and this can be further enhanced through cutting all informal fees and contributions that are commonly predominant at both primary and secondary levels in Kenya. The result above concerning the quintile income groups shows that the poorest and poor household groups have less or no income to pay for these informal fees and contributions, which sometimes makes it impossible to them to send their children to both primary and secondary schools.

7.7.2 Review of Schools Syllabuses and Legalizing All Decrees

The curricula for all education levels also require reviews for a quality and up-to-standards education. The government of Kenya through the Ministry of Education, Science and Technology needs to review all syllabuses across all education levels in order to meet the current changing job demands and trends brought about by the current job market. There is no doubt that the current curricula do not meet the market demands and more challenges are created by higher enrolments in basic education, triggered by the free education policy. In addition, many stakerholders feel that most students complete school while they are "half-baked," which raises the question of the quality and relevance of free education.

Presidential decrees on education need to be institutionalized and research institutions need to be formed. The education sector in Kenya needs a consistent and steadfast research institution or department that will concentrate on education financing policies and implementation in order to establish the sustainability of the education sector and the actual unit costs to the education sector. The presidential decrees that have been witnessed in the previous and current regimes need to be institutionalized through legislation in order to protect the achievements made. In Kenya, political parties and aspiring political leaders have been giving promises during campaigns, especially in areas such as education and health sectors, to entice the electorate to vote for them. The Free Primary and Free Day Secondary Education programs have come to realization through presidential decrees. Uneven development and resource distribution that have existed since independence would be reduced if not eliminated since systematic research would provide appropriate policies and guidance, especially in terms of resource distribution and management.

7.7.3 Education Policies Require Sustainable Funding

The government to ensure sustainable funding is available. In order to make free primary and free day secondary education sustainable, the government should find reliable sources of financing these programs other than relying on traditional methods of funding, such foreign donations and government budget allocation, which in most cases is not reliable. Through getting enough resources to finance education, the government education policies will be entirely free and sustainable. This will not only increase the enrolments of the poorest households groups but will also improve student retention rates. The government should make basic education a priority when it comes to budget allocation and it can realize this through the reallocation of funds from other sectors, such as health and social protection, since education strongly stimulates growth across a wide range of countries' income (Acosta-Ormaechea & Morozumi, 2017).

7.7.4 Full Participation of All Stakeholders

The full participation of all stakeholders is important for successful policy. All stakeholders in the education sector need to be involved at all stages of education policies regarding cost and financing. The success of education policies in any particular country is based on good governance, efficient, and better establishment of financial management systems, which is achievable through the participation of all stakeholders. In addition, policy and budget information should be made available to the public, which is very important for the advocacy and performance monitoring of the entire education sector. This will not only make all sectors' actors support the policy but it will also improve actual participation in education reforms.

7.7.5 Devolve Basic Education to County Governments

Basic education should be devolved to county governments. County governments are a decentralized form of governments which are the nearer to citizens. In Kenya basic education comprises primary and secondary education. Therefore, the county governments are in the best position to identify students from poor the household income groups and to help them complete their basic education. The county government has done well in improving the pre-primary level of education,

which was left to them to manage and in so doing there has been an increase in pre-the primary expansion of facilities and in enrolments.

The highest fraction of the poor household income group are in rural areas and are most often not engaged in agricultural activities, and there is no question that agriculture should deserve higher priority in the government's agenda. As agriculture is the contributor to Kenya's economy, greater public spending in this arena will help to increase farm productivity and therefore sustain rural livelihoods, lifting the farming population above the poverty line as it boosts economic growth. Though it is a well-known fact that public expenditures improve income distribution generally, a large part of this was on education spending. Though a lot has been achieved in terms of interventions in education by Kenya's government, there is still more to be done to improve access to education. More education subsidies should be targeted at the lower-income population and areas. University and higher education tend to favour the rich or wealthy class, and the government should intensify its policy on cost recovery at this level of education in order to provide increased funding for universities and to free resources for support to poorer students.

7.8 Further Research Recommendations

This study used few macroeconomic factors in determining the growth of public expenditures on the education sector in Kenya. Therefore, there is need to include more macroeconomic factors, for example, exchange rates and Treasury bill rates, in future research. Apart from the factors that directly affect the growth of public expenditure on education, future research should focus on reviewing the quality and efficiency of the education system through research on teaching approaches, education curriculum significance, and execution. In an effort to provide suggestions for future research, it is difficult not to mention the limitations of this study. The study was limited to 35 years (1980-2014) and used election and free education dummy factors, which had few observations. This is in addition to the fact that few macroeconomic factors were used in determining the factors that the affect growth of public expenditure on education. Additionally, the study used income and wealth indexes at the same time to assess the government's financial distributive policy on education.

BIBLIOGRAPHY

Abuya, B. M. O, & Musyoka, P. (2013). Why do pupils dropout when education is 'free'? Explaining school dropout among the urban poor in Nairobi. Compare: *A Journal of Comparative and International Education, 43*(6), 740-762.

Acosta-Ormaechea, S., & Morozumi, A. (2017). Public spending reallocations and economic growth across different income levels. *Economic Inquiry, 55*(1), 98-114.

Alexander, Arthur, J. (1974). *Teachers, salaries, and school district expenditures.* Report No. 1588-FF.

Allen, S. D.; Sulock, J. M. & Sabo, W. A. (1986). The political business cycle: How significant?. *Public Finance Quarterly*, 14(January), 107-112.

Al-Samarrai, Samer. (2003). *Financing primary education for all*: *public expenditure and education outcomes in Africa.* Inst. of Development Studies, University of Sussex.

Al-Samarrai, Samer, & Zaman, H. (2012). *The changing distribution of public education expenditure* In Malawi Africa Region Work Paper sense no. 29 Washington, DC.: World Bank.

Amatsimbi, H**.** S**. (**2013**).** Christian missions, government and local councils partnership in educational development: The case of western Kenya, 1911 – 1938. *International Journal of Education and Research, 1*(9), 1-14

Amutabi, M. N. (2003). Political interference in the running of education in post-independence Kenya: A critical retrospection. *International Journal of Educational Development, 23*(2), 127-144.

Asghar, Z., & Zahra, M. (2012). *A benefit incidence analysis of public spending on education in Pakistan using PSLM data.*

Avenstrup, Roger, Liang, Xiao van, & Nellemann, S. (2004). *Kenya, Lesotho, Malawi and Uganda*: *Universal primary education and poverty reduction African regional educational publications.* Washington, DC.: World Bank.

Baleeiro, A. (1978). *Uma introdução à Ciência das Finanças.* Revista Forense, Rio deJaneiro, 2 v, 2.

Bedi, A. S., Kimalu, P., Manda, D., & Nafula, N. (2002). *The decline in primary school enrolment in Kenya.* ISS Working Paper Series/General Series, 355, Pp.1-35.

Bhatia, H. L. (2008). *Public Finance*. (26th ed.). Vikas Publishing House PVT Ltd, New Delhi, India.

Blankenau, W. F. & Simpson,N. B. (2004). Public education expenditures and growth. *Journal of Development Economics, 73*(2), 583-605.

Blejer, M. I., & Guerrero, I. (1990). The impact of macroeconomic policies on income distribution: an empirical study of the Philippines. *The Review of Economics and Statistics, 72*(3), 414-423.

Block, S. A. (2002). Political business cycles, democratization, and economic reform: The case of Africa. *Journal of Development Economics, 67*(1), 205-228.

Boslaugh, S. (2007). *Secondary data sources for public health.* A practical guide. Cambridge University Press.

Brasington, D. M. (2002). Differences in the production of education across regions and urban and rural areas. *Regional Studies, 36*(2), 137-145.

Buchanan, J. M. (1975). *The limits of liberty.* Between anarchy and leviathan. Indianapolis, IN.: Liberty Fund, INC.

Buchanan, J. M., & Wagner, R. E. (1977). *Democracy in deficit*. London: Academic Pass.

Buchmann, C. (1996). The debt crisis, structural adjustment and women's education. *International Journal of Comparative Sociology, 37*(1), 5-30.

Buracom, P. (2011). The determinants and distributional effects of public education, health, and welfare spending in Thailand. *Asian Affairs: An American Review, 38*(3), 113-142.

Burawoy, M. (1998). The extended case method. *Sociological Theory, 16*(1), 4-33.

