

**FACTORS AFFECTING POVERTY LEVELS IN KENYA: CASE STUDY BUSIA COUNTY.**

**By**

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## **DEDICATION**

This work is dedicated to my wife Phoebe and daughter Joy, father Patrick, mother Julia and my siblings: Vinns, Kandida and Jemester for always giving their support and love. I am so thankful.

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## ABBREVIATIONS AND ACRONYMS

ASALs	Arid and Semi Arid Lands.
CA	Capability Approach to poverty assessment.
CDF	Constituency Development Fund.
CPI	Consumer Price Index.
DOGEV	Dogit Ordered Generalized Extreme Values.
GAR	Gross Attendance Ratio.
GDP	Gross Domestic Product.
GNP	Gross National Product.
HH	Household.
KIHBS	Kenya Integrated Household Basic Survey.
KNBS	Kenya National Bureau of Statistics.
NAR	Net Attendance Ratio.
NGOs	Non Governmental Organizations.
NSS	National Statistical system.
PPA	Participatory Poverty Assessment.
PRSP	Poverty Reduction Strategy Paper.
PSU	Primary Sampling Unit.
SES	Social economic status.
WB	World Bank.
WHO	World Health Organization.
WMS	Welfare Monitoring Surveys.
WMSR	Welfare Monitoring Surveys Report.

## ABSTRACT

Poverty has been a key challenge and has remained persistently high in Kenya. Several measures have been undertaken towards poverty alleviation. However, poverty has remained pervasive in many parts of the country. In Busia county poverty rate has remained persistently high. To alleviate poverty, it is important to understand the specific factors affecting poverty in the specific areas or counties. This paper presents an analysis of factors affecting poverty in Busia County with an aim of contributing to efforts towards poverty alleviation.

The logistic model is used to analyze factors affecting poverty in Busia using the KIHBS 2005/6 data. The results indicate that age, marital status, family size and ownership of assets such as land and livestock significantly affect the poverty status. The variables that are negatively correlated with poverty include age of the household head and asset (land and livestock) ownership. Marital status and size of the household are positively correlated with the probability of being poor. Religions, education, other income sources, practicing agriculture, transfers, access to credit do not significantly affect poverty status in the county. The study recommends that the government should enhance assistance to farmers by providing education, market, subsidies, extension services, research and development together with other support required to improve in their productivity and income growth. Policy makers should also focus on family planning awareness campaigns to reduce the dependency ratio and promoting investment amongst the youth these efforts will lead to increased income and poverty reduction in the county.

## CHAPTER 1.

### 1.0 Introduction.

Poverty has been wide spread and has remained pervasive in Kenya. According to the KIHBS 2005/6 estimates, rural poverty rate is estimated at 49.1 percent and 33.7 percent in the urban areas. The Welfare monitoring survey III (1997) shows rural poverty was at 52.93 percent and urban poverty at 49.2 percent. The Kenyan economy recovered from a low growth of 0.5 percent in 2003 to 7 percent in 2007. Despite of the achievements realized towards economic growth, the rural poverty rates have remained high over the years. The indicators of poverty relate to the various challenges of poverty that include food security, health, nutrition, education, housing, clothing, human and civil rights, the quality of social networks as well as psycho-social indicators such as self esteem ( Zeller et al 2006).

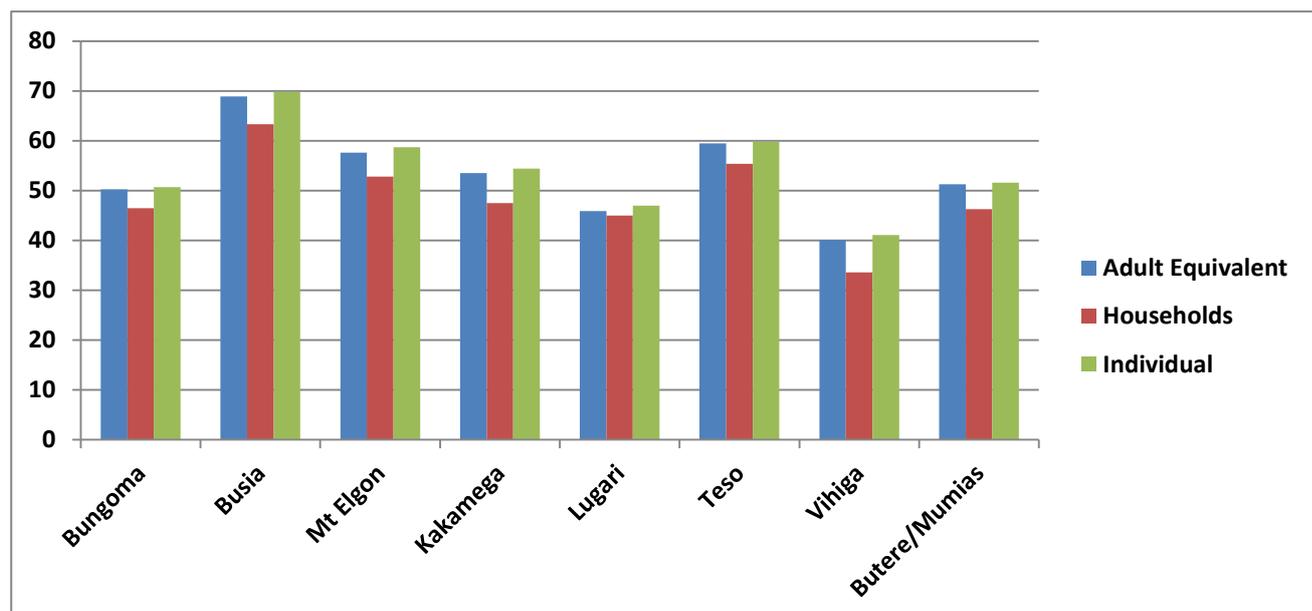
The rural households have been distinguished by their in ability to engage in profitable ventures. They have poor nutrition, low health standards, and low productivity. Their incomes are also characterized by seasonal fluctuations. Households in these areas have limited access to markets and service institutions like credit institutions, extension and plant protection (Ogato *et al.*, 2009). In Kenya 65 % of the population live in the rural areas and they depend on agriculture. However, agriculture productivity has remained low. Productivity has been poor because of erratic rainfall and other challenges the farmers face. Table 1 below shows comparative rural and urban poverty rates between 2006 and 1992.

