

**SOCIAL AND ECONOMIC EFFECTS OF ACCESS TO
UNIVERSAL EDUCATION ON HUMAN
DEVELOPMENT AMONG HOUSEHOLDS IN ARID
AND SEMI-ARID LANDS IN KENYA**

JOSHUA MUTAMBU NG'ELU

DOCTOR OF PHILOSOPHY

(Development Studies)

**JOMO KENYATTA UNIVERSITY OF
AGRICULTURE AND TECHNOLOGY**

2021

**Social and Economic Effects of Access to Universal Education on
Human Development among Households in Arid and Semi-Arid
Lands in Kenya**

Joshua Mutambu Ng'elu

**A Thesis Submitted in Partial Fulfillment for the Requirements of
the Degree of Doctor of Philosophy in Development Studies of the
Jomo Kenyatta University of Agriculture and Technology**

2021

DECLARATION

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

Signature..... Date

Joshua Mutambu Ng'elu

This thesis has been submitted for examination with our approval as University Supervisors:

Signature..... Date.....

Prof. Maurice M. Sakwa, PhD

JKUAT, Kenya

Signature..... Date.....

Dr. Jane Queen Omwenga, PhD

JKUAT, Kenya

DEDICATION

This Thesis is dedicated to my mother Joyce Mulau Ng'elu and late father Ng'elu Muindi.

ACKNOWLEDGEMENT

Acknowledgement is made to my supervisors Prof. Maurice M. Sakwa, and Dr. Jane Omwenga whose advice and guidance was very valuable in the process of preparing this Thesis. Also, I am grateful to all Lecturers who taught me during my coursework and my colleagues of Development Studies PhD Class 2015 for the support and encouragement they accorded to me. Last but not the least is the Research Assistants for their commitment in collecting the data and ensuring that the data represented the population opinions.

God bless you all.

TABLE OF CONTENT

DECLARATION.....	II
DEDICATION.....	III
ACKNOWLEDGEMENT	IV
TABLE OF CONTENT	V
LIST OF TABLES	XI
LIST OF FIGURES	XIII
LIST OF APPENDICES	XIV
LIST OF ABBREVIATIONS AND ACRONYMS	XV
OPERATIONAL DEFINITIONS OF TERMS.....	XVII
ABSTRACT.....	XIX
CHAPTER ONE	1
INTRODUCTION.....	1
1.1 Background Information	1
1.1.1 Human Development in Kenya – Concept and Measurement	3
1.1.2 Relationship between Universal Education and Human Development	8
1.2 Statement of the Problem	11
1.3 Research Objectives	13
1.3.1 General Objective.....	13

1.3.2 Specific Objectives.....	13
1.4 Research Hypotheses	14
1.5 Significance of the Study	14
1.6 Scope	15
1.7 Limitations of the Study.....	15
CHAPTER TWO	16
LITERATURE REVIEW.....	16
2.1 Introduction.....	16
2.2 Theoretical Framework	16
2.2.1 Human Capital Theory.....	16
2.2.2 Entitlement Theory	20
2.2.3 Sustainable Livelihood Approach.....	24
2.3 Conceptual Framework	28
2.3.1 Relationship among Variables	29
2.3.1 Relationship among Variables	30
2.3.2 Intervening Variable.....	35
2.3.3 Human Wellbeing	35
2.4 Empirical Review.....	37
2.4.1 Universal Education and Human Development.....	37

2.5 Research Gaps	41
2.6 Summary of Literature Reviewed	44
CHAPTER THREE	46
RESEARCH METHODOLOGY	46
3.1 Introduction	46
3.2 Research Philosophy and Design	46
3.2.1 Research Philosophy	46
3.2.2 Research Design.....	47
3.3 Target population	48
3.4 Sampling Frame	48
3.5 Sampling Techniques and Sample Size	49
3.5.1 Sampling Techniques	49
3.5.2 Sample Size.....	50
3.6 Data Collection Instruments.....	51
3.7 Data Collection procedures	52
3.8 Pilot Study.....	52
3.8.1 Validity of Research Instruments.....	53
3.8.2 Reliability of Research Instruments	53
3.9. Data Analysis and Presentation.....	54

3.9.1 Data Analysis	54
CHAPTER FOUR.....	58
RESULTS AND DISCUSSION	58
4.1 Introduction	58
4.2 Background	58
4.2.1 Demographic Information and Overall Responses	58
4.2.2 Descriptive Statistics of Dependent variable	59
4.3 Effect of Increase in Household Income Level on Human Development	61
4.3.1 Frequencies of Increased Household Income Level	61
4.3.2 Chi2 Analysis on Effect of Increased Household Income	62
4.3.3 Probit Model Results on the Effect of Increased Household Income	63
4.4 Effect of Increase in Household Productivity on Human Development.....	68
4.4.1 Frequencies of Increased Household Productivity.....	68
4.4.2 Chi2 Analysis on the Effect of Increased Household Productivity.....	69
4.4.3 Probit Model on the Effect of Increased Household Productivity	71
4.5 Effect of household Access to Alternative Livelihoods.....	75
4.5.1 Frequencies of Household Access to Alternative Livelihood.....	75
4.5.2: Chi - square Analysis on Effect of Access to Alternative Livelihoods ...	76
4.5.3 Probit Model Results on Effect of Access to Alternative Livelihoods Access to Alternative Livelihoods on Human Development	78

4.6 Effect of Household Civic Participation on Human Development.....	82
4.6.1 Frequencies of Household Civic Participation.....	82
4.6.2 Chi - square Analysis on Effect of Household Civic Participation.....	82
4.6.3 Probit Model Results on Effect of Household Civic Participation	84
4.7 Overall Probit Model Results.....	87
4.7.1 Overall Probit Model with Control Variable Results.....	87
4.7.2 Overall Probit Model Results without Control Variable results	91
4.8 Discussion of the Findings	93
4.8.1 Hypothesis Testing on the Effect Household Income Level.....	93
4.8.2 Hypothesis Testing on the Effect Household Productivity	94
4.8.3 Hypothesis testing on the effect of Access to Alternative Livelihood.....	95
4.8.4 Hypothesis testing on the Effect of Household Civic Participation.....	95
CHAPTER FIVE.....	97
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	97
5.1 Introduction.....	97
5.2 Summary of the Major Findings	97
5.2.1 Frequencies of Responses	98
5.2.2 Effect of Increase in Household Income Level.....	98
5.2.3 Effect of Increase in Household Productivity	101

5.2.4 Effect of Household Access to Alternative Livelihood	103
5.2.5 Effect of Household Civic Participation	106
5.3 Conclusion	107
5.3.1 Effect of Increase in Household Income Level.....	107
5.3.2 Effect of Increase in Household Productivity	107
5.3.3 Effect of Household Access to Alternative Livelihood	108
5.3.4 Effect of Household Civic Participation	109
5.4 Recommendations	109
5.5 Areas for Further Research	111
REFERENCES	112
APPENDICES	122

LIST OF TABLES

Table 3.1: Target population	49
Table 3.2: Sample size	51
Table 4.1: General descriptive statistics.....	59
Table 4.2: Descriptive statistics of dependent variable.....	60
Table 4.3: Frequencies of increased household income level.....	61
Table 4.4: Chi2 analysis of increased household income	62
Table 4.5: Probit Model for effect of increased household income.....	64
Table 4.6: Summary of hypothesis testing on increased household income effect. .	67
Table 4.7: Frequencies of increased household productivity.....	69
Table 4.8: Chi2 analysis of increased household productivity	70
Table 4.9: Probit model for effect of increased productivity	72
Table 4.10: Summary of hypothesis testing of household productivity effect.....	74
Table 4.11: Frequencies of household access to alternative livelihoods.....	76
Table 4.12: Chi2 of access and alternative livelihoods and human development.....	77
Table 4.13: Probit model for effect of access to alternative livelihoods.....	79
Table 4.14: Effect of access to alternative livelihood on human development	81
Table 4.15: Frequencies of household civic participation.....	82
Table 4.16: Chi2 of household civic participation and human development.....	83

Table 4.17: Probit model for effect of household civic participation	85
Table 4.18: Summary of hypothesis testing of household civic participation effect	86
Table 4.19: Overall probit model regression results with control variables	88
Table 4.20: Overall probit model results without control variables.....	92
Table 4.21: Summary of hypotheses testing of access to universal education	93

LIST OF FIGURES

Figure 1.1: Human Development- the analytical approach	3
Figure 1.2: Primary school enrolment by sex and parity index.	7
Figure 1.3: Primary School Gross and Net Enrolment Rate	8
Figure 2.1: Conceptual Framework	30

LIST OF APPENDICES

Appendix I: Letter of Introduction.....	122
Appendix II: Data Collection Instrument	123

LIST OF ABBREVIATIONS AND ACRONYMS

DFID	Department for International Development
ERC	Economic Recovery Strategy for Wealth and Employment Creation
FAO	Food Agricultural Organization
FPE	Free Primary Education
FSE	Free Secondary Education
GDP	Gross Domestic Product
GER	Gross Enrolment Rate
GoK	Government of Kenya
HDI	Human Development Index
IFAD	International Food Agriculture Department
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics
MTC	Machakos Town Constituency
MTEF	Medium-Term Expenditure Framework
NER	Net Enrolment Rate
OECD	Organization for Economic Co-operation and Development
SDG	Sustainable Development Goals
SID	Society for International Development

SL	Sustainable Livelihood
UN	United Nations
UNDP	United Nations Development Programme
UPE	Universal Primary Education
USAID	United States Agency for International Development

OPERATIONAL DEFINITIONS OF TERMS

Alternative livelihoods The livelihood activities that supplement people's basic income. These activities usually depend on people's spare time, their skills, resources and art. Such activities focus on diversifying livelihood activities. In the Study, such activities refer to the activities the household engage in upon the acquisition of the universal education such as establishing an income generating activity.

Civil Rights The rights of citizens to political and social freedom and equality. Civil rights are guarantees of equal social opportunities and protection under the law, regardless of race, religion, or other characteristics. In the Study, civil rights is defined by household's participation in civil affairs such as election, democracy, fighting injustices such as gender based injustices upon acquiring universal education.

Household income The combined gross income of all members of a household. It is the total amount of money earned by every member of a single household. In the Study, household income is defined by the cumulative household income from economic activities household members get involved into upon acquiring universal education.

Household productivity The state or quality of a household being productive. In the Study, household productivity is defined by the aspect of the household members being involved in a formal economic activity that has a higher earning upon acquiring universal education.

Universal education The ability of all people to have equal opportunity in education, regardless of their social class, race, gender,

sexuality, ethnic background or physical and mental disabilities.

ABSTRACT

The Study sought to investigate the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya. The conceptualization of the Study was based on the understanding that universal education is viewed as an enabler that tends to unlock individual's potential thus leading into increased income, increased productivity, access to alternative livelihood sources as well as increased civic participation. The Study was conducted in 13 locations of Machakos Town Constituency (MTC), and applied both the probabilistic and non-probabilistic sampling techniques. For the choice of the household's sample, cluster-simple random sampling was applied implying that each household had an equal chance of being selected for the inclusion into the sample. In the Study, human development was measured by improved standards of living mainly meted by household access to healthcare, access to housing, and food availability Data was collected from the sampled households using structured household questionnaires. Probit model was used to analyze the data with the relevant coefficients and marginal effects being interpreted accordingly. The results indicate that, first, the effect of increased household income, significantly affect human wellbeing via household access to healthcare, access to housing and food security. Second, it was noted that the increase in the household productivity significantly affect human wellbeing via household access to healthcare, access to housing and food security. Third, the results of the model assert that household access to alternative livelihood, significantly influence human wellbeing via the household access to healthcare and food security, however the influence via access to housing was found to be insignificant. Finally, it is noted that well-defined and practiced civic participation have significant effect on human development via household civil rights however the effect of civic participation on human development via access to healthcare, access to housing and food security were found to be insignificant. The Study recommends that first; the county and national governments should focus on activities that increase household income levels. Second, the county and national governments should invest more on universal education particularly on retention of pupils/students, transition from primary to secondary schools and other training programmes that increase individual and household productivity. Third, the county and national governments should re-look at the design and implementation of free basic education with a view to making changes on areas that do not respond to the desired expectations. Finally, the county governments should design civic participation programmes targeting individuals and households to realize the effects of such programmes.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

According to United Nation Development Programme (UNDP, 1990), in many Developing Countries economic growth has been a major goal by policymakers based on the deeply ingrained view that delivering on a larger and larger quality of goods and services is the best way to improve peoples' standards of living. However, critics of this view are not convinced because on the other hand there is deteriorating quality of lives that growth is not providing answers to. The critics argue that the quality of peoples' lives can be poor even in the midst of plenty. The critics say that in such countries economic growth is not an option but is imperative for reducing poverty and generating the services required for basic human development.

Economic growth should advance peoples' human security, freedom and empowerment. It should also promote equity, respect nature and its life supporting functions, leading to greater social cohesion and cooperation among people. Therefore, human development is the end and economic growth is the means. Human development refers to the process of enlarging people's freedoms and opportunities and improving their well-being (Alkire, 2002). It is about the real freedom ordinary people have to decide who to be, what to do, and how to live. The concept of human development is attributed to the seminal works of (Haq, 2000). The development of the human development concept is underpinned on the argument that the existing measure of human progress by then which was the country's Gross Domestic Product failed to take into account the true meaning and purpose of development which was basically the improvement in peoples' lives. The core of the human development is all about the improvement in the human capabilities. By capabilities, we mean what people can do and what they can become-are the equipment one has to pursue a life of value. The human capabilities focused by the human development concept include but not limited to good health, access to knowledge, and a decent material standard of living. It is on this backdrop that the UNDP produced its first report on Human Development (UNDP, 1990). Since then,

the Agency has continued to prepare and report to the international community on this aspect of development.

It is notable that human development approach of development as is commonly understood differs from the conventional approaches to economic growth, human capital formation, human resource development, human welfare and basic human needs. All these aspects basically conclude at the aspect of the human well – being. Several approaches have been advanced towards understanding the concept of human development. First, the Gross National Product (GNP) growth approach which focuses on the growing the GNP per capita to raise the individuals' income levels. However, this approach is considered as necessary but not sufficient. Second, the human capital formation approach which views human beings primarily as means rather than as ends. This is the supply side view whereby human beings are instruments for furthering commodity production. Third, the human welfare approaches that look at human beings more as the beneficiaries of the development process than as participants in it. The proponents of these approaches emphasize only the distributive policies rather than production structures. Four and last is the basic needs approach usually concentrates on the bundle of goods and services such as food, shelter, clothing, healthcare, and water that deprived population group needs. It focuses on the provision of these goods and services rather than on the issue of human choices. Therefore, from the foregoing it is evident that the most advanced approach towards human development is all about improving the human well – being. Based on these approaches, Human Development Index (HDI) is constructed to measure human development

Accordingly, human development is then development of the people through building human capabilities by the people through active participation in the processes that shape their lives and for the people by improving their lives. The concept of human development fronts is summarized by Figure 1.1:

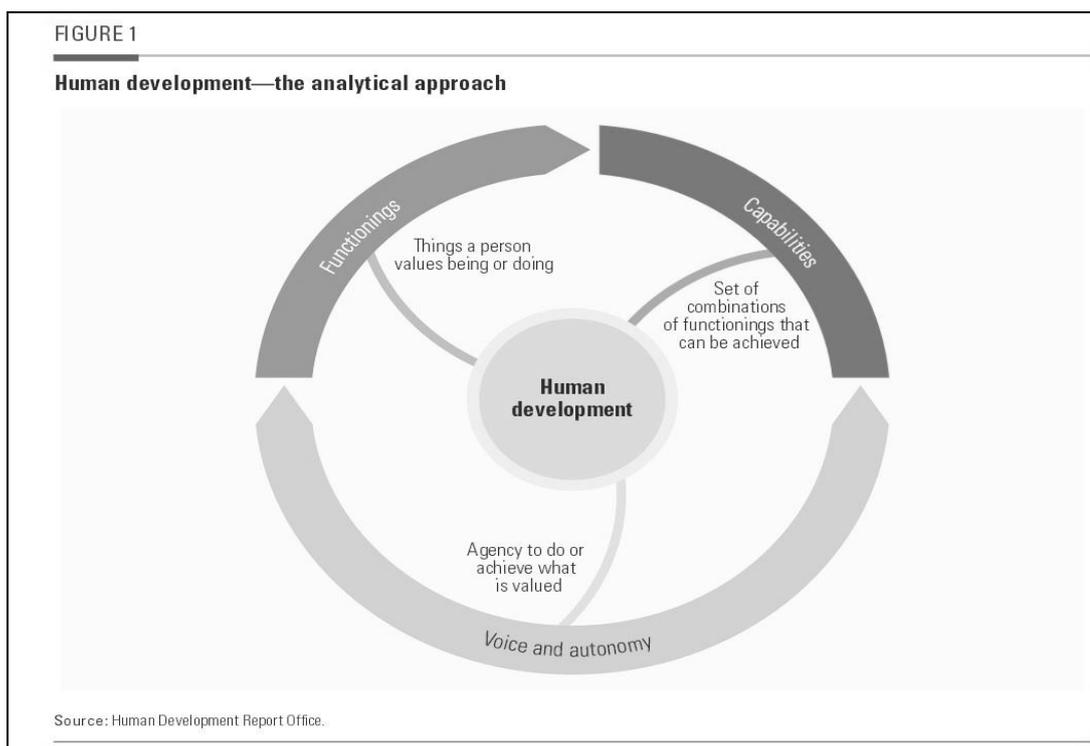


Figure 1.1: Human Development- the analytical approach

1.1.1 Human Development in Kenya – Concept and Measurement

Provision of universal education is one of the poverty reduction strategies that a government can employ in attempt to improve human wellbeing among the households since this has a direct implication in Human Development Index. Universal access to education is the ability of all people to have equal opportunity in education regardless of their social class, race, gender, ethnic background, or physical and mental disabilities. In conceptualizing universal education in human development context paradigm, it is noted that there are two dimensions of education in the human development paradigm. First, is how education as an indicator for indexing has been used in human development paradigm; and second, how education, by its very basic nature, determines the whole human development paradigm beyond the limitations of indexing in Human Development Index (HDI). These two dimensions can be traced from the theories of human development and definition of HDI. From the side of definition, one can assert that education has been placed as equitable contributor against other two indicators - health and income. In

terms of theories of development, education, from a wider perspective goes beyond the status of literacy, enrolment, mean years of schooling, and expected years of schooling. As an end in itself, one can note that education determines the basic ideas behind the development perceived in terms of freedoms. This conceptualization can be referred in the works of (Haq, 2000) and (Sen, A decade of human development, 2000)

In linking human wellbeing to universal education, the Study takes cognizant of the role played by the free primary and secondary education. Provision of free primary and secondary education is one avenue of promoting the access to universal education which in turn can be deemed as one strategy of improving the human wellbeing. However, to achieve universal education, several actions are required including the provision of the free primary and secondary education. Therefore, provision of free primary and secondary education can be deemed as a strategy for promoting the achievement of universal education.

In Kenya, the idea of Free Primary Education (FPE) and Free Secondary Education (FSE) is enshrined in the newly independent government policy as one of major goals of the Kenya government in the attainment of universal primary education as per the Sessional Paper No.10 of 1965 on African Socialism, in which the government committed to eradicate ignorance, poverty and disease. The link between FPE and FSE on one hand and human development on the other hand in Kenya is derived from two reports of Government of Kenya namely: The (Ominde, 1964) report and the (Ndegwa, 1971) report. According to these reports the Government of Kenya sought to strive and provide universal education for two main reasons: First, education prepares the youth of the country so that they can play an effective role in the life of the nation whilst ensuring that opportunities are provided for the full development of the individual talents and personality of the nation resulting to human development. This is achieved through improved quality of human capital arising from education attainment. Second, education promotes social justice and morality, social obligations and responsibilities among individuals in the society. Social justice and obligation come through increased society's civil participation either through voting, advocacy for human rights and other forms of governance

practices. It is against these linkages between universal education and human development that the conceptualization and implementation of FPE and FSE government is justified in the Kenya context.

To accelerate the attainment of UPE the government declared FPE in 1974 from Standard 1-4, and full FPE in 1976. The access to primary education increased due to this policy. At the international level, the international community declared Education for All (EFA) in 1990 and committed to achieve EFA by 2015. According to Ministry of Education, Science and Technology report (MOEST 2005), FPE was re-introduced in Kenya in January 2003 as a second attempt after the first attempt of 1970s which had failed to achieve much. The report by UNESCO 2005 identified several factors as contributing to the challenges of FPE, including gender disparities, high poverty levels, teacher supply and quality, and inadequate financial resources. Later, in 2008 Free Secondary Education (FSE) was introduced so that the basic education is made free in Kenya. The main objective of this programme was to make basic education accessible to all children irrespective of their economic backgrounds. Free Primary Education (FPE) in Kenya, entails provision of primary education to all children of school going age (6-15 years) and adults (above 16 years) who never had the opportunity (Republic of Kenya 2003b). On the other hand, Free Secondary Education (FSE) in the Kenya context refers to the government of Kenya's effort to make secondary education more accessible by paying tuition fees while parents pay for the boarding facilities.

In the primary education sub-sector pupils' enrolment increased from 8.8 million to 9.86 million in 2010 and 2011 respectively, while the transition rate from primary to secondary schools increased from 66.9% in 2009 to 72.5% in 2010 and further rose to 73.3% in 2011. In the case of secondary education sub-sector where the free education was introduced in 2008, grants disbursement and funds for school infrastructure development rose to KSh 17.7 billion in 2011/2012 for 1.7 million students, while enrolment increased from 1.18 million students in 2007 to 1.5 million students in 2009. The students' enrolment increased further to 1.7 million and 1.8 million students in 2010 and 2011 respectively (Figure 1.1). On overall Gross

Enrolment Rate (GER) rose from 45.3 % in 2009 to 47.8% in 2010 and further soared to 48.8% in 2011.

The total number of pupils enrolled in primary education increased by more than 8% over the period, with about 767,200 additional pupils and an annual growth rate of 1.6%. Secondary education had the highest increase over the period with about 837,300 additional students that represent almost 57% increase over the period and with 9.4% annual increase as shown in Figures 1.1 and 1.2. There were more boys than girls at the beginning of the period and this changed to having more girls than boys in 2014. In primary education, the parity index improved over the period but did not get to parity by 2014 and hence equality is not yet achieved. Despite a real improvement in the gender parity at secondary education over the period, the index is still low at 0.92. Thus, there are fewer girls than boys at secondary education.

The Gross Enrolment Rate (GER) for primary school sub-sector, at the national level has consistently registered more than 100% over the period under review. The GER greater than 100% indicates existence of over age and underage children enrolled in primary schools. The GER decreased by 4.2 percentage points between 2009 and 2014 representing a decline of 3.9%. The decrease of GER over the period may be as a result of reduction of repeaters and reduction of overage students within primary level this described.

The gap between the primary school GER and Net Enrolment Rate (NER) has declined between 2009 and 2014. In 2009, the gap was 20.2 percentage points while in 2014 it was 15.3 percentage points. This indicates that over the period the number of under age and over age pupils enrolled at primary has been declining. The decline in GER and increase in NER indicates a positive trend implying that the Government's policies on repetition and promotion have impacted positively on access to education. However, in spite of the impressive national figures on GER and NER, there still exist regional disparities based on the county – level analysis. A total of 30 counties recorded GER and NER above the national average while 17 counties recorded rates below the national average (Figure 1.2, Ministry of Education, Science and Technology, 2014).

At the secondary level there has been an upward trend for the GER and NER having recorded 16.4 and 14.3 percentage points increase respectively between 2009 and 2014. The GER increased from 41.9% in 2009 to 58.2% in 2014 while the NER increased from 33.1% to 47.4% over the same period. Regional disparities still exist at the secondary level as depicted in Figure 1.5. A total of 27 counties recorded GER and NER above the national average (58.2% and 47.4% respectively) while 20 counties recorded rates below the national average. It is important to note that at this level of education there is high cross county provision of education. In this case students may be enrolled outside their home counties (Figure 1.2 and 1.3, Ministry of Education, Science and Technology, 2014).

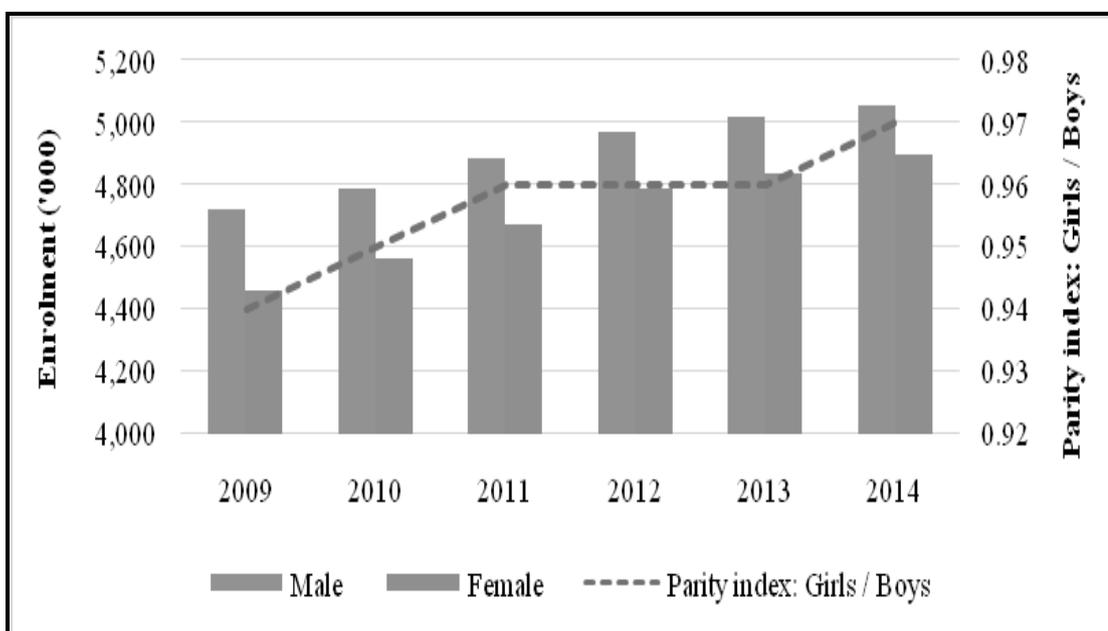


Figure 1.2: Primary school enrolment by sex and parity index.