Busemeyer, Marius. (2007). Determinants of public education spending in 21 OECD democracies, 1980-2001. *Journal of European Public Policy, 14*(June), 582-610.

Bwonda, E. N. (2013). *Essays on benefit incidence and efficiency of public spending on education in Kenya*. (Unpublished dissertation), University of Nairobi, Nairobi.

Castro-Leal, F., Dayton, J. Demery, L. & Mehra, K. (2000). Section on developing health systems-public spending on health care in Africa: Do the poor benefit?. *World Hospitals and Health Services*, *36*(2), 23-30.

Chu, K. Y., Davoodi, H., & Gupta, S. (2000). *Income distribution and tax and social spending policies in developing countries*. IMF Working Paper. Washington, D.C.: IMF.

Colclough, C., & Webb, A. (2012). A triumph of hope over reason? aid accords and education policy in Kenya. *Comparative Education*, *48*(2), 263-280.

Commission for University Education (CUE). (2016). *Status of universities in Kenya.* Retrieved from www.cue.or.ke.index.php/services/accreditation/status-of-universities

Court, D. (1979). *Education society and development*. Nirobi: Oxford University Press.

Cuenca, J. S. (2008). *Benefit incidence analysis of public spending on education in the Philippines. A methodological note*. No. 2008-09. PIDS Discussion Paper Series.

Davoodi, Hamid R., Tiongson, E. R., & Sawitree Asawanuchit. (2003). *How useful are benefit incidence analyses of public education and health spending?*.

Demery, L. (2000). *Benefit incidence: a practitioner's guide*. Washington, DC.: The World Bank.

Demery, L., & Gaddis, I. (2009). *Social spending, poverty and gender equality in Kenya-A benefit incidence analysis.* Eschborn: German Technical Cooperation.

Demery, L., & Verghis, M. (1994). The *incidence of education expenditure in Kenya*. World Bank: Education and Social Policy Department.

Demographic & Health Surveys (DHS). (2017). *Wealth index. Available online***.** Retrieved from http://www.dhsprogram.com/topics/wealth-index/Index.cfm

Deolalikar, A. B. (1997). *The determinants of primary school enrollment and household schooling expenditures in Kenya*. Do they Vary by Income? Seattle Population Research Center.

Deolalikar, A. B. (1998). Increasing school quantity versus quality in kenya. impact on children from low-and high-income households. *The Journal of Policy Reform, 2*(3), 223-246.

Deolalikar, A. B. (1999). *Primary and secondary education in Kenya. A sector review.* Unpublished Research Paper. Nairobi.

Dye, T. (1978). *Understanding public policy*. (3rd ed.). Eaglewood Cliffs, N. J.: Prentice-Hall.

Dye, T. (2005). *Understanding public policy.* (11th ed.). New Jersey: Pearson Education.

Dye, T. (2011). *Understanding public policy.* (13th ed.). New Jersey: Pearson Education.

Eshiwani, G. S. (1993). *Education in Kenya: Since independence.* Nairobi: East African Educational publishers.

Etzioni, A. (1967). Mixed Scanning: A "third" approach to decision making. *Public Administration Review, 27*(5), 385-392.

Farah, R. (2012). Knowledge in the service of the cause. Education and the sahrawi struggle for self-determination. *Refuge: Canada's Journal on Refugees*, *27*(2).

Fernandez, R., & Rogerson, R. (2003). Equity and resources: An analysis of education finance systems. *Journal of Political Economy, 111*(4), 858-897.

Fisher, G. W. (1964). Interstate variation in state and local government expenditures. *National Tax Journal, 17*(1), 57-74.

Fisher, I. (1911). *The purchasing power of money*. (2nd ed.). New York: Mocmillan.

Foville, Alfred de. (1907). *La monnaie*. Paris: J. Gobalda & Cie.

Friedman, M. (2010). *Quantity theory of money*. In Monetary Economics, Pp. 299-338. UK.: Palgrave Macmillan.

Garrett, G. (2000). The causes of globalization. *Comparative political studies, 33*(6-7), 941-991.

Gemmell, N. (1985). The incidence of government expenditure and redistribution in the United Kingdom. *Economica*, *52*(207), 335-344.

Gjersø, J. F. (2015). The scramble for east Africa: British motives reconsidered, 1884–95, *The Journal of Imperial and Commonwealth History*, *43*(5), 831-86.

Glick, P., Rumki, S, & Stephen, D. Y. (2004). *Integrating gender into benefit incidence and demand analysis.* Cornell Food and Nutrition Po;icy Program Working Paper No. 167.

Glomm, G. & Ravikumar, B. (1997). Productive government expenditures and long-run Growth. *Journal of Economic Dynamics and Control, 21*(1), 183-204

Goodwin, P. (2014). *Why Kenya's school laptops program is not the answer.* Lifeline Energy. Retrieved from http://www.one.org/us/2014/03/17/why-kenyas-school-laptops-program-is-not-the-answer/

Government of Kenya (GoK). (1981). *Second university. Report of presidential working party (Mackay Report).* Nairobi: Government Printer.

Hanushek, E., & Rivkin, S. (1997). Understanding the twentieth-century growth in U.S. school spending. *Journal of Human Resources, 32*(Winter), 35-65.

Heckelman, J., & Whaples, R. (1996). Political business cycle before the great depression. *Economics Letters, 51*(May), 247-251.

Heltberg R., Simler, K., & Trap, F. (2001). *Public spending and poverty in Mozambique.* No. 2001/63. WIDER Discussion Papers//World Institute for Development Economics (UNU-WIDER).

Hibbs Jr., D. (1977). Political parties and macroeconomic policy. *The American Political Science Review, 71*(4), 1467-1487.

Higher Education Loans Board (HELB). (2016a). *The higher education loans board.* Products-Loans. Retrieved from http://www.helb.co.ke/helbproducts/loans/alternative-loans/

Higher Education Loans Board (HELB). (2016b). *The higher education loans board: products-loans.* Retrieved from http://www.helb.co.ke/partners/funzo-kenya-scholarships-and-loans/

Hillman, A**.** L, & Swank, O**. (**2000). Why political culture should be in the lexicon of economics. *European Journal of Political Economy, 16*(1), 1-4.

Holyfield, L**. (**2002**)**. *Moving up and out: poverty, education, and the single parent family*. Philadelphia, PA: Temple University Press.

Hubbard, R. G. (2005). *Money, the Financial system and the economy*. (5th ed.). Boston: Pearson Education.

Imana, D. K. (2016). The socio-political context of public spending in Kenya: A Case of Education Inequality in Turkana County. *International Journal of Educational Research and Information Science*, 3(2), 5-12.

Irving, F. (1911). The purchasing power of money. *Publication of the American Statistical Association. 12*(96), 818-829.

Jerono, C. R., (2009). Government expenditure components on economic growth in Kenya. *International Journal of Business and Social Science, 4*(4), 233-253.

Johannes, M. E. (2010). *The dynamics of female access to formal schooling among pastoralist communities in Kenya*: *a case of Turkana district in northwestern Kenya*. (Unpublished Doctoral dissertation), University of Illinois at Urbana-Champaign, Illinois.

Kalecki, M. (1943). Political aspects of full employment1. *The Political Quarterly*, *14*(4), 322-330.

Kamunge, J. M. (1988). *Report of the presidential working party on education* and manpower training for next decade and beyond [in Kenya].

Karim, M. R. (2015). Public education spending and income inequality in Bangladesh. *International Journal of Social Science and Humanity*, *5*(1), 75.

Kenya National Bureau of Statitistics (KNBS). (1985). *Economic survey, 1985.* Retrieved from https://www.knbs.or.ke/download/economic-survey-1985-2/

Kenya National Bureau of Statitistics (KNBS). (1990). *Economic survey, 1990.* Retrieved from https://www.knbs.or.ke/download/economic-survey-1990-2/

Kenya National Bureau of Statitistics (KNBS). (1995). *Economic survey, 1995.* Retrieved from https://www.knbs.or.ke/download/economic-survey-1995-2/

Kenya National Bureau of Statitistics (KNBS). (2000). *Economic survey, 2000.* Retrieved from https://www.knbs.or.ke/download/economic-survey-2000-2/

Kenya National Bureau of Statitistics (KNBS). (2005). *Economic survey, 2005.* Retrieved from https://www.knbs.or.ke/download/economic-survey-2005-2/

Kenya National Bureau of Statitistics (KNBS). (2010). *Economic survey, 2010.* Retrieved from https://www.knbs.or.ke/download/economic-survey-2010-2/

Kenya National Bureau of Statitistics (KNBS). (2015). *Economic survey, 2015.* Retrieved from https://www.knbs.or.ke/download/economic-survey-2015-2/

Kenya National Bureau of Statitistics (KNBS). (2016). *Economic survey, 2016.* Retrieved from https://www.knbs.or.ke/download/economic-survey-2016/

Kenya, P**. (**2008**).** *The kenya free primary education policy (FPE): An assessment on the impact and sustainability of free primary education in migwani division*. (Unpublished master's thesis). Oxford Brookes University, Oxford.