**Table 1: Absolute Poverty Rates in Kenya.**

SOURCE	Rural	Urban
KIHBS (2005/06)	49.1%	33.7%
WMS III (1997)	52.93%	49.2%
WMS II (1994)	46.75%	28.95%
WMS I (1992)	46.33%	29.29%

The statistics show that poverty has been high in some regions as compared to others. In addition the poverty rates have remained persistently high in the rural areas. Busia County is among the poorest counties in Kenya with a poverty rate of 69.8 percent according to KIHBS (2006).The county is resource endowed and has untapped potential in trade, agriculture, tourism, fishing and commercial business. The county has the highest poverty level in Western province as depicted below.

Figure 1.1 Western province absolute poverty rates 2005/6



Source: Basic report on well being in Kenya 2007

Understanding factors affecting poverty is important towards poverty alleviation. This study aims at identifying the factors affecting poverty in Busia County with an aim of informing policy formulation towards poverty alleviation.

## 1.2 Problem Statement

Poverty has been identified as key challenge to human development in Kenya since independence. Though attempts have been made to understand and tackle it, poverty incidence has continued to increase over the years, from 30 percent in 1970 to 37.5 percent in the 1980s to 45 percent in the 1990s and above 50 percent in the last decade. It is estimated that 16.5 Million Kenyans are living in households whose reported incomes is insufficient to afford all the basic necessities (KIHBS, 2006). Poverty has remained a major threat to many Kenyan households well being, with far reaching negative implications on security and economic well being of those who are not poor.

In Busia County it is estimated 69.8 percent of the population live below the poverty line. The county has the highest poverty in Western region and is among the counties with highest poverty levels nationally. In tackling poverty challenge, it is important to understand the distinct regional challenges affecting poverty. Poverty in Busia County

seems like a paradox as the county has great potential in agriculture and business opportunities. It is therefore important to seek urgent intervention measures to eliminate the suffering of the many poor in the county.

Poverty studies are important in providing solution to this challenge. The past poverty situation analysis have concentrated on urban, rural and overall poverty measures. Some earlier poverty studies done focused on inequality and welfare issues while other studies including Mwabu et al (2000), Mariara (2002) and Geda et al (2001) focused on determinants of poverty but at a national level. Gongji(2006) study done in Western province focused on measuring poverty situation in Kakamega District. Ekaya et al (2012) studied factors influencing transient poverty but focused on agro-pastoralists in semi-arid areas of Kenya. Few studies have focused on factors affecting poverty at the district or County level in Kenya.

It is not adequate to know how many are poor and have knowledge general determinants of poverty at the national level, information on the factors affecting poverty at the county level is essential towards effective poverty eradication efforts. Studies like these are important in counties where poverty rates have remained persistently high. This study aims at assisting in identification of the right effective policy measures needed to tackle poverty at county level by studying factors affecting poverty in Busia.

### **1.3 Objectives of the Study**

- i. To analyze the factors affecting poverty levels amongst households in Busia County.
- ii. To make policy recommendations in an attempt to curb the poverty level in Busia County.

### **1.4 Justification of the study**

This study will enable the government to understand the distinct poverty challenge in Busia County. Moreover, it will be useful to the policy makers in helping them to understand the factors affecting poverty level in Busia which is critical for policy analysis and designing of effective poverty reduction strategies for the county.

## **1.5 Organization of the study**

The structure of the study is as follows: The second chapter presents literature review on the study topic and the implication of the literature review. Chapter three discusses the data and explanatory variables, analytical technique, methodology of the study and the study area. Results of the analysis will be presented in chapter four while chapter five presents conclusions and recommendations for policy together with recommendations on areas of further research in the subject.

## CHAPTER 2:

### 2.0 LITERATURE REVIEW

#### 2.1 Empirical Literature.

Poverty is a key bottleneck to human development and economic progress. A number of studies have been done on poverty. These studies have adopted different approaches to analyzing poverty across countries and regions. Two main approaches have been used in identifying the determinants.

The first approach uses consumption expenditure per adult equivalent. A regression is done against potential explanatory variables (Geda *et. al.*, 2001). With this approach, critics argue that consumption is not a good indicator of welfare and the assumption that consumption of the poor and non-poor are both determined by the same process has also been challenged (Okwi,1999). The consumption approach assumes that consumption expenditures are negatively correlated with absolute poverty at all expenditure levels. By the same understanding, factors which increase expenditure reduce poverty. However, this is not always the case, for instance increasing consumption expenditure for individuals above the poverty line will not affect the poverty level. This approach has been less popular because of its inherent weakness.

In the second approach a discrete choice model is used in the analysis of determinants of poverty. Several studies have used this approach. These include studies done by Mariara (2002) and Geda *et al.*, (2001) for Kenya. The analysis employs binary logit or probit model to estimate the probability of a household being poor. In some cases the households are divided into absolute poor, poor and non-poor and then an ordered logit is employed to identify the factors which affect the probability of a household being poor .This approach is preferred to the former in poverty analysis because of the its merits.

The discrete choice model has a number of positive features in comparison to the expenditure approach. The expenditure approach unlike the discrete choice models does not give probabilistic estimates for the classification of the sample into different poverty categories. That implies that we cannot make probability statements about the effect of the variables in the poverty status of our economic agents. On the other hand the discrete choice model allows the effects of independent variables to vary across poverty

categories. The second approach tries to capture any heterogeneity between the moderate poor, non-poor and absolute poor. This is not possible in the expenditure function approach.

The discrete choice model approach of modeling poverty is not without flaws. The major concern is that there is loss of information when we create categories of poverty status by the level of consumption expenditure or income. Secondly the fact that all those who are above the poverty line are intentionally considered to be homogenous or identical may not be realistic (Jolliffe and Datt, 1999). The approach has a challenge in the setting of the absolute poverty line. This necessitates the usage of some dominance analysis to check the robustness of the poverty line that we employ. Lastly we need to assume that the distribution is non linear model. Moreover there are two fundamental problems built in to the underlying assumption of employing standard ordered logit and Multinomial logit model. They are restrictive because they make the parameters to be the same across groups. Ordered logit models necessitate the specification of a single latent variable in a linear function. Consequently these models do not have the flexibility of multivariate probit (Small, 1987). Different studies have been undertaken with the different approaches.