Source: Ministry of Education, Science and Technology, (2014)

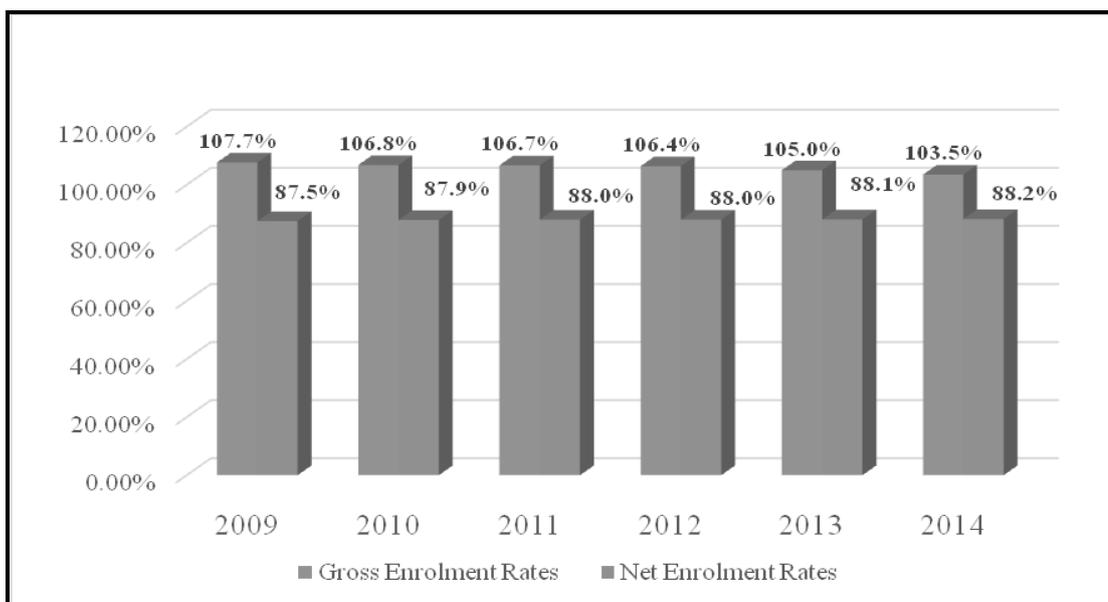


Figure 1.3: Primary School Gross and Net Enrolment Rate

Source: Ministry of Education, Science and Technology, (2014)

In overall, according to the Human Development Report (UNDP, 2016), since 1990 the Human Development Index (HDI) for Kenya has increased from 0.473 in 1990 to 0.555 in 2015, an increase of 0.173 per cent (UNDP, 2016). Some of the highlights of this increase include first, life expectancy at birth increased by 3.4 years. Second, mean years of schooling increased by 2.6 years, while expected years of schooling increased by 2.0 years. Third, Gross National Income (GNI) which measures the standard of living rose by 26.0 per cent during the period under review. However, the Kenya's HDI of 0.555 is below the average of 0.631 for countries in the medium development group but above the average of 0.523 for countries in the Sub-Saharan Africa (UNDP, 2016). In Kenya one of the strategies that the Government of Kenya has employed to reduce poverty and improve the Human development is the provision of free primary and secondary in the country.

1.1.2 Relationship between Universal Education and Human Development

From the literature point of view regarding universal education – human wellbeing nexus, available theories on human development underline the fact that universal education has a strong impact on the wellbeing from two perspectives (Harmon,

Oosterbeek & Walker, 2000). First, the human capital theory which asserts that human capital is an input in the production function. This perspective explains the need to invest in education to build up a productive human capital stock. Second, the perspective that revolves around the factors that involve the endogenous growth especially the technological progress. This perspective holds that factors of endogenous growth are correlated to the human capital stock because either it directly determines new technologies or new knowledge, or it is an essential aspect for the research field that generates technology and knowledge.

Harmon, Oosterbeek and Walker (2000) argue that countries with more educated population are developing faster due to the fact that the education enables the labor force to innovate new technologies and to adapt the existing ones to the local production. Consequently, Barro and Sala-i-Martin (1995) asserts that the economies that are inside the technological frontiers have greater opportunities to develop faster. Further, Lange and Topel (2005) point out that the level of education influences not only the growth but also the economic productivity of a country. Further they state that a rapid growth in the number of persons that enroll in the school have experienced a raising productivity and an improvement in the quality of the labor force.

Several studies have analyzed the effect of different schooling levels have on the development of a country. For instance, Sianesi and Van Reenen, (2000.) asserts that in the case of the primary schooling, a 1% growth in the schooling rate determines an increase of 2% of GDP per habitant in the Developing countries, while for the OECD countries this effect was not noticed. An increase of 1% of the enrolment rate in the secondary schooling would determine a rise of 2.5 - 3% for the Developing countries and up to 1.5% for the OECD countries. Arising from these studies it can be noted that, the impact of raising the rate of education on different levels varies from one country to another. According to the level of economic development, there exists a “positive correlation between the economic growth rate and the human capital accumulation at the primary schooling level for the Developing countries, and at the secondary schooling level for the Developed countries”. Further, (WorldBank, 2003) ascribes the tremendous economic growth and development among the Asian Tigers

to having emanated from the good allocation and the high quality of education in these economies. Lee (2001) and Lall (2001) found that the exponential increase in the resource allocation towards primary and secondary education among the East – Asia economies such as North Korea in 1970s led to improved levels of human development being registered.

In addition, Mukherjee (2008) assert that universal education has socio-economic impact on households, hence its influence on human development. They note that at the schooling level critical aspects of education that can be considered includes the enrolment and retention rates, transition rates from lower to upper stages in schooling, gender parity and quality of education, efficient health, nutritional, sanitation and other relevant support systems. These critical aspects determine the “mean years of schooling” and “expected years of schooling” as required ingredients in the human development.

In view of this, enrolment, retention and transition rates from lower to upper stages in schooling provides valid scaling method that can be used to assess how universal education affects households and human development. Further, Sen, (2006) asserts that in modern political economy of the world, systematic/formal education and training, and with verifiable certificates, is determining factors for getting jobs and to secure one of the basic material needs such as decent living standards.

According to Haq (2000), the human development research work of 1990 carried forward the idea that people are the real wealth of a nation and human development is about “enlarging people’s choices, freedoms, and creating enabling environment for the people. For all these, research work has never claimed directly about the dominating role of education. But it considers educational and health parameters among the most determining factors for measuring human development. Though, it has been identified by research work in human development that economic growth has no direct implications for human development, it is a fact that healthcare and education development require investment and resources. Resources can only play determining role through carefully planned investment in health and education services, and other socio-economic services thereby enlarging people’s choices (Sen,

1990). Therefore the economic role in education is determined by the capabilities of the education policies and practices in challenging multiple and rigid traditions, exploitative hierarchical systems, multidimensional exclusions among others; strength of the relevant institutions in implementing and monitoring of educational practices, and data-generation for assessment of policies and proposing necessary reforms; and proactive role of civil society and mass participation in education to check corruption and put demands for better educational and allied facilities and incentives.

It can therefore be summarized that from the theoretical perspective as well as from the empirical studies, there is a positive correlation between the level of education and the level of human development. However, it is core to note that there are many controversies on what consists of the causing factor between education and economic growth and development. The general presumption is that education leads to the economic and social evolution. However, it is possible to argue that the economic development determines the increase in the school enrolment rate in various educational levels. Thus, if this scenario holds then the unidirectional relationship between education and human development would be argued.

1.2 Statement of the Problem

The UNDP (1990) has shown that it is possible to achieve high levels of human development if available resources are prudently used to expand basic human capabilities. It is therefore proposed that to achieve that goal there are two questions which guide the process namely, first how can economic growth be managed in the interest of the people? Second, what alternative policies and strategies need to be pursued if people, not commodities are the principal focus of national intention? Human development is then development of the people through building human capabilities by the people through active participation in the processes that shape their lives and for the people by improving their lives.

In Kenya, the UNDP (2016) report asserts that the Human Development Index (HDI) for Kenya increased from 0.473 in 1990 to 0.555 in 2015. Some of the highlights of this increase include first life expectancy at birth increased by 3.4 years. Second,

mean years of schooling increased by 2.6 years, while expected years of schooling increased by 2.0 years. Third, Gross National Income (GNI), which measures the standard of living, rose by 26.0 per cent during the period under review. However, the Kenya's HDI of 0.555 is below the average of 0.631 for countries in the Medium-developing group.

Provision of education is one of the strategies that the Government in Kenya has employed to improve the well-being of households, hence human development. Education has direct implication on Human Development Index; this is because in conceptualizing education in human development there are two dimensions at play namely, first how education as an indicator for indexing HDI has been used in human development. Second, how education by its basic nature determines the whole of human development paradigm beyond the limitations of indexing in HDI.

Arid and Semi-Arid Lands (ASALs) in Kenya account for about 89% of the land mass and 30% of population (Republic of Kenya 2012a). Although there is great potential for ASAL development, these areas historically have been marginalized both economically and politically (World Bank, 2010). Machakos County is one of ASAL counties in Kenya but is considered to have benefited from programmes such as access to healthcare, access to housing and access to other basic needs due to its proximity to Nairobi. According to Machakos County Integrated Development Plan (2018-2022), the County has 896 primary schools and 301 secondary schools. The GER and NER in primary school sub-sector increased from 96.7% and 79.4% in 2015 to 116.9% and 96.7% respectively, while in the secondary school sub-sector the GER increased from 79.4% to 96.7%, showing increasing trend in the provision of basic education in the County. It also reported that HDI for the County stood at 0.540 compared to the national HDI of 0.555. To this end the County has plans to put in place policies which cut across the six pillars of human development according to United Nations Development Programmes namely: equity, sustainability, productivity, empowerment, cooperation and security.

Further, the County administration takes cognizance of the three essential choices that people make. These three choices include: living a long and healthy life, to acquire better knowledge and to have access to the resources needed for a decent standard of living. However, despite these facts there exists little or no information regarding how provision of universal education has impacted on the human development among the households in Machakos County. Arising from these facts and the reported increase in GER and NER, Machakos County was chosen and this background therefore formed the statement of the problem that the Study sought to fill in. To this end the Study was intended to investigate the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya with Machakos County as ASAL area.

1.3 Research Objectives

The Study was guided by the following objectives:

1.3.1 General Objective

The general objective of the Study was to determine the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya

1.3.2 Specific Objectives

The Study was guided by the following specific objectives:

1. To determine the household income effect of universal education on human development in Machakos County.
2. To assess household productivity effect of universal education on human development in Machakos County.
3. To establish household access to alternative livelihood effect of universal education on human development in Machakos County.
4. To determine household civic participation effect of universal education on human development in Machakos County.

1.4 Research Hypotheses

The Study was guided by the following hypotheses:

Ho1: Increased household income arising from universal education in Machakos County has no effect on human development.

Ho2: Increased household productivity arising from universal education in Machakos County has no effect on human development.

Ho3: Household's access to alternative livelihood arising from universal education in Machakos County has not contributed to human development.

Ho4: Enhanced civic participation by households arising from universal education in Machakos County has not affected human development.

1.5 Significance of the Study

The contribution of findings of this Study will be two-fold. First, is to the existing literature useful to scholars and academicians in this area of development studies particularly in relation to human development. Given that scanty research work exists with regard to this area in Kenya, the findings of this Study will be core in providing literature for future studies in this area. The Study can be used as a basis of replication to other ASAL counties to ascertain the effects of the universal education provision strategies such as free primary and secondary education in improving human wellbeing among households in other counties.

Secondly it will benefit the policymakers at national and county levels. The Study will contribute to policymakers and programmes - designers to better understand the extent to which this agendum has been achieved. In addition, the Study will shed light on areas of agendum that have not been addressed by these policymakers and programmes - designers so that in future these gaps may be avoided. The third beneficiaries are the residents of Machakos County. The Study will provide these beneficiaries with information on the proportion of the poor children in the primary and secondary schools who have been able to attend school in Machakos County.

1.6 Scope

The Study focused on Machakos County as ASAL area particularly on MTC which has 13 locations. It focused on the households from sampled locations to represent entire population. According to Machakos County Integrated Development Plan (2018-2022) there are 896 primary schools and 301 secondary schools, with the GER and NER in primary school sub-sector increasing from 96.7% and 79.4% in 2015 to 116.9% and 96.7% respectively. The County also reported that the county Human Development Index (HDI) stood at 0.540 compared to the national HDI of 0.555 in 2016. Accordingly the County has plans to put in place policies which cut across the six pillars of human development as per UNDP namely, equity, sustainability, productivity, empowerment, cooperation and security. The Study was limited to household incomes, household productivity, household's access to alternative livelihood and household civic awareness as the independent variables and how these programmes have impacted on human development among the households in terms of improved healthcare, access to housing, access to food security and all aspects of human well-being.

1.7 Limitations of the Study

This Study anticipated the limitation relating to the lack of interest and cooperation from some respondents during data collection. This limitation was overcome by:

1. First, assuring the respondents of the confidentiality of their responses.
2. Second, assuring them of the benefits of the outcomes of the research for the County.
3. Third, the researcher also experienced the problem of reference materials. The researcher required current documents that were recently published, but it is rare to find them. The limitation was overcome by using different journals and magazines from different Websites.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter deals with the theoretical framework and literature review on human development theories that guided the Study. The chapter also presents the conceptual framework showing the variables proposed to determine the Effects of Access to Universal Education on Human Development among Households in Machakos County and MTC in particular. Further the chapter reviews empirical literature relevant to the Study as well as critique of the literature. Finally, the chapter ends with a brief summary and identification of the research gaps.

2.2 Theoretical Framework

2.2.1 Human Capital Theory

Human Capital Theory (HCT) ascribed to work of Adam Smith in the 18th century and John Stuart Mill in the 19th Century holds that the well-being of a society is a function not only of the traditional stocks of financial capital, labour and natural resources but also of the knowledge and skills of individuals. This “human capital” can be used like any other asset to generate outcomes of value to individuals and society. In particular, the Theory predicts that increased knowledge and skill will yield improved economic outcomes for both individuals and societies. This idea has attained increased prominence in the past couple of decades because of the widely held view that we are in a “knowledge economy,” in which knowledge and skill convey a greater premium than in the past (Sen, 2000).

However, the modern formulation of human capital as part of the overall economic production function is generally traced to mid-20th century Nobel Prize winning works by Schulz and Becker. Both of these works have had fairly recent updates (Schulz & Becker, 1993). Earlier works by Friedman and Kuznets (1945) were also major contributors to development of the Theory. The primary concern of these economists was why economic development has advanced faster than the growth of

the stocks of traditional capital and labour and, more specifically, how to explain the large residual component in traditional economic production functions. Human Capital Theory locates this explanation in knowledge and skill and particularly in education and work experience as the primary sources of these attributes.

According to United Nations Development Programmes (UNDP, 1990), human development is mainly measured by Human Development Index. This Index is mainly a composite of three key indicators namely: life expectancy indicator, education indicator and GDP indicator. Education indicator is composed by aggregation of two parts: adult literacy and school enrolment level of the three levels of education. For each of the two is determined by an indicator. Combining the two indicators is based on two thirds share indicator for adult literacy and one-third to the coverage rate in education. GDP indicator includes GDP per capita in purchasing power parity. This therefore implies that the literacy level mainly measured by the enrolment rate in primary, secondary and tertiary level plays a crucial role in determining Human Development levels.

However, the Human Capital Theory (HCT) has been criticized in a number of fronts. First critique is that the Theory assumes education increases productivity in the workplace, resulting in higher individual wages, but it provides little insight into the processes through which education and training are translated into higher wages. In statistical models, education and training account for about 30 percent of the variance in individual wages, which suggests HCT leaves a significant percentage of wage variability unexplained. A variety of “middle range” theories (such as screening and credentialism) attempt to explain the other 70 percent of individual wage variability, and some of these theories examine the relationship between educational credentials (such as a bachelor’s degree) and earnings. Many of these “middle range” theories focus on the social and cultural contexts in which employment decisions are made and suggest numerous factors besides productivity (such as cultural and social capital) which are involved in the relationship between education and higher wages. It is thus critical for policymakers to consider alternative frameworks in conjunction with HCT to more fully understand the

relationship between education and private economic returns such as higher wages (Dee, 2004).

Second, a related limitation is that upper-level applications of HCT (such as at the national or county levels) treat education as a relatively homogenous input. These applications assume that higher levels of educational attainment and quality will yield greater productivity and wages across the board. Such treatment of education is problematic because the process of human capital formation varies for individuals and groups. People learn differently, and a “quality” education in one context may prove ineffective in another. The investments required to achieve a desired outcome in urban schools are necessarily different from those in suburban districts because of the unique characteristics of their student populations. It is thus incumbent upon policymakers to consider the context dependency of human capital investments to ensure efficient allocation of resources and effective policy interventions at the national and county levels.

A focus on the relationship between HCT and human development reveals that according to the Theory, the accumulation of human capital is an important contributor to economic growth. Numerous studies explore whether educational attainment can contribute significantly to the production of overall output in an economy. Although macro studies have produced inconsistent and controversial results, several micro studies that investigate the same problem have shown a consistent positive relationship between education of the workforce and their labour productivity and earnings. The general finding is that individuals with more education tend to have better employment than those who are less educated. These findings provide a strong rationale for government and households to invest substantial portions of their resources in education, with the expectation that higher benefits will accrue over time. In that context, education is deemed an investment, equipping individuals with knowledge and skills that improve their employability and productive capacities, thereby leading to higher earnings in the future (Trostel, Walker & Woolley, 2002).

In addition, a relationship between Human Capital Theory and human development can be found on the assertion that human capital plays a critical role in economic growth and poverty reduction. According to Cohen and Soto (2007) from a macroeconomic perspective, the accumulation of human capital improves labour productivity, facilitates technological innovations, increases returns to capital, and makes growth more sustainable, which in turn, supports poverty reduction. Human capital is regarded at the macroeconomic level as a key factor of production in the economy-wide production function. From a microeconomic perspective, education increases the probability of being employed in the labour market and improves earnings capacity. At the micro level, human capital is considered the component of education that contributes to individual's labour productivity and earnings while being an important component of firm production. In other words, human capital refers to the ability and efficiency of people to transform raw materials and capital into goods and services and the consensus is that those skills can be learned through the educational system. Human capital development is important for development for its intrinsic value as a development goal in its own right (Cohen & Soto, 2007).

Further, Babalola (2003) provides the linkage between the Human Capital Theory and human development. He asserts that to enhance human development in the general society, it is necessary to apply the Theory of Human Capital to educational systems. By such means, productivity is enhanced and sustained based on an increased and diversified labor force. Further, he asserts that the contribution of education to economic growth and development occurs through its ability to increase the productivity of an existing labor force in various ways. Therefore, economic appraisal of educational investment projects should consider certain criteria,

In addition, according to Psacharopoulos and Woodhall (1997) education plays a great and significant role in the economy of a nation; thus, educational expenditures are found to constitute a form of investment. This augments individual's human capital and leads to greater output for society and enhanced earnings for the individual worker. It increases their chances of employment in the labor market and allows them to reap pecuniary and non-pecuniary returns and gives them opportunities for job mobility. Education is a source of economic growth and

development only if it is anti-traditional to the extent that it liberates, stimulates, and informs the individual and teaches him how and why to make demands.

It has been proven that the Human Capital Theory and educational systems work beautifully for the development of individuals and nations, especially developing nations. The empirical works by Barro and Lee, (2010) reveal that in the Caribbean, there are some serious consequences for not investing in education and that includes out of school youths; unmet development goals such as education for all, underdeveloped and underutilized human and social capital, loss of economic productivity, increased violence, crime, and risky behaviours, exploitation and marginalization of youth, especially girls and young women, reduced social cohesion and disruption in civil society, and increased spending on remedial social welfare services and crime prevention. Further, Barro and Lee, (2010) estimated that increasing average years of schooling by one year increases per capita GDP by 1.7% to 12.1 %, depending on specification; (Cohen & Soto, 2007) calculate returns to years of schooling at 12.3% to 22.1%. Testing the impacts of schooling quality on growth, it was found that a unit increase in a country's average cognitive test scores increases per capita GDP growth rate by 1.2 to 2.0 percentage points. Moreover, increasing average math and science scores by one unit increases per capita GDP growth rates by 2.0 points, and by 2.3 points for low-income countries. Overall, studies found that education significantly and positively correlated with economic growth and argue that causation runs from education and growth in line with human capital growth models. All these empirical findings reveal the relationship between Human Capital Theory and human development.

2.2.2 Entitlement Theory

The Entitlement approach was introduced by (Sen, 1981). The Theory is based on three conceptual categories namely: the endowment set, the entitlement set and the entitlement mapping. The conceptualization of this Theory is in explaining how human capabilities are built and enhanced to bring about the entitlements. Prior to this explanation, the three conceptual categories are explained by the Theory as follows: first, the endowment set is defined as the combination of all those resources

that are legally owned by a person conforming to established norms and practices. The said resources include both tangible assets, such as land, equipment, animals and intangibles such as knowledge and skill, labor power, or membership of a particular community. Second, the entitlement set is defined as the set of all possible combinations of goods and services that a person can legally obtain by using the resources of his endowment set. The use of the resources to get final goods and services may be either in the form of production, exchange or transfer. Third, and last, the entitlement mapping is simply the relationship between endowment set and entitlement set. It is the rate at which the resources of the endowment set can be converted into goods and services included in the entitlement set.

In explaining how human capabilities are built and enhanced to bring about entitlement in the long run, the Theory explains this linkage using the three concepts (endowment set, entitlement set and the entitlement mapping concept) as follows: According to the theory, the human development concept should give priority in developing the endowment set. This entails equipping the people with the assets both tangible and intangible that they need for decent living. This could entail equipping people with the necessary skills that they need to perform certain function or to enhance their productivity. This is the concept of the endowment set. Upon developing the endowment set, then comes the entitlement set. This implies that once people are equipped with the assets (both tangible and intangible), then they can access goods and services using the resources in their endowment set. For instance, upon peoples acquiring universal education their productivity capability is enhanced by creation of skilled human capital. This therefore enables them to enter the job markets with good pay hence improving their income levels.

Last, is the entitlement mapping concept. Once the people capabilities are built under the endowment set that unlock their access to the entitlement set then comes the entitlement mapping. The entitlement mapping simply the rate at which the resources of the endowment set can be converted into goods and services included in the entitlement set. In this case, having had capabilities built and enhanced people are now capable of improving their livelihoods. Using example of the universal education concept, the endowment concept would be concerned with equipping

people with the universal education to build skilled human capital. This would then translate to entitlement set whereby they can access formal job opportunities leading to increased income levels. With the increased income levels, this would then translate to entitlement mapping whereby they would be capable of purchase goods and services such as good healthcare hence improved wellbeing.

Therefore, the interaction among the three concepts of Entitlement Theory (endowment set, entitlement set and entitlement mapping concept) explain how the human capabilities are built and enhanced to bring about human entitlement (good housing, good health care among others) in the long run. Therefore, in the context of this Study, provision of universal education builds and enhances human capabilities through creation of skilled human capital. This enhances productivity and opens opportunities to join formal employment that results to increased income levels. This in the long run enhances the ability to access good housing, good healthcare among others hence improved wellbeing.

The Entitlement approach is however, criticized in several ways. First, the Theory's use of the term exchange entitlement does not contain any ethical considerations of legal rights to food (as one might find in a famine philosophy) instead, Sen clearly defines exchange entitlements in purely analytical terms as the set of alternative bundles of commodities that a person can acquire in exchange for what he owns. Sen directly asserts that the measurement of poverty should not be an ethical exercise but primarily a descriptive one. As such, entitlements do not contradict voluntary exchange; the concept simply does not contain any normative notion of food entitlement at the expense of voluntary exchange. Second, (Elahi, 2006) argues that the poor might not be able to afford sophisticated healthcare services in some societies, but then argues that 'according to Sen's Theory, they are not entitled to have this service, because it is not included in their endowment set. Again, this confuses Sen's analytical approach with ethical reflections of whether the poor ought to enjoy access (and to what extent) to education, employment, healthcare, housing among others notwithstanding the fact that the Entitlement approach is an approach for famine analysis (and not for poverty alleviation or public policy targeting in a broader sense).

The Entitlement approach is indeed able to analyze whether individuals do in fact have access to sophisticated healthcare exactly because the e-mapping includes an array of different channels including government healthcare provisions. What policy conclusions to draw from such an analysis is an open question and, on that note, it is worth remarking that sophisticated healthcare services are in fact restricted to relatively few in most societies – even in wealthier societies. Third, the Entitlement approach is founded on a hidden hypothesis that income distribution in the non-communist state is economically and politically optimal (Elahi, 2006). This hypothesis is too implicit to attract readers’ attention must be controversial beyond any shadow and Elahi might have a point here. The critique here is why the Entitlement approach should presume an income distribution that is economically and political optimal (optimal in what way?) which remains a mystery.

The relationship between Entitlement approach and human development can be illustrated as follows. According to Sen (2003), the Theory calls for the entitlement of well-being freedom and agency freedom. These lead to capability which denotes ‘well-being freedom’. Agency can play an instrumental role here by enhancing the prospect of expanding capability or well-being freedom. But agency freedom has an independent and intrinsic worth of its own, quite apart from the worth it derives by affecting well-being. The term freedom, which encompasses both well-being freedom and agency freedom, thus best captures the original motivation behind launching the human development discourse. Second, even though agency freedom has all along been an integral component of the concept of human development, from the very beginning Human Development Reports (HDR) have been much more concerned with well-being than with agency. This is certainly true of the Human Development Index (HDI), which has no room for according an intrinsic, as distinct from instrumental, value to agency freedom.