Keshavjee, R**.** (2010). The elusive access to education for Muslim women in Kenya from the late nineteenth century to the "Winds of Change" in Africa (1890s to 1960s), *Paedagogica Historica, 46*(1–2), 99–115.

Kinyanjui, Kabiru. (1974). *The distribution of educational resources and opportunities in Kenya***.** Institute for Development Studies, University of Nairobi.

Koech, D. K. (1999). *Totally integrated quality education and training, TIQET.* Report of the Commission of Inquiry Into the Education System of Kenya. Republic of Kenya.

Kornai, J**.**, Maskin, E**.**, & Roland, G**. (**2003**).** Understanding the soft budget constraint**.** *Journal of economic literature, 41*(4), 1095-1136.

Levitt, M., & Joyce, M. (1987). *The growth and efficiency of public spending.* Cambridge: Cambridge University Press.

Lindblom, C. E. (1959). The science of" muddling through. *Public Administration Review*, *19*(2), 79-88.

Lindert, P. H. (2004). *Growing public: volume 1, the story*. Social spending and economic growth since the eighteenth century. Vol. 1. Cambridge University Press.

Lindert, P. H. (2009). *Growing public: social spending and economic growth since the twentieth century.* Vol. 2. New York: Cambridge University Press**.**

Lonjouw, P., & Ravallion, M. (1999). *Benefit incidence, Public spending reforms and the timing of program capture*. World Bank Economic Review. Vol. 13. Washington, DC.: World Bank.

Lorenz, M. O. (1905). Methods of measuring the concentration of wealth. *Publications of the American statistical association*, *9*(70), 209-219.

Maiyo, J., & Irene, A. Ashioya. (2009). Poverty alleviation: The educational planning perspective. *International Journal of Educational Administration and Policy Studies, 1*(2), 015-022.

Malechwanzi, J. Muthiani, H. S., & Mbeke, C. (2016). Policies of access and quality of higher education in China and Kenya: A comparative study. *Cogent Education, 3*(1), 1201990.

Masya, J. K., & Peter N. (2003). *Budgetary process in Kenya: enhancement of its public accountability.* No. 40-2003. Institute of Policy Analysis and Research.

Martinez-Vazquez, J. (2001). *The impact of budgets on the poor: Tax and benefit incidence.* International Studies Program Working Paper 01-10.

Materu, P. N. (2007). *Higher education quality assurance in Sub-Saharan Africa*. status, challenges, opportunities and promising practices (No. 124). World Bank Publications.

Mathooko, M. (2009). Actualizing free primary education in Kenya for sustainable development. *The Journal of Pan African Studies, 2*(8), 151-159.

Meerman, J. (1979). *Public expenditure and the poor in Malaysia.* Who Benefits and Why?**.** Washington, DC.: World Bank.

McGillvray, M., & Morrissey, O. (2001). Aid illusion and public sector behaviour. *Journal of Development Studies, 37*(6), 118-136.

Mill, J. S. (1848). *Principles of political economy with some of their applications to social philosophy.* W. J. Ashley (ed.)**.** London: Langman Green and Co.

Milligan, L**.** (2011). Global influences in educational policymaking: Free Secondary Education in Kenya. *Research in Post-Compulsory Education,* 16(3), 275-287.

Ministry of Education. (2007). *Report of the task force on affordable secondary education.* Nairobi: Shrend Pub. LTD.

Mualuko, N. J. (2007). The issue of poverty in the provision of quality education in Kenyan secondary schools. *Educational Research and Review, 2*(7), 157-164.

Muricho, W. P., & Changach, J. K. (2013)**.** Education reforms in Kenya for innovation. *International Journal of Humanities and Social Science, 3*(9), 123-145.

Musgrave, R., & Musgrave, P. (1989). *Public Finance in theory and practice.* (5^{th} ed.). Singapore: McGraw-Hill.

Musgrave, R. A. (1969). Cost-benefit analysis and the theory of public finance. *Journal of Economic Literature, 7*(3), 797-806.

Mzonde, R. S. B. K. (2013). *Antecedents and income distributive effects of public expenditure on education in Malawi* (Unpublished doctoral dissertation), National Institute of Development Administration, Bangkok.

Mwiria, K**. (**1991). Education for Subordination: African Education in Colonial Kenya. *History of Education, 20*(3), 261-273.

Mwiria, K. (2002). *Vocationalization of secondary education:* Kenya Case Study Prepared for Regional Vocational Skills Development Review. Human Development, Africa Region, World Bank.

The National Treasury (TNT). (2016). *Budget Highlights of the 2016/2017*. Retrieved from http://www.treasury.go.ke/publications/category/105-budget-2016-2017.html?download=459:budget-highlights-of-the-2016-2017

Newcomb, S. (1885). *Principles of political economy.* New York: Harper & Brothers.

Ndonga, S. (2017). *Ministry disburses Sh22bn free education funds*. Capital News Retrieved from http://www.capitalfm.co.ke/news/2017/02/ ministry-disburses-sh22bn-free-education-funds/

Ndolo, M. A., Simatwa, E. M. W., & Ayodo, T. M. O. (2016). Impact of Free Secondary Education Policy on Access to Secondary School Education in Kenya. A Case Study of Mbita and Suba Sub-Counties. Greener *Journal of Educational Research, 6*(2): 067-085, http://doi.org/10.15580/ GJER.2016.2.032816070

Ndung'u, N. S. (1993). *Dynamics of the inflationary process in Kenya*. Ekonomiko Studier No. 47 Department of Economics, Goteborg University.

Ngware, M. W., Eldah, N. Onsomu, & David I. Muthaka. (2007). Financing secondary education in Kenya: Cost reduction and financing options. *Education Policy Analysis Archives*, *15*(24), 1-24.

Nicolai, S., Prizzon, A., & Hine, S. (2014). *Beyond basic: the growth of post primary education in Kenya.* Overseas Development Institute (ODI) Development Progress Report.

Niskanen, W. (2004). Starve the beast does not work. *Cato Policy Report, 26*(2), 2.

Nkunya, M. H. H, Bienefeld, S., & Christoph, H. (2009). Developing Internal quality assurance mechanisms–towards an East African quality assurance framework. In *European University Association (EUA): Trends in Quality Assurance. A selection of papers from the 3rd European Quality Assurance Forum* (pp. 39-44).

Nuffic, Internationalising Education. (2015). Education System Kenya. Retrieved from https://www.nuffic.nl/en/publications/find-a-publication/education-system-kenya.pdf

Oates, W. (1988). On the nature and measurement of fiscal illusion: A Survey G. Brennan, B. S. Grewal and P. D. Groenewegen, (eds.), *Taxation and Fiscal Federation: Essays in Honour of Russell Mathews,* Sydney: Australian National University Press. Pp. 65-82.

Odhiambo, G. (2016). Higher education in Kenya: an assessment of current responses to the imperative of widening access, *Journal of Higher Education Policy and Management*, *38*(2), 196-21.

Ojiambo, P. O. (2009). Quality of education and its role in national development: A case study of Kenya's educational reforms. *Kenya Studies Review*, *1*(1), 133-149.

Okeke-Agulu, C. (2010). Who Knows Tomorrow. *Art Journal*, 69(4), 49-65.

Omotor, D. G. (2004). An analysis of federal government expenditure in the education sector of Nigeria. Implications for national development. J*ournal of social Sciences*, *9*(2), 105-110.

Opondo, A. (2000). Cultural policies in Kenya. *Arts Education Policy Review*, *101*(5), 18-24.