Geda et.al (2005) uses household level data from the Welfare Monitoring Survey collected in 1994 to examine probable determinants of poverty status in Kenya. The study employs both binomial and polychotomous logit models. The study shows that poverty status is strongly associated with the level of education, house hold size and engagement in agricultural activity, both in rural and urban areas. In general, those factors that are closely associated with overall poverty according to the binomial model are also important in the ordered-logit model, but they appear to be even more important in tackling extreme poverty. The studies show that these models are useful in poverty studies and have limited weakness which can be improved.

This study notes that those factors that are closely associated with overall poverty according to the binomial and polynomial logit model are also important in the ordered-logit model. McCullagh (1980) emphasizes an interpretation in terms of odds ratios. The log odds ratio is expressed as a linear function of the explanatory variables in the

binomial logistic model. This model has also been used by Nortney et al.,(2011) and Mwabu et al., (2005).

$\ln(P_i) = \log\left(\frac{P_i}{1-p_i}\right)$  where  $P_i$  is defined as the success probability corresponding to the  $i$ th observation,  $\log\left(\frac{P_i}{1-p_i}\right)$  is the odds ratio. The coefficients  $\beta$  are the parameters in the model.

Nortney et al (2011) analyzes trend analysis of determinants of poverty in Ghana using the logit approach. The study indicates that households that have larger sizes, household heads with less education and those with heads that have agriculture as their primary occupation are poorer. Also households in rural localities and the savanna zone are poorer. It was also evident that while the living standards of households with large sizes and those with agriculture as primary occupation were improving over the years, the households with illiterate heads and those who live in the savanna zone were becoming worse off. From the study we note that the binomial logit modeling is an important criterion for the judgment of the poverty status of individual households. The approach explains why some population groups are poor and others non-poor considering their expenditure pattern.

Using farm level data Okwoche et al (2012) sampled 389 peri-urban farmers in Benue State, Nigeria to estimate the determinants of poverty depth among the peri-urban farmers in Nigeria. Data collected for the study was analyzed using Tobit regression model. The study showed that 71.1% variation in poverty depth was explained by farm total economic efficiency, household income, farm size, household size, age, education, farming experience, access to credit, gainful employment for household members, membership to a farmer association, extension contact and ownership of a valuable farm asset. However, a sustained improvement in farm total economic efficiency and per capita income as well as redistribution of household income to minimize income inequality would go a long way to reduce poverty depth among the respondents. Furthermore, improved farmer's access to technological information and collective farmers institutions that provide opportunities for risk sharing and improved bargaining power that are not available to individual farmers, will lead to poverty reduction. Improvement in the educational opportunities of the farmers will lead to increased

income from farming and improvement in the quality of life and hence poverty reduction. The study helps in identification of explanatory variables and detailed analysis of the effect of the variables.

Modeling determinants of poverty has also been done using the DOGEV model. This was used to establish determinants of poverty in Eritrea by employing Eritrean Household Income and Expenditure Survey 1996/97 data (Fissuh and Harris, 2005). The study found that education impacts welfare differently across poverty categories and there are pockets of poverty in the educated population sub group. Effect of household size is not the same across poverty categories. Contrary to the evidence in the literature the relationship between age and probability of being poor was found to be convex to the origin. Regional unemployment was found to be positively associated with poverty. Remittances, house ownership and access to sewage and sanitation facilities were found to be highly negatively related to poverty. This study also notes that there is captivity in poverty category and a significant correlation between poverty orderings which renders usage of standard multinomial/ordered logit in poverty analysis less defensible. The comparison of this outcome with other studies highlights importance of methodology employed.

In a study of poverty in Cote d'Ivoire, Grootaert (1997) showed that education was influential in reducing the likelihood of being poor with the effect being more intensive in the rural areas. Okurut *et al.* (2002) also found similar results with respect to Uganda, where the change of being non-poor was higher for household heads with higher levels of education. Education has been seen to have a significant role in poverty alleviation as revealed from the different studies.

In Kenya, a few studies have been done on determinants of poverty. Using probit model to analyze 1994 Welfare Monitoring Survey in Kenya, Oyugi (2000) identifies a set of household characteristics as explanatory variables. The study analyses poverty at both household and district level. This was identified as unique and important amongst the previous poverty studies. The study goes ahead to estimate a probit model. The explanatory variables used in the study include: holding area, livestock unit, the proportion of household members able to read and write, household size, sector of economic activity, source of water for household use, and off-farm employment. The study helps in highlighting poverty indicators at district level analysis.

A similar approach was used by Omoro (2000) using a probit model analysis to analyze poverty in Kenya. However, the distinction of this study is that the model was estimated using data from the household rather than the individual. The dependent variable in the model was the poverty status; the explanatory variables (household characteristics) included: livestock units, proportion of household member's ability to read and write, source of water for household use, and presence or absence of off-farm employment. The results showed that age, household size, residence, literacy level and level of schooling are the five most important determinants of poverty at the national level. Notable is that, key determinants in order of importance are reading and writing, employment in off-farm activities, agriculture, having a side business in the service sector, source of waters and household size. Region of residence appears to be equally important in determining poverty status in both approaches. Apart from highlighting order of importance of poverty indicators the study also shows importance of probit models in poverty studies.

Household welfare function approach was used by Mwabu et al. (2000). This was approximated by household expenditure per adult equivalent. Two categories of regressions are done, using overall expenditures and food expenditures as dependent variables. The study identified unobserved region-specific factors, mean age, size of household, place of residence (rural versus urban), level of schooling, livestock holding and sanitary conditions as the dependant variables. The study notes that the importance of these explanatory variables is that they do not change whether the total expenditure, the expenditure gap or the square of the gap is taken as the dependent variable. The only noticeable change is that the sizes of the estimated coefficients are enormously reduced in the expenditure gap and in the square of the expenditure gap specifications. In addition the study identifies weaknesses of the probit model and the welfare function approaches.

Some studies have focused on poverty movement measurement. Burke et al. (2007, 2008) explore poverty movements using an asset-based measure of poverty. Mathenge and Tshirley (2008) analyze household income growth and mobility with an emphasis on education's contribution and poverty persistence. Burke and Jayne (2008) explore spatial dimensions of poverty and find strong evidence for spatially differentiated poverty rates but no compelling evidence for spatial differences in household's movement in and

out of poverty. Mwabu et al. (2005) study notes that strategies aimed at poverty reduction need to identify factors that are strongly associated with poverty.