Therefore, this leads to improvement in the development index, which is a measure of well-being. Second, even regarding well-being freedom, which HDRs address much more adequately, there may be reasons to do things differently in the future. It is sometimes forgotten that although the human development discourse is founded on the capability approach, what the HDI actually measure in the first instance is not

capability or well-being freedom but functioning or actual well-being achievement. This is true *of* the components related to education and health, which clearly measure functioning and not capability. One justification for doing so is that freedom and achievement would normally tend to move in the same direction when it comes to such basic functioning as living a life without avoidable diseases, etc. In other words, as far as the basic capabilities are concerned, actual achievements can be used as good proxies for the richness of the capability set because in these cases people would on the whole choose better functioning if better opportunities became available. This is especially when it relates to the average picture of communities as a whole rather than a particular individual (some of whom may happen to behave in idiosyncratic ways). Functioning in these cases may be seen as a valid proxy for capability.

2.2.3 Sustainable Livelihood Approach

The Sustainable Livelihoods (SL) Approach was first introduced by the Brundtland Commission on Environment and Development, and the 1992 United Nations Conference on Environment and Development expanded the concept, advocating for the achievement of sustainable livelihoods as a broad goal for poverty eradication. In addition, contributions to the Approach have been made by UNDP, CARE and DFID. The Approach seems to point out three fundamentals upon which it is anchored. First is the realization that while economic growth is core for poverty reduction, there is not an automatic relationship between the two since it all depends on the capabilities of the poor to take advantage of expanding economic opportunities.

Therefore, if the poor lack the capacity to utilize the opportunities arising for the economic growth, then the growth being experienced has no effect on poverty reduction at all. Secondly, there is the realization that poverty — as conceived by the poor themselves — is not just a question of low income, but also includes other dimensions such as bad health, illiteracy, lack of social services among others as well as a state of vulnerability and feelings of powerlessness in general. Finally, it is now recognized that the poor themselves often know their situation and needs best and

must therefore be involved in the design of policies and project intended to better their live. This calls for the need for participatory planning process.

From the UNDP perspective, Sustainable Livelihood Approach serves primarily as a programming framework to devise a set of integrated support activities to improve the sustainability of livelihoods among poor and vulnerable groups by strengthening the resilience of their coping and adaptive strategies. However, according to Frankenberger, Drinkwater and Maxwell (2000) and from the CARE perspective, Sustainable Livelihood Approach focuses on three attributes namely: the possession of human capabilities; access to tangible and intangible assets; and the existence of economic activities whose interaction forms the livelihood strategy. The core message here therefore is that of empowerment via strengthening the capability of poor people to enable them to take initiatives to secure their own livelihoods.

Lastly, the DFID Sustainable Livelihood Approach focuses on: first mainstreaming a set of core principles which determine that poverty-focused development activity. These principles should be people-centred, responsive and participatory, multi-level, conducted in partnership, sustainable, and dynamic. Second is application of a holistic perspective in the programming of support activities, to ensure that these correspond to issues or areas of direct relevance for improving poor people's livelihoods. A central element of DFID's approach is the SL Framework, an analytical structure to facilitate a broad and systematic understanding of the various factors that constrain or enhance livelihood opportunities, and to show how they relate to each other.

Sustainable Livelihoods Approach is an example of the 'multiple capital' approach where sustainability is considered in terms of available capital (natural, human, social, physical and financial) and an examination of the vulnerability context (trends, shocks and stresses) in which these capitals (or assets) exist. The five principal capitals often suggested as important to livelihood are presented as a pentagon mainly natural, human, social, physical and financial capital. Under this approach human capital is defined by the individual's skills, knowledge, labour (includes good health and physical capability). Universal education therefore comes

in a medium via which the quality of human capital is enhanced. With the access to education, there is exposure such that the individuals have access to skills, good health, knowledge and hence human capital development.

However, the Sustainable Livelihood Approach is criticized in a number of fronts. First, a significant criticism of these livelihood interpretations is that they are static in that they seem to focus on the fundamental, space in time needs of a particular kind of people - "the poor" - without regard to the fact that impoverished people, like most other people, often aspire to ways of living that may be completely different to that which they are currently able to afford or enjoy: The poverty-focus of sustainable livelihoods literature reflects the greater aim of global poverty reduction, but it produces an unfortunate side-effect, in that it appears to suggest that only the poor have 'livelihoods,' which they try to sustain over their lifetimes, whilst the non-poor have lifestyles, which can evolve and alter over the course of their lives (Toner & Kamuzora, 2002). The criticism is important because it serves as a reminder that many factors influence how people perceive themselves in terms of the local and wider socio-political and economic environment. In turn, these perceptions can have a significant impact on the kind of assets people want to accumulate, independent of the living conditions in which they are situated.

The second critique of SL framework is that it contains too many components to address, which make it impossible to go into depth with any of these, hence making the framework too broad and superficial to actually help design and analyze anything (Clark & Carney, 2008). However, the proponents advocate that the framework is meant as a holistic overview of which factors might be beneficial to include in any given development activity, and how these factors cannot be analyzed without considering some of the other components, such as how a process like the law of ownership rights affects the assets that can be made available to the local people (Krantz, 2001). Therefore, using it in the implementation phase has proven less successful, since it has no guidelines of how to do this, and because implementation requires the effort to be focused on a few areas (Clark & Carney, 2008). The concept of making everything as simple as possible is important in the implementation phase, making the many components in the SL framework difficult to handle. Therefore,

even though the proponents are right in pointing out the importance of considering all the components in the analysis, this might not be the case in the implementation phase.

The third critique of SL framework is that it has too much focus on the micro level such as the local community, instead of focusing on the macro level, such as the state or the international society (Krantz, 2001). When thinking of the components “structure and processes”, it is understandable that the macro level is very important to include, since many structures and processes on the micro level are shaped by the laws, regulations and institutions that are decided and founded at the macro level. Therefore, it might not have any real impact working on the micro level, since many changes have to come from above. Thus, in a country with corruption, a weak state capacity, and a poor functioning infrastructure, interventions on the micro level have little hope of being sustainable once the project period is over, because of the interrelatedness of the macro and the micro level (Collier, 2007).

One of the basic principles in the SL framework, that the development and poverty reduction should be sustainable, is therefore undermined before even starting. Nevertheless, proponents of the SL framework describe that what makes SL useful is that it shows, how the micro and macro levels are interrelated, and that one has to consider both when trying to develop more sustainable livelihoods (Krantz, 2001). However, one might say that even though the SL framework is a useful tool for pointing out the interrelatedness between micro and macro levels, it does not give any guidelines for changing the politics on macro level, to ensure the sustainability of the interventions on micro level. Thus, the SL framework can be seen as a useful tool to analyze and plan development activities, but not as the solution to all problems, especially not in countries with a weak state capacity that undermines the sustainability of the development activities.

In linking the SL Theory and human development, this Study borrows from conclusion for the (United Nations Committee on Social, Economic, and Cultural Rights, (UNCSEC) 2001). According to UNCSEC (2001) the adoption of SL approach leads to improvement in the General Indicators of Poverty Reduction such

as improved income levels of poor and non-poor, Changes in household food security, Improved basic needs (shelter, health, nutrition), Changes in income distribution and decreases in inequities, Diversification of income sources, Changes in income security, Improved human rights, Increased access to public goods and services, Increased yields, Changes in consumption and diet which all in the long run lead to the Improved quality of life.

Further, the UNCSEC (2001) asserts that the adoption of SL Approach leads to improvement in the indicators of increased Resilience and Reduction in Vulnerability/Volatility such as: reduction in frequency or severity of shocks, increased risk preparedness, increased capacity to cope with/prepare for/adapt to natural or economic shocks and increased capacity to cope with/prepare for/adapt to seasonality. Last, UNCSEC (2001) asserts that the adoption of SL approach leads to improvement of long term sustainability indicator such as: increased in environmental sustainability, reduction in conflict or increase in peace/resolution, changes reflecting livelihood sustainability, sustained post project activities, sustained post project institutional changes, sustained post-project poverty reduction, sustained or permanent removal of groups from social exclusion and addressing inequities faced by disadvantaged groups.

2.3 Conceptual Framework

Wellbeing is dependent on several independent variables which have been associated with this concept. Based on the purpose of this Study the list of independent variables can be long but includes disposable income, levels of education, government expenditure, security and environment, among many others. There are intervening variables that also have influence on wellbeing among the population including, facilitation support such as capitation, bursaries, school feeding programmes, gender equalization programmes, among others, corruption, marginalization, consumption patterns and insecurity.

From the Human Capital Theory, the Entitlement Theory and the Sustainable Livelihood Approach, universal education is a key element of human development because it is viewed as the primary means of increasing people's capabilities to

freedoms, expanding civic participation and developing knowledge and skills and hence enhancing labour productivity. (Mincer, 1974) is generally credited with developing the core model designed to explain differences in individual income as a function of level of education and work experience which in turn has an effect on the individual's poverty levels. Therefore, the number of years spent in schools, the budgetary allocation by government to education and the total enrolment at different levels of education speaks to the quality of human capital in a country and its potential in realizing the country's potential productivity thus enhancing human development in the long run.

Thus in modeling the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya from the universal education perspective is that education impacts on individuals' skills and knowledge which in turn impacts on their productivity. The outcome therefore is increased income earnings which lead to improved welfare hence reduced poverty levels. The welfare would be in terms of increased income earnings, increased civic participation on social and economic activities, increased expenditure on basic needs such as health, food among others. The overall effect therefore is improved human development. According to (Allan and Pamela, 2003) it can be shown how independent variables and the dependent variable interact in the Study as shown in Figure 2.1.

2.3.1 Relationship among Variables

From the conceptual framework, the relationship among the variables in this Study can be summarized from a contextual point of view.

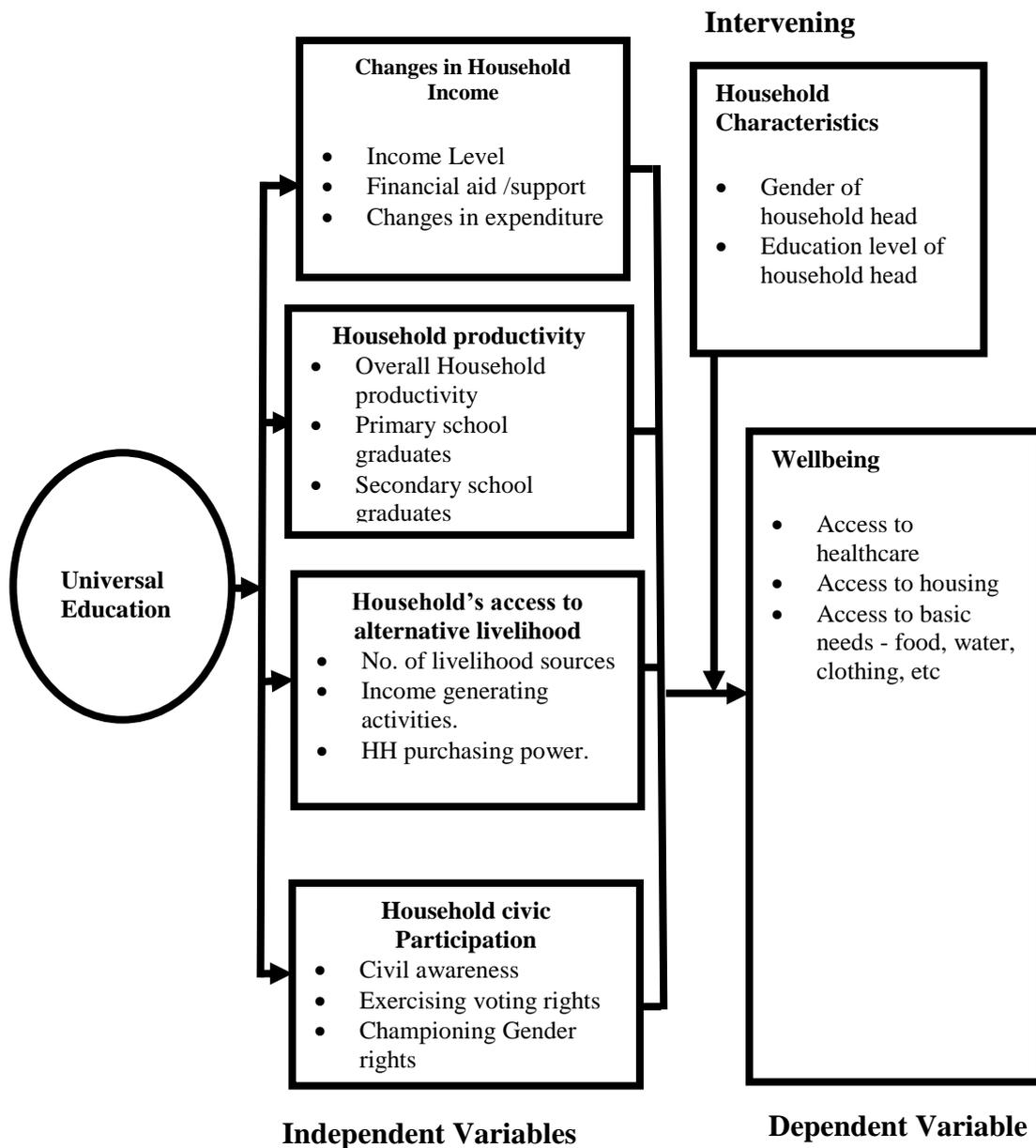


Figure 2.1: Conceptual Framework

2.3.1 Relationship among Variables

Household Income Level and Wellbeing.

From the conceptual framework, universal education can be viewed as an enabler that tends to unlock individual's potentials thus leading into increased income both at individual and household level. It has already been indicated (Sen, 2006) that

individuals who spend more years schooling are more likely to be skilled compared to those who spend less or no years at all in school. Therefore, such skilled individuals are more likely to get better jobs and attract higher pay at their workplace thus implying increased earnings or incomes. The increased incomes arising from education attainment lead to economic empowerment that in turn leads to access to healthcare, housing, food security, and other basic needs hence improved standards of living.

Based on the simple illustration of circular flow of income, the effect of increased income levels arising from acquisition of universal education on wellbeing can be explained. At a micro-level, numerous studies indicate that increases in earnings are associated with additional years of education, with the rate of return varying with the level of education (Behrman & Deolalikar, 1988; Schultz, 1993a; Schultz, 1988). According to (Lucas, 1988), for example, the higher the level of education of the work - force, the higher the overall productivity of capital because the more educated are, more likely to innovate, and thus affect everyone's productivity. In other models, a similar externality is generated as the increased education of individuals raises not only their own productivity, but also that of others with whom they interact, so that total productivity increases as the average level of education rises. The World Bank, (2010) assert that future earnings, economic development and the eradication of poverty are highly correlated with the knowledge and skills of the workforce which is gained from the individual's years of schooling. This proposition is backed by earlier works in this field of study by (Becker, 1962; Glewee, 2002; (Caselli, 2005; Banerjee & Duflo, 2005; Hanushek & Woessmann, 2007).

Early works by Becker (1965) and Schultz, Investment in human capital, (1961) assert that education mainly measured by the number of years of schooling impacts on the individual's productivity and earnings. They assert that the Human capital Theory in its most basic conceptualization is hinged on the presumption that education increases worker's productivity and that those with more education should earn higher wages in exchange for this higher productivity thus impacting on wellbeing in the long run. Therefore, they conclude that investment in universal education yields to both private and public returns. On the private benefits,

education, increases individual's earnings while on public returns, education leads to social return via its effects on the national economy through economic growth resulting from higher worker productivity. In addition, (Teal, 2011; Schultz, 1961) report higher returns for higher levels of education in Sub Saharan Africa. Their analyses suggest that, unless those with the least education proceed to higher levels of education, primary education is likely to have little impact on income. Schultz, (1961) using household-survey data collected between 1985 and 1998 reports a higher private wage returns for higher education than for primary education in Ghana, Cote d'Ivoire and Kenya.

Household Productivity and Wellbeing.

From the conceptual framework, universal education can be viewed as an enabler that tends to unlock an individual's potentials thus leading to increased productivity at individual level hence leading to increased productivity at the household level in the long run. Educated persons Harmon, Oosterbeek and Walker, (2000) are more likely to be more productive compared to those uneducated. This argument is based on the fact that more educated persons are likely to possess skilled manpower that is more productive compared to unskilled manpower. The increased productivity implies increased output which again indirectly implies economic empowerment that in turn leads to access to healthcare, housing, food security, and other basic needs hence improved standards of living.

Productivity is a measure of the efficiency of factors of production for example measured by output per person employed or the value of output per hour. However, we note that productivity can only increase if the quality of labour involved in production increases. One of the key ways of improving the quality of labour is via education in order to impact new skills that in turn enhance efficiency. Lange and Topel (2005) assert from their study that a rapid growth in the number of persons that enroll in the school have experience of raising productivity and an improvement in the quality of the labor force. From this definition, it is clear that higher productivity always comes with a higher output that in turn comes with higher pay in terms of wages thus increased economic empowerment.

Universal education therefore plays a crucial role in enhancing labour productivity. This is because education is core in building the human capital stock in any economy. Behrman and Wolfe (1987b) assert that education combined with good health have strong direct impacts on productivity through their effect on the distribution of income that comes with economic empowerment. As education improves via provision of universal education, the low-income people and households are better able to seek out economic opportunities hence becoming economically empowered. This in turn implies the household's ability to meeting their basic wants such as access to healthcare, housing, food security among other which in turn comes with improved living standards.

Household Access to Alternative Livelihood and Wellbeing.

From the conceptual framework, universal education can be viewed as an enabler that tends to unlock individual's potentials thus leading into access to alternative livelihood sources. Provision of free universal education is likely to release resources that a household would have spent in education to be spent in other household activities such as investment in income generating activities thus offering an alternative source of livelihood for the household (Frankenberger, Drinkwater & Maxwell, 2000). Increased household's access to alternative livelihood implies access to tangible and intangible assets hence economic empowerment that in turn leads to access to healthcare, housing, food security, and other basic needs hence improved standards of living.

The provision of universal education in Kenya through increased capitation fee, free school feeding programmes, education bursary allocation among other programmes tends to subsidize the cost of education for poor households. Such subsidies imply savings on education expenditure. Such savings can be channeled to income-generating activities thus providing an alternative source of livelihood for the households. Further, the access to education through provision of universal education to children engaged in or at risk of engaging in child labour provides the children with an alternative source of livelihood in the long run upon completing schooling. All these alternatives lead to one common outcome which is increased economic

well-being of the household which increases their consumption hence increased household well – being in the long run.

Household Civic Participation and Wellbeing.

From the conceptual framework, universal education can be viewed as an enabler that tends to unlock individual's potentials thus leading into increased civic participation. Acquisition of universal education enhances individuals' capabilities central to a fulfilling life that include the ability to participate in the decisions that affect one's life, to have control over one's living environment, to enjoy freedom from violence, to have societal respect, and to relax and have fun (Sen, 1990). This also includes awareness on social matters that call for their social obligations to ensure social justice. Such awareness leads to increased advocacy on social issues such as advocacy for human rights, gender empowerment among others touching on social justice and equity.

The increased civic participation on the societal matters arising from access to education implies that people are more empowered in terms of knowledge on their rights and entitlement thus demanding social justice and equity. Increased household civic participation arising from attainment of education implies increased advocacy for human rights and societal justice. This in turn implies increased access to civic rights and social justice and hence improved standards of living in the long run. Acquisition of universal education promotes participatory governance through civic engagement thus creating inclusive and responsive democratic institutions and increasing opportunities for citizen voice. The promotion of civic engagement facilitates the creation of an environment conducive for people, individually and collectively, to develop their full potential and to be able to pursue their needs and interests to lead productive lives.

Human rights and wellbeing share a common vision and a common purpose to secure, for every human being, freedom, well-being and dignity. Human rights are an intrinsic part of human development and bring principles of accountability and social justice to the process of human development. Rights-based approaches are based on the recognition that real success in tackling poverty and vulnerability requires giving

the poor and vulnerable a stake, a voice and real protection in the societies where they live. Therefore, universal education empowers households to be active citizens thus providing the link between policy intent and policy delivery. Strengthening the capacity of civil society at household level through education and awareness influences policymaking processes which is critical to realizing inclusive growth, fostering national ownership and social inclusion, and securing equitable development outcomes thus improved standards of living in the long run.

2.3.2 Intervening Variable

From the conceptual framework, even though universal education impacts on human development through household income, household productivity, household access to alternative sources of livelihood, and household civic awareness this causation is not in absence of intervening variables. In this Study, the intervening variables were household characteristics such as gender of household head, education level of household head, household size, occupation of household head among others. The Intervening Variable is the second independent variable that was included because it is believed to have a significant contribution to contingent effect on the original Independent Variable-Dependent Variable relationship.

2.3.3 Human Wellbeing

From the background information and literature review it is evident that poverty reduces households' income and consumption (IFAD, 2011). Poverty also worsens households' ability to access healthcare, education and other essentials services. Poverty therefore worsens wellbeing (World Bank, 2010). In this Study universal education is viewed as a contributor that leads to increase in households' incomes, households' access to alternative livelihoods, households' productivity and households' civic participation (Harmon, Oosterbeek & Walker, 2000). These outcomes of universal education do then lead into improvement in the wellbeing. In the Study improved wellbeing was the dependent variable which was measured by household's access to healthcare, household's access to housing, household's food security, and increased household civic awareness.

The literature reviewed clearly demonstrates that provision of universal education is critical in improving the wellbeing via increased income, household expenditure and savings. This is because education impacts the skills among the learners, leading to development in the human capabilities and human capital, this in turn increases labour productivity which ultimately results into increased national income, increased savings given that savings is a function of income (Lange & Topel, 2005). In addition, given that expenditure is an increasing function of income, therefore a rise in income levels following increased human capital development through education implies increased household's expenditure. (Schultz, 1961; Dickens, Sawhill & Tebbs, 2006) have shown that education and skills acquisition has positive effects on economic growth and development. As such, investments in children's education is the main avenue for human resource development and capital accumulation required for building long- term productive capacity of a country.

It is, therefore, essential that a country provide perfect environment for unfettered access to knowledge and skills that would increase the future productivity of children. As such, primary school and secondary school enrolment positively contribute to better quality of life through improved human capabilities and human capital that comes from acquisition of skills and knowledge that ultimately leads to increased national output. Also, Jorgenson and Stiroh (2000) assert that the contribution of education to economic growth is 8.7 percent of total growth over the 1959 to 1998 period and 13 percent growth in output per worker. A study by (OECD, 2012) concludes that early school leavers have lower income jobs than secondary school graduates and pay fewer taxes since low-skilled labour earns lower wages, which represents lower income tax revenues. According to Basic Education Coalition (2004) and USAID (2005) each year of schooling "increases individual output by 4-7 percent, and countries that improve literacy rates by 20-30 percent have seen increases in gross domestic product (GDP) of 8-16 percent. As such increased income level, savings and expenditure would be an ideal measure of improved quality of life. In this Study human development was measured by four different variables namely: standard of living which includes access to healthcare, housing, access to basic needs such as food, and civic awareness.

2.4 Empirical Review

From the empirical literature, it is evident that universal education influences human development through an array of channels. However, the most featured channels through which education impacts human development are: the household income levels, household productivity, household access to alternative livelihoods and household level of civic participation. Various empirical studies in line with these pathways are discussed as follows:

2.4.1 Universal Education and Human Development

Household Income Level

A vast empirical literature on the relationship between universal education and human development does exist. The World Bank (2010) assert that future earnings, economic development and the eradication of poverty are highly correlated with the knowledge and skills of the workforce which is gained from the individual's years of schooling. This proposition is backed by earlier works in this field of study by (Becker, 1965; Glewee, 2002; Caselli, 2005; Banerjee & Duflo, 2005; Hanushek & Woessmann, 2007).

Early works by (Becker, 1965) and (Schultz, 1961) assert that education mainly measured by the number of years of schooling impacts on the individual's productivity and earnings. They assert that the Human Capital Theory in its most basic conceptualization is hinged on the presumption that education increases worker's productivity and that those with more education should earn higher wages in exchange for this higher productivity thus impacting on human development in the long run. Therefore, they conclude that investment in universal education yields to both private and public returns. On the private benefits, education, increases individual's earnings while on public returns, education leads to social return via its effects on the national economy through economic growth resulting from higher worker productivity. In addition, (Teal, 2011) and (Schultz, 1961) report higher returns for higher levels of education in Sub Saharan Africa. Their analyses suggest that, unless those with the least education proceed to higher levels of education,

primary education is likely to have little impact on income. (Schultz, 1961) using household-survey data collected between 1985 and 1998 reports a higher private wage returns for higher education than for primary education in Ghana, Cote d'Ivoire and Kenya.

According to empirical works by Abbas and Foreman-Peek (2007), the estimated return to education measured by the rise in incomes /earnings is 8.0% per year of schooling in Latin America, 6.7% in Sub Saharan Africa, 6.8% per year in Eastern Europe and of only 1.9% in Asia. The results for the pooled regression globally for the database used in the study, reveal that more specifically, primary education yields an average return (increase in income/earnings) of 4.9% per year of schooling completed, secondary education yields returns of 5.4% per year completed, and tertiary education yields returns of 6.5% per year completed. These findings support the argument in favour of the positive relationship between education and human development via the income / earnings channel.

Household Productivity

Further, McMahon (1999) by expanding the endogenous growth into a wider theory of endogenous development indicates that, in addition to market benefits of education on human development through earnings, education also contributes to improvements in human development and life chances for the individual through non-market benefits; and the benefits of education that can be observed during non-labour-market hours. Through the empirical analysis, McMahon (1999) shows that higher levels of education yield several non-market private benefits that include: improved health (for both individuals and their family members), greater longevity, improved cognitive development in children, and reduced family size. These outcomes are likely to contribute to the productivity of individuals in the workforce, and, consequently to economic growth.