Osborne, M. (2014). Controlling development: 'martial race' and empire in Kenya, 1945–59. *The Journal of Imperial and Commonwealth History*, 42(3), 464-485.

Ouanes, A., & Thakur, S. (1997). *Macroeconomic accounting and analysis in transition economies*. Washington DC.: IMF.

Oyaro, K. (2008). *Free secondary schooling policy faces testing times*. Inter press News Agency. Dated 26th March, 2008.

Pallant, J. (2007). *SPSS survival manual*. (3rd ed.). Berkshire: Open University Press.

Peacock, A. T., & Wiseman, J. (1967). *The growth of public expenditure in the United Kingdom.* Vol. 1. Allen & Unwin.

Potrafke, N. (2006). *Parties matter in allocating expenditures: evidence from Germany.* Discussion Papers of DIW. Berlin: German Institute for Economic Research.

Psacharopoulos, G. (1988). Education and development a review. *The World Bank Research Observer, 3*(1), 99-116.

Puviani, A. (1903). Teoria dell'Illusione Finanziara. The theory of fiscal illusion. *Milano/Palermo/Napoli: Remo Sandron, Editore-Libraio della R. Casa*

Ramajo, J., Miguel M., Pedraja, F., & Salinas, J. (2007)**.** Competition in the allocation of public spending: a new model to analyse the interaction between expenditure categories. *Economics Bulletin, 8*(4), 1-7.

Rawlings O. (2014). *Pupil-teacher ratio more worrying.* Standard-media, online newspaper; Retrieved from https://www.standardmedia.co.ke/article/ 2000111214/pupilteacher-ratio-now-more-worrying-says-education-cs-jacob-kaimenyi

Rodden, J**.**, Eskeland, G**.** S**.**, & Litvack, J**.** I**.** (2003)**.** *Fiscal decentralization and the challenge of hard budget constraints.* MIT press.

Rodrick, D. (1998). Why do more open economies have bigger governments? *Journal of Political Economy, 106*(5), 997-1032.

Ronald, A. M. (2014). Effects of subsidized secondary education on access to public secondary schools. in *Nyamache Division, Kisii County, Kenya* (Unpublished doctoral dissertation). Kenyatta University, Noirobi.

Romer, P. M. (1990). Endogenous technological change. *Journal of political Economy, 98*(5, Part 2), S71-S102.

Rose, P. M. (2002). *Cost sharing in Malawian primary schooling*. from the Washington to the post Washington consensus (Unpublished doctoral dissertation)**.** University of Sussex), Sussex.

Rosen, H. S. (1999). *Public finance.* New York: McGraw-Hill.

Sagarik, D. (2013). An analysis of the determinants of education expenditure in Thailand. *Asian Politics & Policy, 5*(2), 227-248.

Sakellariou, C., & Partinos, H. A. (2004). *Incidence analysis of public support to the private education sector in Cote d'Ivoire.*Policy Research Working Paper No. 3231. Washington, DC: World Bank.

Sarkar, S. H., Rana, S. R. S., & Zitu, R. A. Z. R. A. (2012)**.** Challenges of Quality Higher Education in Bangladesh: A Study on Public Universities. *Journal of Education and Practice*, 4(8), 151-160.

Sawamura, Nobuhide, and Daniel N. Sifuna. 2008. *Universalizing primary education In Kenya:* Is it beneficial and sustainable?. *Journal of International Cooperation in Education, 11*(3), 103-118.

Schwartz, G., & Minassian, T. T. (2000)**.** The distributional effects of public expenditure. *Journal of Economic Surveys*, *14*(3), 337-358.

Segura-Ubiergo, A. 2002. *Globalization, Domestic Politics and the Welfare State in the Developing World:* Latin America in Comparative Perspective, 1973-1997 (Unpublished doctoral dissertation), Columbia University.

Selden, T. M. and Welsylenko, M. J. 1992. *Benefit Incidence Analysis in Developing Countries.* A Working Paper. Washington, DC.: World Bank.

Selowsky, M. (1979). *Who benefits from government expenditure?* A case study of Colombia. New York, NY: Oxford University Press.

She, Chih-Min. (2004). *Determinants of public expenditure in elementary and secondary education*. Bloomington: Indiana University.

Sheffield, J. R. (1973). *Education in Kenya: An historical study.* New York: Teachers College Press.

Sifuna, D. N. (1990). *Development of education in Africa: The Kenya experience.* Nairobi: Initiative Publishers.

Sifuna, D. N. (2007). *The challenge of increasing access and improving quality:* An analysis of universal primary education interventions in Kenya and Tanzania since the 1970s. *International Review of Education, 53*(5-6), 687-699.

Sinitsina, I. (2011). *Public expenditure on health and education in russian federation before and after global crisis.* A Case Network Report No. 103. Warsaw: Case Centre for Social and Economic Research.

Soft Kenya, (2011). *Kenya Education***.** Retrieved from https://softkenya.com/education/education commissions-in-kenya.

Somerset, A**.** (2011)**.** *Access, cost and quality*: tensions in the development of primary education in Kenya, *Journal of Education Policy, 26*(4), 483-497.

Son, H. H. (2006). *Assessing the Pro-poorness of the Government Fiscal policy in Thailand.* International Poverty Center, UNDP, working Paper No.15.

Snyder, Jr., J. M. and Yackovlev, I. (2000). *Political and economic determinants of government spending on social protection programmes.* Retrieved from http://economics.mit.edu/files/1207

Stasavage, D. (2005). Democracy and education spending in Africa*. American Journal of Political Science. 49*(2), 343-358.

Symeonidis, V. (2015). *The status of teachers and the teaching profession.* in M. Garcia A. R. Pence and J. L. Evans (eds.) *Africa's Future, Africa's Challenge,* New York: World Bank Publications, 407-26.

Swadener, E. B., Wachira, P., Kabiru, M., & Njenga, A. (2008). *Linking policy discourse to everyday life in Kenya:* Impacts of neoliberal policies on early education and childrearing. New York: World Bank Publications

Tanzi, V., & Schuknecht, L. (2000). *Public Spending in the 20th Century.* New York: Cambridge University Press.

Thomas, G. (2015). *How to do your case study*. London: Sage.

UNESCO, Institute for Statistics. (2006). EFA Global Report 2006. Literacy for Life: Retrieved from http://en.unesco.org/gem-report/sites/gem-report/files/149776E.pdf.

UNESCO, Teaching. (2014). *Learning: Achieving quality for all.* EFA Global Monitoring Report.

Vartanian, T. P. 2010. *Secondary data analysis*. Oxford University Press.Ventura, Laia. 2006. Trade Openness and Preferences for Redistribution: A Cross-National Assessment. *Business and Politics, 8*(2), 1-50.

Ventura, L. B. (2006). Trade openness and preferences for redistribution: a cross-national assessment of the compensation hypothesis. *Business and Politics, 8*(2), 1-50.

Viviline, C. N., Enose, M. W. S, & Ayodo T. M. O. (2015). Influence of Free Secondary Education Policy on Repetition Rates in Kenya: A Case Study of Kericho County. *Greener Journal of Educational Research, 5*(3), 057-077, http://doi.org/10.15580/GJER.2015.3.071815098

Vos, R., Bedi, A., Kimalu, P., Manda, D. K., Nafula, N. N., & Kimenyi, M. S. (2004). *Achieving universal primary education*. Can Kenya afford it?. Economics Working Papers. 200497

Wagner, A. (1958). *Three extracts on public finance.* In Classics in the theory of public finance, Pp. 1-15. Palgrave Macmillan UK.

Wamagatta, E**.** (2008). African quest and struggle for high schools in colonial Kenya. The Case of the Abortive Kiambu Local Native Council Central High School at Githunguri, 1926–34. *Journal of Asian and African Studies*, *43*(3): 345–362.

Wanjala, G., & Malechwanzi, J. M. (2016). *Improving the Quality of Technical Education Through International Standardization*. The Case of Coast Institute of Technology, Kenya. In Amzart, I., YusF. B. (eds.). *Fast forwarding Higher Education Institutions for Global Challenges*, Pp. 185-203. Springer Singapore.