Elhadiet al., (2012) study determines the factors that influence transient poverty among agro-pastoral communities in semi-arid areas of Kenya using Baringo district as a representation. Regression techniques were used to determine the relationship between poverty and hypothesized explanatory variables. The numbers of livelihood sources, household size, distance to the nearest market, herd size were the most influential factors that determined poverty among agro pastoral communities. The number of livelihood sources, education level of the household head, relief food, extension service and distance to the nearest markets were positively related to per capita daily income.

A negative relationship was observed between per capita daily income and household size. The OLS model showed that relief food has positive and significant influence. However, the binary logistic model revealed that herd size had a positive and significant influence on poverty incidence. This study gives details of poverty indicators in both positive and negative direction.

Study on impact of remittances on poverty in Kenya (Kiiru, 2010) used the econometric models to analyze the KIHBS data 2005/06. The results show that remittances have positive effect on household consumption and that they have been used to deal with household economic shocks. Remittances have been used to cushion the impacts from these shocks. The study also shows that social networks are very significant determinants of remittances and therefore welfare.

## **2.2 Gaps in the Literature Review**

The above literature review is important in understanding the findings over time of previous poverty studies that have been done. The review has helped us in identifying the methodology to employ. It reveals that the discrete model approach is a more popular approach in poverty studies. The approach has a number of positive features in comparison to the expenditure approach in studying poverty. For instance, the discrete model approach gives probabilistic estimates unlike the expenditure approach. The review also helps us to learn that the methodology applied is important in affecting results of the study. The studies done using different approaches identified some factors as important in affecting poverty levels. Education was identified by several studies as an

important factor affecting poverty. The review therefore helped us in identifying the key explanatory variables to include in our study. The review identified that there have been few studies done at district or county level in Kenya. Most of the previous studies focused on poverty at national level this include Fofack (2002) for Burkina faso, Mariara (2002) for Kenya; Dorantes (2004) for Chile and Geda et al (2001) for Kenya. This study seeks to bridge this gap .This study contributes to poverty literature in Kenya by identifying the unique challenges faced by regions like Busia which have agriculture and other economic potential but have remained poor over the years. The study also includes remittances as an explanatory variable, which other previous studies did not focus on.

## CHAPTER 3.

### 3.0 RESEARCH METHODOLOGY

#### 3.1 Model specification

The study uses the logit model to determine the factors affecting poverty levels. The dependant variable (Y) is assumed to be dependant on  $k$ -observable variables ( $i= 1, 2... k$ ).  $P = P(Y = 1/ X_1...X_k)$ , where  $X$  denotes the set of  $k$ -independent variables.

$$\ln\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \beta_1 X_{1i1} + \dots + \beta_k X_{ki} + e_i$$

Where,  $P_i$  is defined as the success probability corresponding to the  $i$ th observation. The coefficients  $\beta$ s are the parameters in the model,  $X_i$  are the explanatory variables and  $e$  is an error term. The observations are assumed to be independent of each other similarly it is also assumed that there is no exact linear dependencies that exist among the explanatory variables. The model is useful in testing significance of the explanatory variables in explaining poverty status.

$Z = \beta_0 +$

#### 3.2. Definition of Variables.

The dependent variable in the logistic regression in this study is a dichotomous variable of whether the household head is poor (1) or non-poor (0). The predictor variables include: education of household head, household size, remittances, number of livelihood sources, sex of household head, age of household head, access to credit, engagement in agriculture, farm size, number of livestock owned. The study analyzes how the variables affect poverty status of a household head.

**Table 2: Definition of the Variables.**

<b>Variable</b>	<b>Operational measure</b>	<b>Variable symbol</b>	<b>Expected sign</b>
<b>Education of the household head.</b>	=1 if no education 0 if otherwise =1 if primary and 0 if otherwise =1 if post secondary/university 0 if otherwise	educ	-
<b>Household size.</b>	Numberof household members	hhz	+
<b>Remittances.</b>	1=receives remittances and 0 if otherwise.	rem	-
<b>Number of income sources.</b>	number of income sources	lvh	-
<b>Sex of household head.</b>	=1 if male and 0 otherwise	sex	-
<b>Age of household head.</b>	Age of the household.	age	+
<b>Access to credit.</b>	=1 if yes and 0 otherwise.	crdt	-
<b>Engagement in farming.</b>	=1 if yes and 0 otherwise	farm	+
<b>Farm size.</b>	Size in acres	fasz	-
<b>Number of livestock owned.</b>	Number of cows.	lvst	-

### **3.3 Description of variables**

#### **a) Education of household head.**

Poverty of a household is expected to decrease as level of education of the household head increases. This is because education is expected to provide an opportunity for households to diversify their livelihood portfolios (Wasonga, 2009). Education attained by the head of a household is expected to influence access to information, and opportunities, consequently affecting poverty status of a household.

#### **b) Household size.**

The household size will be considered to include: Household head, the spouse, offspring and dependants present at the time of interview. As the household size increases, it is expected that households experience reduced poverty levels, reaching a certain level, where poverty increases with increase in family size according to Nyariki *et al* (2002).

#### **c) Remittances.**

Wage transfers received from employed family members is expected to reduce the poverty of households. Remittances ease the dependency on livestock, crops cultivation and land resource base therefore reducing poverty. Household receiving remittances are therefore expected have more stable income and are more secure in food and other needs. (Elhadi, 2012).

#### **d) Number of income sources.**

Diversification of income sources apart from farming income is expected to be inversely related with poverty. Agricultural production is characterized by high risk and uncertainty. Households normally rely on other livelihoods to cushion them from natural shocks such as droughts (Herlocker, 1999). Other alternative livelihoods may include: business opportunities and being in employment. Therefore, households that have alternative livelihoods are expected to be more stable than those that depend on livestock and crop cultivation alone.

#### **e) Sex of household head.**

The head of the household is the senior most member of the household. Poverty levels are expected to be high amongst female headed households as compared to male headed households. The male household heads are expected to be more advantaged when it comes to income making opportunities as compared to the female counterpart.

#### **f) Age of household head**

The incidence of poverty is expected to increase with the age of the household. It is expected that the older the household head gets, the more challenging it becomes to compete for the scarce resources and income opportunities. The youth are expected to be more educated and informed than their older counterparts on profitable ventures and opportunities and therefore have higher incomes.

#### **g) Access to credit**

Access to credit is expected to help in reducing level of poverty amongst the poor. Credit is expected to assist households to overcome challenges they face. Credit provides capital to purchase key inputs of production. This helps to increase the levels of the output, income and savings leading to increased capital and investment which may help in poverty alleviation. Household unable to access credit are expected to be more vulnerable to poverty.

#### **h) Engagement in agriculture**

This includes mainly crop production and livestock husbandry. Engagement in agriculture as the main source of livelihood is expected to increase the chance of being poor. It is expected that poverty is concentrated in the agricultural sector. Being dependant on the agricultural sector increases the probability of being poor (Mwabu et al, 2005). This may be as the result of seasonal fluctuations and riskiness of agriculture production in Kenya.

#### **i) Farm size**

The farm size is expected to be inversely related to poverty status. Land is an important factor of production which is essential in production and income generation. Land combined with other factors of production including capital, labour and entrepreneurship are key inputs in the production process. Households endowed with these resources are therefore expected to have lower poverty levels.

#### **j) Number of Livestock owned.**

Ownership of livestock is expected to reduce poverty as it diversifies income sources. Their productivity of milk, meat and other products increase the income of the households who have ownership of livestock. Therefore households endowed with livestock are expected to be less poor as compared to the households who own less or have no livestock.

### 3.4 Study area

Busia County is located in the Western part of the country. It lies between latitude 0° and 0° 45 north and longitude 34° 25 east and covers an area of 1694.5 km<sup>2</sup>. It has five constituencies namely: Matayos, Nambale, Butula, Amagoro and Funyula. It borders Lake Victoria, the Republic of Uganda, Bungoma, Kakamega and Siaya counties. Busia is situated at the extreme western border of the country.

The average temperature is 22°C and the rainfall amount ranges between 750mm and 1,800mm per annum. Most parts of Busia County fall within the Lake Victoria Basin. The altitude is undulating and rises from about 1,130m above sea level at the shores of Lake Victoria to a maximum of about 1,500m in the Samia and North Teso Hills.

The population is estimated to be 743,946. Agriculture employs 71% of Busia habitants, with over 80% engaging in Agriculture. The major crops include: Maize, sorghum, cassava, rice, beans, groundnuts, sugarcane, cotton and oil palm. Residents depend on financial services from 8 banks and 4 micro finance institutions. More than half of the residents are living below the poverty line.

Poverty rate based on KIHBS (2006) was estimated to be 66.7% in the county. Household Welfare Monitoring Survey II done in 1994 estimated 33.6% chronic malnutrition among children below 5 years in the county and only 9.9% of the residents have attained secondary education. Only 56.7% of the residents are able to read and write. The county has challenges evidenced with high unemployment rate, poor housing structures, and poor nutrition among other poverty related challenges. The characteristics of the county with great potential but with high poverty levels make it suitable for studies on poverty alleviation.

Poverty in the county has been attributed to poor infrastructure, HIV/AIDS and prevalence of other health diseases, insecurity, challenges in accessing key resources including land and credit. The infrastructure in the county is poorly developed with the main highway in the district being in a poor state. This makes transportation challenging which hampers transport of agricultural products or makes it costly. Though the county has great potential, many people are lazy or idle and a number of young intelligent men have opted to work as “Boda Boda” bicycle riders to transport goods and people.

FIG 1 :BUSIA COUNTY MAP



Source:Google maps.

### **3.5 Data type and Sources**

The KIHBS 2005/6 data will be used for the study .The data was collected to measure living standards and poverty in Kenya .The National Sample Survey and Evaluation Programme (NASSEP-IV) sampling frame composed of 1800 clusters selected with probability proportional to size from a set of all enumeration areas used during the 1999 population census. The KIHBS clusters sampled in each district were selected with equal probability from the NASSEP-IV frame. A total sample of 13430 households which consisted of each 1343 primary sampling units (clusters) was used. The clusters were selected from a pool of 1800 clusters which consisted of 540 urban and 1260 rural. The total sample sizes in rural and urban areas were 8610 and 4820 households respectively.

For Busia County total of 170 households: 90 rural and 80 urban were interviewed. This represents the sample that will be used in this study. The survey instruments used included questionnaire, expenditure diaries and global positioning system unit (GPS) which was used to capture precise location of each household within the cluster. The data collection took 12 months from May 2005.Poverty line will be used to identify the poverty status of the households.

## **CHAPTER FOUR.**

### **4.0 DATA ANALYSIS, RESULTS AND DISCUSSION**

#### **4.1 Introduction**

In this chapter the findings of the study are presented. Descriptive statistics on factors affecting poverty levels in Busia are discussed. The descriptive statistics present social economic status and characteristics of the households. The Logistic regression estimates and analysis of factors affecting poverty in Busia are also presented in this chapter.

#### **4.2 Descriptive Statistics.**

The descriptive statistics which include mean and standard deviation of the various variables analyzed in the study as shown in Table 3. The data shows that 50% of the household heads were male while 62% of the house hold heads are married. The average household size is 5 household members. The descriptive statistics indicate that the mean age of respondent's is 23 years.

The data shows 82% of the household heads had attained primary education. In the county the statistics indicate that 85% of the households practice agriculture. The mean land size owned per household head is 1.23 acres and the average livestock ownership is 6 livestock head per household. The variables with large standard deviation include number of livestock and the land size owned. This shows the existing gap between the rich and the poor. The findings also show that about 36% of the households had access to credit, 46% receive remittances from other family members living elsewhere away from their households, while only 8% of the households have other alternative income sources apart from agriculture.

**Table 3: Sample Characteristics**

Variable	Mean	Standard deviation
Sex (1:male)	0.50	0.71
Marital status(1:Married)	0.62	1.73
Household size	5.39	2.32
Age of household	22.99	4.79
Primary school	0.82	1.08
Land ownership(Acres)	1.23	1.1
Practice Agriculture	0.85	0.923
Number of livestock owned	5.72	2.24
Access to credit	0.35	0.7
Alternative Income sources	0.8	1.22
Remittances	0.46	1.02
Sample size	170	

#### **4.2.1 Poverty status of a household.**

To establish the poverty status the study used the KIHBS 2005/6 set absolute rural overall poverty line at Kes 1562 per month (KNBS, 2007). The overall poverty line was set in consideration to the rural food poverty lines set at the cost of consuming 2,250 kilocalories per day. The absolute poverty line derivation takes into account the average of the non-food component consumption which was then added to the food poverty line. The non-food components included expenditure on shelter, clothing, and hygiene. The calorie content in the basic food bundles was determined by National public health Laboratory services (1993). The study used consumption expenditure approach. The study shows that 61.6% of the households in sample were living below the poverty line in Busia County.

#### **4.2.2 Poverty status and household size.**

The statistics show that households that are larger in size have a higher chance of being poor. The results show that 9.6% of the households that have 1 or 2 household members are poor while 32.5% have more than 5 household members who are poor. The statistics show that there is increase in poverty with increase in household size.

**Table 4: Poverty status and household size.**

Poverty status	Household size	Household size	Household size	Total
	1-2	3-5	Greater than 5	
poor	10 (9.6%)	39(23%)	55(32.5%)	104
Non-poor	13 (7.7%)	28(16.6%)	25(14.2%)	66
<b>Total</b>	<b>23</b>	<b>67</b>	<b>80</b>	<b>170</b>

#### **4.2.3 Poverty status and level education.**

As indicated in Table 5 below 47.9% of the poor households had primary education while 13.8% of the poor households had secondary education. Similarly, 31.25% of the non-poor households had primary education while 6.9% of the non-poor households had secondary education. The results show no significant difference on poverty status amongst the households with primary and secondary education.

**Table 5: Poverty status and level education (Primary and Secondary Education).**

Poverty status	Primary education	Secondary education	Total
poor	69(47.9%)	20(13.8%)	89
Non-poor	45 (31.25%)	10 (6.9%)	55
<b>Total</b>	<b>114</b>	<b>30</b>	<b>144</b>

The analysis as depicted in Table 6 indicates that 52.7 % of the households are poor and attended school while 8.9% of the poor households never attended school. The study shows that there exist pockets of poverty amongst households who have education. The findings are similar to the study done to establish determinants of poverty in Eritrea by Fissuh and Harris (2005). The study found that education impacts welfare differently across poverty groups.

**Table 6: Poverty status and education (Ever Schooled)**

Poverty status	Ever schooled	Never schooled	Total
poor	89(52.7%)	16 (8.9%)	105
Non-poor	55 (32.5%)	10 (5.3%)	65

<b>Total</b>	<b>144</b>	<b>25</b>	<b>170</b>
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#### 4.2.4 Poverty status and access to transfer income.

As depicted in Table 7 below, 27.2 % of the household heads who receive transfers are poor while 32 % of the household heads that are poor do not receive transfer income. The results show that access to transfer income has dismal effect towards the poverty status of household heads.

**Table 7: Poverty status and access to transfer income.**

Poverty status	Households that access transfers	Households without access to transfers	Total
poor	46(27.2%)	54(32%)	100
Non- poor	33(19.5%)	37(21.3%)	70
<b>Total</b>	<b>79</b>	<b>91</b>	<b>170</b>

#### 4.2.5 Poverty status and diversification of income sources.

The analysis in table 8 below shows that 8.2 % of the household heads who are poor have other income sources apart from agriculture whereas 49.1 %of the household who are poor have no other income sources apart from agriculture. Similarly 10.1% of the household heads who are non-poor have other income sources apart from agriculture while 32.5 %of the household who are non-poor have no other income sources apart from agriculture. The results show that spread of poor and non-poor is almost equal across those household heads with other income sources apart from agriculture and those who have no other income sources apart from agriculture.

**Table 8: Poverty status and diversification of income sources.**

Poverty Status	Households With Other income Sources	Households Without Access To Other income Sources	Total
poor	14(8.2%)	83 (49.1%)	97
Non-poor	17(10.1%)	56 (32.5%)	73
<b>Total</b>	<b>31</b>	<b>139</b>	<b>170</b>

#### 4.2.6 Poverty status and gender.

The sample data set shows 50% of household heads are men and 50% are women. Moreover, the study shows 34.9% who are poor are female headed households while

23.1 % of the poor are male headed households. Similarly, the proportion of the non-poor female headed households is 14.8% while male headed household is 54% .The proportion of poor households amongst the male and female headed household is almost equal.

**Table 9: Poverty status and gender.**

Poverty status	Female	Male	Total
poor	59(34.9%)	39 (23.1%)	98
Non-poor	25(14.8%)	47(54%)	72
Total	84	86	170

#### 4.2.7 Poverty status and age.

The results show that 17% of the poor households are aged between 18 and 35 as compared to 11.7% of the poor households who are over 35yrs .Similarly the results show that 8 % of the non- poor households are aged between 18 and 35 as compared to 37.64% of the non-poor households who are over 35yrs as depicted in Table 10 below. The findings show that age affects the poverty level of the households in Busia County. The results indicate as the age of the household head increases poverty levels reduce.

**Table 10: Poverty status and age.**

Poverty status	18-35yrs	>35yrs	Total
poor	29 (17%)	20 (11.7%)	59
Non-poor	15 (8%)	64(37.64%)	69
Total	44	84	128

#### 4.2.8 Poverty status and access to credit.

Table 11 above shows that 20.7 % of the poor households had access to credit while 41.4% of the household heads who were poor had no access to credit. Similarly 15.4 % of the non-poor households had access to credit while 22.5% of the household heads who were non-poor had no access to credit. The results show that the effect of access to credit is dismal amongst the household in the sample.

**Table 11: Poverty status and access to credit.**

Poverty status	Households that access credit	Households without access credit	Total
poor	35(20.7%)	70(41.4%)	105
Non-poor	26(15.4%)	39 (22.5%)	65

Total	61	109	170
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#### 4.2.9 Poverty status by occupation of a household head.

The analysis shows that 11.2 % of the poor household heads are employed in non-agriculture sector while 50.9 % poor households are employed in Agricultural sector. Table 12 also shows 3 % of the non-poor household heads are employed in non-Agriculture sector while 34.9 % non-poor households are employed in agricultural sector. The results show that majority of the rural households are employed in agriculture. Additionally, the results show that poverty spread is almost similar across the two groups.

**Table 12: Poverty status by occupation of a household head**

Poverty status	Household occupation in Non-Agriculture sector	Household Occupation in Agriculture sector	Total
poor	19(11.2%)	86(50.9%)	105
Non-poor	5(3.0%)	60(34.9%)	65
Total	24	146	170

#### 4.2.10 Ownership of land and poverty status.

Table 13 shows 83.4% of the household heads in the sample had ownership of land whereas 16.6% had no land ownership. Among the poor, 34.3% household's heads in the sample had land while 13% household heads had no land ownership. In contrast, among the non-poor 49.1% households own land, while 3.6 % are landless. The results show that ownership of land is an important factor in reducing poverty status of the households in Busia.

**Table 13: Ownership of land and poverty status.**

Poverty status	Land	Landless	Total
poor	58(34.3%)	22 (13%)	80
Non-poor	83(49.1%)	7 (3.6%)	90
Total	141 (83.4%)	29(16.6%)	170

#### 4.2.11 Poverty status and marital status.

The sample results as shown on table 14 below indicate that 37 % of the household heads in the sample who are married are poor whereas 25.3% of the household heads who are not married are poor. The non-poor household heads are represented by 25.3% households who are married as compared to 12.4% that are not married. The analysis

shows that the married house heads are more vulnerable to poverty.

**Table 14: Poverty status and Marital status.**

Poverty status	married	Not married	Total
poor	63(37%)	43 (25.3%)	106
Non-poor	43(25.3%)	21 (12.4%)	64
Total	106 (62.3%)	64(37.7%)	170

#### **4.2.12 Poverty status and Ownership of livestock.**

The results on table 15 shows 60.3% of the households who own livestock are poor while 35.5% who own livestock are non-poor. Comparatively 1.7% of the households who have no livestock are poor while 2.3% of them are non-poor and have no ownership of livestock as indicated in table 15 below. The results show that livestock husbandry reduces chances of being poor

**Table 15: Poverty status and Ownership of livestock.**

Poverty status	Own livestock	No ownership of livestock	Total
poor	102(60.3%)	3(1.7%)	105
Non-poor	60(35.5%)	5(2.3%)	65
Total	162	8	170

### **4.3 Evaluation of the Logistic Model.**

This was done to assess the reliability of the logistic model in the study. The Goodness of fit test and Multi collinearity analysis were done to confirm the reliability of the model.

#### **4.3.1 Goodness-of-fit Testing.**

Diagnostic tests were undertaken before proceeding with the econometric analysis so as to satisfy the assumptions of logistic regression. In order to establish whether the model fits the data Hosmer and Lemeshow (H-L) goodness-of-fit test was undertaken. The test statistic involves comparing observed variables with expected values to show deviation from the fitted distribution. The p-value of test 0.698 indicates that the model fits the

data well ( $P > 0.05$ ).

#### 4.3.2 Multicollinearity Analysis.

The above tests show that the model is acceptable {chi-square (44.80)  $P < 0.000$ }. The results indicate that the model was able to distinguish between the socio-economic status; poor and non-poor

**Table 16: Multicollinearity Analysis.**

Variable	VIF	Tolerance	R- squared
Male household head	1.05	0.954	0.046
Age	2.59	0.386	0.614
Religion	1.36	0.733	0.267
Marital status	2.56	0.391	0.609
Ever schooled	1.11	0.898	0.103
Education levels	1.08	0.930	0.070
Household size	1.07	0.936	0.065
Other income	1.12	0.890	0.110
Land size acres	1.12	0.894	0.106
Practice Agriculture	1.06	0.946	0.054
No. livestock owned	1.05	0.948	0.052
Transfers	1.05	0.950	0.050
ownwnterprise.	1.11	0.902	0.098
Accesstocredit	1.07	0.930	0.069

The collinearity tests results on the variables based on the tolerance level and variance inflation factor (VIF) tests reveal that none of the variables are collinear. As per the set rule, a tolerance of 0.1 or less equivalent VIF of 10 is acceptable, the mean VIF of the model is 1.31. When there is multicollinearity the results of the modelling can be unreliable.

#### **4.4 Factors affecting Poverty.**

The logistic regression results are presented in Table 17. The results indicate the relationship that exists between the explanatory variables and the dependant variable.

The results show increase in age of the household head significantly reduces the probability of being poor. The results suggest that the older household heads have higher incomes and are more stable economically as compared to the younger household heads who are more poor.

The results indicate that the land size owned by the household heads significantly affects the poverty status of the households in Busia. The households who own land have a lower chance of being poor as compared to the households who have no land ownership. This can be attributed to the fact that land is an important resource that is useful in agricultural production. Therefore owning land enables household to be able to earn more income.

The findings show that livestock ownership reduces the probability of being poor. The household heads that have livestock have a lower likely hood of being poor as compared to household heads that have no ownership of livestock. This may be probably because the productivity of milk, meat and other livestock products generate additional income to the household heads who own them.

Moreover, the results indicate that being married increases the probability of being poor. This may be as a result of having more dependants depending on the household head. Similarly, the results show that the probability for being poor increases with increase in household size. The finding is similar to Nyariki *et al* (2002) study indicating that poverty increases with increase in family size.

The sample results show that religion does not significantly affect the poverty status probably because of the different cultures and beliefs across the different religions that

exist in the county hence they affect poverty status differently. Different religions have different practices that affect household's poverty status distinctly.

The study shows that education does not significantly affect poverty level probably because of labour mobility. This is similar to the findings of Fissuh and Harris (2005). The study found that education impacts welfare differently across poverty categories and there exists pockets of poverty in the educated population sub group.

**Table 17: Logistic Regression on factors affecting poverty.**

Variable	Odds Ratio	Standard error
Male household head	0.491	0.186
Age of household head	0.941**	0.200
Religion	1.264	0.374
Marital status	8.928**	7.110
Ever schooled	1.381	0.788
Highest level of education	1.251	0.640
Household size	1.289**	0.104
Other income sources	1.170	0.638
Land sizes (Acres)	0.683**	0.096
Practice agriculture	0.698	0.444
Livestock holding(No.)	0.925*	0.033
Transfers	1.138	0.435
Own household enterprise	0.530	0.209
Access to credit	0.526	0.215
Constant	2.099	3.326

\*\* indicates significant at 1% level.

\* indicates significant at 5% level.

## **CHAPTER FIVE:**

### **5.0 SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS.**

This chapter presents the summary of the findings, conclusions and policy recommendations from the study.

#### **5.1 Summary of findings.**

This paper used the 2005/2006 Kenya Integrated Household Basic Survey (KIHBS) data to investigate the factors affecting poverty levels in Busia using the logit model. The study used the KIHBS 2005/6 set absolute rural overall poverty line Ksh.1562 per month (KNBS, 2007) to estimate the proportion of the poor in the county. The findings reveal that 61.76% of the households live below the poverty line. The finding shows that poverty challenge is a major problem in the county.

The study indicates that majority of the households depend on agriculture with 85.29% households depending on the sector. The data shows that 50% of the household heads were male while 62% of the household heads are married. The mean age of respondents was 23 years whereas the average household size has 5 household members. The findings also indicate that 82% of the household heads had attained primary education.

The mean land size owned per household is 1.23 acres. The average livestock ownership is 6 livestock head per household. The results also show that about 36% of the households have access to credit, 47% of the household heads receive remittances from other family members not living with them in their households, while only 8% of the households have other alternative income sources apart from agriculture.

The findings reveal that the household size has a positive correlation with increase in poverty status. This implies that larger families have a higher chance of being poor as

compared to families which are smaller. This may be as result of the high dependency ratio especially for the poor households. Larger Families have more dependants and are more vulnerable to being poor as they have increased consumption expenditure with limited income levels.

The results show that livestock husbandry reduces the probability of being poor. The findings underscore the importance of livestock keeping towards improving the poverty status of the households in Busia. The improved welfare may be attributed to the income generated from the sale of the livestock products and on the savings done as a result of the consumption expenditure reduction for the households who instead of purchasing the livestock products they consume what they produce. The findings show that the households who own livestock are more stable economically.

The results show that the larger the farm size owned by a household the lower the chances of the household being poor. Similarly, those have minimal or no land ownership have a higher probability of being poor. The findings underscore the importance of land as a key factor in the production process and consequently a source of income generation to the land owners. The findings indicate that the households endowed with the land resource have higher incomes and therefore experience lower poverty levels in the county.

Moreover, the study shows that the married household heads have a higher chance of being poor as compared to household heads that are not married. The married household heads may be poorer because of the relative larger household sizes they have as compared to household heads who are not married who have smaller household sizes. Larger household sizes as a result of having higher number of dependants have increased expenditure on food, education, clothing, health care and other expenditures which puts more constraint on their income.

## **5.2 Conclusions and policy recommendation.**

Several policy conclusions can be deduced from the findings of the study. The analysis shows that 61.76% of the households live below the poverty line. This shows that poverty challenge is a major problem in the county. Both the national and county government should therefore enhance urgent intervention policy measures to change the situation.

The study indicates that majority of the households depend on agriculture with 85.29% households depending on the sector. Intervention measures to increase investment and output in the sector are thus necessary, in order to improve on the income levels. Improved farmers access to education opportunities, technological information and collective farmer's institutions should be enhanced to give more support to the farmers. The government can also prioritize more resources to assist farmers by providing market, subsidies, extension services, research and development together with other technical support they require. Efforts should also be enhanced to encourage livestock husbandry as it significantly reduces chances of being poor.

The household size has a positive correlation with the poverty status of the house hold head. This implies that the larger the household size the higher the chance of being poor. The findings underscore the need for continued efforts towards family planning campaigns and education as this reduces the poverty levels amongst the households by helping in reducing the size of the household. This should help in reducing the dependency ratio amongst the households especially for the poor households and hence improve the living standards of the households in the county.

The study also shows that increase in age reduces the probability of being poor. This implies that the younger household heads are more vulnerable to poverty as compared to

their older counterparts. The finding underscores the importance of promoting investment amongst the youth to assist in poverty reduction. This can be done through increasing investment in their education and job creation amongst them. Government initiated revolving funds like the Uwezo fund and youth fund should therefore be enhanced with a goal of empowering the younger generation.

The study also shows that the size of land ownership is important in reducing poverty levels. This may suggest importance of improving on the farming methods and need for adoption of improved agricultural technologies, such as fertilizer, pesticides and other key inputs that may increase production by ensuring optimal utilization of the land. The findings show that the households who have little or no land ownership are disadvantaged in terms of their poverty status. The results point out to the importance of gearing up more efforts to assist them to improve their income level; this may be done by providing to them alternative income generating opportunities that do not necessarily require land ownership.

### **5.3 Areas for Further Research.**

This study focused on factors affecting poverty level in Busia County. The study shows that it is important to understand the distinct factors affecting poverty in different counties; similar studies can therefore be done in other counties with high poverty levels. Additionally, similar studies can also be done using other poverty estimation techniques to be able to compare the results. This can be useful in helping to reduce the high poverty levels that have remained persistently high over the years in the country.

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**Appendices.**

**Appendix A: Socio-economic characteristics**

Socioeconomic Characteristic	Frequency	Percentage
<b>Age in years</b>		
30 and below	1	1.05
31-40	36	37.89
41-50	58	61.05
<b>Sex of Respondents</b>		
Male	71	74.74
Female	24	25.26
<b>Marital Status of Respondents</b>		
Married	78	82.11
Not married	17	17.89
<b>Educational Level of Respondents</b>		
None	27	28.42
Primary	16	16.84
Secondary	39	41.05
Tertiary	13	11.57
<b>Household Size of Respondents</b>		
1-3	36	37.89
4-6	59	62.11

**AppendixB: National Rural food absolute poverty lines**

Poverty line	Food Poverty Line (Ksh)	Absolute Poverty line(Ksh)
Rural	988	1562

Source: KIHBS

**Appendix C: POVERTY LINES ADJUSTED FOR PRICE CHANGES (IN KSHS. PER MONTH)**

1992	1992	1994	1997
<b>Per capita</b>			
<b>URBAN</b>	728.65	1252.7	1552.97
<b>RURAL</b>	499.00	857.88	1063.51
<b>PER ADULT EQUIVALENT</b>			

<b>URBAN</b>	<b>771.85</b>	1326.96	1552.97
	499.00	906.59	1123.90

Source: Report of well-being (2007)