Bloom (2006) provide one of the most extensive analyses of the link between education and productivity levels. The findings are that education raises the rate of technological convergence (the process whereby technologies merge to perform similar tasks and nations come closer in technological integration). Further, Teal

(2011); Diagne and Diene (2011) also report that improved productivity, as a result of enrolment in school, contributes to innovation and technical progress. In addition, a study by Larbi-Apau and Sarpong (2010) investigated the impact of education on the overall productivity of one specific industry the poultry industry in Ghana. The study results suggest that the proportion of workers with basic education is a significant factor in the overall productivity of the industry. Studies by (Teal, 2011) and Abbas and Foreman-Peek (2007) report that education is crucial in raising productivity within the public sector in several countries in Sub-Saharan Africa and in Pakistan respectively.

Study by De Ferranti (2003) attribute the low productivity in some Latin America low- or lower-middle-income countries to be arising from the inadequate access to up-to-date knowledge and basic education. Moreover, similar results are arrived at by (Di Gropello Aurelien & Prateek, 2012; Loening, 2005) for some low- or lower-middle-income countries in Asia and for Guatemala respectively. Jenkins (1995) looked at an index of total factor productivity and its relationship to different levels of educational attainment in United Kingdom. The findings were that when higher education qualifications (including undergraduate, postgraduate, and other tertiary graduate stock) increased by 1 per cent, annual output grew between 0.42 and 0.63 per cent.

Household Access to Alternative Livelihoods

Available studies indicate how universal education can empower households to access existing opportunities and escape from deprivation. According to Frankenberger, Drinkwater and Maxwell (2000), using the Sustainable Livelihood Approach empowerment strengthens the capability of the poor to enable them to take initiatives and secure their own livelihoods. In addition, DFID in its development programmes has applied the Sustainable Livelihood Approach by first mainstreaming a set of core principles which determine the development programmes and focused on poverty. Second, by applying a holistic perspective in the programming of supporting activities, and ensure that these correspond to issues of direct relevance for improving livelihoods of the poor. As earlier noted universal education is the

medium through which the quality of human capital is enhanced. Universal education has given exposure to individuals to have access to skills, good health, knowledge and hence human development.

Household level of Civic Participation

There also exist works on the impact of education on civic participation and institutional improvements. The endogenous theory work by (McMahon, 1999) further revealed that education results in a number of non-market social benefits, including increasingly democratic institutions, reductions in air pollution, reduced property crime and increased political stability. Brannelly, Lewis and Ndaruhutse (2011) report that improved institutions arising from increased education levels are also likely to contribute to development outcomes beyond economic growth. They assert that education contributes to improvements in healthcare systems, by educating highly skilled doctors and nurses, and in lower levels of education, through teacher training. High-capacity graduates are also necessary for good governance.

Bynner, Dolton, Feinstein, Makepeace, Malmberg and Woods (2004) report that education contributes to social justice and democratic participation within society. This is the effect of education on civic participation in the society. Further, Bynner and Egerton (2001) show that educated persons tend to have more positive attitudes towards justice, such as greater racial tolerance. This is key fostering good citizenship that comes through pursuance of individuals' rights and hence the civic participation (Arthur & Bohlin, 2005; Barnett, 2007; Mamashela & Mattes, 2011) found that education increases civic participation by enhancing democratic attitudes and behavior in Kenya, Tanzania and South Africa. There are some divergent results, but, in comparison with those with a lower level of education, students were generally found to have better access to political information, be more critical of the political system, and participate more in voluntary organizations, protests and other political activity. For instance, stimulating on-campus activity and student leadership is seen as the most effective way of enhancing civic participation.

Regarding civic participation via women empowerment in positions of leadership, (Gyimah-Brempong & Nyarko, 2010) found a correlation in the African region between education and a higher proportion of women parliamentarians (the link is stronger than that with primary and secondary levels). Further, Malik and Courtney, (2011) mixed-method study indicates a strongly positive effect of study in public universities in Pakistan, not only on women's economic independence resulting from earnings, but also on their voice and confidence in participating in family and community affairs, and increased awareness of legal rights although there remain significant social barriers to exercising these rights. In Eritrea, access to university is seen to enhance women's freedom through enhanced earning capacity, avoidance of restrictive marriages and enhanced choice of future life trajectory in relation to career, travel and further study (Muller, 2004). In India, Singh and Sorenson, (2006) assert that education among women is associated with greater confidence and less emotional dependence on a spouse thus fostering civic participation by women demanding for their rights. Shafiq (2011) found that higher education has a positive association with democratic attitudes in Pakistan, and is a stronger predictor than just secondary, primary or no education. Further, Bloom (2006) found a positive and statistically significant correlation between higher education enrollment rates and governance indicators, including absence of corruption, rule of law, absence of ethnic tensions, bureaucratic quality, low risk of repudiation of contracts by governments, and low risk of appropriation.

2.5 Research Gaps

From the reviewed literature, it is evident that vast work has been done regarding the Social and Economic Effects of Access to Universal Education on wellbeing. However, scanty work does exist in terms of local studies (Muyanga, 2012; Ngugi, Mumiukha, Fedha & Ndiga, 2015). First, from the literature, the Human Capital Theory in its most basic conceptualization is hinged on the presumption that education increases worker's productivity (Sen, 2006) and that those with higher education earn higher incomes in exchange for this higher productivity thus impacting on human development in the long run (Teal, 2011; Schultz, Investment in human capital, 1961). Studies in this area stipulate that it is expected that individuals

who spend more years in schooling are more likely to be skilled compared to those who spend less or no years at all. Therefore, such skilled individuals are more likely to attract a higher pay at their workplace thus implying increased earnings or incomes. The increased incomes arising from higher skills attained from education lead into economic empowerment that in turn leads to access to good housing, food, healthcare and other basic needs hence improved standards of living. Further, studies on the effects of universal education on human development via increased income levels indicate that the access in universal education has a positive role in enhancing income distribution between the poor and the rich households. By acquiring universal education, poor households are capable of being economically empowered with the recipients being capable of getting a better pay which in turn raise their income wellbeing. This in turn improves their living standards.

Second, acquisition of universal education positively impacts on individual productivity (Harmon, Oosterbeek & Walker, 2000). Higher levels of education yield a number of non-market private benefits that include: improved health (for both individuals and their family members), greater longevity, improved cognitive development in children, and reduced family size. These outcomes are likely to contribute to the productivity of individuals in the workforce, and, consequently to economic growth. Also reports indicate that improved productivity, as a result of enrolment in school, contributes to innovation and technical progress. Further, the proportion of workers with basic education is a significant factor in the overall productivity. The increased productivity implies increased output which again indirectly implies economic empowerment that in turn leads to access to good housing, food, healthcare and other basic needs hence improved standards of living.

In terms of civic participation, there is general consensus in the studies concluding that universal education contributes to increased civic awareness in the society leading to enhancing democratic attitudes (Sen, 1990). Further, empirical works in this space urge that educated persons tend to have more positive attitudes towards justice, such as greater racial tolerance and are in forefront in advocating for change (Bynner & Egerton, 2001). These studies further conclude that education contributes to social justice and democratic participation within society. This is key fostering

good citizenship that comes through pursuance of individuals' rights. This will in the long-run result to increased social prosperity that comes with the improved social equity and justice.

From the literature, the linkage of universal education as an enabler to human wellbeing is not clear. The studies tend to link universal education to human development using a direct relationship. However, the fact is that the effect of universal education on human wellbeing is an indirect one. Basically, universal education serves as an enabler that gives an individual capability of upper hand to seize the existing opportunities (UNDP, 1990). By attaining universal education, one possesses skills that can unlock opportunities for better pay. This leads to increased individual income hence economic empowerment that comes with increased purchasing power. This in turn leads to increased consumption leading to improved living standards of the individual or the household. Similar argument can be fronted regarding the effect of universal education on human development via increased individual productivity, household access to alternative livelihood as well as increased individual / household's civic participation. This Study therefore seeks to investigate the Socio and Economic Effects of Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya by treating universal education as an enabler rather than a direct causality between the two. To do this, the Study looked at the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya via increased income levels, increased productivity, access to alternative livelihood channels and increase civic participation.

From the reviewed literature, there is evidence of some existing research gaps from the existing literature and empirical studies (Ngugi, Mumiukha, Fedha & Ndiga, 2015). First, there exist very little and scanty literature on the correlation between universal education and human development in the Kenyan context (Muyanga, 2012). Further, since the introduction of free basic education in Kenya little or even no attention has been paid in terms of research on its effect on human development including household incomes, savings, household productivity, access to other livelihoods, and civic participation (Sawamura & Sifuna, 2008)). This Study sought

to research on the Effects of Universal Education on Human Development among Households in ASALs via increased household's income, household's productivity, household's access to alternative livelihoods and household's civic awareness.

2.6 Summary of Literature Reviewed

In a preview of the earlier sections of this Study three theories on human development were presented, first, the Human Capital Theory, (Schultz, 1988) and (Becker, 1965), who assert that human capital is part of the overall economic production function. Second, the Entitlement Theory to human development (Sen, 1981) asserts that individuals have a set of capabilities (opportunities) to achieve what they want to be and engage with. These opportunities- the instrumental freedoms help to achieve the functioning- the real substantive freedoms. Based on this Theory, education is one of the items within the Entitlement set that individuals can use to improve their capability and hence human development. Third, the Sustainable Livelihood Approach introduced by the Brundtland Commission on Environment and Development and UNEP (1992) advocates the achievement of sustainable livelihood as a broad goal for poverty eradication. From the UNDP perspective this Approach seeks to devise a set of integrated support activities to improve the sustainability among the poor and vulnerable groups by strengthening the resilience of their coping and adaptive strategies.

Based on these schools of thought, the review described the Conceptual Framework which was used to investigate the Study namely, “the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya”. The four (4) Independent Variables of the Study are adequately supported by scholarly work in the reviewed empirical literature. First, Institute of Education, University of London (2012), supports universal education, together with other scholars such as (Fosu, 2014) on improving quality of life. Second, (Schultz, 1961; Dickens, Sawhill & Tebbs, 2006) have proved that education and skills acquisition have positive effects on economic growth and development. Third, Institute of Education, University of London (2012), (Turner, Cillers & Hughes, 2014; UNDP, 2016) have described barriers such as

gender, spatial, caste, religion, or ethnicity that drive inequality and therefore keeping people in poverty when others are making progress. Finally, the Entitlement Theory supports universal education in empowering households to civic participation. In the case of the Dependent Variable, scholars have shown that there is positive relationship between universal education and household's incomes and better outcomes in child health, growth and development, (Lia, Paul & Lynnette , 2008). The CPRC, (2011) has identified five factors which influence poverty, first insecurity and poor health; second, limited citizenship; third, spatial disadvantage; fourth, social discrimination; and finally, poor working opportunities.

The summary of empirical literature reveals that there is a consensus of the results on the different works by different authors on the effect of universal education on human development. However, differences on the same are also eminent from the literature reviewed. In addition, the reviewed literature seems to indicate that much of the work done on some strategies is concentrated in some specific countries with domestic works being scanty at best. This is for mere fact that provision of free universal education is barely less than a decade. It is also noteworthy that the empirical works on the effect of education on human development focus on how education influences human development via increases in incomes / earnings channel, via productivity channel, and civic participation channel. The studies are therefore mute on the effect of education on human development via access to alternative sources of livelihood. This therefore poses the need for investigation on the effects of free universal education on human development among households in Kenya, a gap that this Study seeks to fill in. In doing so the Study seeks to investigate the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya via the household income / earnings channel, household productivity channel and household civil participation channel, as well as the access to alternative sources of livelihood channel.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with the research methodology that the Study sought to employ in attempt to investigate the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya. The chapter covers research design and philosophy, target population and the sampling frame employed, sampling techniques and the sample size. In addition, this chapter also discusses the data collection instruments, pilot survey for the Study and data collection procedures. Finally, the chapter ends with the data analysis and presentation.

3.2 Research Philosophy and Design

3.2.1 Research Philosophy

Research philosophy can simply be defined as a belief about the way in which data about a phenomenon should be gathered, analyzed and used. For this Study, a positivism research design was adopted (Crossan, 2003). The choice for the positivism research design is supported by the principle underlying this philosophy. According to the principles of positivism, the philosophy depends on quantifiable observations that lead themselves to statistical analysis. It is noted that positivism is in accordance with the empiricist view that knowledge stems from human experience (Ryan, 2018). This principle conforms to the nature of the Study in that it dealt with the quantifiable observations. In this Study, the observer (field officer) was independent, with no human interest in the Study. Regarding the progression of this Study, it was guided by the hypotheses in attempt to show the causality between independent variables and dependent variables. All these attributes of the Study apply for the positivism research philosophy hence its choice as the ideal research philosophy.

3.2.2 Research Design

In investigating the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya, this Study used a combination of quantitative and qualitative research designs. The Study employed both descriptive and the causal research designs. First, by adopting the descriptive research design, the Study sought to give an account and description on what is the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya. According to (Orodho, 2003), this option of research design is better than others in seeking the opinions and perceptions of the target population in this case the households.

On the quantitative research design, the Study employed casual research design in attempt to quantify the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya. According to Collis and Hussey (2003) causal research design offers opportunity to collect large quantities of data to be quantified and be used for statistical analysis that is representative of the whole population and make deductions about that population. Human development is a social issue; and this type of the research design is preferred in this case because it is capable of identifying various research variables for the Study thus necessitating hypothetical construction of the research models. In addition, the design was a ground breaking into the area of the Study thus providing solid basis for the application of the other research designs, in this case the causal research design. The causal research design was therefore applied to bring out the relationship between the factors outlined by the respondents with the main lifestyle improvement indicators on the various goals relating to human development. In this case, the causal research design sought to investigate the effects of the universal education on human development and changes in the household level of income, productivity, access to alternative livelihoods and civic awareness. The application of causal research design in the Study is adopted mainly for two reasons, first to help in understanding which variables are the cause, and which variables are

the effects and second, it aided in determining the nature of the relationship between the causal variables and the effect predicted.

3.3 Target population

According to Mugenda and Mugenda (2003) target population is defined as the total number or the entire group of individuals, events or objects that the researcher wishes to study. From this definition, the target population for the Study is the households in ASAL counties in Kenya as represented by entire population of Machakos Town Constituency which stands at 199,211 persons distributed within approximately 48,989 households as at 2009 national census. Machakos County is one of the ASAL counties in Kenya with 10 Constituencies. The County headquarters are in Machakos Town which also doubles as the Machakos Town Constituency (MTC) with 13 locations. Locations are the lowest administrative units. According to KNBS, Machakos County has a population of 1,084,631 (2013) with MTC taking 199,211 people of the total. According to KNBS, Machakos County has 59.6% of the population living below poverty line which is above the national rate of 45.2%. The County has 58% and 27% of the population having attained primary and secondary levels of education respectively, while 17% and 32% of households are connected to electricity and clean drinking water respectively. Arising from these facts and the proximity of Machakos County to Nairobi City County Machakos County was chosen for the Study.

3.4 Sampling Frame

The Study used the County administrative units mainly the County locations as the clusters for the sampling process. This was informed by the fact that the main poverty reduction strategies are implemented via administrative units. For instance, the implementation of free basic education programme is carried out at the county locations because basic information on households is available at each of these administrative units. The classification of the target population yielded a sampling frame of 13 locations.

Table 3.1: Target population

Name of Location	No. of Households
Township	4,327
Muvuti	2,023
Kimutwa	3,242
Kiimakimwe	6766
Mumbuni	11,652
Katheka Kai	4,087
Mua Hills	1,756
Ngelani	2,503
Mutituni	3,088
Kalama	2,434
Lumbwa	2,820
Kyangala	1,652
Kola	2,639
Total Population	48,989

Source: KNBS, 2009

3.5 Sampling Techniques and Sample Size

3.5.1 Sampling Techniques

A sample is defined as a representative portion of the entire target population the researcher wishes to study. In selecting the sample, there is need to pay attention and be objective as much as possible to ensure that the sample is a good representation of the entire population. A sample that fully represents the population yields credible results which can be generalized for the entire study population. However, any sample that falls short of fully representing the entire population yields biased results which cannot be replicated for the entire population (Mugenda & Mugenda, 2003).

Sampling technique on the other hand refers to the technique of the process used in selecting a sample out of the population for the study. Sampling techniques are

generally classified into two: a probabilistic sampling technique where the probability of an element chosen for the inclusion into the sample is scientifically determined and second the non-probabilistic technique where the probability of an element chosen for the inclusion into the sample is non-scientifically determined. Probability sampling techniques include: simple random sampling, stratified random sampling, systematic random sampling, cluster sampling and multi-stage sampling. On the other hand, non-probability sampling techniques include: purposive sampling, convenience sampling, quota sampling and snow-ball sampling.

This Study applied both the probabilistic and non-probabilistic sampling techniques. For the choice of the households' sample, cluster-simple random sampling was applied implying that each household had an equal chance of being selected for the inclusion into the sample. First, the population was clustered into the administrative units implying that there were 13 clusters since MTC has 13 locations. Simple random sampling was then applied to select the household to be interviewed.

3.5.2 Sample Size

In selecting the sample size, the following formula was adopted to ensure objectivity in the selection as given below:

$$n = \frac{N \times X}{(X + N - 1)} \text{ Where: } X = \frac{Z_{\alpha/2}^2 \times P \times (1-P)}{E^2}$$

$$X = \frac{Z_{\alpha/2}^2 \times P \times (1-P)}{E^2} = \frac{1.92^2 \times 0.5 \times 0.5}{0.05^2} = 384.16$$

$$n = \frac{N \times X}{(X + N - 1)} = \frac{48,989 \times 384.16}{(384.16 + 48,989 - 1)} = 381$$

And $Z_{\alpha/2}$ is the critical value of the Normal distribution at $\alpha/2$, while E is the margin of error, p is the sample proportion, and N is the population size. It should be noted that a Finite Population Correction was applied to the sample size formula. By applying the 95% confidence interval, it is implied that the Study only allowed for 5% error margin in the selection of the sample. Therefore, by doing so it was

assumed 95% confident that the selected sample is a good representation of the entire population. The Study assumed a precision of 95 per cent implying the E is 5% or 0.05. However, since this Study was not sure of what to expect, the Study used 50%, which was conservative and gave the largest sample size to avoid any bias in the sample selection. Upon applying the formula to target population a sample size of 381 was obtained, and is distributed in 13 locations as shown in Table 3.2.

Table 3.2: Sample size

Name of Location	No of Households
Township	33
Muvuti	16
Kimutwa	25
KiimaKimwe	53
Muumbuni	91
Katheka Kai	32
Mua Hills	14
Ngelani	19
Mutituni	24
Kalama	19
Lumbwa	22
Kyangala	13
Kola	20
Total Sample	381

3.6 Data Collection Instruments

The Study mainly utilized the primary data in its analysis. As such the Study sought to collect primary data using the interview-based, structured household questionnaires. The questionnaires were administered to selected households within the MTC in attempt to investigate the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya.

3.7 Data Collection procedures

Prior to the actual field work, reconnaissance trip was done to the area of the Study during the pilot study. This was critical in familiarizing with the area of the Study and the distance among the selected county locations. In addition, it was core in identifying the settlement patterns in the area for ease of determining the sampling of the various households to be interviewed. This informed the relevant authorities on the intended purpose of the Study and the expected output thus avoiding cases of non-response from some clients thus promoting the buy in of the county administration. Overall, this was core in increasing the response rate to the questionnaires during the actual field work.

3.8 Pilot Study

The pilot study helped the researcher to find out any flaws in the document and modify the same to validate it. According to (Saunders, 2003), the purpose of the pilot study is to refine the instruments so that the respondents will not have a problem in answering the questions and provide for easy recording and analysis of data. In addition, this helped to assess the validity of the instruments and the reliability of the data that was collected. Reliability is concerned with the degree to which an instrument is free from error, hence yields consistent results, while validity is extent to which research findings accurately represent reality and yield the same results every time it is administered (Collis & Hussey, 2003). Pretesting was done in one of the locations outside MTC and which did not participate in the main Study. The respondents' comprised 10 households. The sample size for the pilot study was justified because (Mugenda & Mugenda, 2003), suggest that 10 to 30 participants are sufficient to pilot study in survey research. Pilot study therefore entailed ensuring that the tools for data collection are capable of measuring what they intended to measure and that they yield consistent results upon re-administration to the same respondents. The pilot study was therefore carried out to ensure research validity and reliability. The responses from pilot study were analyzed.

3.8.1 Validity of Research Instruments

The household questionnaire was pilot tested to determine whether the questions are clearly understood by the sampled households. Any areas needing correction and clarification regarding questionnaires were corrected after the pilot study but prior to the actual field work. Turning to the validity of research instrument, this can be defined as the extent to which a test or instrument measures what it is intended or supposed to measure (Mbweza, 2006). This Study adopted content validity. Here, there is agreement that a scale logically appears to reflect accurately what it purports to measure. This ensures that the instrument is covering what it is intended to cover (Mbweza, 2006). To improve validity, the research team translated the interview schedule from English into Kiswahili and/or the local language where necessary. To test for validity of the questionnaire a validity test was done on 10% of the sample population using convergent validity which was assessed using the Average Variance Extracted (AVE). An AVE of all constructs which is above the 0.5 threshold indicate that the latent constructs account for at least fifty percent of the variance in the items. This indicates that the measurement scales exhibited adequate measurement validity in the study.

3.8.2 Reliability of Research Instruments

Reliability of research instruments refers to the degree to which a research instrument yields consistent results or data after repeated trials (Mugenda & Mugenda, 2003). To ensure reliability in data collection the questionnaire included some questions linked to each other to gauge on the consistency of the responses hence avoiding any contradicting responses by the respondent. Any questionnaire found to have contradicting responses regarding the linked questions was dropped out during the questionnaire screening upon the conclusion of the data collection exercise. To test for reliability, a reliability test was done on 10% of the sample population using Cronbach Alpha where any Alpha value above 0.7 would indicate that there is good internal consistency in the data collection instruments and a repeat of the data collection exercise would give the same outcome.

3.9. Data Analysis and Presentation

3.9.1 Data Analysis

Data analysis refers to examining the data collected in a survey or experiment and making deductions and inferences (Kombo & Tromp, 2006). It also refers to a variety of activities and processes that a researcher administers to a database to draw conclusions and make certain decisions regarding the data collected from the field. Therefore, data analysis involves summarizing of raw data, categorizing, rearranging, and ordering data (Mbwesa, 2006). Upon collection of the data from the field, first the questionnaires were carefully evaluated to filter the questionnaires whose responses were inconsistent. After this the data from the remaining questionnaires were coded to transform the data collected into numerical form for the ease of analysis. Upon coding the data, the descriptive statistics were first computed to give a clear overview of the data collected. This was presented in form of mean values and frequency tables.

To establish the Social and Economic Effects of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya, regression analysis was done. Since the data from the field was mainly qualitative, the data was coded into binary data implying that binary probabilistic models were of importance in achieving the Study objectives. More specifically, the probit model was applied in modeling. The dependent variable was improved human development as measured by the household access to healthcare, housing, food security and civic awareness.

The general representation of the probit model is given as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_K X_K + \dots + \varepsilon_i \dots \dots \dots (3.1)$$

$$Y = X_i \beta + \varepsilon_i \dots \dots \dots (3.2)$$

Where:

Y represents increase in human development.

X_i represents the various channels via which universal education influences human development. Namely: increased household income sources, household productivity, household access to alternative livelihoods and increased household's civic participation. β_0 and β_{1-k} are estimable parameters and ε_i is the error term.

Therefore,

$$y_i = \begin{cases} 1 & \text{if } \dots y_i^* > 0 \\ 0 & \text{if } \dots y_i^* \leq 0 \end{cases} \dots \dots \dots (3.3)$$

The probit model probability distribution function is given by:

$$P(Y = 1/X) = F(XB) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{XB} e^{-\frac{(XB)^2}{2}} dx \dots \dots \dots (3.4)$$

The cumulative distribution function is therefore given by:

$$Pr(Y = 1/X) = \varphi(X' B) \dots \dots \dots (3.5)$$

For this model the probability estimated falls between 0 and 1. Therefore, the Study sought to determine the Social and Economic Effects Access of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya. This was attained by determining the probability that $Y = 1$ conditional to the value taken by the independent variables.

In this Study since human development was measured by three different variables namely: access to healthcare, housing, and food security, three probit models were run accordingly. First, on the household's life expectancy, the specific probit model was defined as follows:

$$Healthcare = \beta_0 + \beta_1 hhincome + \beta_2 hhproductivity + \beta_3 hhlivelihood + \beta_4 hhcivicpart + \beta_5 hhcharacteristics + \varepsilon_i \dots \dots \dots (3.6)$$

Where:

Universal education will reward individuals in the households with higher incomes, increased productivity and access to alternative livelihoods, hence leading to access affordable healthcare

hh income is the household's increase in income as a result of acquisition of universal education.

hhproductivity is the household's increase in productivity as a result of acquisition of universal education.

hhlivelihood is the household's access to alternative livelihood as a result of acquisition of universal education.

hhcivicpart is the household's increase in civic participation as a result of acquisition of universal education.

hhcharacteristics are the household's characteristics namely: household size, household head, education level of the household head and household economic activity and

ε_i is error term

In this case: Healthcare = 1; if the household's incomes have increased as a results of having educated members who support the household back home and Healthcare = 0; if otherwise

Secondly, on the access to affordable housing of the members of the household, with specific probit model defined as follows:

$$Housing = \beta_0 + \beta_1 hhincome + \beta_2 hhproductivity + \beta_3 hhlivelihood + \beta_4 hhcivicpart + \beta_5 hhcharacteristics + \varepsilon_i \dots \dots \dots (3.7)$$

In this case:

Housing = 1; if the members of the household have received universal education in particular to have successfully completed secondary education and

Housing= 0; if otherwise

Thirdly, on the household's food security, the specific probit model was defined as follows:

$$\text{Food security} = \beta_0 + \beta_1 \text{hhincome} + \beta_2 \text{hhproductivity} + \beta_3 \text{hhlivelihood} + \beta_4 \text{hhcivicpart} + \beta_5 \text{hhcharacteristics} + \varepsilon_i \dots \dots \dots (3.8)$$

Where:

Food security=1; if the household has access to basic needs such as good food, clean drinking water, shelter, and improved sanitation and

Food security= 0; if otherwise

The respective probit models were fitted using STATA statistical software. Upon establishing the effect of dependent variables as well as intervening variables against independent variables, discussion of the results was done in attempt to draw conclusions, identify policy implications and the possible recommendations from the results of the data analysis.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter provides the results and discussion of the Study carried out to investigate the conceptual model and research hypotheses. First, the chapter describes the Pilot study, the response rate, reliability and validity of survey tools. Second, it collates the general background information of the respondents and descriptive analysis of the Study variables. Finally, the chapter provides discussion on the results of statistical analysis to test hypotheses as well as present discussion of the results and implications from the findings.