Wanyama, H**. (**2016**).** *More class one pupils enrol in school to get laptops.* Star Newspaper. Retrieved from http://www.the-star.co.ke/news/2016/05/10/more-class-one-pupils-enrol-in-school-to-get-laptops_c1348083

Wasonga, T**.** A**.** (2013). *Towards understanding ambivalence in educational policy outcomes in Kenya. Journal of Eastern African Studies*, 7(1), 21-39.

Whitehead, C**.** (2007). The Concept of British Education Policy in the Colonies 1850–1960. *Journal of Educational Administration and History, 39*(2), 161-173.

World Bank (WB). (2004). *World development report. Making services Work for Poor People.* Washington, D.C. World Bank. Retrieved from http://kenya.newsi.ng/news/265467 how-to-end-poverty-in-kenya

World Bank (WB). (2014). *Economics of Education*. Available online on at: http://www.worldbank.org/en/topic/education/brief/economics-of-education

World Bank (WB). (2015). *Kenya rural population (% of total population).* World Urbanization prospects Retrieved from *http://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=KE*

Yin, R. K. (2013). Case study research. *Design and methods*. London: Sage publications.

Younger, S. D., Sahn, D. E., Hoggblade, S., & Dorosh, P. A. (1999). Tax incidence in Madagascan: an analysis using household data. *The World Bank Economic Review, 13*(2), 303-331.

Yoon, J. (2009). Globalization and the welfare state in developing countries. *Business and Politics, 11*(2), 1705-1771

Yuki, T. (2003). Distribution of public education spending for the poor: The case of Yemen. *Asia Pacific Education Review, 4*(2), 129-139.

APPENDICES

APPENDIX A

DESCRIPTIVE STATISTICS ON PUBLIC EXPENDITURE

Table A1 Pearson Correlation Matrix - Education Sector Expenditure (GE)

IVs	TGE	DUEL	PCG	DEF	GEt-1	INF	GLOB	FPE	GRANT	FDSE	URB	ITR
TGE	1.000											
DUEL	.293	1.000										
PCG	.183	.047	1.000									
DEF	.343	.144	.028	1.000								
GEt-1	-.138	-.183	.135	-.392	1.000							
INF	.307	.193	.450	.050	.095	1.000						
GLOB	-.249	-.108	-.221	-.141	.006	-.207	1.000					
PTEM	-.154	.167	-.169	.109	.042	-.201	.180	1.000				
GRANT	-.229	-.137	-.206	-.065	.056	-.638	-.083	-.170	1.000			
STEM	.364	-.082	.102	.381	.027	-.188	.229	-.236	.112	1.000		
URB	.450	.236	.064	-.060	-.233	.429	-.656	-.360	-.147	-.455	1.000	
ITR	.511	.213	.389	.058	.031	.420	-.746	-.040	-.437	-.060	.587	1.000

a. Dependent Variable: GE - Education expenditure

Table A2 Pearson Correlation Matrix - Primary Education Expenditure (GP)

IVs	TGE	DUEL	PCG	DEF	GEt-1	INF	GLOB	FPE	GRANT	URB	ITR
TGE	1.000										
DUEL	.348	1.000									
PCG	.158	.056	1.000								
DEF	.237	.191	-.011	1.000							
GEt-1	-.158	-.182	.133	-.436	1.000						
INF	.410	.182	.480	.134	.102	1.000					
GLOB	-.366	-.092	-.253	-.253	.000	-.172	1.000				
PTEM	-.076	.153	-.150	.221	.049	-.257	.247	1.000			
GRANT	-.291	-.129	-.220	-.117	.054	-.632	-.112	-.148	1.000		
URB	.742	.224	.125	.137	-.248	.393	-.636	-.540	-.109	1.000	
ITR	.572	.209	.398	.087	.032	.417	-.754	-.056	-.433	.630	1.000

a. Dependent Variable: GP - Primary Expenditure

Table A3 Pearson Correlation Matrix - Secondary Education Expenditure (GS)

IVs	AGRI	INF	DEBT	DEF	ITR	MS	GSEN	GLOB
AGRI	1.000							
INF	.076	1.000						
DEBT	.041	.263	1.000					
DEF	.304	.277	.012	1.000				
ITR	-.235	-.127	.290	-.017	1.000			
MS	.115	.276	.418	-.080	.118	1.000		
GSEN	.227	-.181	-.397	.279	.111	-.784	1.000	
GLOB	.282	-.187	-.445	-.171	-.790	-.510	.300	1.000

a. Dependent Variable: Secondary Expenditure (GS)

Table A4 Pearson Correlation Matrix - University Education Expenditure (GU)

IVs	DUEL	PCG	DEBT	GLOB	GUEN	GEt1	GRANT	URB
DUEL	1.000							
PCG	-0.015	1.000						
DEBT	0.090	0.054	1.000					
GLOB	0.055	-0.014	0.045	1.000				
GUEN	-0.031	0.024	-0.267	0.388	1.000			
GEt1	-0.167	-0.010	-0.567	-0.057	0.504	1.000		
GRANT	0.009	0.243	-0.178	-0.740	0.006	0.273	1.000	
URB	0.057	-0.136	0.137	-0.462	-0.944	-0.483	0.083	1.000

a. Dependent Variable: GU – University Expenditure

APPENDIX B

DEPENDENT AND INDEPENDENT VARIABLES

Table B1 Dependent Variables (in Billion Kenya Shillings – KES)

Year	GE (KES'Bn)	GP (KES'Bn)	GS (KES'Bn)	GU (KES'Bn)
1980	3.21	1.95	0.40	0.36
1981	3.54	2.15	0.48	0.43
1982	3.75	2.40	0.56	0.35
1983	4.05	2.56	0.51	0.42
1984	4.82	2.43	0.63	0.62
1985	6.13	3.19	0.88	0.74
1986	7.15	3.80	1.00	1.04
1987	8.55	4.44	1.19	1.47
1988	9.96	4.77	1.43	2.23
1989	10.53	4.96	1.61	2.19
1990	12.91	5.86	1.87	3.28
1991	13.62	7.04	2.07	2.43
1992	15.95	7.91	2.50	3.18
1993	19.69	11.42	3.21	3.32
1994	26.43	0.67	0.36	4.40
1995	29.97	0.74	0.36	5.67
1996	31.37	0.79	0.57	4.96
1997	44.05	0.59	0.33	5.99
1998	56.40	0.05	0.32	6.60
1999	62.85	0.77	0.60	5.52
2000	49.88	1.05	0.71	5.92
2001	54.84	0.89	0.67	6.49

Year	GE (KES'Bn)	GP (KES'Bn)	GS (KES'Bn)	GU (KES'Bn)
2002	64.11	3.35	0.72	7.17
2003	76.72	8.18	1.10	7.94
2004	85.01	10.09	1.14	10.30
2005	92.36	8.46	3.06	12.37
2006	119.04	12.12	15.17	14.82
2007	121.78	12.32	8.17	11.63
2008	138.25	14.58	15.37	14.87
2009	154.41	9.18	15.28	18.61
2010	179.00	13.15	3.03	20.60
2011	207.46	10.83	19.00	34.38
2012	260.12	9.72	25.08	50.39
2013	251.21	16.60	22.80	35.83
2014	339.08	32.26	28.78	66.40