4.2 Background

4.2.1 Demographic Information and Overall Responses

According to (Orodho, 2003) response rate is the extent to which the final data sets include all sampled members and is calculated as the number of the respondents with whom interviews are completed and divided by the total number of respondents of the sample including none respondents. According to the sampling framework in Chapter Three, the Study sample consisted of 381 households and data was collected from all 381 households. Therefore, there was a return rate of 100%, which was significant to provide reliable findings for the Study. A response rate of above 70% is considered excellent response.

The general descriptive statistics shows that more than half of the sampled households are below Ksh 10,000 income level (60.63%). On the marital status of household head, more than three quarters of the sampled household heads are married. Regarding the education status of the sampled households, more than half of the sampled households possess primary and secondary education as their highest level of education. Further results show that majority of household heads are unsalaried (71.65%) with majority being female headed (75.59%). Table 4.1 provides the general descriptive statistics.

Table 4.1: General descriptive statistics

Variables	Category	Observations	Frequency
Wealth status	wealth1 (below Ksh 10,000)	381	60.63%
	wealth2 (Ksh 10,000 – 20,000)	381	27.30%
	wealth3 (Ksh 20,000 – 30,000)	381	6.82%
	wealth4 (Ksh 30,000 – 40,000)	381	3.94%
	wealth5 (above Ksh 40,000)	381	1.31%
Marital status	Divorced	381	0.79%
	Married	381	84.78%
	Never married	381	4.46%
	Separated	381	1.84%
	Widowed	381	8.14%
Highest education level attained	College	381	22.57%
	no education	381	0.79%
	Primary	381	31.76%
	Secondary	381	39.37%
Salaried Male	University	381	4.99%
		381	28.35%
		381	24.41%

4.2.2 Descriptive Statistics of Dependent variable

Within the Study, the dependent variable was measured by household's access to healthcare; household's access to housing and household's food security. According to results in Table 4.2, the descriptive statistics of the dependent variable indicate that 39.37% of the sampled households have access to healthcare. Further, 55.12%, and 23.10%, of the households have access to affordable housing and access to food security respectively. The results of descriptive statistics indicate that within Machakos County households have significantly low accesses to good affordable healthcare and food security with the households accessing good affordable healthcare and food security being below the 50%. However, a substantial proportion of the households have access to good housing above the 50%.

Table 4.2: Descriptive statistics of dependent variable

Variables		Observations	Frequency
Wealth status (What is the approximate average monthly level of income in your household?)	Wealth1 (below Ksh 10,000)	381	60.63%
	Wealth2 (Ksh 10,000 – 20,000)	381	27.30%
	Wealth3 (Ksh 20,000 – 30,000)	381	6.82%
	Wealth4 (Ksh 30,000 – 40,000)	381	3.94%
	Wealth5 (above Ksh 40,000)	381	1.31%
Marital status (What is the marital Status of the household head?)	Divorced	381	0.79%
	Married	381	84.78%
	Never married	381	4.46%
	Separated	381	1.84%
	Widowed	381	8.14%
Highest education level attained (What is the highest level of education of the household head?)	College	381	22.57%
	no education	381	0.79%
	Primary	381	31.76%
	Secondary	381	39.37%
	University	381	4.99%
Salaried (Which is main economic activity for the household head?)		381	28.35%
Male (What is the gender of household head?)		381	24.41%
Healthcare access (Has any member of your family visited a health facility due to sickness, injuries, illness or any other problem to seek treatment in the last 12 months?)		381	39.37%
Housing access		381	55.12%
What type of the house does the household live in:- Permanent house, Semi – permanent house and Temporary house?			
Food security		381	23.10%
(Has your household received the following donations in form of from Planting seeds, Fertilizers and Food donations either the county or the national government?)			

4.3 Effect of Increase in Household Income Level on Human Development

4.3.1 Frequencies of Increased Household Income Level

Table 4.3 provides results on the channels through which universal education influences the human development among the households and indicates that 83.46% of the households were of the opinion that universal education increases the household level of income which in turn influences the human development in the long run against 16.54% who were of the contrary opinion. On the subcomponents of the household income 72.44% had income levels below the average income, 50.59% had received financial aid in the last 12 months and 53.28% of households had registered an increase in their household expenditure.

Table 4.3: Frequencies of increased household income level

Changes in Household Income			
	Frequency	Percent	Cumulative
No	63	16.54	16.54
Yes	318	83.46	100
Total	381	100	
Changes in Household Income (subcomponents)			
Income level			
No	276	72.44	27.56
Yes	105	27.56	100
Total	381	100	
Financial aid/support			
No	189	49.61	49.61
Yes	192	50.39	100
Total	381	100	
Changes in expenditure			
No	178	46.72	46.72
Yes	203	53.28	100
Total	381	100	

4.3.2 Chi2 Analysis on Effect of Increased Household Income

For the Chi - square (Chi2) analysis, the conclusion of the test is based on the Chi2 statistic and the probability of the respective Chi - square statistic. The rule for the conclusion is that if the probability of the respective Chi - square statistic is less than 5 percent, then the conclusion of the test is that there exists a statistically significant difference in the two variables being tested. The Chi - square analysis is based on the frequencies hence, the results of Chi - square analysis are in percentages. From Table 4.4, a Chi - square analysis on the effect of the increase in household income indicates that the increased household income will impact on household access to healthcare with a statistically difference between the households that have access and those who have no access to healthcare at a 5 percent significance level. These results indicate that there is a statistically significant difference between households that have access as compared to those who have no access as the level of household income increases. This is evidenced by a Pearson Chi - square value of 4.5951 with a probability of (Pr = 0.032).

Table 4.4: Chi2 analysis of increased household income

		Changes in household income		
Healthcare Access		Yes	No	Total
Yes		90.91	9.09	100
No		81.23	18.77	100
Total		83.46	16.54	100
	Pearson Chi - square = 4.5951		Pr = 0.032	
		Changes in household income		
Housing Access		Yes	No	Total
Yes		65.50	34.50	100
No		98.10	1.90	100
Total		83.46	16.54	100
	Pearson Chi - square = 72.5703		Pr = 0.000	
		Changes in household income		
Food Security		Yes	No	Total
Yes		82.00	18.00	100
No		84.42	15.58	100
Total		83.46	16.54	100
	Pearson Chi - square = 0.3845		Pr = 0.535	

Similar results are evidenced on the effect of increase in household income on access to affordable housing where the difference between households that have access to good housing compared to households that have no access to good housing as the level of household income increases is significant at one percent significance level as evidenced by a Pearson Chi - square value of 72.5703 with the respective probability value of 0.000.

However, the results of increase in household income on food security indicate that the differences between the households with food security compared to those who are food insecure are statistically insignificant. This is evidenced by the respective Chi - square values for food security of 0.3845 with the p- value of 0.535 which is more than 5 percent.

4.3.3 Probit Model Results on the Effect of Increased Household Income

On the effect of household income on human development, the analysis focused on the overall income increment; household receipt of financial aid / support either from government, remittances from any other possible channel; and increase in the household expenditure. In running the empirical model the benchmark dummies were first defined as per the model variables. First, for the overall household income, the decline in the income was set as the benchmark category. Second, on household receipt of financial aid / support, failure to receive any financial aid / support was set as the benchmark dummy. Third, on the expenditure, decline in household expenditure was set as the benchmark dummy. Fourth in terms of the household demographic characteristics, female gender was set as benchmark category for household head gender, while the lack of education was set as benchmark category for household head education level. On the marital status of the household head, single status was set as benchmark category. Lastly, on the employment status of the household head, unemployed was the benchmark category.

To determine the effect of increase in the household income on human development as measured by access to healthcare, access to housing, and food security, a probit

model was estimated with the access to healthcare, access to housing, and food security as the dependent variable of the model. The effect of the increase in the household income on human development is presented by the probit model results in Table 4.5.

The results of the probit model in Table 4.5 indicate that the increase in the household income level has different effect on different measures of human development at different levels of significance. First, the effect of increased household income on access to healthcare, results indicate that rise in overall household income level is more likely to increase the likelihood of the household to access good healthcare by 2.88 percent holding other factors constant. Further, the receipt of financial aid / support was found to more likely to increase the likelihood of the household to access good healthcare by 24.6 percent holding other factors constant. In addition, the increase in the household expenditure arising from income increase was found to be more likely to increase the likelihood of the household to access good healthcare by 22.7 percent holding other factors constant.

Table 4.5: Probit Model for effect of increased household income.

	Effect on Healthcare Access			Effect on Housing access			Effect on Food Security		
	Coef.	Marginal effects (dy/dx)	p-value	Coef.	Marginal effects (dy/dx)	p-value	Coef.	Marginal effects (dy/dx)	p-value
Income level	0.3247	0.0288	0.006	2.2329	0.041	0.019	0.2928	0.0214	0.026
Financial aid	0.2689	0.2460	0.026	0.2540	0.126	0.038	0.206	0.0220	0.083
Expenditure change	0.465	0.2270	0.049	0.7212	0.064	0.082	0.519	0.250	0.037
Male	-0.4134	-0.1504	0.004	0.3723	-0.801	0.015	-0.4053	0.4286	0.033
Primary	0.1704	0.0124	0.548	0.0159	0.5391	0.971	0.0342	0.5352	0.149
Secondary	0.7532	0.1253	0.079	0.1939	0.5859	0.487	0.5481	0.6597	0.662
University	2.5466	0.5492	0.002	0.1461	0.5733	0.028	2.2832	0.0804	0.000
College	1.2435	0.2412	0.005	0.3386	0.614	0.146	1.152	0.8061	0.0051
HH Size	-0.0964	-0.0755	0.037	-0.0382	-0.5449	0.005	-0.0745	0.5088	0.085
Married	0.1751	-0.0113	0.007	-0.1691	0.5794	0.361	0.3593	0.4398	0.393
Divorced	-1.2762	-0.3543	0.519	-1.5276	-0.5838	0.186	-1.2027	0.2353	0.561
Separated	-0.4594	-0.1613	0.420	-0.2366	-0.4727	0.507	0.4052	0.6251	0.616

Widowed	-0.8263	-0.2480	0.248	-0.2178	-0.4776	0.058	0.9761	0.2902	0.075
Salaried	1.4256	0.2843	0.004	-0.3102	0.6165	0.000	1.3190	0.8466	0.004
Constant	-1.2113		0.009	-4.0333	-0.619	0.000	0.5281		0.027

Second, on the access to affordable housing, results indicate that increase in the household overall income level is more likely to increase the likelihood of the household to access affordable housing by 4.0 percent holding other factors constant. Further, the receipt of financial aid / support was found to more likely to increase the likelihood of the household to access housing by 12.6 percent holding other factors constant. In addition, the increase in the household expenditure arising from income increase was found to be more likely to increase the likelihood of the household to access housing by 6.4 percent holding other factors constant.

Third, on food security, results indicate that increase in household overall income level is more likely to increase the likelihood of the household attainment of food security by 2.14 percent holding other factors constant. Further, the receipt of financial aid / support was found to more likely increase the likelihood of the household to attain food security by 2.2 percent holding other factors constant. In addition, the increase in the household expenditure arising from income increase was found to more likely to increase attainment of food security by 2.5 percent holding other factors constant.

Hypothesis Testing on the Effect of increase in Household Income on Human Development

To test the hypothesis under the effect of increase in household income on human development in Machakos County, the Study looked at the p-values of the respective coefficients of the independent variables. The results are shown in Table 4.5. The null hypothesis and alternative hypotheses are stated as follows: Ho: Increased household income arising from universal education in Machakos County has no effect on human development. Ho₁: Increased household income arising from universal education in Machakos County has effect on human development.

Since there was no composite measure of human development for the Study, three measures of the human development were applied in testing the hypotheses. These were: the access to healthcare, access to affordable housing, and food security. In testing the hypothesis, 5 percent significant level two-tail test was applied. First, Table 4.5 shows the effect of increased household overall income, financial aid and increased expenditures on access to healthcare, and the results of the probit model assert that the probability value of the respective coefficients were less than 5 percent (P- value = 0.006, 0.026 and 0.049) respectively implying that household income significantly affect human development via household access to good health care. Thus, the null hypothesis is rejected. On the effect of increased household overall income on access to affordable housing, the probability value of the respective coefficient was less than 5 percent (P- value = 0.019), for financial support the probability value of the respective coefficient was less than 5 percent (P- value = 0.038) while for the increased expenditure, the probability value of the respective coefficient was greater than 5 percent (P- value = 0.083). This implies that the increase in the household overall income and receipt of financial aid significantly affect the household access to affordable housing. Thus, the null hypothesis is rejected and the alternative hypothesis is accepted, implying that household income and receipt of financial support has a significant effect on human development as measured by access to housing. Further, the effect of increased household income on the food security, the results indicate that the probability value of the respective coefficient of increase in overall household income was less than 5 percent (P- value = 0.026), for the receipt of financial aid, the probability value of the respective coefficient was greater than 5 percent (P- value = 0.083) while for the increase in household expenditure, the probability value of the respective coefficient was less than 5 percent (P- value = 0.037). Thus, the null hypothesis is rejected under the increase in overall household income and the increase in the household expenditure.

Table 4.6: Summary of hypothesis testing on increased household income effect.

Null hypothesis on effect on good healthcare access	p-value	Decision at 5% level
Income level has no effect on healthcare access	0.006	Reject null hypothesis
Financial aid has no effect on healthcare access	0.026	Reject null hypothesis
Change in expenditure has no healthcare access	0.049	Reject null hypothesis
Null hypothesis on effect on good housing	p-value	Decision at 5% level
Income level has no effect on good housing	0.019	Reject null hypothesis
Financial aid has no effect on good housing	0.038	Reject null hypothesis
Null hypothesis on effect on food security	p-value	Decision at 5% level
Income level has no effect on food security	0.026	Reject null hypothesis
Change in expenditure has no effect on food security	0.037	Reject null hypothesis

However, for the receipt of the financial aid / support the null hypothesis is accepted implying that the receipt of the financial aid / support has no significant effect of the household attainment of the food security at 5 percent significance level. Table 4.6 summarizes the results of the hypotheses testing on the effect of increased household income on human development as discussed above.

From the results, it can be asserted that universal education is an enabler that tends to unlock individual's potentials thus leading into increased income both at individual and household level. It is expected that individuals who spend more years in acquisition of education are more likely to be skilled compared to those who spend less or no years at all in acquisition of education. Therefore, such skilled individuals are more likely to attract a higher pay at their workplace thus implying increased earnings or incomes. The increased incomes arising from education attainment results to economic empowerment that in turn leads to access to healthcare, affordable housing, food security, and other basic needs hence improved standards of

living which translate into human development. These results support studies by (Harmon, Oosterbeek & Walker, 2000) who argue that countries with more educated population are developing faster since the education enables the labor force to innovate new technologies and to adapt the existing ones to the local production.

Further, Lange and Topel (2005) point out that the level of education influences not only the growth but also the economic productivity of a country. They continue to state that a rapid growth in the number of persons that enroll in the school have experienced a raising productivity and an improvement in the quality of the labor force. These findings are in tandem with the argument by the (World Bank, “Do Conditional Cash Transfers Lead to Medium-Term Impacts? Evidence from a Female School Stipend Program in Pakistan”, 2010) which concludes that future earnings, economic development and the eradication of poverty are highly correlated with the knowledge and skills of the workforce which is gained from the individual’s years of schooling. Similar conclusions were arrived at by earlier works in this field of study by (Becker, 1965; Glewee, 2002; Banerjee & Duflo, 2005; Hanushek & Woessmann, 2007).

Further, the finding of the positive and significant effect of household income on the economic growth agrees with the (Schultz, Investment in human capital, 1961) who using household-survey data collected between 1985 and 1998 concluded that there is a higher private wage returns for higher education than for primary education in Ghana, Cote d’Ivoire and Kenya. In addition the findings are in support of reports by (Afzal, 2010; Asghar & Zahra, 2012) in Pakistan, (Azam, 2012; Kingdon & Unni, 2001) in India, (Glewee, 2002; Schady, 2001) in Philippines. In Sub-Saharan Africa similar results on effect of education on income / earnings were reported by (Diagne & Diene, 2011).

4.4 Effect of Increase in Household Productivity on Human Development

4.4.1 Frequencies of Increased Household Productivity

From Table 4.7 the effect of increase in household productivity on human development is provided. The results indicate that 30.71% of households were of the

opinion that universal education increases the household productivity which in turn influences the human development in the long run. In contrast 69.29 percent of households were of the opinion that increases in the household productivity has no influence on the human development in the long run.

Table 4.7: Frequencies of increased household productivity

Increased Household Productivity			
No	264	69.29	69.29
Yes	117	30.71	100
Total	381	100	
Household Productivity subcomponents			
Overall Household Productivity			
No	253	66.40	66.40
Yes	123	33.60	100
Total	381	100	
Primary school completion			
No	89	23.36	23.36
Yes	292	76.64	100
Total	381	100	
Secondary school completion			
No	160	49.99	49.99
Yes	221	58.01	100
Total	381	100	

Among the households 33.60% of them recorded an increased in the physical productivity, 76.64% of the households had members who had completed primary education while 58.01% of the households had members who had completed secondary education.

4.4.2 Chi2 Analysis on the Effect of Increased Household Productivity

From results in Table 4.8, a Chi - square analysis on the effect of the increase in household productivity indicates that the effect of increased household productivity on household access to healthcare is not statistically different between the households that have access and those who do not access to healthcare. First, these results indicate that there is no statistically significant difference between households

that have access to healthcare compared to households that have no access to healthcare as the household productivity increases. This is evidenced by a Pearson Chi - square value of 0.6152 with a probability of (Pr = 0.433) which is greater than 5 percent significance level. Second, the results show that the effect of increase in household productivity on access to affordable housing where the difference between households that have access to affordable housing compared to those who have no access to affordable housing is not significant as the level of household productivity increases as evidenced by a Pearson Chi - square value of 35.0468 with the respective probability value of 0.517.

Third, the effect of increase in household productivity on food security indicates that the differences between the households with food security compared to those who are food insecure are statistically insignificant. This is evidenced by the Chi - square value for food security of 0.8010 with the p- value of 0.371 which is more than 5 percent.

Table 4.8: Chi2 analysis of increased household productivity

Increase in Household Productivity(overall)			
Healthcare Access	Yes	No	Total
Yes	34.09	65.91	100
No	29.69	70.31	100
Total	30.71	69.29	100
	Pearson Chi - square = 0.6152	Pr = 0.433	
	Increase in Household Productivity(overall)		
Housing Access	Yes	No	Total
Yes	43.33	56.67	100
No	15.20	84.80	100
Total	30.71	69.29	100
	Pearson Chi - square = 35.0468	Pr = 0.517	
	Increase in Household Productivity(overall)		
Food Security	Yes	No	Total
Yes	33.33	66.67	100
No	29.00	71.00	100
Total	30.71	69.29	100
	Pearson Chi - square = 0.8010	Pr = 0.371	

4.4.3 Probit Model on the Effect of Increased Household Productivity

On the effect of household productivity on human development, the analysis focused on the overall physical household productivity, completion rate of primary education and the completion of the secondary education levels by household members. The introduction of the completion rate of primary and secondary education was informed by the fact that attainment of education is one way of improving on the household productivity via improvement of skills. In addition, it is assumed that individuals with higher education level are likely to be more productive compared to individuals with lesser education levels. In running the empirical model the benchmark dummies were first defined as per the model variables. First, for the overall household productivity, the decline in productivity was set as benchmark dummy. For the primary and secondary school completion rate, lack of any household member who has completed primary and secondary education were set as benchmark dummies respectively. On the household demographic characteristics, the benchmark dummies were maintained as similar to those of the effect of household income level.

From Table 4.9, the results of the probit model indicate that the increase in the household productivity affects differently on diverse measures of human development at different levels of significance. First, increase in the overall physical household productivity affects access to healthcare, as the results indicate that a rise in the overall productivity level is more likely to increase the likelihood of the household to access healthcare by 9.2 percent holding other factors constant. Moreover, the completion rates of primary and secondary education were found to be more likely to increase the likelihood of the household to access healthcare by 4.7 percent and 8.4 percent respectively holding other factors constant. Second, in the case of the access to affordable housing, results indicate that increase in the overall household productivity is more likely to increase the likelihood of the household to access affordable housing by 2.58 percent holding other factors constant. Further, the completion rates of primary and secondary education were found to be more likely to increase the likelihood of the household to access affordable housing by 8.91 and 5.39 percent respectively holding other factors constant.

Table 4.9: Probit model for effect of increased productivity

	Effect on Healthcare Access			Effect on Housing			Effect on Food Security		
	Coef.	Marginal effects (dy/dx)	p-value	Coef.	Marginal effects (dy/dx)	p-value	Coef.	Marginal effects (dy/dx)	p-value
Overall Household productivity	0.1892	0.092	0.008	0.8077	0.0258	0.026	0.2951	0.1186	0.045
Primary school completion	0.7082	0.047	0.047	0.7985	0.0891	0.084	0.1093	0.0473	0.057
Secondary school completion	0.6761	0.084	0.031	0.5861	0.0539	0.035	0.5638	0.0458	0.000
Male	-0.2194	-0.1173	0.094	0.7874	0.2687	0.194	-0.3759	-0.0175	0.982
Primary	0.3644	0.0207	0.648	0.3992	0.1659	0.375	0.0636	0.0891	0.087
Secondary	0.9472	0.1584	0.089	0.2212	0.1191	0.617	0.5775	0.2136	0.000
University	2.7406	0.5823	0.002	0.269	0.1317	0.248	2.3126	0.6343	0.000
College	1.4375	0.2743	0.000	0.0765	0.0914	0.446	1.1814	0.36	0.000
HH Size	0.2202	-0.0134	0.037	0.3769	0.1601	0.000	0.1141	0.1013	0.353
Married	0.3691	0.0218	0.711	0.246	0.1256	0.76	-0.3299	-0.0063	0.307
Divorced	-1.0822	-0.3212	0.519	0.0953	0.0867	0.476	-1.1733	-0.2108	0.595
Separated	-0.2654	-0.1282	0.420	0.6517	0.2323	0.476	0.4346	0.179	0.057
Widowed	-0.6323	-0.2149	0.248	-0.4423	-0.0554	0.299	-0.9467	-0.1559	0.073
Salaried	1.6196	0.3174	0.964	0.1049	0.0885	0.001	1.3484	0.4005	0.982
Constant	-1.0173		0.000	-3.6182		0.061	-0.3415		0.087

Finally, on the effect of increased household productivity on food security, in Table 4.9 results indicate that increase in overall household productivity is more likely to increase the likelihood of the household attainment of food security by 11.86 percent holding other factors constant. Further, the completion rates of primary and secondary education were found to be more likely to increase the likelihood of the household to access good housing by 4.73 percent and 4.58 percent respectively holding other factors constant.

Hypothesis Testing on the Effect of Increase in Household Productivity on Human Development

To test the hypothesis under the effect of increase in household productivity on human development in Machakos County, the Study looked at the p-values of the

respective coefficients of the independent variables. The null hypothesis and alternative hypotheses are stated as follows: Ho: Increased household productivity arising from universal education in Machakos County has no effect on human development. Ho₁: Increased household productivity arising from universal education in Machakos County has effect on improving human development. Since there was no composite measure of human development for the Study, three measures of the human development were applied in testing the hypotheses. These were: the access to healthcare, access to housing, and food security. In testing the hypothesis, 5 percent significant level two-tail test was applied.

First, Table 4.9 shows the effect of increased overall household productivity on access to healthcare, and the results of the probit model assert that the probability value of the respective coefficient was less than 5 percent (P- value = 0.008) implying that the increase in the overall household productivity significantly affect human development via household access to healthcare. Thus, the null hypothesis is rejected. The coefficients for the completion rates of primary and secondary education were found to have probability values less than 5 percent (P- value = 0.047 for primary school completion rate and P- value = 0.031 for secondary school completion rate). The results lead to rejection of the null hypotheses accordingly indicating that completion rates of primary and secondary education significantly influence household access to healthcare. Second, on the access to affordable housing, the null hypothesis was that the increase in the household productivity has no effect on household access to good housing. This was tested against the alternative hypothesis. From the results, the probability value of the respective coefficient was less than 5 percent (P- value = 0.026). This implies that the increase in the overall household productivity significantly effects human development through household access to affordable housing. Similar conclusion is arrived at for the case of secondary school completion rate as evidenced by the P- value = 0.035 which is less than 5 percent. However, with regard to the completion rate of the primary education, the null hypothesis is accepted at 5 percent significance level as the respective p – value is greater than 5 percent P- value = 0.084 implying that completion of primary education does not significantly affect household access to good housing.

Third, Table 4.9 shows the effect of household productivity on the food security, and the null hypothesis was that the increase in the household productivity has no effect on household food security. This was tested against the alternative hypothesis. From the results, the probability value of the respective coefficient for the overall household productivity was less than 5 percent (P- value = 0.045). This implies that the increase in the overall household productivity significantly affects the human development through household attainment of food security. Thus, the null hypothesis is rejected. Similar conclusion is arrived at for the case of secondary school completion rate as evidenced by the (P- value = 0.000) which is less than 5 percent. However, regarding the completion rate of the primary education, the null hypothesis is accepted at 5 percent significance level as the respective p – value is greater than 5 percent (P- value = 0.057) implying that completion of primary education does not significantly affect household attainment of food security. Table 4.10 summarizes the results of hypothesis testing on the effect of increased household productivity on human development via universal education.

Table 4.10: Summary of hypothesis testing of household productivity effect

Null hypothesis on effect on good healthcare access	p-value	Decision at 5% level	
Overall Household productivity has no effect on healthcare access	0.092	Reject hypothesis	null
Primary school completion rate has no effect on healthcare access	0.047	Reject hypothesis	null
Secondary school completion rate has no healthcare access	0.084	Reject hypothesis	null
Null hypothesis on effect on good housing	p-value	Decision at 5% level	
Overall Household productivity has no effect on good housing	0.026	Reject hypothesis	null
Primary school completion has no effect on good housing	0.084	Reject hypothesis	null
Null hypothesis on effect on food security	p-value	Decision at 5% level	
Overall Household productivity has no effect on food security	0.045	Reject hypothesis	null
Secondary school completion rate has no effect on food security	0.000	Reject hypothesis	null

Arising from the results it is not always guaranteed that the acquisition of universal education will lead to increased productivity which in turn will lead to human development. The findings on the effect of household productivity therefore partly support the argument of (Behrman & Wolfe, 1987b) which asserts that education combined with good health have strong direct impacts on productivity through their effect on the distribution of income that comes with economic empowerment. As education improves via provision of universal education, the low-income people and households are better able to seek out economic opportunities hence becoming economically empowered. This in turn implies that the household ability to meeting their basic wants such as access to healthcare, housing, among other in turn comes with improved living standards. Further, the Study findings are contrary to the findings of (Teal, 2011; Diagne & Diene, 2011) who report that improved productivity, as a result of enrolment in school, contributes to innovation and technical progress. In addition, the findings support a study by (Larbi-Apau and Sarpong, 2010) which investigated the impact of education on the overall productivity of one specific industry—the poultry industry—in Ghana. The study results suggest that the proportion of workers with basic education is a significant factor in the overall productivity of the industry. Studies by Teal, (2011); Abbas and Foreman-Peek, (2007) report that education is crucial in raising productivity within the public sector in several countries in Sub- Saharan Africa and in Pakistan respectively. Therefore, the contradiction of the Study findings with the previous studies regarding effect of productivity on economic growth via universal education leads to the conclusion that universal education may not be adequate in affecting productivity to a level that has a significant effect on the human development.

4.5 Effect of household Access to Alternative Livelihoods

4.5.1 Frequencies of Household Access to Alternative Livelihood

From Table 4.11: the effect of the access to alternative livelihoods on human development is provided, and results indicate that 56.43 percent of the households were of the opinion that universal education increases access to alternative sources of

livelihoods which in turn influences the human development in the long- run against 43.57 percent who were of the contrary opinion.

Table 4.11: Frequencies of household access to alternative livelihoods

Access to Alternative Livelihood (overall)			
	Frequency	Percent	Cumulative
No	166	43.57	43.57
Yes	215	56.43	100
Total	381	100	
Access to alternative livelihood (subcomponents)			
Number of livelihood sources			
No	236	61.94	61.94
Yes	145	38.06	100
Total	381	100	
Income Generating Activity			
No	288	75.59	75.59
Yes	93	24.41	100
Total	381	100	
HH Purchasing Power			
No	296	77.69	77.69
Yes	85	22.31	100
Total	381	100	

4.5.2: Chi - square Analysis on Effect of Access to Alternative Livelihoods

A Chi - square analysis of the effect of the increase in household access to alternative livelihoods indicates that the effect of household access to alternative livelihood on household access to healthcare is statistically different between the households that have access and those who have no access to good healthcare. From Table 4.12, the results indicate that there is a statistically significant difference between households that have access to healthcare compared to households that have no access to healthcare as the household access to alternative livelihood increases. This is evidenced by a Pearson Chi - square value of 4.1815 with a probability of (Pr = 0.041) which is less than 5 percent significance level. Second, the results on the effect of household access to alternative livelihood on the access to affordable

housing indicate that there is statistically significant difference between households that have access to affordable housing compared to households that have no access to affordable housing as the households access to alternative livelihood increases. This is evidenced by a Pearson Chi - square of 10.3623 with the respective probability value of 0.001.

Table 4.12: Chi2 of access and alternative livelihoods and human development

	Household Livelihood	Access to Alternative Livelihood	
Healthcare Access	Yes	No	Total
Yes	65.91	34.09	100
No	53.58	46.42	100
Total	56.43	43.57	100
	Pearson Chi - square = 4.1815	Pr = 0.041	
	Household Access to Alternative Livelihood		
Housing Access	Yes	No	Total
Yes	63.81	36.19	100
No	47.37	52.63	100
Total	43.57	56.43	100
	Pearson Chi - square = 10.3623	Pr = 0.001	
	Household Access to Alternative Livelihood		
Food Security	Yes	No	Total
Yes	56.67	43.33	100
No	56.28	43.72	100
Total	43.57	56.43	100
	Pearson Chi – square = 0.0056	Pr = 0.040	

Third, the effect of household access to alternative livelihood on food security indicates that the differences between the households with food security compared to those who are food insecure are statistically significant at 5 percent significance level. This is evidenced by the respective Chi - square value for food security of 0.0056 with the p- value of 0.040 which is less than 5 percent.

4.5.3 Probit Model Results on Effect of Access to Alternative Livelihoods Access to Alternative Livelihoods on Human Development

On the effect of household access to alternative livelihoods on human development, the analysis focused on the access to alternative livelihoods, household investment in an income generating activity and increase in the household purchasing power that would be arising from having an alternative source of livelihood. In running the empirical model the benchmark dummies were first defined as per the model variables. First, for the access to alternative livelihoods, lack of access was set as benchmark dummy. On the investment in an income generating activity lack of an investment in an income generating activity was set as the benchmark dummy. Lastly, on the purchasing power, decline in the household purchasing power was set as the benchmark dummy. The benchmark dummies for the household demographic characteristics were defined as in the case of the household income model.

From Table 4.13, the results of the probit model indicate that the household access to alternative livelihood has diverse effect on different measures of human development at different levels of significance. Regression results of the effect of household access to alternative livelihoods on access to healthcare indicate that an increase in household access to alternative livelihoods is more likely to increase the likelihood of the household to access healthcare by 23.9 percent holding other factors constant. Further, investment in an income generating activity was found to be more likely to increase the household to access healthcare by 22.8 percent holding other factors constant with the increase in the household purchasing power being more likely to increase the household to access healthcare by 31.7 percent holding other factors. Second, on the access to affordable housing, results indicate that increase in the household access to alternative livelihoods is more likely to increase the likelihood of the household to access affordable housing by 13.4 percent holding other factors constant. Similarly, investment in an income generating activity and increase in the household purchasing power were found to be more likely to increase the household to access housing by 39.5 and 51.8 percent respectively holding other factors.

Table 4.13: Probit model for effect of access to alternative livelihoods

	Effect on Healthcare Access			Effect on Housing			Effect on Food security		
	Coef.	Marginal effects (dy/dx)	p-value	Coef.	Marginal effects (dy/dx)	p-value	Coef.	Marginal effects (dy/dx)	p-value
Number of livelihood sources	0.283	0.239	0.031	0.3124	0.134	0.071	0.285	0.129	0.000
Income generating activity	0.639	0.228	0.048	0.1131	0.395	0.000	0.944	0.082	0.024
HH purchasing power	0.233	0.317	0.017	0.9361	0.518	0.027	0.921	0.054	0.049
Male	0.029	0.395	0.025	0.7109	1.481	0.044	0.915	0.031	0.017
Primary	0.333	0.051	0.825	0.1519	1.349	0.835	1.007	0.337	0.461
Secondary	0.406	0.395	0.283	0.7469	0.887	0.382	0.511	0.793	0.792
University	2.864	0.862	0.000	0.0765	0.513	0.628	0.35	0.178	0.000
College	2.344	0.045	0.000	1.4153	0.822	0.528	0.645	0.362	0.025
HH Size	4.155	0.045	0.735	0.8076	0.779	0.000	0.409	0.015	0.071
Married	0.787	0.083	0.092	0.4052	0.971	0.825	0.782	0.101	0.259
Divorced	0.222	0.153	0.527	1.2169	0.937	0.613	0.315	0.731	0.517
Separated	0.606	0.029	0.382	0.1259	0.907	0.119	0.534	0.113	0.357
Widowed	0.808	0.018	0.519	0.1737	0.436	0.717	0.632	0.128	0.073
Salaried	0.443	0.293	0.000	0.5376	0.193	0.002	0.277	0.163	0.000
Constant	1.014		0.062	0.0096		0.624	0.326		0.016

Finally, on food security, results indicate that increase in household access to alternative livelihoods is more likely to increase the likelihood of the household attain food security by 12.9 percent holding other factors constant. Similarly, investment in an income generating activity and increase in the household purchasing power were found to be more likely to increase the household attainment of food security by 8.2 and 5.4 percent respectively holding other factors.

Hypothesis testing on the effect of Household Access to Alternative Livelihood on Human Development

To test the hypothesis under the effect of household access to alternative livelihoods on human development in Machakos County, the Study looked at the p-values of the respective coefficients of the independent variables. The null hypothesis and

alternative hypotheses are stated as follows: H_0 : Household's access to alternative livelihood arising from universal education in Machakos County has not contributed improved human development. H_{01} : Household's access to alternative livelihood arising from universal education in Machakos County has contributed improved human development. Since there was no composite measure of human development for the Study, three measures of the human development were applied in testing the hypotheses. These were: the access to healthcare, access to affordable housing, and food security. In testing the hypothesis, 5 percent significant level two-tail test was applied.

First, regarding the effect on household access to healthcare as shown in Table 4.13, the results of the probit model assert that household access to alternative livelihoods, investment in an income generating activity and increase in the household purchasing power significantly influence the household access to good healthcare. This is evidenced by the p – values of their respective coefficients that are less than 5 percent (P – values = 0.031, 0.040 and 0.017). Therefore, the null hypothesis is rejected at 5 percent significance level. Regarding, the effect on access to affordable housing, the null hypothesis is accepted for the household access to alternative livelihood since the p – value of the coefficient is greater than 5 percent (p – value = 0.071) implying that household access to alternative livelihood has no significant effect on household's access to housing at 5 percent significance level. However, the null hypothesis is rejected for investment in the income generating activity and the increase in the household purchasing power as evidenced by their respective probability values that are less than 5 percent level (p – value = 0.000 for investment in the income generating activity and p – value = 0.027 for increase in purchasing power). This implies that investment in income generating activity and the increase in the household purchasing power significantly influences household access to affordable housing. Third, on the effect on household food security as shown in Table 4.13, the results of the probit model assert that household access to alternative livelihood, investment in an income generating activity and increase in the household purchasing power significantly influence the household's attainment of food security. This is evidenced by the p – values of their respective coefficients that are less than 5 percent (P – values = 0.000, 0.024 and 0.049). Therefore, the null hypothesis is

rejected at 5 percent significance level. Table 4.14 summarizes the results of hypothesis testing on the effect of increased household access to alternative livelihood on human development.

Table 4.14: Effect of access to alternative livelihood on human development

Null hypothesis on effect on good healthcare access	p-value	Decision at 5% level	
Number of livelihood sources has no effect on healthcare access	0.031	Reject	null hypothesis
Income generating activity has no effect on healthcare access	0.048	Reject	null hypothesis
HH purchasing power has no effect on access to healthcare	0.017	Reject	null hypothesis
Null hypothesis on effect on good housing	p-value	Decision at 5% level	
Income generating activity has no effect on good housing	0.000	Reject	null hypothesis
Null hypothesis on effect on food security	p-value	Decision at 5% level	
Number of livelihood sources has no effect on food security	0.000	Reject	null hypothesis
HH purchasing power has no effect on food security	0.049	Reject	null hypothesis

From the results one notes mixed findings on the effect of household access to alternative livelihoods on human development. This is contrary to studies by (Frankenberger, Drinkwater & Maxwell, 2000), that provision of free universal education is likely to release resources that a household would have spent in education to be spent in other household activities such as investing in income generating activities thus offering an alternative source of livelihood for the household. It is possible that these findings arise from the way the alternative livelihood approach has been applied in the Study catchment area. Other studies including the CARE (1999) perspective and DFID (2002) approach which focus on, first, mainstreaming a set of core principles which determine poverty-focused development activity and second, and the application of a holistic perspective in the

programming of support activities, to ensure that these correspond to issues or areas of direct relevance for improving poor people’s livelihoods support these findings.

4.6 Effect of Household Civic Participation on Human Development

4.6.1 Frequencies of Household Civic Participation

Table 4.15 indicates that 77.17 percent of the households were of the opinion that universal education increases the household civic awareness, which in turn influences the human development in the long run against 22.83 percent who were of the contrary opinion.

Table 4.15: Frequencies of household civic participation

Enhanced Household Civic Participation (overall)			
No	87	22.83	22.83
Yes	294	77.17	100
Total	381	100	
Enhanced Household Civic Participation (subcomponents)			
Civil awareness			
No	103	27.03	27.03
Yes	278	72.97	100
Total	381	100	
Exercising voting rights			
No	279	73.23	73.23
Yes	102	26.77	100
Total	381	100	
Championing Gender rights			
No	78	20.47	20.47
Yes	303	79.53	100
Total	381	100	

4.6.2 Chi - square Analysis on Effect of Household Civic Participation

A Chi - square analysis on the effect of household civic awareness on human development indicates that the effect of household civic awareness on household

access to healthcare is statistically different between the households that have access and those who have no access to good healthcare. First results from Table 4.16 indicates that there is a statistically significant difference between households that have access to healthcare compared to households that have no access to healthcare household with the increased household civic participation at 5 percent significant level. This is evidenced by a Pearson Chi - square value of 0.8030 with a probability of (Pr = 0.027) which is less than 5 percent significance level. Second, results on the effect of household civic participation on the access to affordable housing indicate that there is statistically significant difference between households that have access to affordable housing compared to those who have no access to affordable housing as the household exercise their civic rights at 5 percent significance level. This is evidenced by a Pearson Chi - square value of 4.9286 with the respective probability value of 0.026. Third, the effect of household civil participation on food security indicates that the differences between the households with food security compared to those who are food insecure are statistically significant at 5 percent significance level respectively. This is evidenced by the Chi - square value for food security of 0.0349 with the p- value of 0.042 which is less than 5 percent.

Table 4.16: Chi2 of household civic participation and human development

		Civic Rights		
Healthcare Access	Yes	No		Total
Yes	80.68	19.32		100
No	76.11	23.89		100
Total	77.17	22.83		100
	Pearson Chi - square = 0.8030	Pr = 0.027		
		Civic Rights		
Housing Access	Yes	No		Total
Yes	72.86	27.14		100
No	82.46	17.54		100
Total	77.17	22.83		100
	Pearson Chi - square = 4.9286	Pr = 0.026		
		Civic Rights		
Food Security	Yes	No		Total
Yes	76.67	23.33		100
No	77.49	22.51		100
Total	77.17	22.83		100
	Pearson Chi - square = 0.0349	Pr = 0.042		
		Civic Rights		
Civic Participation	Yes	No		Total
Yes	76.00	24.00		100

No	80.19	19.81	100
Total	77.17	22.83	100
Pearson Chi - square = 0.7618		Pr = 0.003	

4.6.3 Probit Model Results on Effect of Household Civic Participation

On the effect of household civic awareness on human development, the analysis focused on the household civic participation, exercising of voting rights and championing of gender rights. In running the empirical model, the benchmark dummies were first defined as per the model variables. First, for civic participation, exclusion from civic participation was set as benchmark dummy. On the voting rights, failure to vote was set as the benchmark dummy. Lastly, gender rights, lack of the rights was set as the benchmark dummy. The benchmark dummies for the household demographic characteristics were defined as in the case of the household income model.

The results of the probit model indicate that the household civic awareness has diverse effect on different measures of human development at different levels of significance. First, results in Table 4.17 indicates that the effect of household civic awareness on access to healthcare, is more likely to increase the likelihood of the household to access healthcare by 11.95, 11.4 and 15.85 percent respectively holding other factors constant given well-defined and practiced civic participation, participation in voting and championing the gender rights. Second, effect of the civic participation on access to affordable housing, results indicate that well-defined and practiced civic participation, participation in voting and championing the gender rights are more likely to increase the likelihood of the household to access good housing by 6.70, 19.75 and 25.9 percent respectively holding other factors constant.

Table 4.17: Probit model for effect of household civic participation

	Effect on Healthcare Access			Effect on Housing			Effect on Food Security		
	Coef.	Marginal effects (dy/dx)	P - value	Coef.	Marginal effects (dy/dx)	p-value	Coef.	Marginal effects (dy/dx)	p-value
Civil awareness	0.8086	0.1195	0.413	0.1250	0.067	0.416	0.1017	0.3645	0.327
Exercising voting rights	1.8257	0.114	0.739	0.0452	0.1975	0.902	0.3370	0.341	0.838
Gender rights effects	0.6657	0.1585	0.527	0.3744	0.259	0.831	0.3288	0.127	0.846
Male	0.0829	0.1975	0.083	0.2844	0.7405	0.026	0.3267	0.0155	0.039
Primary	0.9514	0.0255	0.162	0.0608	0.6745	0.130	0.3595	0.1685	0.261
Secondary	1.1600	0.1975	0.072	0.2988	0.4435	0.281	0.1824	0.3965	0.278
University	8.1829	0.431	0.000	0.0306	0.2565	0.369	0.1250	0.089	0.000
College	6.6971	0.0225	0.000	0.5661	0.411	0.292	0.2303	0.181	0.028
HH Size	11.8714	0.0225	0.176	0.3230	0.3895	0.000	0.1460	0.0075	0.082
Married	2.2486	0.0415	0.096	0.1621	0.4855	0.614	0.2792	0.0505	0.693
Divorced	0.6343	0.0765	0.517	0.4868	0.4685	0.217	0.1125	0.3655	0.481
Separated	1.7314	0.0145	0.624	0.0504	0.4535	0.702	0.1906	0.0565	0.837
Widowed	2.3086	0.009	0.484	0.0695	0.218	0.410	0.2256	0.064	0.078
Salaried	1.2657	0.1465	0.000	0.2150	0.0965	0.901	0.0989	0.0815	0.000
Constant	2.8971		0.381	0.0038		0.000	0.1164		0.528

Third, the effect of the civic awareness on food security indicates that well-defined and practiced civic participation, participation in voting and championing the gender rights are more likely to increase the likelihood of the household to attain food security by 36.45, 34.10 and 12.7 percent respectively holding other factors constant.

Hypothesis Testing on the Effect of Household Civic Participation on Human Development

To test the hypothesis under the effect of household civic awareness on human development in Machakos County, the Study looked at the p-values of the respective coefficients of the independent variables. The results are shown in Table 4.17. The null hypothesis and alternative hypotheses are stated as follows: Ho: Enhanced civic participation by households arising from universal education in Machakos County has not affected human development. Ho₁: Enhanced civic participation by households arising from universal education in Machakos County has affected human development.

Since there was no composite measure of human development for the Study, three measures of the human development were applied in testing the hypotheses. These were: the access to healthcare, access to housing, and food security. In testing the hypothesis, 5 percent significant level two-tail test was applied. From Table 4.17, the effect of household civic participation on access to healthcare, the results of the probit model assert that well-defined and practiced civic participation, participation in voting and championing the gender rights will have insignificant impact. This is evidenced by the respective p – values that are greater than 5 percent (p – values = 0.413, 0.739 and 0.527). The null hypothesis is therefore accepted. Second, Table 4.17 reports for the effect on the access to affordable housing and attainment to food security as evidenced by respective p – values that are greater than 5 percent and the null hypothesis accepted. Table 4.18 summarizes the results of hypothesis testing on the effect of household civic participation on human development.

Table 4.18: Summary of hypothesis testing of household civic participation effect

Null hypothesis on effect on civic participation	p-value	Decision at 5% level
Civil awareness has no effect on civic participation	0.000	Reject null hypothesis
Exercising voting rights has no effect on civic participation	0.000	Reject null hypothesis
Championing gender rights has no effect on civic participation	0.002	Reject null hypothesis

Acquisition of universal education promotes participatory governance through civic engagement thus creating inclusive and responsive democratic institutions and increasing opportunities for citizen voice. The promotion of civic engagement facilitates the creation of an environment conducive for people, individually and collectively, to develop their full potential and to be able to pursue their needs and interests to lead productive lives. The Study findings are contrary to the findings by

(Brannelly, Lewis and Ndaruhutse, 2011), who reports that improved institutions arising from increased education levels are also likely to contribute to development outcomes beyond economic growth. They assert that education contributes to improvements in healthcare systems, by educating highly skilled doctors and nurses, and in lower levels of education, through teacher training. High-capacity graduates are also necessary for good governance which ultimately impacts on the human development in the long run.

4.7 Overall Probit Model Results

4.7.1 Overall Probit Model with Control Variable Results

The overall probit model results presented in Table 4.19 depicts the model as based on four dependent variables. First, the model posit that increased household income level emanating from acquisition of universal education is more likely to increase household access to healthcare by 9.16 percent holding other factors constant. The effect of household income level on access to healthcare is significant at 10 percent significance level as evidenced by the p – value. Further, from the results one finds that household productivity arising from access to universal education is more likely to increase household access to good healthcare by 3.01 percent holding other factors constant. However, the effect of the household productivity is insignificant as evidenced by its respective p – value which is greater than 10 percent. The regression results further found that the effect of household access to alternative livelihood on access to healthcare is significant at 1 percent significance level as evidenced by the p – value. From the findings, access to alternative livelihood is more likely to increase household access to good healthcare by 4.54 percent holding other factors constant. Further, civic participation was found to be more likely to increase household access to healthcare by 16.13 percent holding other factor constant.

Table 4.19: Overall probit model regression results with control variables

	Effect on Healthcare Access			Effect on Housing			Effect on Food Security		
	Coef.	Marginal effects (dy/dx)	P> z	Coef.	Marginal effects (dy/dx)	P> z	Coef.	Marginal effects (dy/dx)	P> z
HH income	0.3875	0.0916	0.063	2.3015	0.6159	0.000	0.2473	0.0584	0.022
HH productivity	0.1274	0.0301	0.483	0.7940	0.2125	0.000	0.1174	0.0277	0.019
HH livelihood	0.1920	0.0454	0.023	0.1761	0.0471	0.246	0.3351	0.0792	0.042
HH civic participation	0.6825	0.1613	0.001	0.0290	0.0078	0.873	0.1978	0.0467	0.294
Male	-0.3783	-0.0894	0.081	0.6833	0.1829	0.002	0.2637	0.0623	0.245
Primary	0.2055	0.0486	0.674	0.4184	0.1120	0.017	0.7991	0.1888	0.221
Secondary	0.7883	0.1863	0.097	0.0651	0.0174	0.020	0.1498	0.0353	0.814
University	2.5817	0.6102	0.001	0.1728	0.0462	0.015	0.9344	0.2208	0.189
College	1.2786	0.3022	0.009	0.0348	0.0093	0.058	0.4522	0.1068	0.488
HH Size	-0.0613	-0.0145	0.157	0.2789	0.0746	0.000	0.0946	0.0223	0.060
Married	0.2102	0.0497	0.058	0.0305	0.0082	0.936	-0.2084	-0.0492	0.578
Divorced	-1.2411	-0.2933	0.103	0.4033	0.1079	0.484	0.4202	0.0993	0.612
Separated	-0.4243	-0.1003	0.537	0.4378	0.1171	0.289	0.4683	0.1107	0.457
Widowed	-0.7912	-0.1870	0.173	0.0382	0.0102	0.057	0.0121	0.0029	0.978
Salaried	1.4607	0.3453	0.000	-3.8407		0.000	0.6093	0.1440	0.002
Constant	-1.1762		0.093				-1.8484		0.023

From the viewpoint of the demographic factors as shown in Table 4.19, results indicate that households that are male headed, are less likely to increase household access to good healthcare compared to women headed households. However, the effect is insignificant. Further, on the highest education level of household head, results indicate that households whose heads have higher education are more likely to have good access to good healthcare compared to households whose heads have no education. On marital status, results indicate that households whose heads are married are more likely to increase household access to good healthcare compared to households whose head are unmarried. However, for the divorced, widowed and separated households head, they are less likely to access good healthcare compared to households whose head are unmarried. In terms of the household head employment status, results indicate that households with the salaried heads are more

likely to access good healthcare compared to households whose heads are not salaried. Lastly, the size of the household was reported to have a negative effect on household access to healthcare though insignificant.

Second, the findings of the model as reported in Table 4.19 posit that increased household income emanating from acquisition of universal education is more likely to increase household access to affordable housing by 61.59 percent holding other factors constant. The effect of household income on access to housing is significant at 1 percent significance level as evidenced by the p – value. Further, from the results it is noted that household productivity arising from universal education access is more likely to increase household access to affordable housing by 21.25 percent holding other factors constant. The effect of the household productivity is significant as evidenced by its respective p – value which is greater than 1 percent. The regression results further found that the effect of household access to alternative livelihood on access to housing is significant at 1 percent significance level as evidenced by the p – value. From the findings, access to alternative livelihood is more likely to increase household access housing by 4.71 percent holding other factor constant. Further, civic participation was found to be more likely to increase household access to housing by 0.78 percent holding other factors constant.

In terms of the demographic factors, results in Table 4.19 indicate that households that are male headed are more likely to increase household access to housing compared to female headed households. Further, on the highest education of household head, results indicate that households whose heads have higher education are more likely to have access to housing compared to households whom heads have no education. On marital status, results indicate that households whose heads are married are more likely to increase household's access to housing compared to households whose heads are unmarried. Further, for divorced, widowed and separated households' heads, they are more likely to access housing compared to households whose heads are unmarried. On the household head employment status, results indicate that households with the salaried heads are more likely to access housing compared to households whose heads are not salaried. Lastly, the size of the

household was reported to have a positive effect on household access to housing at 1 percent significance level.