Independent Variables

Table B2 List of Independent Variables

Year	GDP	GDP	PCG	MS	GDP	URB	POP	GPEN	GSEN	GTEN	PTEM	STEM
	(KES'Bn)	(%)	(%)	(%)	(%)	(Mn)	(Mn)	('000)	('000)	('000)	(KES'Bn)	(KES'Bn)
1980	81.64	5.60	1.66	29.93	5.60	2.535	16.268	3,926.63	419.20	29.47	1.95	0.40
1981	72.54	3.80	-0.11	29.47	3.80	2.650	16.901	3,980.76	410.60	31.17	2.15	0.48
1982	65.54	1.50	-2.30	30.42	1.50	2.771	17.560	4,184.60	304.40	20.60	2.40	0.56
1983	56.35	1.30	-2.48	28.18	1.30	2.897	18.241	4,323.92	329.10	29.78	2.56	0.51
1984	60.54	1.80	-2.01	28.34	1.80	2.977	18.943	4,380.23	498.10	34.13	2.43	0.63
1985	59.70	4.30	0.49	26.68	4.30	3.027	19.661	4,702.41	300.60	38.79	3.19	0.88
1986	83.66	7.20	3.33	30.39	7.20	3.300	20.394	4,843.42	458.70	36.35	3.80	1.00
1987	100.99	5.90	2.20	30.24	5.90	3.442	21.140	5,031.40	520.30	43.99	4.44	1.19
1988	109.75	6.20	2.52	28.90	6.20	3.588	21.899	5,123.60	540.20	42.26	4.77	1.43
1989	107.87	4.70	1.14	28.40	4.70	3.737	22.668	5,244.00	640.70	51.50	4.96	1.61
1990	116.16	4.20	0.73	29.58	4.20	3.927	23.446	5,392.33	618.50	62.41	5.86	1.87
1991	104.31	1.40	-1.86	30.98	1.40	4.130	24.234	5,456.10	614.20	66.03	7.04	2.07
1992	103.46	-0.80	-3.95	36.52	-0.80	4.341	25.030	5,663.99	629.10	68.14	7.91	2.50
1993	50.36	0.40	-2.74	37.07	0.40	4.557	25.825	5,428.40	531.30	63.88	11.42	3.21
1994	74.93	2.60	-0.39	38.02	2.60	4.777	26.608	5,557.01	609.80	63.95	0.67	0.36
1995	120.21	4.40	1.49	42.23	4.40	4.999	27.373	5,545.00	632.40	64.73	0.74	0.36
1996	161.51	4.10	1.39	35.79	4.10	5.224	28.116	5,597.66	658.30	66.09	0.79	0.57
1997	193.87	0.50	-2.05	38.42	0.50	5.451	28.842	6,798.22	687.50	67.27	0.59	0.33
1998	215.83	3.30	0.77	35.81	3.30	5.683	29.565	6,983.77	700.50	67.08	0.05	0.32

Year	GDP	GDP	PCG	MS	GDP	URB	POP	GPEN	GSEN	GTEN	PTEM	STEM
	(KES'Bn)	(%)	(%)	(%)	(%)	(Mn)	(Mn)	('000)	('000)	('000)	(KES'Bn)	(KES'Bn)
1999	184.90	2.30	-0.18	35.77	2.30	5.924	30.301	7,140.71	724.80	84.10	0.77	0.60
2000	179.67	0.60	-1.88	35.16	0.60	6.280	31.066	7,296.76	759.00	85.70	1.05	0.71
2001	188.82	3.80	1.18	35.24	3.80	6.449	31.863	7,196.79	799.20	119.97	0.89	0.67
2002	193.85	0.50	-2.00	38.16	0.50	6.732	32.692	7,386.16	778.60	131.12	3.35	0.72
2003	250.26	2.90	0.30	39.02	2.90	7.028	33.551	8,615.13	882.50	135.50	8.18	1.10
2004	290.83	5.10	2.40	39.33	5.10	7.339	34.437	8,932.83	926.20	169.05	10.09	1.14
2005	393.56	5.90	3.18	38.91	5.90	7.662	35.349	9,218.25	934.10	172.39	8.46	3.06
2006	667.09	6.30	3.72	34.60	6.30	7.999	36.286	9,275.76	1,039.10	183.31	12.12	15.17
2007	1,021.38	7.00	4.08	36.06	7.00	8.352	37.251	9,926.14	1,180.30	196.53	12.32	8.17
2008	1,288.63	0.20	-2.37	36.11	0.20	8.720	38.244	10,254.89	1,382.20	210.28	14.58	15.37
2009	1,370.55	3.30	0.61	36.46	3.30	9.104	39.290	10,706.65	1,472.60	249.86	9.18	15.28
2010	1,600.00	8.40	5.56	40.31	8.40	9.506	40.328	11,295.43	1,653.40	250.28	13.15	3.03
2011	1,760.01	6.10	3.31	40.85	6.10	9.927	41.420	12,050.97	1,767.70	291.70	10.83	19.00
2012	2,533.36	4.50	1.79	40.93	4.50	10.368	42.543	12,365.25	1,914.80	353.92	9.72	25.08
2013	3,051.51	5.70	2.91	41.30	5.70	10.827	43.693	12,588.10	2,104.30	461.47	16.60	22.80
2014	3,703.32	5.30	2.58	41.95	5.30	11.304	44.864	12,416.35	2,309.90	631.80	32.26	28.78

Table B2 Continuation

Year	INF	AGRI	HELH	TRANS	GE_{t-1}	DEBT	TGE	GLOB	GRANT	ITR	DEF	DUPE	DUEL
	(%)	(KES'Bn)	(KES'Bn)	(KES'Bn)	(KES'Bn)	(KES'Bn)	(KES'Bn)	(KES'Bn)	(KES'Bn)	(KES'Bn)	(KES'Bn)		
1980	13.86	1.946	1.314	1.149	0.00	7.144	19.26	29.494	0.451	8.207	-5.018	0	0
1981	11.86	1.548	1.403	1.553	3.21	8.266	22.45	29.392	0.886	9.501	-6.788	0	1
1982	20.67	1.934	1.375	1.321	3.54	9.086	23.99	29.378	1.126	9.478	-6.838	0	1
1983	11.40	1.460	1.455	1.347	3.75	13.418	25.09	31.156	0.997	11.212	-3.400	0	1
1984	10.28	2.588	1.682	1.184	4.05	13.569	30.69	37.482	1.410	11.700	-5.119	0	0
1985	13.01	2.796	1.889	1.066	4.82	13.820	33.11	40.149	1.096	14.169	-4.284	0	0
1986	2.53	4.448	2.225	1.009	6.13	14.459	41.77	46.495	1.256	17.100	-8.747	0	1
1987	8.64	4.716	2.279	1.029	7.15	17.464	44.55	44.415	3.188	19.977	-5.288	0	1
1988	12.26	8.032	2.692	2.134	8.55	23.288	59.34	54.341	3.733	22.649	-6.854	0	1
1989	13.79	3.076	2.785	1.991	9.96	24.820	65.26	65.174	4.345	24.630	-10.661	0	0
1990	17.78	3.919	2.329	2.149	10.53	26.783	67.20	75.793	4.165	27.796	-14.241	0	1
1991	20.08	4.240	2.687	1.990	12.91	31.838	88.90	83.961	4.637	32.501	-4.129	0	1
1992	27.33	6.618	4.496	2.684	13.62	44.672	124.94	93.942	8.808	41.444	-9.354	0	1
1993	45.98	9.830	6.417	3.094	15.95	47.403	180.15	174.693	9.163	57.317	-20.108	0	0
1994	28.81	7.532	6.832	5.375	19.69	79.134	184.11	200.722	13.229	64.605	-3.287	0	0
1995	1.55	7.731	8.897	7.696	26.43	30.674	183.59	252.507	5.814	74.663	-3.970	0	1
1996	8.86	6.963	10.344	7.947	29.97	32.753	183.74	286.686	5.783	78.654	-4.404	0	1
1997	11.36	7.756	12.799	7.707	31.37	27.422	315.13	311.119	5.272	90.034	-8.980	0	1
1998	6.72	9.560	13.165	8.012	44.05	27.296	243.32	318.970	4.920	100.289	4.319	0	0
1999	5.74	8.115	10.201	8.849	56.40	170.875	226.15	328.960	4.247	106.195	12.025	0	0
2000	9.98	8.236	15.629	9.459	62.85	206.059	268.89	382.331	12.461	109.650	0.314	0	1
2001	5.74	8.676	14.067	8.857	49.88	211.813	311.13	437.678	6.823	106.829	-24.970	0	1

Year	INF	AGRI	HELH	TRANS	GE_{t-1}	DEBT	TGE	GLOB	GRANT	ITR	DEF	DUPE	DUEL
2002	1.96	9.368	19.342	7.467	54.84	235.968	305.17	426.993	14.942	111.529	-26.035	0	1
2003	9.82	11.130	21.120	10.395	64.11	245.630	376.40	464.998	16.224	129.203	-17.765	1	0
2004	11.62	10.325	25.409	15.817	76.72	254.647	379.80	579.350	14.905	57.490	5.719	1	0
2005	10.31	9.920	28.973	18.699	85.01	253.501	432.59	703.516	20.070	61.710	-24.320	1	1
2006	14.45	14.142	32.156	31.106	92.36	286.450	508.85	772.477	15.494	76.111	-25.823	1	1
2007	9.76	16.743	29.197	43.106	119.04	318.402	664.61	879.769	26.714	80.736	-54.904	1	1
2008	26.24	23.877	34.636	57.752	121.78	334.996	694.17	1,115.598	29.375	93.052	-106.972	1	0
2009	9.23	32.739	26.820	56.863	138.25	401.741	789.36	1,133.047	31.190	99.335	-114.942	1	0
2010	3.96	41.572	48.411	85.915	154.41	533.972	956.23	1,357.000	21.878	108.702	-151.627	1	0
2011	14.02	28.653	63.198	87.204	179.00	624.752	1,016.71	1,813.353	10.585	105.772	-179.714	1	1
2012	9.38	42.016	76.028	115.750	207.46	768.569	1,241.40	1,892.434	4.755	114.822	-253.805	1	1
2013	5.72	50.004	34.204	105.466	260.12	889.181	1,532.99	1,915.603	10.877	139.084	-316.993	1	1
2014	6.88	52.606	61.489	280.482	251.21	1,078.807	1,924.89	2,455.557	9.852	150.042	-533.941	1	0

APPENDIX C

Z SCORES OF VARIABLES

Table C1 Variables Used (Z Scores variables)

YEAR	zGE	zGP	zGS	zGU	zPCG	zMS	zGDP	zURB	zPOP	zGPEN	zGSEN	zGTEN	zPTEM
1980	-0.45	1.53	0.63	-0.96	0.43	-1.09	0.80	-1.29	-1.54	-1.34	-0.87	-0.77	-0.72
1981	-0.72	1.40	0.69	-0.90	-0.33	-1.19	0.03	-1.25	-1.46	-1.31	-0.89	-0.76	-0.69
1982	-0.76	1.50	0.88	-1.52	-1.27	-0.99	-0.95	-1.21	-1.39	-1.20	-1.09	-0.84	-0.65
1983	-0.61	1.55	0.58	-1.24	-1.35	-1.47	-1.04	-1.16	-1.30	-1.13	-1.04	-0.77	-0.63
1984	-0.74	0.97	0.60	-0.76	-1.14	-1.43	-0.82	-1.13	-1.22	-1.10	-0.72	-0.74	-0.65
1985	0.11	1.41	1.22	-0.47	-0.07	-1.79	0.25	-1.11	-1.14	-0.92	-1.10	-0.70	-0.53
1986	-0.31	1.27	0.94	-0.12	1.15	-0.99	1.49	-1.00	-1.05	-0.85	-0.80	-0.72	-0.43
1987	0.32	1.50	1.23	0.99	0.66	-1.02	0.93	-0.95	-0.96	-0.75	-0.68	-0.67	-0.34
1988	-0.42	1.00	0.96	1.61	0.80	-1.31	1.06	-0.89	-0.87	-0.70	-0.64	-0.68	-0.28
1989	-0.61	0.89	1.02	1.07	0.21	-1.42	0.42	-0.84	-0.90	-0.63	-0.45	-0.61	-0.26
1990	0.32	1.17	1.34	3.14	0.03	-1.17		-0.76	-0.69	-0.55	-0.49	-0.53	-0.12
1991	-0.86	0.97	0.88	0.21	-1.08	-0.87		-0.69	-0.60	-0.52	-0.50	-0.50	0.07
1992	-1.63	0.56	0.55	-0.04	-1.98	0.32	-1.93	-0.61	-0.50	-0.40	-0.47	-0.49	0.20
1993	-2.19	0.56	0.33	-1.00	-1.46	0.44	-1.42	-0.52	-0.41	-0.53	-0.66	-0.52	0.74
1994	-1.15	-0.97	-1.27	-0.25	-0.45	0.64	-0.48	-0.44	-0.32	-0.46	-0.51	-0.52	-0.92

YEAR	zGE	zGP	zGS	zGU	zPCG	zMS	zGDP	zURB	zPOP	zGPEN	zGSEN	zGTEN	zPTEM
1995	-0.56	-0.96	-1.27	0.70	0.36	1.55	0.29	-0.36	-0.23	-0.47	-0.47	-0.51	-0.91
1996	-0.33	-0.96	-1.16	0.17	0.31	0.17	0.16	-0.27	-0.14	-0.44	-0.42	-0.50	-0.90
1997	-1.27	-1.02	-1.37	-0.92	-1.16	0.73	-1.38	-0.18	-0.05	-0.35	-0.36	-0.49	-0.93
1998	1.53	-1.06	-1.34	0.18	0.05	0.17	-0.18	-0.10	0.03	-0.27	-0.34	-0.49	-1.01
1999	2.93	-0.98	-1.20	-0.19	-0.36	0.16	-0.61	0.00	0.12	-0.19	-0.29	-0.37	-0.90
2000	0.12	-0.97	-1.21	-0.51	-1.09	0.03	-1.34	0.13	0.21	-0.18	-0.23	-0.36	-0.86
2001	-0.16	-0.99	-1.25	-0.66	0.22	0.05	0.03	0.20	0.30	-0.25	-0.15	-0.10	-0.88
2002	0.87	-0.78	-1.23	-0.31	-1.14	0.67	-1.38	0.31	0.40	-0.19	-0.19	-0.02	-0.50
2003	0.68	-0.51	-1.18	-0.64	-0.15	0.86	-0.35	0.42	0.50	0.40	0.01	0.01	0.24
2004	1.29	-0.38	-1.17	0.18	0.75	0.93	0.59	0.54	0.61	0.53	0.09	0.26	0.54
2005	0.97	-0.56	-0.76	0.39	1.08	0.84	0.93	0.66	0.72	0.64	0.11	0.29	0.29
2006	1.59	-0.46	1.54	0.46	1.31	-0.09	1.10	0.79	0.83	0.72	0.31	0.37	0.85
2007	0.05	-0.59	-0.23	-1.13	1.47	0.22	1.40	0.92	0.94	1.00	0.58	0.47	0.88
2008	0.54	-0.53	0.76	-0.60	-1.30	0.23	-1.51	1.07	1.06	1.16	0.96	0.57	1.23
2009	0.43	-0.77	0.49	-0.29	-0.02	0.31	-0.18	1.21	1.19	1.39	1.13	0.87	0.40
2010	0.17	-0.71	-1.15	-0.58	2.10	1.14	2.00	1.37	1.30	1.59	1.48	0.87	1.01
2011	0.69	-0.79	0.42	1.10	1.14	1.25	1.02	1.53	1.43	1.70	1.69	1.18	0.65
2012	0.85	-0.87	0.67	2.02	0.49	1.27	0.33	1.70	1.57	1.81	1.97	1.64	0.48
2013	-0.53	-0.79	0.03	-0.32	0.97	1.35	0.85	1.87	1.70	1.86	2.33	2.44	1.55
2014	-0.16	-0.63	0.04	1.19	0.82	1.49	0.67	2.05	1.84	1.91	2.73	3.71	3.97

Note: All Variables are scores

Table C1 Continuation

YEAR	zSTEM	zINF	zAGRI	zGE_{t-1}	zDEBT	zDEF	zTGE	zGLOB	zGRANT	zITR	zDUPE	zDUEL
1980	-0.59	0.14	1.78	-3.64	-0.52	-1.56	1.98	-1.10	-0.83	-0.79	-0.71	-1.21
1981	-0.58	-0.09	0.65	-0.28	-0.54	-2.01	1.27	-1.04	-0.66	-0.67	-0.71	0.80
1982	-0.57	0.91	1.06	-0.17	-0.48	-1.82	1.18	-0.99	-0.54	-0.62	-0.71	0.80
1983	-0.58	-0.14	0.27	-0.13	0.40	-0.21	1.17	-0.85	-0.53	-0.41	-0.71	0.80
1984	-0.56	-0.26	1.19	-0.54	-0.12	-0.55	0.56	-0.76	-0.39	-0.43	-0.71	-1.21
1985	-0.53	0.04	1.20	-0.22	-0.26	-0.14	0.61	-0.70	-0.51	-0.26	-0.71	-1.21
1986	-0.52	-1.14	1.98	-0.19	-0.66	-1.01	1.11	-0.85	-0.59	-0.38	-0.71	0.80
1987	-0.49	-0.45	1.96	0.13	-0.40	-0.03	1.26	-1.00	-0.18	-0.41	-0.71	0.80
1988	-0.46	-0.04	3.00	-0.26	-0.40	0.01	1.16	-0.93	-0.13	-0.38	-0.71	0.80
1989	-0.44	0.13	-0.12	-0.06	-0.47	-0.51	0.96	-0.78	0.03	-0.29	-0.71	-1.21
1990	-0.41	0.59	0.27	0.04	-0.37	-1.03	1.30	-0.72	-0.08	-0.25	-0.71	0.80
1991	-0.38	0.85	-0.10	-0.23	-0.59	0.75	0.20	-0.52	0.13	0.03	-0.71	0.80
1992	-0.33	1.67	0.09	-1.08	-0.60	0.44	-0.43	-0.39	1.13	0.38	-0.71	0.80
1993	-0.24	3.78	0.14	-1.56	-1.13	0.05	-1.14	2.93	3.51	3.23	-0.71	-1.21
1994	-0.59	1.84	-0.34	-1.13	-0.19	1.06	-0.74	1.90	3.38	2.16	-0.71	-1.21
1995	-0.59	-1.25	-0.30	-0.26	-1.67	1.02	-0.93	1.15	0.23	1.23	-0.71	0.80
1996	-0.57	-0.43	-0.45	0.19	-1.61	0.99	-0.73	0.73	-0.08	0.71	-0.71	0.80
1997	-0.60	-0.14	-0.92	-1.30	-2.12	0.94	-0.52	0.51	-0.29	0.62	-0.71	0.80
1998	-0.60	-0.67	-0.40	0.61	-1.98	1.44	-0.10	0.37	-0.40	0.62	-0.71	-1.21
1999	-0.56	-0.78	-0.52	2.22	1.65	1.83	-0.39	0.74	-0.40	1.05	-0.71	-1.21
2000	-0.55	-0.30	-0.71	1.85	1.71	1.27	-0.80	1.19	0.74	1.19	-0.71	0.80
2001	-0.56	-0.78	-0.80	0.13	1.22	0.39	-0.26	1.44	-0.07	1.02	-0.71	0.80
2002	-0.55	-1.21	-0.70	0.58	1.74	0.33	0.39	1.29	0.93	1.05	-0.71	0.80

YEAR	zSTEM	zINF	zAGRI	zGE_{t-1}	zDEBT	zDEF	zTGE	zGLOB	zGRANT	zITR	zDUPE	zDUEL
2003	-0.50	-0.32	-0.74	0.36	1.06	0.74	1.00	0.84	0.63	0.82	1.36	-1.21
2004	-0.50	-0.11	-0.83	1.11	1.17	1.42	0.84	1.01	0.30	-0.41	1.36	-1.21
2005	-0.26	-0.26	-0.98	0.98	0.69	0.65	0.56	0.75	0.29	-0.57	1.36	0.80
2006	1.24	0.21	-0.80	0.62	0.56	0.71	-1.21	-0.07	-0.39	-0.73	1.36	0.80
2007	0.37	-0.32	-0.90	0.57	0.09	0.36	-1.05	-0.45	-0.32	-0.87	1.36	0.80
2008	1.26	1.54	-0.57	0.48	0.11	-0.41	-0.44	-0.44	-0.40	-0.90	1.36	-1.21
2009	1.25	-0.38	-0.32	0.47	0.26	-0.32	-0.44	-0.50	-0.40	-0.89	1.36	-1.21
2010	-0.26	-0.98	-0.25	0.15	0.53	-0.46	-0.71	-0.47	-0.62	-0.91	1.36	-1.21
2011	1.71	0.16	-0.79	0.50	0.85	-0.66	-1.43	-0.26	-0.81	-0.94	1.36	0.80
2012	2.46	-0.37	-0.59	0.29	0.88	-0.95	-1.50	-0.60	-0.91	-1.00	1.36	0.80
2013	2.18	-0.78	-0.64	0.35	0.66	-0.98	-1.31	-0.75	-0.87	-1.00	1.36	0.80
2014	2.92	-0.65	-0.82	-0.58	0.55	-1.74	-1.41	-0.71	-0.89	-1.02	1.36	-1.21

Note: All Variables are Zscores

APPENDIX D

LOCATION OF KENYA IN AFRICA

Table D1 Location of Kenya in Africa

Source: World Atlas (GraphicMaps.com)

APPENDIX E

NUMBER OF STUDENTS IN EACH YEAR BY LEVEL

Table E1 Number of Students in Each Household Income/Wealth Group

	Primary	Secondary	University
2005 KIHS Survey			
Poorest household income group	2,280,972	90,612	3,275
Second household income group	2,336,380	159,740	3,448
Middle household income group	2,003,930	207,381	11,895
High household income group	1,680,716	255,957	33,099
Richest household income group	932,705	220,459	120,674
2008 KDHS Survey			
Poorest household wealth group	1,748,288	112,216	2,523
Second household wealth group	2,262,490	189,699	4,836
Middle household wealth group	2,262,490	244,471	10,093
High household wealth group	2,077,377	364,703	37,850
Richest household Wealth group	1,933,400	424,818	154,973
2014 KDHS Survey			
Poorest household wealth group	2,269,857	214,535	6,950
Second household wealth group	2,762,740	377,767	20,849
Middle household wealth group	2,788,681	478,039	56,861
High household wealth group	2,671,946	559,655	127,623
Richest household wealth group	2,477,387	701,901	419,512

Source: Kenya National Bureau of statistics and Various Economic Surveys

Table E2 Number of Students in Each Region by Level

	Primary	**Secondary**	**University**
2005 KIHS Survey			
Central Province	1,237,450	152,266	24,480
Coast Province	1,135,868	65,390	14,653
Eastern Province	1,292,858	99,954	26,203
Nairobi Province	1,117,399	222,328	18,101
North-Eastern Province	729,542	44,839	4,482
Nyanza Province	1,283,624	134,518	24,997
Rift Valley province	1,163,573	113,966	40,857
Western Province	1,274,389	100,888	18,618
2008 KDHS Survey			
Central Province	1,388,346	204,394	20,186
Coast Province	1,192,949	114,888	14,719
Eastern Province	1,367,778	169,660	18,715
Nairobi Province	1,203,233	332,641	73,596
North-Eastern Province	925,564	76,146	1,893
Nyanza Province	1,491,187	161,645	32,172
Rift Valley province	1,192,949	156,301	39,742
Western Province	1,522,039	120,232	9,252
2014 KDHS Survey			
Central Province	1,725,091	438,397	94,769
Coast Province	1,582,415	223,862	42,962
Eastern Province	1,828,856	289,155	67,602
Nairobi Province	1,608,356	354,448	160,476
North-Eastern Province	1,128,443	186,552	4,423
Nyanza Province	1,621,326	314,806	65,707
Rift Valley province	1,673,209	263,504	153,526
Western Province	1,802,915	261,173	42,330

Source: Kenya National Bureau of statistics and Various Economic Surveys

APPENDIX F

PEOPLE INTERVIEWED DURING THE STUDY

Table F1 List of People Interviewed at Various Ministries

Title (Department) of Officer	Ministry
Director General (Budget Department)	Ministry of Finance & National Treasury
Budget Director	″
4 Economists Accountants	″
Finance Sector Director	″
2 Technical Officers of Finance Cadre	″
Director of Basic Education	Ministry of Education, Science and Technology
Director of Secondary & Tertiary Education	″
Head of Budget Sections (Basic Education)	″
3 County Directors of Education	″
3 District Education Officers	″

Note:

The researcher interviewed sixteen (18) state officers from the Ministry of Education, Science, and Technology and the Ministry of Finance and National Treasury. This comprised nine (9) state officers at the Ministry of Finance and National Treasury and nice (9) state officers from the Ministry of Education, Science and Technology. Many of the state officers requested me not to reveal their names in my research but instead just to mention their titles, as shown in Table F1.

BIOGRAPHY

NAME	Mr. David Kamar Imana
ACADEMIC BACKGROUND	Masters of Business Administration (Finance Option), Webster University, 2011-2013 Bachelor of Commerce (Accounting Option) Jomo Kenyatta University of Agriculture and Technology, 2005-2008
POSITION	Liaison Coordinator/Accounts &Visa Officer Embassy of the Republic of Kenya - Bangkok Finance and Administration Department 2011 to 2017
EXPERIENCE	Relationship Officer, Operations Department Equity Bank Limited Kenya, Lodwar Branch, 2009-2010