Third, the findings of the model as depicted in Table 4.19 posit that increased household income emanating from access to universal education is more likely to increase household achieving food security by 5.84 percent holding other factors constant. The effect of household income on access to healthcare is significant at 1 percent significance level as evidenced by the p – value. Further, from the results one finds that household productivity arising from universal education access is more likely to increase household’s achieving food security by 2.77 percent holding other factors constant. The effect of the household productivity is significant as evidenced by its respective p – value which is greater than 1 percent. The regression results further found that the effect of household access to alternative livelihood on achieving food security is significant at 1 percent significance level as evidenced by the p – value. From the findings, access to alternative livelihood is more likely to increase household achieving food security by 7.95 percent holding other factors constant. Further, civic participation was found to be more likely to increase household achieving food security by 4.67 percent holding other factors constant.

In terms of the demographic factors, results in Table 4.20 indicate that households that are male headed, are more likely to achieve food security compared to women headed household. Further, on the highest education of household head, results indicate that households whose heads have higher education are more likely to achieve food security compared to households whom heads have no education. On marital status, results indicate that households whose heads are married are less likely to achieve food security compared to households whose heads are unmarried. Further, for divorced, widowed and separated household’s heads, they are more likely to achieve food security compared to households whose heads are unmarried. On the household head employment status, results indicate that households with the salaried heads are more likely to achieve food security compared to households whose heads are not salaried. Lastly, the size of the household was reported to have a positive effect on household achieving food security at 10 percent significance level.

4.7.2 Overall Probit Model Results without Control Variable results

For the overall model on the effect of universal education on human development without the control variables, results in Table 4.20 indicate that acquisition of universal education is more likely to increase household access to healthcare by 12.53 percent holding other factors constant. The effect of household income level on access to healthcare is significant at 1 percent significance level as evidenced by the p – value. Further, the household productivity arising from access to universal education was found to more likely to increase the access to affordable healthcare by 2.91 percent holding other factors constant. Access to alternative livelihood and the household civil awareness were found to increase the household access to good healthcare by 6.79 and 2.70 percent respectively holding other factors constant. Second, regarding effect on household access to housing, the effect of universal education on human development without the control variables, results indicate that acquisition of universal education is more likely to increase household access to good housing by 59.18 percent holding other factors constant. The effect of household income level on access to healthcare is significant at 1 percent significance level as evidenced by the p – value. Further, the household productivity arising from access to universal education was found to more likely to increase the access to household access to good housing by 29.73 percent holding other factors constant. Access to alternative livelihood and the household civil rights were found to increase the household access household access to good housing by 10.49 and 12.79 percent respectively holding other factors constant.

Table 4.20: Overall probit model results without control variables

Coefficient	Effect on Healthcare Access			Effect on Housing			Effect on Food Security		
	Coef.	Marginal effects (dy/dx)	P> z	Coef.	Marginal effects (dy/dx)	P> z	Coef.	Marginal effects (dy/dx)	P> z
HH income	0.4205	0.1253	0.013	2.0346	0.5918	0.000	0.1147	0.0440	0.015
HH productivity	0.0978	0.0291	0.035	1.0221	0.2973	0.000	0.1242	0.0476	0.086
HH livelihood	0.2279	0.0679	0.048	0.3605	0.1049	0.023	0.0167	0.0064	0.006
HH civic participation	0.0907	0.0270	0.031	0.4398	0.1279	0.025	0.0170	0.0065	0.019
Constant	1.3335		0.000	1.7732		0.000	0.2091		0.316

Third, Table 4.20 shows the effect on household food security, and posits that the effect of universal education on human development without the control variables, with results indicating that acquisition of universal education is more likely to increase household attainment of food security by 4.40 percent holding other factors constant. The effect of household income level on access to healthcare is significant at 1 percent significance level as evidenced by the p – value. Further, the household productivity arising from access to universal education was found to more likely to increase the access to household attainment of food security by 4.76 percent holding other factors constant. Access to alternative livelihood and the household civil rights were found to increase the household attainment of food security by 0.6 and 0.6 percent respectively holding other factors constant. Finally, regarding household civic awareness, the effect of universal education on human development without the control variables, results indicate that acquisition of universal education is more likely to increase household civil participation by 3.38 percent holding other factors constant. The effect of household income level on access to healthcare is significant at 1 percent significance level as evidenced by the p – value. Further, the household productivity arising from access to universal education was found to more likely to increase the access to household civil awareness by 12.33 percent holding other factors constant. Access to alternative livelihood and the household civil rights were

found to increase the household civil participation by 5.08 and 5.57 percent respectively holding other factors constant.

Table 4.21: Summary of hypotheses testing of access to universal education

Null hypotheses on effects of Access to Universal Education on Human Development	p-value	Decision at 5% level
HH income increase has no effect on Human Development	0.000	Reject null hypothesis
HH productivity increase has no effect on Human Development	0.000	Reject null hypothesis
HH alternative livelihood has no effect on Human Development	0.023	Reject null hypothesis
HH civic participation has no effect on Human Development	0.025	Reject null hypothesis

In testing the hypothesis, 5 percent significant level two-tail test was applied. From Table 4.21, the effect of household income increase, household productivity increase, household alternative livelihood and household civic participation on human development is statistically significant. This is evidenced by the respective p – values that are than 5 percent (p – values = 0.000, 0.000, 0.023 and 0.025). The null hypothesis is therefore rejected accordingly.

4.8 Discussion of the Findings

4.8.1 Hypothesis Testing on the Effect Household Income Level

Table 4.5 above shows the effect of increased household overall income, financial aid and increased expenditures on access to healthcare, asserting that household income significantly affect human development via household access to good healthcare. On the effect of increased household overall income on access to affordable housing, results indicate that the increase in the household overall income and receipt of financial aid significantly affect the household access to affordable housing. This implies that household income and receipt of financial support has a

significant effect on human development as measured by access to housing. Further, the results on the effect of increased household income on food security indicate that increase in overall household income and household expenditure significant impact on human development via food security, while the receipt of financial aid does not. Arising from the investigation and the hypothesis testing on the effect of increased household income level results have shown that increased household overall income, financial aid and increased expenditures significantly impact on human development among households as measured by access to healthcare, access to affordable housing and food security.

From these results, it can be asserted that universal education is an enabler that tends to unlock individual's potentials thus leading into increased income both at individual and household level. It is expected that individuals who spend more years in acquisition of education are more likely to be skilled compared to those who spend less or no years at all in acquisition of education. Therefore, such skilled individuals are more likely to attract a higher pay at their workplace thus implying increased earnings or incomes. The increased incomes arising from education attainment results to economic empowerment that in turn leads to access to healthcare, affordable housing, food security, and other basic needs hence improved standards of living which translate into human development. These results support studies by (Harmon, Oosterbeek and Walker, 2000), who argue that countries with more educated population are developing faster due to the fact that the education enables the labor force to innovate new technologies and to adapt the existing ones to the local production.

4.8.2 Hypothesis Testing on the Effect Household Productivity

Table 4.9 above shows that increased overall household productivity, completion rates of primary and secondary school education significantly impact human development via access to healthcare, and affordable housing while increase in these variables insignificant impact on human development via food security.

Arising from the results it can be concluded that is not always guaranteed that the acquisition of universal education will lead to increased productivity which in turn

will lead to human development. The findings on the effect of household productivity therefore partly support the argument of (Behrman and Wolfe, 1987b) which asserts that education combined with good health have strong direct impacts on productivity through their effect on the distribution of income that comes with economic empowerment.

4.8.3 Hypothesis testing on the effect of Access to Alternative Livelihood

Table 4.13 above provides results which assert that household access to alternative livelihoods, investment in an income generating activity and increase in the household purchasing power significantly influence the household access to good healthcare. Regarding, the effect of the same on access to affordable housing, it is noted that household access to alternative livelihood has no significant effect on household's access to affordable housing. However, investment in income generating activity and the increase in the household purchasing power significantly influence household access to affordable housing. As far as the effect on household food security is concerned, the results of the probit model assert that household access to alternative livelihood, investment in an income generating activity and increase in the household purchasing power significantly influence the household attainment of food security.

From these results one can note mixed findings on the effect of household access to alternative livelihoods on human development. This is contrary to studies by (Frankenberger, Drinkwater and Maxwell, 2000), that provision of free universal education is likely to release resources that a household would have spent in education to be spent in other household activities such as investing in income generating activities thus offering an alternative source of livelihood for the household.

4.8.4 Hypothesis testing on the Effect of Household Civic Participation

Table 4.17 above shows the results of effect of household civic participation on access to healthcare, affordable housing and household food security and assert that well-defined and practiced civic participation, participation in voting and

championing the gender rights has insignificant impact on human development via access to healthcare, access to affordable housing and food security.

The Study findings are contrary to the findings by (Brannelly, Lewis and Ndaruhutse, 2011). who reports that improved institutions arising from increased education levels are also likely to contribute to development outcomes beyond economic growth. They assert that education contributes to improvements in healthcare systems, by educating highly skilled doctors and nurses, and in lower levels of education, through teacher training. High-capacity graduates are also necessary for good governance which ultimately impacts on the human development in the long run.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary and conclusions of the Study derived from the previous chapter. The purpose of conclusions is to answer the research questions while recommendations are for the improvement, and suggestions for the future study.

5.2 Summary of the Major Findings

The general objective of the Study was to determine the Social and Economic Effects Access of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya. More specifically, the Study was guided by four specific objectives: first, to determine the household income effect of universal education on human development in Machakos County. Second, assess household productivity effect of universal education on human development in Machakos County. Third, establish household access to alternative livelihood effect of universal education on human development in Machakos County. Finally, determine household civic participation effect of universal education on human development in Machakos County.

The Study used a combination of descriptive survey and the causal research design. The target population for the Study was the entire population of Machakos Town Constituency which currently stands at 199,211 persons distributed within approximately 48,989 households as at 2009 national census. There were 381 questionnaires distributed to the households and all of them were returned. Data was presented in form of frequency distribution, percentages, and tables that facilitated description and explanation of the Study findings and finally the estimates of the probit model.

5.2.1 Frequencies of Responses

Results on the channels through which universal education influences the human development among the households indicate that most of the households were of the opinion that universal education increases the household level of income which in turn influences the human development in the long run. Second, the results indicate that minority of households were of the opinion that universal education increases the household productivity which in turn influences the human development in the long run. Third, on the access to alternative livelihoods, results indicate that more than of the households were of the opinion that universal education increases access to alternative sources of livelihood which in turn influences the human development in the long run. Finally, more than three-quarters of the households were of the opinion that universal education increases the household civic participation, which in turn influences the human development in the long run.

5.2.2 Effect of Increase in Household Income Level

A Chi - square analysis on the effect of the increase in household income level indicates that the increased household income level will impact on household access to healthcare statistically different between the households that have access and those who have no access to healthcare at a 5 percent significance level. These results indicate that there is a statistically significant difference between households that have access and those who have no access as the level of household income increases. Similar results are noted on the effect of increase in household income level on access to affordable housing where the difference between households that have access to good housing compared to households that have no access to good housing as the level of household income increases. However, the results of increase in household income level on food security and civic awareness indicate that the differences between the households with food security compared to those who are food insecure and the differences between the households active in civic matters compared to the households not active in civic matters are statistically insignificant.

Regression Analysis on the Effect of Increase in Household Income Level on Human Development

The results of the probit model indicate that the increase in the household income level has different effect on different measures of human development at different levels of significance. The increased level of household income on access to healthcare is more likely to increase the likelihood of the household to access healthcare by 2.88 percent holding other factors constant. Further, the receipt of financial aid / support was found to be more likely to increase the likelihood of the household to access healthcare by 24.6 percent holding other factors constant, while the increase in the household expenditure arising from income increase was found to be more likely to increase the likelihood of the household to access healthcare by 22.7 percent holding other factors constant. It was therefore noted that the effect of increased household overall income, financial aid and increased expenditure on access to healthcare, had a positive relationship implying that household income significantly affect human development via household access to good healthcare.

Second, the results indicate that increase in the household overall income level is more likely to increase the likelihood of the household to access affordable housing by 4.0 percent holding other factors constant while the receipt of financial aid / support was found to more likely to increase the likelihood of the household to access housing by 12.6 percent holding other factors constant. At the same time, the increase in the household expenditure arising from income increase was found to be more likely to increase the likelihood of the household to access affordable housing by 6.4 percent holding other factors constant. Arising from these results of the model it was concluded that since the effect of increased household overall income on access to housing had a positive relationship this implied that the increase in the household overall income and receipt of financial aid significantly affect the household access to affordable housing. Thus, the null hypothesis was rejected and the alternative hypothesis accepted implying that household overall income and receipt of financial support have a significant effect on human development as measured by access to affordable housing.

Third, results indicate that increase in household overall income level is more likely to increase the likelihood of the household to attain food security by 2.14 percent holding other factors constant. Further, the receipt of financial aid / support was found to more likely to increase the likelihood of the household to attain food security by 2.2 percent holding other factors constant. In addition, the increase in the household expenditure arising from income increase was found to be more likely to increase to attain food security by 2.5 percent holding other factors constant. These results indicate that there is positive relationship while the results for the receipt of financial aid, show negative relationship, thus, the null hypothesis is rejected under the increase in overall household income and the increase in the household expenditure. However, for the receipt of the financial aid / support the null hypothesis is accepted implying that the receipt of the financial aid / support has no significant effect of the household attainment of the food security at 5 percent significance level.

Finally, model results indicate that increase in household overall income level is more likely to increase the likelihood of the household participating in civic matters by 5.95 percent holding other factors constant. Further, the receipt of financial aid / support was found to be more likely to increase the likelihood of the household to participate in civic matters by 9.32 percent holding other factors constant, while the increase in the household expenditure arising from income increase was found to be more likely to increase participating in civic matters by 1.12 percent holding other factors constant. In terms of testing the hypothesis, results indicate that on the civic participation, that the probability values of the respective coefficients were greater than 5 percent for all measures under income and therefore were found to have negative relationship. This implies that the increase in the household overall income, receipt of financial aid / support and increase in household expenditure all together do not significantly affect human development through household participation on civic matters. Thus, the null hypothesis is accepted and the alternative hypothesis is rejected at 5 percent significance level.

These findings are in tandem with the argument by the (WorldBank, “Do Conditional Cash Transfers Lead to Medium-Term Impacts? Evidence from a Female School Stipend Program in Pakistan”, 2010) and (Schultz, Investment in human capital, 1961) that there is positive and significant effect of household income level on the economic growth and also with studies in Sub-Saharan Africa where similar results on effect of education on income / earnings were reported by Al- (Sawamura and Sifuna, 2008).

5.2.3 Effect of Increase in Household Productivity

Chi– square Analysis on the Effect of Increase in Household Productivity on Human Development

A Chi - square analysis on the effect of the increase in household productivity indicates that the effect of increased household productivity on household access to healthcare, access to affordable housing, on food security and household civic participation are not statistically different between the households that have access and those who do not access to good healthcare, housing, food security and civic participation.

Regression Analysis on effect of Increase in Household Productivity on Human Development

The results of the probit model indicate that the increase in the household productivity affects differently on diverse measures of human development at different levels of significance. First, increase in the overall household productivity affects access to healthcare, as the results indicate that a rise in the overall productivity level is more likely to increase the likelihood of the household to access good healthcare by 9.2 percent holding other factors constant, while the completion rates of primary and secondary education were found to be more likely to increase the likelihood of the household to access good healthcare by 4.7 percent and 8.4 percent respectively holding other factors constant. Arising from these results it was noted that the increase in the overall household productivity significantly affect human development via household access to healthcare. Thus, the null hypothesis is

rejected. In terms of the completion rates of primary and secondary education they were found to be significant. This leads to the rejection of the null hypotheses accordingly indicating that completion rates of primary and secondary education significantly influences household access to good healthcare.

Second, in the case of the access to affordable housing, results indicate that increase in the overall household productivity is more likely to increase the likelihood of the household to access good housing by 2.58 percent holding other factors constant. Further, the completion rates of primary and secondary education were found to be more likely to increase the likelihood of the household to access good housing by 8.91 percent and 5.39 percent respectively holding other factors constant. From the results, it was concluded that the increase in the overall household productivity significantly effects human development through household access to good housing. Similar conclusion was made in the case of secondary education completion rate. However, regarding the completion rate of the primary education, the null hypothesis is accepted implying that completion of primary education does not significantly affect household access to good housing.

Third, on food security, results indicate that increase in overall household productivity is more likely to increase the likelihood of the household attainment of food security by 11.86 percent holding other factors constant. Further, the completion rates of primary and secondary education were found to be more likely to increase the likelihood of the household to access good housing by 4.73 percent and 4.58 percent respectively holding other factors constant. From the results, it was noted that the increase in the overall household productivity significantly affects the human development through household attainment of food security. Thus, the null hypothesis is rejected. Similar conclusion is made in the case of secondary education completion rate, while regarding the completion rate of the primary education, the null hypothesis is accepted, implying that completion rate of primary education does not significantly affect household attainment of food security.

Finally, the probit model results indicate that increase in household productivity is more likely to increase the likelihood of the household participating in civic matters by 2.55 percent holding other factors constant. Further, the completion of primary and secondary education was found to be more likely to increase the likelihood of the household to access good housing by 0.78 percent and 0.21 percent respectively. From the results, it is concluded that the increase in the overall household productivity does not significantly affect human development through household participation on civic matters. Thus, the null hypothesis is accepted and the alternative hypothesis is rejected implying that household productivity has insignificant effect on household civil participation. However, with regard to the completion rate of the secondary education, the null hypothesis is rejected implying that completion rate of secondary education does significantly affects household's civil participation.

The results partly support the argument by (Behrman and Wolfe, 1987b), which asserts that education combined with good healthcare have strong direct impacts on productivity through their effect on the distribution of income that comes with economic empowerment, findings of (Teal, 2011) and (Diagne and Diene, 2011) who report that improved productivity, as a result of enrolment in school, contributes to innovation and technical progress; and a study by (Larbi-Apau and Sarpong, 2010) which investigated the impact of education on the overall productivity of one specific industry.

5.2.4 Effect of Household Access to Alternative Livelihood

Chi - square Analysis on Effect of Household's Access to Alternative Livelihood on Human Development

A Chi - square analysis on the effect of the increase in household access to alternative livelihood indicates that the effect of household access to alternative livelihood on household access to healthcare is statistically different between the households that have access and those who have no access to good healthcare. First, the results indicate that there is a statistically significant difference between households that have access to good healthcare compared to households that have no

access to good healthcare, as the household access to alternative livelihood increases. Second, the results indicate that there is statistically significant difference between households that have access to affordable housing compared to households that have no access to good housing, as the household access to alternative livelihood increases. Third, the results on effect of household access to alternative livelihood on food security and civic participation indicate that the differences between the households with food security compared to those who are food insecure and the differences between the households active in civic matters compared to the households not active in civic matters are statistically significant.

Regression Analysis Effect of Household Access to Alternative Livelihood on Human Development

The results of the probit model indicate that the household access to alternative livelihood has diverse effect on different measures of human development at different levels of significance. First, results of the effect of household access to alternative livelihood on access to healthcare indicate that an increase in household access to alternative livelihood is more likely to increase the likelihood of the household to access healthcare. Further, investment in an income generating activity was found to be more likely to increase the household access to healthcare by 22.8 percent while the increase in the household purchasing power being more likely to increase the household to access healthcare by 31.7 percent. Therefore, the results of these variables assert that household access to alternative livelihood, investment in an income generating activity and increase in the household purchasing power significantly influence the household access to good healthcare. Therefore, the null hypothesis is rejected at 5 percent significance level.

Second, on the access to affordable housing, results indicate that increase in the household access to alternative livelihood is more likely to increase the likelihood of the household to access affordable housing by 13.4 percent, while investment in an income generating activity and increase in the household purchasing power were found to be more likely to increase the household access to housing by 39.5 and 51.8 percent, respectively. It was therefore concluded that there is no effect on access to

housing; the null hypothesis is accepted for the household access to alternative livelihood implying that household access to alternative livelihood has no significant effect on household access to housing at 5 percent significance level. However, the null hypothesis is rejected for investment in the income generating activity and the increase in the household purchasing power. This implies that investment in income generating activity and the increase in the household purchasing power significantly influence household access to good housing.

Third, on food security, results indicate that increase in household access to alternative livelihood is more likely to increase the likelihood of the household attainment of food security by 12.9 percent, while investment in an income generating activity and increase in the household purchasing power were found to be more likely to increase the household attainment of food security by 8.2 and 5.4 percent, respectively. Arising from these results of the model it is asserted that household access to alternative livelihood, investment in an income generating activity and increase in the household purchasing power significantly influence the household attainment of food security. Therefore, the null hypothesis is rejected at 5 percent significance level.

Finally, the probit model results indicate that increase in household access to alternative livelihood is more likely to increase the likelihood of the household participating in civic matters by 2.1 percent, while investment in an income generating activity and increase in the household purchasing power were found to be more likely to increase the household participating in civic matters by 0.8 and 0.2 percent, respectively. However, the results of the probit model assert that household access to alternative livelihood, investment in an income generating activity and increase in the household purchasing power do not significantly influence the household civil rights. Therefore, the null hypothesis is accepted at 5 percent significance level. This conclusion partly supports the study by (Frankenberger, Drinkwater and Maxwell, 2000) who assert that free universal education releases resources that a household would have spent in education to be spent in other household activities such as investing in income generating activities offers an alternative source of livelihood for the household.

5.2.5 Effect of Household Civic Participation

Chi - square Analysis on Effect of household Civic Participation on Human Development

A Chi - square analysis on the effect of household civic participation on human development indicates that the effect of household civic participation on household access to healthcare is statistically different between the households that have access and those who have no access to good healthcare. These results indicate that there is a statistically significant difference between households that have access to healthcare compared to households that have no access to healthcare with the increased household civic participation at 5 percent significant level. Second, results on the access to affordable housing indicate that there is statistically significant difference between households that have access to housing compared to those who have no access to housing as the household exercise their civic rights. Third, the effect of household civil rights on food security and civic participation indicates that the differences between the households with food security compared to those who are food insecure and the differences between the households active in civic matters compared to the households not active in civic matters are statistically significant at 5 percent significance level respectively.

Regression Analysis on Effect of Household Civic Participation on Human Development

From the results of the probit model, first the effect of household civic participation on access to healthcare, access to housing and food security is that well-defined and practiced civic participation, participation in voting and championing the gender rights are more likely to increase the likelihood of the household to access good healthcare, access to good housing and attainment of food security. However arising from the model the effect of these variables on the household civic participation is found to be insignificant, and the null hypothesis is accepted, implying that although a well-defined and practiced civic participation, participation in voting and championing the gender rights may be in place targeting access to healthcare, access

to housing and food security, such programmes are insignificant impacting on human development via civic participation.

The Study findings contrast with the studies by (Brannelly, Lewis and Ndaruhutse, 2011) who reports that improved institutions arising from increased education levels are also likely to contribute to development outcomes beyond economic growth and also (Malik and Courtney, 2011) who reports a strongly positive effect on the effect of civil participation on human development in a study in Pakistan.

5.3 Conclusion

5.3.1 Effect of Increase in Household Income Level

The Study concludes that increased household overall income, financial aid and increased expenditures on access to healthcare, significantly affect human development via household access to good healthcare. On the effect of increased household overall income on access to affordable housing, results indicate that the increase in the household overall income and receipt of financial aid significantly affect the household access to affordable housing. This implies that household income and receipt of financial support has a significant effect on human development as measured by access to housing. Further, the effect of increased household income on the food security, the results indicate that increase in overall household income and household expenditure significant impact on human development via food security, while the receipt of financial aid does not.

These findings are in tandem with the argument by the (WorldBank, 2010) and (Schultz, 1961) that there is positive and significant effect of household income level on the economic growth and with studies in Sub-Saharan Africa where similar results on effect of education on income / earnings were reported by (Al-Samarrai and Bennell, 2007).

5.3.2 Effect of Increase in Household Productivity

Arising from the results in this Study it is noted that universal education has influence on human development in Machakos County via increased household

productivity. The increased household productivity consists of the overall household productivity, completion rates of primary and secondary schools. The influence on human development is channeled through access to healthcare, access to housing, and food security.

Arising from the results it is noted that always there is no guarantee that the acquisition of universal education will lead to increased productivity which in turn will lead to human development. The findings on the effect of household productivity therefore partly support the argument of (Behrman and Wolfe, 1987b) which asserts that education combined with good health have strong direct impacts on productivity through their effect on the distribution of income that comes with economic empowerment.

5.3.3 Effect of Household Access to Alternative Livelihood

The results from this Study show that universal education has insignificant influence on human development in Machakos County via access to alternative livelihood. The access to alternative livelihood arises from universal basic education resulting to increased access to the household alternative livelihood, investment in income generating activities and increased household purchasing power. The effect of the increased household alternative livelihood on human development is transmitted via access to healthcare, access to housing, food security and civic participation. From the Study increased household alternative livelihood impacted significantly human development via access to healthcare and food security however on the other hand the effect of access to housing and civic awareness insignificantly impacted human development. Therefore, arising from the mixed results, it is concluded that it is not certain whether or not household access to alternative livelihood in Machakos County has contributed to improved human development or not.

From these results one note mixed findings on the effect of household access to alternative livelihoods on human development. This is contrary to studies by (Frankenberger, Drinkwater and Maxwell, 2000), that provision of free universal education is likely to release resources that a household would have spent in education to be spent in other household activities such as investing in income

generating activities thus offering an alternative source of livelihood for the household.

5.3.4 Effect of Household Civic Participation

Finally, arising from the results in this Study it is noted that universal education has no influence on human development via enhanced civic awareness by households in Machakos County. The enhanced civic awareness by households includes civil rights, participation in voting and championing gender rights. The specific channels of human development include access to healthcare, access to housing, and food security. It is noted that civic participation impacted insignificantly on access to healthcare, access to housing and food security. Therefore, this leads to the conclusion that enhanced civic participation by households in Machakos County has not impacted human development.

The Study findings are contrary to the findings by (Brannelly, Lewis and Ndaruhutse, 2011), who reports that improved institutions arising from increased education levels are also likely to contribute to development outcomes beyond economic growth. They assert that education contributes to improvements in healthcare systems, by educating highly skilled doctors and nurses, and in lower levels of education, through teacher training. High-capacity graduates are also necessary for good governance which ultimately impacts on the human development in the long run.

5.4 Recommendations

Based on the findings of the Study it has been proven that increased household income levels significantly influence human development via increased access to healthcare, access to affordable housing, and food security. The household income levels may need to be enhanced either as overall income levels or receipts from financial aid/support. The county and national governments should focus on activities which increase household income levels including provision of basic education to the poor families, support for training on skills and knowledge, financial support either as bursaries or education loans for higher education and a combination

of both. Also, the county and national government may need to consider support to households in terms of increased access to affordable housing. A further area of support to households given this is ASAL region is in terms of food security such as planting seeds, fertilizer-inputs programmes, irrigation programmes and livestock development programmes.

Second, household productivity has been found to have no significant influence on human development. This is contrary to existing studies showing how education combined with good healthcare have strong direct impacts on productivity through their effect on the distribution of income that comes with economic empowerment. This result point to an area of further study at grass root levels. The county and national governments should invest more on universal education particularly on retention of pupils/students, transition from primary to secondary schools and other training programmes that increase individual and household productivity. Also, the county and national government could consider combining this channel with another such as civic awareness in order to enhance individual and community improved productivity vis-à-vis the concept of dependence on donations.

Third, household access to alternative livelihood has been found to have no significant effect on human development. The argument was that the provision of free basic education would release resources to the household which will take the form of investment in income generating activities, enhanced purchasing power, and overall access to alternative livelihood, hence improving the household income levels. It is possible that the universal education might not have had significant impact on releasing resources as expected. The county and national governments should re-look at the design and implementation of free basic education with a view to making changes on areas that do not respond to the desired expectations, such financial burdens to poor families, non-compliance to the policies of free education for all, and other bottlenecks. In addition, the county and national government may need to investigate the poverty profiles among the households which may inhibit the impact of the aspect of alternative livelihoods.

Four, enhanced civic participation by households was found to have no effect on human development. In particular focus was on civic participation, participation in voting and championing gender rights and these affect access to healthcare, access to housing, and food security. It is possible that this area requires long-term efforts to realize fruitful outcomes. The county and national governments should design awareness programmes targeting individuals and households. Such programmes can be effective if channeled through the education system.

Further civic participation may not work alone without being combined with other channels of human development. The county and national government require designing other programmes such as household productivity, gender empowerment, and community-based participation in planning and mass transition in education and combining them civic awareness to improve their effectiveness.

5.5 Areas for Further Research

Although this Study provides insights into the Social and Economic Effects Access of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya, several areas remain unclear and require to be addressed by future researchers.

Further, research needs to be carried out on how households in ASAL counties including Machakos County are affected by the provision of free basic education introduced by the national government. The Study assumed that all households were benefiting from the free basic education. Second, the theoretical framework based on household income level, productivity, alternative livelihood and civic participation may be too complicated to explain their causality with human development.

Third, the components of human development may have missed as what wellbeing in Machakos County is about since two of such components were found insignificant in impacting human development. Finally given the gaps in human development concepts and studies in Kenya and more so in ASAL regions more in-depth research work is required to unravel the unknown about this area.

REFERENCES

- Abbas, Q., & Foreman-Peek, J. (2007). Human Capital and Economic Growth in Pakistan 1960-2003. *Cardiff Economics Working papers, E2007/22*.
- Afzal, M. (2010). Relationship between school education and economic growth in Pakistan: ARDL bounds testing approach to cointegration. *Pakistan Economic and Social Review, 39-60*.
- Alkire, S. (2002). Dimensions of Human Development. *World Development, 30(2)*, 181–205.
- Allan, F., & Pamela, P. (2003). Subjective Measures of Liberal Democracy. *Comparative Political Studies, 33(1)*, 58-86.
- Al-Samarrai, S. & Bennell, P. (2007). Where has all the education gone in sub-Saharan Africa? employment and other outcomes among secondary school and university leavers. *Journal of Development Studies, 43(7)*, 1270-1294.
- Arthur, J. & Bohlin, K.E. (2005). *Citizenship and higher education: the role of universities in communities and society*. London and New York: Routledge.
- Asghar, Z. & Zahra, M. (2012). A Benefit Incidence Analysis of Public Spending on Education in Pakistan Using PSLM Data. *Lahore Journal of Economics, 17(2)*, 111-136.
- Azam, M. (2012). Changes in wage structure in urban India, 1983–2004: A quantile regression decomposition. *World Development, 40(6)*, 1135 –1150.
- Babalola, H. (2003). *Economic growth and human development*. Nsukka: University Press.
- Banerjee, A. & Duflo, E. (2005). Growth theory through the lens of development economics. *Handbook of Economic Growth*, pages 473- 552. Elsevier,

- Amsterdam). Growth theory through the lens of development economics. In *Handbook of Economic Growth* (pp. 473- 552). Amsterdam: Elsevier.
- Barnett, R. (2007). *A will to learn: being a student in an age of uncertainty, Maidenhead: Society for Research into Higher Education and*. London: Open University Press. .
- Barro, R, J, .& Sala-i-Martin, X. (1995). *Economic Growth*,. United Kingdom: McGraw-Hill. .
- Barro, R., & Lee, J.W. (2010). A new data set of educational attainment in the world, 1950-2010. *National Bureau of Economic Research Working Paper No. 15902, Massachusetts*.
- Becker, G. S. (1962). Irrational Behaviour and Economic Theory. *Journal of Political Economy*,, 70(1), 1-13.
- Becker, G. S. (1965). Irrational Behaviour and Economic Theory. *Journal of Political Economy*,, 70(1), 1-13.
- Behrman, J. R. & Deolalikar, A.B.. (1988). Health and Nutrition in. In e. H. B. Chenery and T. N. Srinivasan, *Handbook of Development Economics, Vol. 1*, Amsterdam:: North Holland.
- Behrman, J. R. & Wolfe, B.L. (1987b). Investments in Schooling in Two Generations in Pre-Revolutionary Nicaragua: The Roles of Family Background and School Supply. *Journal of Development Economics*, 2 - 17.
- Bloom, D. C. (2006). *Higher Education and Economic Development in Africa*. New York: The World Bank.
- Brannelly, L., Lewis, L., & Ndaruhutse, S. (2011). Learning and Leadership. Exploring the Linkages between Higher Education and Developmental Leadership. *European Journal of Education*, 4(5), 654 662.

- Bynner, J., & Egerton, M. (2001). *The wider benefits of higher education*, London: Centre for Research on the Wider Benefits of Learning .
- Bynner, J., Dolton, P., Feinstein, L., Makepeace, G., Malmberg, L., & Woods, L. . (2004). *Revisiting the Benefits of Higher Education*. London: The Smith Institute.
- Caselli, F. (2005). Accounting for Cross-Country Income Differences. In P. A. Durlauf., *Handbook of Economic Growth, 1*, 679-741.
- Clark, N., & Carney, D. (2008). *Sustainable Livelihoods Approaches: Progress and Possibilities for Change*. United Kingdom: Department for International Development.
- Cohen, D., & Soto, M. (2007). Growth and human capital: Good data, good results. *Journal of Economic Growth, 1*(3), 113-207.
- Collier, P. (2007). *The Bottom Billion. Why the Poorest Countries are Failing and What Can Be Done About It*. New York: Oxford University Press.
- Collis, J. & Hussey, R. (2003). *Business Research: a practical guide of undergraduate and postgraduate*. London: Palmgrave, Macmillian.
- CPRC. (2011). *Chronic Poverty Research Centre Report*. Manchester: CPRC.
- Crossan, F. (2003). Research philosophy: towards an understanding, *Journal of research in Nursing, 11*(1), 46-55.
- De Ferranti, D. (2003). *Closing the gap in education and technology*. Washington D.C.: The World Bank. .
- Dee, T. (2004). Are there civic returns to education? *Journal of Public Economics, 8*(8), 1697-1720.
- Di Gropello, E, Aurelien, K, & Prateek, T. (2012). *Skills for the Labor Market in Indonesia*. Washington DC: The World Bank. .

- Diagne, A. & Diene, B. (2011). Estimating returns to higher education: A survey of models, methods and empirical evidence. *Journal of African Economies*, 20(3), 80 –132.
- Dickens, W. T., Sawhill, I. V., & Tebbs, J. (2006). *The effects of investing in early education on economic growth*. London: Brookings Institution.
- Elahi, K. (2006). Entitlement failure and Deprivation: a Critique of Sen’s Famine Philosophy. *The Journal of Development Studies*, 34(4), 541-558.
- Fosu, A. K. (2014). *Inequality, and Poverty reduction in developing countries: Recent Progress in a global context, WIDER Working Paper, New Directions in development Economics*,. Helsinki: UNU-WIDER.
- Frankenberger, T., Drinkwater, M., & Maxwell, D. (2000). *Operationalizing household livelihood security: A holistic approach for addressing poverty and vulnerability Program Document*. USA: CARE .
- Friedman, M, & Kuznets, S. (1945). *Income from Independent Professional Practice*. New York: National Bureau of Economic Research.
- Glewee, P. (2002). Early Childhood Nutrition and Academic Achievement: A Longitudinal Analysis,. *Journal of Public Economics*, 8(1), 345-368.
- Gyimah-Brempong, K. & Nyarko, Y. (2010). *Review of African Household Survey Data on Social Safety Nets and the role of Education, Remittances and Migration*. London: Economic Research in Development, European Union.
- Hanushek, E. A. & Woessmann, L. (2007). *Education Quality and Economic Growth*. Washington DC.: World Bank.
- Haq, M. (2000). *Reflections on Human Development*. New York: Oxford University Press. .

- Harmon, C., Oosterbeek, H., & Walker, I. (2000). *The Returns to Education: A Review of Evidence, Issues and Deficiencies in the Literature*. London: Center for the Economics of Education.
- Jenkins, H. (1995). Education and Production in the United Kingdom. *Economics Discussion Paper No 101, Nuffield College, Oxford University*.
- Jorgenson, D. W., & Stiroh, K. J. (2000). U.S. Economic Growth at the Industry Level. *American Economic Review, Papers and Proceedings*, 90(2), 161–67.
- Kingdon, G.G. & Unni, J. (2001). Education and Women's Labour Market Outcomes in India. *Education Economics*, 9(2), 173–195.
- Kombo, D.S., & Tromp, D.L. (2006). *Proposal and Thesis Writing. An Introduction*. Nairobi: Paulines Publications Africa.
- Krantz, L. (2001). *The Sustainable Livelihood Approach to Poverty Reduction*. . Sweden: Swedish International Development Cooperation Agency. Division for Policy and Socio-Economic Analysis.
- Lall, S., (2001). Harnessing Technology for Human Development, QEH Working Paper 44, Queen Elizabeth House Working Paper Series, Oxford University.). Harnessing Technology for Human Development,. *QEH Working Paper 44*. Queen Elizabeth House Working Paper Series, Oxford University.
- Lange, F, & Topel, R. (2005). The Social Value of Education and Human Capital . In E. H. Welch., *Handbook of Economics of Education Vol 1* (pp. 459-509.). North-Holland: Elsevier, .
- Larbi-Apau, J. A. & Sarpong, D. B. (2010). Performance measurement: Does education impact productivity? *Performance Improvement Quarterly*, 22(4), 81-97.

- Lee, J. W. (2001). Education for Technology Readiness: Prospects for Developing Countries. *Journal of Human Development*, 2(1), 1 - 19.
- Lia, C. F, Paul, J. G, & Lynnette, M, N. (2008). Role of cash in conditional cash transfer programmes for child health, growth, and development: an analysis of Mexico's Oportunidades. *Lancet* , 28–37.
- Loening, J. L. (2005). Effects of Schooling Levels on Economic Growth: Time Series Evidence from Guatemala, . *MPRA Paper, No. 25105, University Library of Munich, Germany*.
- Lucas, R. E. (1988). On the Mechanics of Economic Development. *Journal of Monetary Economics*, 22(1), 3 – 42.
- Malik, S. & Courtney, K. (2011). Higher education and women's empowerment in Pakistan. *Gender and Education*, 23(1), 29-45.
- Mamashela, T.M. & Mattes, R. (2011). The Roles of Higher Education in the Democratisation of Politics in Africa: Survey Reports from HERANA,. *Journal of Higher Education in Africa*, 39-170.
- Mbwesa, K. J. (2006). *Introduction to management research, a student handbook*. Nairobi: Jomo Kenyatta Foundation. .
- McMahon, W. (1999). *The Impact of Human Capital on Growth and Social Development: Techniques for Measurement and Estimates of Impacts in OECD Member Countries” and Appendix “Tables Showing Simulations of Education Impacts; Covering 22 OECD Member Member Countries*. Paris: OECD.
- Mincer, J. (1974). *Schooling, Experience, and Earnings*. New York: Columbia University Press.
- Mugenda, O.M. & Mugenda, A.G. (2003). *Research Methods, Quantitative and Qualitative Approaches*. Nairobi.: ACT.

- Mukherjee, R. (2008). *Human development and social power: perspectives from South Asia / Ananya* . New York : Routledge,.
- Muller, J. (2004). Three educational scenarios for the future: Lessons from the sociology of knowledge. *European Journal of Education*, 4(5), 11-27.
- Muyanga, M. J. (2012). Pathways into and out of Poverty: A Study of Rural Household Wealth Dynamics in Kenya. *Africa Economic Conference*, . Kigali, Rwanda.
- Ndegwa. (1971). *Report of the commission of enquiry*. Nairobi: Government Printers.
- Ngugi, M. Mumiukha, C. Fedha, F. & Ndiga, B. (2015). Universal Primary Education in Kenya: advancement and Challenges. *Journal of Education and Practice*, 6(4), 1 - 19.
- OECD. (2012). *Education at a Glance 2015: OECD Indicators*. Paris: Organization for Economic Cooperation and Development.
- Ominde, S.H. (1964). *The Kenya education commission report part 1*. Nairobi: Government Printer.
- Orodho, A. (2003). *Essentials of Educational and Social Science Research Methods*. Nairobi: Mazola Publishers.
- Psacharopoulos, G. & Woodhall, M. . (1997). *Education for Development: An Analysis of Investment Choice*. New York: Oxford University Press.
- Ryan, G. (2018). Introduction to positivism, interpretivism and critical theory. *Nurse Researcher*, 25(4), 41–49.
- Saunders, M. L. (2003). *Research Methods for Business Students* (3rd ed.). London: Prentice Hall. .

- Sawamura, N. & Sifuna, D. (2008). Universalizing Primary Education in Kenya: Is it Beneficial and Sustainable. *Journal of International Cooperation in Education*, 11(3), 103-118.
- Schady, R. (2001). Convexity and sheepskin effects in the human capital earnings function : recent evidence for Filipino men,. *Policy Research Working Paper Series 2566, The World Bank*.
- Schultz, T. P. (1988). Education Investments and Returns,. In H. Chenery and T. N. Srinivasan, *Handbook of Development Economics*. Amsterdam: North Holland.
- Schultz, T. P. (1993a). Returns to Women's Education. In e. E. M. King and M. A. Hill, *Women's Education in Developing Countries: Barriers, Benefits, and Policies*. Baltimore and London: The Johns Hopkins University Press.
- Schultz, W. (1961). Investment in human capital. *The American Economic Review*, 1(2), 1-17.
- Schulz T, W. & Becker, G. S. (1993). *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education (3rd Ed.)*. Chicago: University of Chicago Press.
- Sen, A. (1981). *Poverty and Famines*. New York: Oxford University Press.
- Sen, A. (1990). *Development as Freedom, Anchor Book*. New York: Random House).
- Sen, A. (2000). A decade of human development. *Journal of Human Development*, 1(1), 17–23.
- Sen, A. (2003). The Human Development Index. In D. Clark, *The Elgar Companion to Development Studies*,. Cheltenham: Edward Elgar.

- Sen, A. (2006). The Human Development Index. In D.A. Clark (Ed.), *The Elgar Companion to Development Studies*. Cheltenham: Edward Elgar.
- Shafiq, M. N. (2011). Do School Incentives and Accountability Measures Improve Skills in the Middle East and North Africa? The Cases of Jordan and Tunisia. *Review of Middle East Economics and Finance*, 7(2), 17 - 31.
- Sianesi, B., & Van Reenen, J. (2000.). The Returns to Education: A Review of Macro-Economic Literature. London: LSE.
- Singh, J., & Sorenson, O. (2006). Science, Social Networks and Spill overs. *Industry and Innovation*, 14(4), 219-238.
- Teal, F. (2011). Higher education and economic development in Africa: A review of channels and interaction. *Journal of African Economies*, 20(3), 50 –79.
- Toner, A. & Kamuzora, F. (2002). Development Interventions in Tanzania: From Projects to Direct Budgetary Support. Working paper 3 ‘Goodbye to projects?’. *Bradford Centre for International Development*.
- Trostel, P., Walker, I., & Woolley, P. (2002). Estimates of the economic return to schooling for 28 countries. *Labour Economics*, 9(2), 1-16.
- Turner, S., Cillers, J. & Hughes, B. . (2014). Reducing Poverty in Africa: realistic targets for the post-2015 MDGs and Agenda 2063,. *Africa Futures Paper 10 in Social Science Research Network*. .
- UNDP. (1990). *Concept and Measurement of Human development*. New York: Oxford University Press.
- UNDP. (2016). *Human development Report 2016, Human Development for Everyone*. New York: Oxford University Press.
- World Bank. (2003). *A Measurement approach to ending poverty and boosting posterity-concepts, data, and the twin goals*. Washington DC: World Bank.

World Bank. (2010). *Do Conditional Cash Transfers Lead to Medium-Term Impacts? Evidence from a Female School Stipend Program in Pakistan* . Washington DC.: World Bank .

APPENDICES

Appendix I: Letter of Introduction

Joshua M. Ng'elu

P.O. Box 72773-00200

Nairobi

Mobile: 0722847060

Dear Respondent,

RE: RESEARCH QUESTIONNAIRE

I am a Doctorate student at Jomo Kenyatta University of Agriculture and Technology, doing a research entitled to “the Social and Economic Effects Access of Access to Universal Education on Human Development among Households in Arid and Semi-Arid Lands in Kenya”. This forms part of the requirement for my Doctorate qualification.

I would appreciate if you would kindly take a little of your time to complete a questionnaire in an interview. Any information provided from you is purely for academic purposes and all responses will be treated with the strictest confidence. Your cooperation is most valued and appreciated.

I take this opportunity to thank you in advance for your quick return of your completed questionnaire.

Yours faithfully,

Joshua M. Ng'elu

Appendix II: Data Collection Instrument

Household Questionnaire

SOCIAL AND ECONOMIC EFFECTS OF ACCESS TO UNIVERSAL EDUCATION ON HUMAN DEVELOPMENT AMONG HOUSEHOLDS IN ARID AND SEMI-ARID LANDS IN KENYA

Filling Instructions

Kindly spare a few minutes to complete the questionnaire below.

Please read carefully and systematically and fill in answers to questions as honestly as possible by putting down your answers in the spaces provided or by circling where applicable

I take this opportunity to assure you that any information provided as per this questionnaire is purely for academic research purposes only

QUESTIONNAIRE IDENTIFICATION

Name of the Location _____

Name of the Sub - Location _____

Village _____

Date of interview _____

Questionnaire number _____

Name of household head _____

Name of enumerator _____

SECTION A. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF HOUSEHOLD

Q1. Gender of household head

Male []

Female []

Q2. Age of household head (**Complete years**).....

Q3. Household size (total number of family members).....

Q4. Number of children under-five years within the household.....

Q5. Area of residence

Urban []

Rural []

Q6. What is the highest level of education of the household head?

None (Not educated) []

Primary []

Post primary/ Vocational []

Secondary []

College/Middle level []

University []

Other, specify

Q7. What is the marital Status of the household head?

Never married []

Married

Separated

Divorced

Widowed

Q8. Which is main economic activity for the household head?

Salaried Employment (working for pay)

Business/Petty trading

Peasant/farmer

Casual Labour

Not employed / self-employed

Retired

Others (Specify).....

Q9. What is the basic monthly income for the household derived from the main economic activity? **(Give an estimate)**

Kshs.....

Q10. What is the monthly household expenditure? **(Give an estimate)**

Kshs.....

Q11 (a) Do you have monthly savings for the household?

Yes

No

(b) If yes, what is your monthly household saving? **(Give an estimate)**

Kshs.....

(c) If no, what are the main reasons for no monthly savings?

Inadequate income relative to needs []

Failure to know how to save []

Many accumulated debts []

Others, specify

SECTION B: HOUSEHOLD INCOME LEVEL

Q1. Have you received any monetary aid from the government or remittances from the relatives working abroad or working in major towns outside Machakos in the last 12 months?

Yes [] No []

Q2. If your household has received any social assistance from the government or remittances from the relatives working abroad or working in major towns outside Machakos County how were the funds utilized?

Starting an income generating activity Yes [] No []

Q3. In your own opinion, have the increase in the household income arising from cash assistance from government or relatives working outside Machakos helped in improving living standards at household level in terms of access to good health care, good housing among others?

Yes [] No []

Q4 If yes in Q4, how would rate such effect of the increase income level on household's living standards?

Very High []

High []

Moderate []

Low []

Very low []

SECTION C: HOUSEHOLD PRODUCTIVITY

Q1 Are you aware of the free primary and secondary education in Kenya?

Yes [] No [] →

Skip to Section D

Q2. Has anyone within your house hold benefited from the primary education and free secondary education.

Yes [] No []

Q3. (a) What is the total number of children from your household who are enrolled in primary school in the last one year?

(b) Out of these total number, how many are boys?

Q4. (a) What is the total number of children from your household who are enrolled in secondary school in the last one year?

(b) Out of these total number, how many are boys?

Q5 (a) what is the total children within your household who have completed primary school?

.....
.....

(b) Out of these total number, how many are boys?

Q6. What is the total children within your household who have completed secondary school?

(b) Out of these total number, how many are boys?

Q7. Within your household, what is the number of girls transiting to secondary upon completing primary school?

Q8. Do you have any of the household members who have finished secondary education under free secondary programme?

Yes [] No []

Q9. Has the household experienced any increase in income levels from the beneficiaries of the free primary and secondary education programme?

Yes [] No []

Q10 (a) in your opinion has the free primary and secondary education programme helped your households in improving the quality of life/ standards of living?

Yes [] No []

(b) If yes, specify how.....

Q11 In your own opinion, have the acquisition of universal education (free primary and secondary education) by the members of your household influenced their productivity at work?

Yes [] No []

Q12. If yes in Q15, has the improvement in their productivity at work influenced the household's living standards in terms of access to good health care, good housing among others?

Yes []

No []

Q13 If yes in Q16, how would rate such effect of the increase productivity on household's living standards?

Very High []

High []

Moderate []

Low []

Very low []

SECTION D: HOUSEHOLD'S ACCESS TO ALTERNATIVE LIVELIHOOD

Q1. If your household members have benefitted from free primary and secondary education programme, has the household experienced any saving from the programme?

Yes []

No []

Q2. If yes, how did your household use the savings?

Starting an income generating activity/ business Yes [] No []

Q3. If the savings were used to invest in an alternative income generating activity, have the proceeds of the investment transformed the household's economic status?

Yes []

No []

Q4. If yes in question 3, has the investment transformed the household's expenditure?

Yes [] No []

Q5. If yes in question 3, has the investment changed the household's purchasing power?

Yes [] No []

Q6. If yes in Q3, has the investment in alternative sources of livelihood influenced the household's living standards in terms of access to good health care, good housing among others?

Yes [] No []

Q7 If yes in Q5, how would you rate such effect of investment in alternative sources of livelihood by the household on household's living standards?

Very High []

High []

Moderate []

Low []

Very low []

SECTION D: HOUSEHOLD CIVIC PARTICIPATION

Q1. Are you aware of the following gender empowerment initiatives within your area?

Promoting girl child education by increased enrolment Yes [] No []

Campaigns against early marriages Yes [] No []

Education scholarships for female Yes [] No []

Upholding a third gender rule in leadership at local levels Yes [] No []

Q2. Has the household been participating in voting process in the county forums / matters such as county public participation forums?

Yes [] No []

Q3. In your own opinion have gender empowerment initiatives been helpful in improving the welfare of your household?

Yes [] No []

Q4. In your own opinion has the household's involvement in civil matters influenced the household's living standards in terms of access to good health care, good housing among others?

Yes [] No []

Q5 If yes in Q4, how would rate such effect of household's involvement in civil matters on household's living standards?

Very High []

High []

Moderate []

Low []

Very low []

SECTION E: STANDARDS OF LIVING

Q1. What is the approximate monthly level of income in your household?

Below KSh 10,000

Between KSh 10,001 – 20,000

Between KSh 20,001 – 30,000

Between KSh 30,001 – 50,000

Above KSh 50,000

Q2. Of the total monthly household income, what is the approximate monthly expenditure?

Below KSh 5,000

Between KSh 5,001 – 10,000

Between KSh 10,001 – 15,000

Between KSh 15,001 – 20,000

Above KSh 20,000

Q3. If any member of your household has benefitted from free primary and secondary (**Refer to question 2 in Section C**), what is the number of the beneficiaries, gender and their respective ages of free primary and secondary education?

Number of beneficiaries	Male	Female	Age bracket

Q4. If any member of your household has benefitted from free primary and secondary (Refer to question 2 in Section C), what is the number of the beneficiaries, gender and their respective ages?

Number of beneficiaries	Male	Female	Age bracket

Q5. Is your household connected to clean drinking tap water?

Yes []

No []

Q6. Does your household attend a public or a private health facility more often when seeking for treatment?

Public health facility Yes [] No []

Private health facility Yes [] No []

Q7. What are the main reasons of preferring Public health facility(*tick the one selected in Q4 above*) health facility?

Could not afford the cost of medication Yes [] No []

No means of transport Yes [] No []

Distance to health facility' Yes [] No []

Could not afford transport cost to the hospital Yes [] No []

Unsatisfactory past experience Yes [] No []

Thought health problem was not serious enough Yes [] No []

The facility was closed Yes [] No []

END OF INTERVIEW: THANK THE RESPONDENT FOR HIS/HER TIME

COMMENT ON ANY OBSERVATION: