POVERTY AND EMPLOYMENT IN KENYA

BY

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DECLARATION

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

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DEDICATION

To my late father, Gordon Oiro Obwa: - who never lived long enough to read this work, my mother Mrs. Jennifer Oiro: -my husband, Arthur Omolo Ogonji; and my daughters, Joy and Grace.

ACKNOWLEDGEMENTS

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ABSTRACT

Poverty refers to lack of basic necessities of life, including opportunities for development. At the time of independence in 1963, the Government of Kenya identified illiteracy, disease, ignorance and poverty as the main problems to be addressed in post independence era in order to achieve sustainable national development despite antipoverty measures of the past over 50 percent of the Kenyan population live in poverty. On the average 71 percent of household income is spent on food.. This shows that previous poverty reduction policies have not been effective. A gap still exists between policy maker's development intentions and the needs of the target group, the poor

The labour market is crucial for growth, income distribution and poverty alleviation. Its operation determines employment and wage outcomes. To be able to increase efficiency in the allocation of labour and thereby achieve higher growth, and in order to bring about a better distribution of income and thus reduce poverty, we need to understand the nature and pattern of employment in the labour market (both formal and informal).

This paper analyses poverty amongst the employed. We identified the poor by using CBN and FEI poverty lines and analyzed poverty determinants using multivariate regression methods. The Welfare Monitoring Survey II (WMS II) data was used in this analysis. The Central Bureau of Statistics collected this data in 1994; it consisted of approximately 11,000 households and 59,200 individuals.

The paper concludes with a discussion of policy implications of its main findings. The main findings are: that female-headed households have a higher welfare than male- headed households; education is a significant determinant of poverty status as well as welfare; urban residents have a higher welfare than rural residents and lastly, the agricultural sector has the highest the poverty incidence.

Introduction

1.0   Background

Poverty refers to lack of the basic necessities of life, services and opportunities for development. Poverty is multi-dimensional and manifests itself in various forms making its definition using one criterion inadequate. There is no single indicator that can adequately measure poverty.

Poverty is not a new phenomenon in Kenya. At the time of independence in 1963, the Government of Kenya identified illiteracy, disease, ignorance and poverty as the main problems to be addressed in post independence era, in order to achieve sustainable national development (Sessional paper No. 1 of 1965:Government of Kenya). Poverty and unemployment have been subjects of various development plans, Sessional papers, presidential commissions, task forces and various independent studies in Kenya, but this problem is still persistent and is worsening.

Using social indicators as a measure of incidence of poverty, about 50 percent of the Kenyan population uses less than US$ 1 a day. The gini-coefficient for the urban area is 0.51 while the rural is 0.52, showing very high income inequality. On the average 71 percent of household income is spent on food (World Bank, 2001). Economic growth on the other hand has been stagnating. Overall growth of the economy in real terms was 1.4 percent in 1999 compared with 1.8 in 1998 and 2.3 percent in 1997,while 2000 registered a growth rate of –0.3 percent (Government of Kenya , 2001). Population growth rate is estimated at 2.9

percent (Government of Kenya , 1999). As a result per capita income is falling while income inequality gap is increasing. An empirical study on Kenya by Collier and Lal (1986) showed that links between unemployment and household poverty was not powerful. About 80 percent of unemployed males were dependants rather than household heads, although the non-earning members depressed the household per-capita. In 80 percent of the cases, the unemployed were not principle earners. Most unemployed persons (64 percent) were not members of poor households and most poor households had no unemployed members. The lowest income group of the urban labour force was in the informal sector. There was a powerful link between low income self-employed and poverty.

From this study, it is important to examine poverty using a different approach. We shall examine poverty amongst the employed and further compare poverty rates by main occupaion and sector of employment. We shall examine the factors that determine their poverty status and construct a poverty profile by main occupation.

1.1   Overview of Poverty in Kenya

Using the second welfare Monitoring Survey (WMS II) series, which is a comprehensive survey carried out by the government in the month of June – September 1994, WMSII collected information on education, health social amenities, crop production, child nutrition, income, food and non-food expenditure. Monthly food and absolute poverty lines per adult equivalent in rural and urban areas are estimated at Kshs. 702.99 and 978.27; and 874.72 and 1,489.63 respectively.

Using these poverty lines, 47.19 percent equivalent adults[1] were food poor in rural Kenya compared to about 72 percent in 1992. Overall, 46.75 percent of the population were classified to be absolute poor in rural areas, which was almost the same poverty rate as in

1992. In urban areas, 29.23 percent were [1]food poor while 28.95 percent were absolute poor with Kisumu showing the highest prevalence of food and absolute poverty (44.09 and 47.75 percent respectively) (Government of Kenya, 1997)

In the 1997 Welfare Monitoring Survey (WMS III), the food poverty line was Kshs. 927.1 per month per adult equivalent for rural areas while Kshs. 1, 253.9 was derived for urban areas. Overall national poverty levels increased in 1997 to 52.3 percent from 40.3 percent in 1994 (both rural and urban) the overall absolute urban poverty level increased from 29.0 percent in 1994 to 49.2 percent in 1997, showing an increase of 20.3 percentage points. The overall absolute poverty gaps increased in both rural and urban areas, with urban poverty showing a tremendous increase from 28.95 percent to 49.20 percent. The poverty gaps for the rural and urban areas were 18.01 percent and 9.09 percent respectively for 1994, this increased to 19.93 percent and 15.67 percent respectively for 1997.

Using social indicators, in the rural areas male-headed households constituted 75 percent of the households while female-headed households constituted the remaining 25 percent. However, the proportion of poor households was nearly equal for men and women, 52.3 percent and 54.1 percent respectively. In terms of access to resources such as consumption expenditure, land rights, access to credit or appropriate technology, female headed households were worse off than male headed households. In urban areas, proportion of poor female-headed household was higher than male-headed households. (Government of Kenya, 2000)

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[1] Adult equivalent scale is a standardization of nutritional intake of different age groups. See Greer and Thorbecke (1986a,b)

Given the widespread prevalence of poverty in Kenya, the government of Kenya has provided detailed conceptual framework and projects in the 8th development plan and the National Poverty eradication plan (NPEP) aimed at alleviating poverty. These two documents aim at: promoting small scale enterprises, providing basic social services to the poor and provision of credit to the poor among others.

1.2 Employment in the Informal Sector.

There is a lot of confusion in defining the self-employed and employment in the informal sector. The informal sector consists of small-owner-operated enterprises, most of them thriving outside the official regulatory framework. This sector, which by its nature is labour intensive, is highly heterogeneous, ranging from street vendors to provision kiosks, hotels, open-air motor garages, dressmaking, tailoring entities and matatu operators (Government of Kenya, 2000).

Informal sector is alternatively defined as small scale enterprises consists of semi-organized and unregulated activities largely undertaken by the self-employed persons in the open market or market stalls, in undeveloped plots or on street pavements within the urban centres. They may or may not have licenses from the local authority for carrying out activities as tailoring, carpentry, blacksmithing, grocery, kiosks, meat and maize roasting, sale of wearing apparel and shoes, open air restaurant, repair of footwear, car repair, shoe shining, hair cutting etc (Government of Kenya , 1998). It should be noted that the self-employed in this analysis are individuals who operate any of the above-mentioned activities, which are mainly survivalist businesses with very low returns.

During the last decade, the formal sector employment growth slackened, while informal sector employment recorded a dramatic and sustained expansion. The expansion of the informal employment has seen its share of employment, excluding employment in small-scale farming activities, rise from 63.6 percent in 1997 to 70.4 percent in 2000. Employment in the sector has grown by 39.0 percent during the past four years, from an estimated 3.0 million persons in 1997 to 4.2 million persons in 2000. (Government of Kenya , 2001)

Given this large number of persons absorbed in this sector, the informal sector underscores its important role in absorbing a large proportion of the labour force.

1.3 Employment in the formal sector

Growth in the wage employment within the modern sector decelerated from 1.1 percent in 1998 to 0.5 percent in 1999.Wage employees stood at 1,676,800, while the self employed stood at 653,000, accounting for 3.9 percent of the modern sector employment. (Government of Kenya, 2000).

The marginal growth was largely attributed to the current economic recession plus the on going reforms in the public sector through retrenchment and restrictive government policy in public institutions. As can be noted there are more wage employees in this sector than those who are self- employed.

1.4 Statement of the Problem

The labor market is crucial for growth, income distribution and poverty alleviation. Its operation determines employment and wage outcomes. To be able to increase efficiency in the allocation of labour and thereby achieve higher growth, and to bring about a better distribution of income and to reduce poverty, we need to understand the nature and pattern of employment in the labour market (both formal and informal).

Economic reforms have had a great impact on the Kenyan labour market. Parastatal enterprises used to account for a big share of the public sector employment, but parastatals reforms resulted in a considerable personnel reduction in these enterprises. The size of the civil service has also been reduced through voluntary early retirement schemes and retrenchment programmes. At the same time, the private sector has been restructuring to be able to cope with increased competition as well as advances in information technology. This has resulted in the banking, textile, leather, motor and match industries shedding off labour. The shrinking of the formal sector has led to the expansion of the informal sector, whose share of employment stands at 71 percent (Government of Kenya, 2000). VanderHoeven and Vandermoortele (1987), found that 45 percent of those in the informal sector earn less than minimum wage and argue that the informal sector is a cushion for the unemployed and a source of supplementary income for those in formal employment rather than source of dynamic growth. But still informal sector is now regarded as one of the important sources of employment and income earning opportunity.

The informal sectors constitute an important segment of the Kenyan labour market, as they represent that cohort of workers separating formally employed from the unemployed. It has been argued that the self-employed are involved dominantly in low earning, survivalist activities (Bhorat and Leibbrandt, 1998). However this argument has not been empirically tested or analyzed in Kenya. Secondly, existing studies on poverty have not examined the labour market; there is no link between poverty and employment. The key questions in our study are who are the poor amongst the employed in the Kenya labour market? What factors determine the income of the employed? Are such factors good predictors of poverty status? We shall examine the poverty status of the employed and do a comparative analysis, in order to find the vulnerable group(s) among them. This will help in understanding the poverty

status of the employed and provide appropriate policy intervention, which will effectively help in eradicating poverty in the country.

1.5   Objectives of the Study

The study will attempt to achieve the following objectives

i.   Examine the factors that determine the poverty status of the employed.

ii.   Construct a poverty profile for the employed by main occupation and sector of employment in order to identify the vulnerable groups.

iii.   Provide policy recommendations based on the results.

1.6   Significance of the Study

In light of the rising level of poverty in Kenya and efforts to eradicate it, this paper will give a different approach to examining poverty and provide policy recommendations that will complement and strengthen individuals and government efforts, which are geared towards alleviating poverty.

A study of poverty amongst the employed will provide the government with adequate facts and knowledge about this segment of workers who are most vulnerable and will help in improving its strategies on poverty alleviation.

Chapter

2

Literature Review

2.0   Poverty Concepts and Definition

Poverty Line

Poverty line is fixed over time in terms of the living standards indicator for the entire country; it does not take into consideration time or place. (Government of Kenya, 1997)

Poverty lines are expressed in terms of adult equivalent consumption expenditure calculated using two money-metric concepts of poverty namely:

Absolute poverty, here there are some basic elements of welfare which every human being has a right to and their attainment is not dependant on scarcity of local resources but is inspired by the Universalist valuation of human dignity. Lack of these basic elements makes one be absolutely poor.

Relative poverty, relates to the type of poverty analysis that endeavours to take into account the actual deprivation with respect to the average levels of satisfaction of needs in the society, given the arbitrariness of the relative poverty approach, one can easily under or over estimate the population above or below the poverty line and it cannot give an indicative comparison among regions therefore it is less relevant to developing countries.

Types of Poverty

Food Poverty can be defined as not being able to meet the basic minimum nutrient requirement (calories), for a healthy growth and maintenance of human body. The

FAO/WHO minimum Recommended Daily Allowance (RDA) is 2,250 kcalories per adult equivalent. The food poverty line of Kshs. 702.99 is the minimum monthly consumption expenditure required to meet the recommended daily energy intake (of 2,250 kcalories) from the chosen basket of food items. A household with monthly food expenditure less than the above is deemed food poor.

Overall Poverty, encompasses lack of both food and non-food basic requirements. Hard – core (extreme) poverty exists when one cannot meet his/her minimum calories requirements even if one concentrated all his/her spending on food.

Poverty Measurement indices: FGT index

The FGT index was found to be convenient in presenting information about the poor. FGT was developed by Foster, Greer and Thorbecke (1984). The first measure of poverty is the head count ratio or the incidence of poverty denoted by $P\alpha = 0$ and is the ratio of the number of poor individuals to the total number of individuals in the population surveyed. The second measure is the poverty gap ratio which addresses the depth of poverty denoted $P\alpha = 1$. This gives the average poverty gap or the average income shortfall of all households calculated as a proportion of the poverty line, and can be used to estimate the amount of resources required to bring the expenditure of every poor person on the poverty line thereby eliminating poverty.

The third is severity of poverty index, denoted by $P\alpha = 2$ which produces the coefficient of variation of expenditure distribution of the poor, which reflects the degree of inequality among the poor (Government of Kenya, 1997).

2.1   Specific Literature

Mwabu *et al* (2000), used the cost of basic needs (CBN) and food energy intake (FEI) to derive their poverty lines. Using the Welfare Monitoring Survey data for 1994, they computed the food poverty lines of Kshs. 625 (CBN) and Kshs. 609 (FEI) per month per adult equivalent. The FEI line is lower than CBN line, this was attributed to the fact that FEI poverty line takes into account substitution of cheaper goods for more expensive goods which is not possible with CBN method to calculate poverty line. Mwabu et al also measured three elements of poverty; incidence P_o, which is the head count ratio in the FGT index denoted by $P \alpha = 0$ and known as poverty level, inequality P_1 which is similar to average poverty gap ratio denoted $P \alpha = 1$, and intensity of poverty P_2, whose equivalence in the FGT index is severity index denoted $P \alpha = 2$. In their study they found that the larger the severity index the greater the poverty gap which implied that poverty was severest among the poor.

Kyeyune and Goldey (1999), in their study of effective poverty reduction on heterogeneous groups of poor women in Uganda, found that one half of the Ugandan households are poor. Of the 20 million Ugandan population, 90 percent live in rural areas, a greater proportion are women and the notion that rampant and increasing phenomenon of poverty bears a 'female face' was now accepted in development circles. Heterogeneity among women was reflected in the divergent socio-economic status of women at the family, community and societal levels in Uganda.

Differences among women's socio-economic status existed depending upon the nature of the marital union, age, nature and type of household headship, level of capacity (education, ability to fulfill reproductive role), availability of supportive social contacts, type of locality (urban versus rural) and access to infrastructure, rights of ownership of factors of

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production, nature of employment opportunities available and decision making and power relations in the household. According to local categorization of the poor (which estimates income earnings per month and property ownership) generally women earn less than men. However a close examination of women's earnings revealed that only 6 percent fall within the 'Upper Poor' (with earnings between £25 and £50 per month) 66 percent fall within the 'middle poor' group (earnings up to £25 a month) while 24 percent fall within the lower/destitute group (without any source of income but instead depending on others, grown up children, men or family members for survival.).

Marital status was still a significant factor in determining differences in welfare among women. Responses confirmed that those who experienced greatest poverty were women , some were more vulnerable than others. More responses (about 40 percent), converged on women who were heading households without any male support, and particularly pointed to the widowed as opposed to relatively few responses (13 percent) for married women under male head household. Effect of poverty on various categories of women showed that widowed and abandoned women were more affected by poverty than single and other categories of women.

Goudie and Ladd (1999), in their study on economic growth, poverty and inequality, with reference to the 'white paper' for international development entitled "Eliminating World poverty: A challenge for the 21st Century" found that much of the research work that had been undertaken in recent years focused on the income dimension of poverty and the manner of its interaction with growth and absolute poverty. This certainly reflected the important role that the increasing income is felt to play in alleviating poverty, but, to a degree it reflects also a simplifying assumption that income and non-income dimensions of

poverty are correlated, which, intuitively may always seem a reasonable assumption, but which remains relatively under researched due to data problems.

Economic growth reduces absolute poverty to a degree, depending on how equitable the distribution of income in a society is. Economic growth has no predictable impact on inequality in developing countries, but the level of equity in a society is a determinant of growth. When the primary aim is reduction of absolute poverty, the key issue is how distributional changes may be effected to secure more rapid improvements in the sense of improved income and consumption.

Robinson (1996), in her article, defined micro finance as small-scale financial services provided to people who work in agriculture, fishing and herding: who operate in small or micro enterprises: who provide services, who work for wages or commissions, and other individuals and groups at the local levels of developing countries both rural and urban. Lack of access to institutional commercial finance unnecessarily limits the options and lowers the financial security of such people throughout the world. When available, however, savings services permit lower – income people to store permanent, seasonal or temporary excess liquidity safely for future use, and to obtain returns on their assets. Credit services enable the use of anticipated income for present investments or consumption. If it were widely available, institutional commercial micro finance could improve the economic activities and the quality of life of hundreds of millions of people in the developing world.

She noted that commercial micro finance, however, is important for the working poor, not for the very poor and -destitutes who have prior needs: food, medicine, shelter, and employment. Institutional micro finance can play a critical role in large-scale poverty reduction, but as a complement to, not a substitute for government and donor grant programmes for the very poor. Also, when credit subsidies are replaced by commercial

micro finance, there can be substantial savings to governments and donors. Where needed, these savings can be made available for poverty alleviation programmes.

Bennett and Cuevas (1996), noted that building sustainable financial services systems for the poor men and women is of critical interest from the perspectives: First from the point of view of financial sector development, people who have not been integrated into the formal financial sector because of low incomes, gender, ethnic identity or remote location often represent a large and potentially profitable market for institutions that can develop ways to reduce the costs and risks of serving them. Second, from the standpoint of enterprise formation and growth, the availability of stable sources of funding and deposit services contributes to successful start up and operations of micro and small enterprises. Third, from the perspective of poverty reduction, access to reliable monetized savings facilities can help the poor to smooth consumption over periods of cyclical or unexpected crises, thus greatly improving their economic security. Once some degree of economic security is attained, access to credit can help them move out of poverty by improving the productivity of their enterprises or creating new sources of livelihoods.

Oyugi *et al* (2000), in their study of determinants of poverty in Kenya, found that sector specific employment is an important factor in predicting poverty status of households, with the formal sector employment being associated with less poverty, in comparison with agricultural sector employment. The micro level analysis indicates that households residing away from Nairobi province are likely to be poorer than those residing in Nairobi and thus regional targeting may be an important strategy for poverty reduction. However, the meso level analysis shows that no province is associated with greater probability of poverty than another. Hence policies designed to reduce poverty should not target specific regions but

rather target socio- economic groupings in all regions. The meso level analysis controls for externalities of policy instruments in the estimation of effects of region specific factors on poverty.

Alemayehu *et al* (2001), in their study of poverty in Kenya at household level found that, first; poverty is concentrated in the rural areas in general, and in the agricultural sector in particular. Being employed in the agricultural sector accounts for a good part of the probability of being poor. Thus, investing in the agricultural sector to reduce poverty should be a matter of great priority. Moreover, the finding that the size of the land holding is not a determinant of poverty status, suggests the importance in poverty reduction, not only of improving the quality of land, but also of providing complementary inputs that may enhance its productivity.

Second, the educational attainment of the head of the household (in particular high school and university education) is found to be the most important factor that is associated with not being in poverty. Lack of education is a factor that accounts for a higher probability of being poor. Thus promotion of education is central in addressing problems of moderate and extreme poverty. Specifically primary education is found to be of paramount importance in reducing extreme poverty in rural areas.

Third, female education has a large impact on reducing poverty. Female – headed households are more likely to be poor relative to households headed by men. Female education can play a key role in reducing poverty among female-headed households. Since female-headed households are only about 30 percent of all households, reducing poverty among these subgroups using female education would reduce overall poverty by a small proportion. However, because of positive externality effects of female education, such a policy could have large generalized effects on poverty reduction.

Aigbokhan (2000), in his study, found the gender distribution of poverty consistent with evidence from earlier studies that suggest that poverty is more pronounced among male-headed households and that male – headed households actually experienced an increase of poverty between 1985 and 1996, while female headed households faired relatively better.

Poverty and inequality is more pronounced among male- headed households, and in the rural areas. The study also found that there was positive real growth through out the period of study yet poverty and inequality worsened. This suggests that the so-called "trickle down" phenomenon, underlying the view that growth improves poverty and inequality is not supported by the data set used. In order to improve the poverty situation in Nigeria, the findings suggest where attention needs to be focused. One such area is to ensure consistency, rather than reversals in policies. Another area is distribution of income. Polarization in distribution appears to contribute to increased poverty. A third area is socioeconomic infrastructural facilities. In his study there was low level of illiteracy reported this study suggests that there is no need to strive to achieve a higher rate.

2.2   Overview of Literature

So far, there is no analytical work on poverty and employment in Kenya. Most studies are descriptive and focus on measurement issues, Foster *et al* (1984, 1986a, 1986b), while more comprehensive studies, Mwabu *et al* (2000), Alemayehu et al (2001), Oyugi *et al* (2001) have focused on measurement, profiles and determinants of poverty at household level. Analytical work provides a better understanding of poverty because we are able to establish the degree and nature of association between variables as well as a coefficient of determination, which shows the strength of the relationship that exists between variables, it is easier to forecast from analytical work as compared to descriptive work.

Mwabu *et al* (2000), identified the following variables as important in explaining poverty: unobserved region specific factors, mean age, size of household, residence (rural versus urban), level of schooling, livestock holding and sanitary conditions.

Alemayehu *et al* (2001), used a binomial and polychotomous logit model in their analysis. Using the income based estimation, they found that the most influential factors of poverty status is the level of education, household size, engagement in agricultural activities, size of land holding was not important. The consumption-based model exhibited fairly similar results with regard to educational attainment. Factors such as age, size of land holding (with very small coefficients) were statistically significant

Oyugi *et al* (2000), used the probit model in their analysis. The dependent variable was the poverty status, a binary variable constructed using poverty lines derived by Mwabu *et al* (2000). The dependent variable was computed at national, rural and urban levels. The explanatory variables included total land holding area, livestock unit, household members who are able to read and write, household size, working in the manufacturing sector; agricultural; wholesale/retail; source of water; off farm employment; female literacy rates. Almost all these variables were significant determinants of poverty status in the rural area and overall nationally, but there are exceptions in the urban areas (see Oyugi et al)

Bhorat and Leibbrandt (1998), used four models to assess the importance of explanatory variables in explaining profits derived from self-employment.. The main intention here was to explicitly focus on determinants of earnings within the poor. The explanatory variables were education, age, time, with four dummy variable; activity, location, race and gender.

From the study location was a good predictor of level of earnings amongst the self employed, but would not determine whether a person lived above or below the poverty line. Education was a crucial determinant of the level of earnings, poverty status of the individuals and also earnings of those below poverty lines. Age was important in predicting level of earnings but not significant in determining the poverty status. Race was quite significant and this showed that there was a wide gap between African and white self-employed individuals. The main shortcoming of this analysis is that profits is assumed to be the only source of income from self-employment, this can result in biased results.

From the literature survey, it has been found that poverty is more concentrated in rural areas than in urban areas. Educational attainment is an important factor associated with less poverty. Female education is more important than male literacy in reducing poverty . This could be due to externality effects associated with female education. Sector specific employment is an important factor in predicting poverty status of households, with formal sector employment being more important than agricultural sector employment.

Micro finance, which can be from Rotating Savings and Credits Association (ROSCA), commercial finance institutions, soft loans from relatives and friends improve economic activities. However, micro finance is important for the working poor not the very poor and destitutes who have prior need such as food, clothing, medicine, shelter, and employment.

Economic growth reduces absolute poverty to a degree depending on how equitable the distribution of income is. Economic growth has no predictable impact on inequality.. This implies that 'trickle down' phenomenon, which has the underlying view that growth improves poverty and inequality is not an ideal policy for poverty reduction.

The major limitation of previous studies is that, they have concentrated on poverty in general; no study has focused on the examination of the poverty status of the economically active persons, which is the main focus of this paper. However, the literature available has facilitated the identification of the explanatory variables to use.

Chapter
3

Methodology

Our study is going to focus on both the informal and formal sectors of employment. We shall examine and compare the employed in both sectors. This kind of comparative analysis will enable us examine which groups are more vulnerable than others.

3.0   Identification of the Poor

Food Energy Intake (FEI) Method

In this method, we find the consumption expenditure or income level at which a person's typical food energy intake is just sufficient to meet a predetermined food energy requirement. This method aims to measure consumption poverty and to find a monetary value of the poverty line at which basic needs are met. This involves regressing the cost of a basket of commodities consumed by each household (food expenditure, E) on the calories per adult equivalent implied by the basket (calorie consumption, C). The estimated coefficients are then applied to the calorie requirements to derive the poverty line. This method, which has been widely used since Greer and Thorbecke (1986) has the formula

$$\text{Log } E = a + bC + e$$

The poverty line is then derived as

$$Z = e^{\left(\hat{a} + R\hat{b}\right)}$$

Where R is the recommended calorie intake. The recommended intake as per WHO/FAO is 2250 kcalories per adult equivalent, $\hat{a}$ and $\hat{b}$ are estimates from the equation above.

To obtain the overall poverty line, the following regression equation is used,

Log Calories= α + β (Log Total expenditure)+ e

This is an Engel curve from which we derive the overall poverty line after estimation of its parameters. This equation automatically includes an allowance for non-food items.

The Cost of Basic Needs (CBN) Method

This approach considers poverty, as a lack of command of basic consumption needs. The CBN method is also used to obtain food and overall poverty lines. The crucial step in the construction of these lines is the determination of a food basket, which is assumed to be bought by all households. The food basket used consisted of 15 food items (as used by the central bureau of statistics). In order to derive a food poverty line, the approach used by the central bureau of statistics in earlier studies was adopted.

The overall poverty line was obtained by adding to the poverty line, a non-food expenditure of the households around the food poverty line. The non-food expenditure was computed for households between 10 percent above the food poverty line and 15 percent below the food poverty line.

3.1   Multivariable Approach

From a policy point of view, it is more satisfactory to incorporate all of the key factors in one model in order to see which of these factors retain their importance when set against each other. We shall build a number of regression models in an attempt to throw light into this issue; this is adopted from a study carried out by Bhorat and Leibbrandt (1998).

The dependent variable is total expenditure. Expenditure is used as a proxy for measuring welfare instead of income because individuals are more willing to reveal their precise expenditure as compared to income, which in most situations is understated or overstated.

The explanatory variables consist of four dummy variables subsets (Main occupation, location, Education, gender) as well as two relevant continuous variables (age of person and work experience). For each of the dummy variable subsets, one of the dummy variables will be omitted to avoid the dummy variable trap. The other dummy variables within these subsets will reflect the importance of these variables relative to the omitted variables. We shall analyse the employed in general, then by sector of employment. Given the way the data was grouped we shall have four sectors, that is formal, informal, agriculture and casual labour.

Model I Semi-log – linear Model

It assesses the importance of the set of explanatory variable in explaining the expenditure per capita.

$$Log\exp = Cons + \sum_{i=1}^{4}\gamma_i D_i + \alpha_1 Age + \alpha_2 Agesq + \alpha_3 Work\exp erience + \varepsilon$$

D_i - block of dummy variables.

Logexp   - log of total household expenditure per capita

ε - Error term

Cons   -Constant

From the above expenditure function, the coefficients for the dummy variables measure the discontinuous effect on expenditure of the presence of the factor represented by the dummy variables e.g. location and gender. The purpose of this model is to explain household welfare.

Model II Logit Model

The above models will explicitly focus on determining which of the explanatory variables are key in explaining whether people are not poor (1) or are poor (0). Model II uses the logit (Cumulative logistic) specification of the error term. This model is important in determining whether the same explanatory variables that affect expenditure also determine the probability of being poor.

We observe some variable Y that takes on one of the two values 0 and 1. Define a latent variable Y* such that

$$Y_i^* = X_i \beta' + \varepsilon_i$$

We donot observe Y*, but rather y: which takes the values of 0 and 1 according to the following rule

y₌1 if Y>0

    0 otherwise

Prob $(y_i=1)=\text{Prob}\left(\varepsilon_i \succ -\beta'x_i\right)$

$$= 1\text{-}F\left(-\beta'x_i\right)$$

F is the cumulative distribution function for ε_i. The likelihood function is

$$L = \prod_{y_i=0} F\left(-\beta'x_i\right) \prod_{y_i=1} \left[1 - F\left(-\beta'x_i\right)\right]$$

If the cumulative distribution of ε_i is logistic, then we have a logit model

The logit model is based on the cumulative logistic probability function and is specified as

$$P_i = F(Z_i) = F(\alpha + \beta x_i) = \frac{1}{1+e^{-Z_i}} = \frac{1}{1+e^{-(\alpha+\beta x_i)}}$$

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Model III Log linear Model

Using the log of expenditure estimation, the sample will be divided ex-ante into those below and those above the selected poverty line. Hence the intention here is to focus explicitly on the poor and determine whether the factors that explain the poverty status of the employed, are still significant for the poor sub- sample. The main purpose of this model is to analyse welfare of the two subgroups as well as to show that the poverty lines are justified using the chow F-test.

Table 3.0: Expected signs of the coefficients for the explanatory variables

Explanatory Variables		Expected Sign	Explanation
D₁ –Location	(1=Urban and 0=rural)	+	Living in the urban area improves welfare
D₂ Gender	(1=Male and 0=female)	+	Welfare is higher among the males
D₃- Activity*	(1=Unskilled worker and 0=skilled worker)	-	Welfare is lower among the unskilled
D₄-Education	Primary	+	Improves welfare relative to no education
	Secondary	+	Improves welfare relative to no education
	University	+	Improves welfare relative to no education
Age		+	Welfare rises with age
Age squared		+/-	Falls with age up to a point then increases

*There are many activities in the analysis, the two activities here are just extreme examples

3.2   Decomposition of Poverty (P₂)

In order to come up with a poverty profile, which will assist in assessing the most vulnerable groups, we shall decompose the poor employed by main occupation. Foster *et al* (1984), Gustafsson and Mekonnen (1994), Boateng and Kanbur (1994), Kakwani (1980). This poverty measure is additively decomposable with population share weights, it satisfies the basic properties by Sen (1976)

Let

$$y = (y_1 .... y_n)$$

$Z > 0$ is the predetermined poverty line

$g_i = z - y_i$ income shortfall in i^{th} household

q = q (y;z) number of poor households with income no greater than z

n - n (y) total number of households

Poverty measure is defined as

$$P_\alpha \left(y / z \right) = \frac{1}{n} \sum_{i=1}^{q} \left[\frac{g_i}{z} \right]^\alpha$$

For decomposability the poverty measure $\alpha = 2$ (Foster *et al* 1984)

$$P_\alpha \left(y / z \right) = \frac{1}{nz^2} \sum_{i=1}^{q} g_i^2$$

To obtain the level of poverty for subgroups we shall have

$$P_{\alpha j} = \frac{1}{n_j} \sum_{i=1}^{q_j} \left(\frac{g_i}{Z_j} \right)^\alpha$$

P_j -   Poverty measure for a given value of FGT parameter in subgroup or region j

Z_j -   Poverty line for subgroup or region j

q_j -   Total number of poor households in subgroup j

n_j -   Total number of households (poor and Non-poor) in subgroup/region j

Percentage contribution to total poverty.

$$C_j = \left[\frac{\left(\frac{n_j}{N}\right) P_{\alpha j}\left(Y^{(j)} : Z\right)}{P_\alpha\left(Y : Z\right)} \right]^{100}$$

As before j is the social or region, n_j is the population size in group or region j. The above equation gives the total contribution of a subgroup or region to total poverty. N is the overall population

3.3 Data

Welfare Monitoring Survey II (WMSII) data was used in this analysis. The WMS is a comprehensive survey carried out by the government. WMSII collected information on education, health social amenities, crop production, child nutrition, income, food and non-food expenditure from a sample of 10,860 households with about 59,200 individuals WMSII utilized the current National Sample Survey and Evaluation Programme (NASSEP III) created after 1989 population census. The frame is multi-purpose in nature and follows a two stage stratified cluster design. The NASSEP III master sample is a greatly expanded frame with a total of 1,048 rural clusters and 329 urban clusters. The survey covered 47 districts including both urban and rural clusters in arid and semi arid districts of Turkana, Isiolo, Mandera, Wajir, Samburu, Garissa and Marsabit districts. Similar sampling and weighting procedures were used for both urban and rural frames (see the WMS II Basic report)

3.3.1 Descriptive Analysis

The descriptive analysis will be based on data derived from second Welfare Monitoring Survey (WMS II) data that was carried out by the Government of Kenya and the World Bank in 1994. The data will cover household heads who presented themselves as employed

3.3.1.1 Main occupation of household head

From table 3.1, majority of the employed are involved in subsistence farming, 42.10 percent. Unskilled private sector workers, who constitute 11.00 percent of the employed, follow. It can be clearly seen that employment is still male dominated.

Table 3.1: Employment by main occupation, gender and location (N=10834)

Main Occupation of household head	%	Gender (%)		Location (%)	
		Male	Female	Urban	Rural
Unpaid family worker	0.83	57.78	42.22	43.33	56.67
Commercial Farmer	3.89	77.67	22.33	1.43	98.57
Subsistence Farmer	42.10	64.70	35.30	1.40	98.60
Pastoralist	10.13	80.67	19.33	1.00	99.00
Skilled public sector worker	9.56	86.58	13.42	38.80	61.20
Unskilled public sector worker	3.83	86.27	13.73	31.33	68.67
Skilled private sector worker	8.57	95.26	4.74	37.46	62.54
Unskilled private sector worker	11.00	85.15	14.85	25.59	74.41
Business Person	10.09	73.10	26.90	34.03	65.97

Source: computed from Welfare Monitoring Survey II data

3.3.1.2 Education Level

It is evident from table 3.2 that approximately 38 percent of the employed have no education and approximately 96 percent of these persons are rural residents.

Table 3.2: Education Level of household head by gender and location (N=10834)

Education level of household head	%	Gender (%)		Location (%)	
		Male	Female	Urban	Rural
Pre-school	0.38	80.49	19.51	17.07	82.93
Std 1-8	24.37	80.16	19.84	12.31	87.69
KCPE	12.81	83.29	16.71	18.52	81.48
Form 1-4	10.03	81.28	18.72	28.62	71.38
KCSE/KCE/KACE	10.06	88.79	11.21	35.90	64.10
Trade Test cert. I-III	0.77	90.36	9.64	36.14	63.86
Post secondary certificate	1.80	80.00	20.00	43.08	56.92
University and above	0.94	94.12	5.88	59.80	40.20
None	38.23	63.49	36.51	4.60	95.40

Source: computed from Welfare Monitoring Survey II data

3.3.1.3   Employment sector

Table 3.3 shows that majority (approximately 56 percent) of the employed are in the agricultural sector and most of them reside in the rural areas.

Table 3.3: Employment sector of household head by gender and location (N=10834)

Employment sector of household head	%	Gender (%)		Location (%)	
		Male	Female	Urban	Rural
Public Sector	13.39	86.49	13.51	36.66	63.34
Formal Sector, own business	0.11	91.67	8.33	8.33	91.67
Formal Sector, employee	13.99	90.83	9.18	34.50	65.50
Informal Sector, own business	11.06	74.79	25.21	32.80	67.20
Informal Sector, employee	1.17	92.91	7.09	35.43	64.57
Casual Labour	3.13	82.89	17.11	16.22	83.78
Unpaid family labour	0.83	57.78	42.22	43.33	56.67
Agriculture	56.11	68.48	31.52	1.33	98.67

Source: computed from Welfare Monitoring Survey II data

Employment is still male dominated in all sectors, with formal sector own business taking the lead.

Chapter
4

Empirical Results

4.0   IDENTIFICATION OF THE POOR

Using the methods described above we constructed the poverty lines reported in table 4.1.

The CBN and FEI lines are shown by main geographic regions.

Table 4.1: Food and Absolute Poverty Lines by Regions

Region	Food Poverty Lines (KShs per month per capita)			Overall poverty Lines (Kshs per month per capita)		
	CBN	FEI	N	CBN	FEI	N
National	602	571	7834	875	820	7833
Eastern	540	505	1187	810	749	1187
Central	627	640	1471	899	954	1471
Rift Valley	522	551	857	793	858	856
Nyanza	533	543	1360	737	735	1360
Western	594	567	570	836	973	570
North-Eastern	707	566	397	951	924	397
Nairobi	852	804	198	1743	1180	198
Coast	731	631	678	1009	828	678
Urban	839	792	1245	1391	1348	1245
Rural	567	536	6589	812	780	6588

Source: computed from Welfare Monitoring Survey II Data, 1994

Table 4.1 gives food and overall poverty lines for all provinces and for the whole country.

The national absolute poverty lines are KShs 875(CBN) and KShs 820(FEI) per month per

capita. At national level, the FEI line are lower than CBN line, this is probably because

calculation of FEI based poverty line takes into account substitution of cheaper goods for more expensive goods which is not possible with CBN method. However, FEI method allows for choice of more expensive food items for a given calorie level so that a "preference effect" on the composition of the food basket may outweigh the "price effect" and thus make FEI Line higher than the CBN lines. In the case of food poverty lines, the price effect may be dominating the preference effect in most the regions apart from Central, Rift- valley and Nyanza regions. In the case of the absolute poverty lines, the preference effect is dominating the price effect in Central, Rift- Valley and Western regions. In this analysis we shall use the national poverty lines, since no comparisons between regions will be made we shall use the unadjusted poverty lines.

Comparing the above results with that of previous study by Mwabu *et al* 2000, we find that there are slight differences, which may be due to the difference in the approaches used in calculating the poverty line. First, there were differences in calories conversion factors since different sources were used. Secondly, in controlling for outliers a range of 1000-5500 kcalories were used as compared to the range of 550-5500 kcalories used by Mwabu *et al.* Thirdly, daily expenditure were regressed against daily calories, while in the previous study, monthly expenditure was regressed on daily calories. Lastly, the unit of analysis is in terms of per capita, while in Mwabu *et al* study the unit of analysis was per adult equivalent.

The FEI method however has shown to have some limitations. The household food expenditure was derived in terms of monetary expenditure. The variables in this computation, calorie intake and food expenditure are therefore observed as one variable, which implies that the measurement errors are common to both the calorie availability and food expenditure data. In essence, food expenditure and calorie are not independently

observed (Bois and Haddad, 1992). As noted by Greer and Thorbecke, the use of fixed food weight-to- calorie factor for the whole country over time and over the entire income profile might be inappropriate due to changing food quality and food preparation methods.

Bouis and Haddad (1992), state that household calorie availability has to be adjusted for leakages due to plate waste, loss in cooking and other food preparation, feeding of animals and feeding of non household members such as guests, hired farm labourers and servants.

A number of recent studies have also questioned the reliability of calorie content as surrogate for calorie intake.

Schiff and Valdes (1990), postulate that the nutrient intake is affected by other variables such as non-nutrient food attributes (freshness of food product purchased, their cleanliness), privately provided inputs (time and care to prepare food, cooking, boiling water, refrigeration), publicly provided inputs (sewerage, water, electricity and nutritional information) and health status which can influence the degree of absorption of these nutrients. In addition, WMS data does not normally, specify whether quantities consumed are fresh or dry which makes it difficult to apply the correct food weight-to-calorie factors.

CBN approach, on the other hand, has a major weakness as noted by Aigbokhan(2000). Because there is less agreement on an anchor for estimating the non-food component of the poverty line, there tend to be much arbitrariness in determining the level of poverty. This means that there may be as many poverty lines as there are variations in the assumptions used to determine the level of non-food component even for the same data set. It is evident that the main ingredients for poverty measure; the caloric requirement, the food bundle to achieve that requirement and the allowance for non-food goods entail normative judgment.

4.1 POVERTY STATUS

4.1.1 Poverty status by main occupation

In table 4.2, using both CBN and FEI poverty lines, Pastoralist have the highest incidence of poverty, followed by subsistence farmers. However, it is surprising to note that skilled private sector workers have a higher incidence of poverty than skilled public sector workers.

Table 4.2: Poverty rate by main occupation of household head

Main Occupation of household head	Poverty Line (FEI)		Poverty Line (CBN)	
	Non-poor	Poor	Non-poor	Poor
Unpaid family worker	62.8	37.2	60.5	39.5
Commercial Farmer	57.5	42.5	55.8	44.2
Subsistence Farmer	41.8	58.2	39.6	60.4
Pastoralist	28.8	71.2	28.1	71.9
Skilled public sector worker	79.5	22.5	76.1	23.9
Unskilled public sector worker	59.3	40.7	57.8	42.2
Skilled private sector worker	68.9	31.1	67.9	32.9
Unskilled private sector worker	52.4	47.6	50.3	49.7
Business Person	68.8	31.2	67.1	32.9

Source: computed from Welfare Monitoring Survey II data

This finding can be explained by the fact that, skilled public sector workers receive fringe benefits such as free or highly subsidized housing, which reduces expenditure on non-food items and hence increasing income available for consumption making them have a higher welfare.

Another plausible explanation is that there is a lot of corruption within the public sector which makes them well off.

4.1.2 Poverty status by education Level

Household heads without any education have a slightly lower incidence of poverty as compared to those with pre-school education in table 4.3

Table 4.3: Poverty rate by Education level of household head

Education Level of household head	Poverty Line (FEI)		Poverty Line (CBN)	
	Non-poor	Poor	Non-poor	Poor
Pre-school	41.0	59.0	41.0	59.0
Std 1-8	40.8	59.2	45.1	54.9
KCPE	55.8	44.2	53.1	46.9
Form 1-4	65.4	35.5	62.3	37.7
KCSE/KCE/KACE	75.3	24.7	73.6	26.4
Trade Test cert. I-III	74.4	25.6	72.0	28.0
Post secondary certificate	86.6	13.4	85.0	15.0
University and above	90.1	9.9	90.1	9.9
None	40.4	59.6	38.8	61.2

Source: computed from Welfare Monitoring Survey II data

It is quite clear that as education level rises, the incidence of poverty falls. This has a policy implication that in order to eradicate poverty, the government should invest more in education. Higher education level increases welfare.

4.1.3 Poverty status by employment sector

The agricultural sector is still leading in the incidence of poverty (as shown in table 4.4) followed by those in casual labour. There could be pockets of better-remunerated persons in this sector but it should be amply clear that the agricultural sector contains a large portion of the working poor.

Table 4.4: Poverty rate by employment sector of household head

Employment sector of household head	Poverty Line (FEI)		Poverty Line (CBN)	
	Non-poor	Poor	Non- poor	Poor
Public Sector	72.3	27.7	70.9	29.1
Formal Sector, own business	91.6	8.3	8.3	16.7
Formal Sector, employee	63.7	36.3	61.9	38.1
Informal Sector, own business	67.3	32.7	65.7	34.3
Informal Sector, employee	64.2	35.8	61.0	39.0
Casual Labour	42.2	57.8	39.8	60.2
Unpaid family labour	62.8	37.2	60.5	39.5
Agriculture	40.7	59.3	38.8	61.2

Source: computed from Welfare Monitoring Survey II data

4.1.4 Poverty status by Gender and Location

As can be seen poverty is still a rural phenomenon, with males having slightly higher incidence than females.

Table 4.5: Poverty rate by gender and location of household head

Gender of household head	Poverty Line (FEI)		Poverty Line (CBN)	
	Non-poor	Poor	Non-poor	Poor
Male	51.7	48.3	49.6	50.4
Female	52.2	47.8	50.3	49.7
Location of Household head				
Urban	46.2	53.8	44.2	55.8
Rural	82.2	17.8	80.9	19.1

Source: computed from Welfare Monitoring Survey II data

4.2   REGRESSION RESULTS

4.2.1 OVERALL EMPLOYMENT[2]

Table 4.6: Two models of expenditure for overall employment (N=10185)

| | Model I Log of Exp. (OLS) | | Logit Model II (1 non poor/0 poor) | | | |
| | | | FEI | | CBN | |
	Coeff.	t-value	Coeff.	z-value	Coeff.	z-value
Constant	7.226	91.48*	1.318	5.95*	1.317	5.96*
Gender (Female)						
Male	-0.115	-6.50*	-0.284	-5.41*	-0.283	-5.40*
Main occupation (Pastoralist)						
Unpaid family worker	0.661	4.96*	0.847	3.06*	0.806	2.91*
Commercial farmer	0.661	10.57*	1.041	7.92*	1.018	7.75*
Subsistence farmer	0.326	9.42*	0.449	5.28*	0.393	4.59*
Skilled public sector worker	0.912	15.69*	1.329	10.97*	1.306	10.84*
Unskilled Public sector worker	0.588	9.41*	0.832	6.06*	0.813	5.93*
Skilled private sector worker	0.724	13.44*	1.106	9.58*	1.069	9.28*
Unskilled private sector worker	0.457	10.14*	0.646	6.22*	0.596	5.72*
Business man	0.760	14.79*	1.226	11.28*	1.185	10.92*
Location (Rural)						
Urban	0.543	17.93*	1.053	13.70*	1.060	14.07*
Education (None)						
Preschool	0.041	0.33	-0.222	-0.64	-0.151	-0.43
Standard 1-8	0.096	4.06*	0.599	0.98	0.046	0.74
KCPE	0.140	4.62*	0.237	3.08*	0.185	2.40**
Form 1-4	0.262	7.47*	0.473	5.48*	0.433	5.04*
KCSE/KACE/KCE	0.373	9.76*	0.789	8.39*	0.751	8.06*
Trade test	0.428	4.05*	0.832	3.06*	0.758	2.85*
Post Secondary	0.750	8.90*	1.345	5.79*	1.262	5.66*
University and above	1.475	11.00*	1.575	4.54*	1.630	4.70*
Continuous variables						
Age	-0.041	-12.89*	-0.925	-10.32*	-0.094	-10.47*
Age squared	0.0004	12.61*	0.0008	9.76*	0.0009	9.97*
Work Experience	0.002	2.44**	0.009	3.53*	0.008	3.22*
Adjusted R^2/Pseudo R		0.19		0.11		0.11
F/Chi^2		117.59*		1498.27*		1505.53*

* Significant at 1%
** Significant at 5%

[2] The coefficients of the dummy variables were converted to percentages using the formula $(e^{\text{dummy coefficient}}-1)*100$

In the analysis, model I was used to examine the determinants of welfare, Model II was important in determining whether these explanatory variables are good predictors of poverty status.

Model I –Log of Expenditure

From the log of expenditure regression, most variables yield significant results. The main occupation variables show, for example that an unpaid family workers' welfare (proxied by expenditure) will be 66 percent higher than that of a Pastoralist, holding other variables constant.

A skilled public sector worker's welfare will be 91 percent higher than that of a Pastoralist. Indeed all the significant coefficients are positive, indicating that the Pastoralist have relatively low welfare amongst the employed *ceteris paribus*.

The location dummy variable is significant with a coefficient of 0.543; this indicates that the employed in the urban areas are likely to have approximately 54.3 percent more expenditure than their rural counterparts. The stark contrast in the labour market and earnings capacity in rural areas, compared to the urban areas is probably what explains the difference.

Education is an important predictor of expenditure. From table 4.6, it can be seen that as education level increases, expenditure also increases. A KCSE/KCE/KACE certificate holders' expenditure will be 37.3 percent more than the one of a person without any education. A university graduate's welfare will be approximately 147.5 percent more than that of one with no education.

With regard to gender, it is interesting to note that the expenditure of female - headed households is 11.5 percent higher expenditures in male-headed households. In reality, it is males who have more income therefore their expenditure is higher than females, but from the results we find the opposite. The plausible explanation to this finding is that a woman's

expenditure is welfare- oriented and can be easily captured by a household budget survey, while this is not so for the male counterparts.

Of the continuos variables both age and age squared are significant. At a lower age expenditure is low but as age increases expenditure also increases. As age increases by one-year expenditure decreases by 4.10 percent. Work experience is significant in this model.

Model II -Logit Estimates

The coefficient of the gender variable is significant for both poverty lines. Being an employed female increases the probability of not being poor, relative to an employed male.

All the coefficients of the main occupation dummy variables yield significant results. It is evident that the occupations significant in the log of expenditure function are also significant in the Logit model. This means that these categories, while being relevant in determining changes in an individual's expenditure, they are also important in predicting the poverty status of a person.

The coefficient of the location dummy variable is significant; this means that while expenditure will increase when moving to an urban area, this effect will actually be influential in boosting of expenditure above the poverty line.

Coefficient of pre-school and standard 1-8 dummy variables are not significant in placing an individual above the poverty line. Attainment of KCPE and higher educational level is significant in increasing the probability of one not being poor.

With regard to the continuous variables, the age coefficient is significant as well as work experience. An extra year of work will be important in determining expenditure above the poverty line.

Model III- Log of expenditure estimation (Welfare analysis)

A question arises as to whether the poor or non-poor groups are not really two differentiable segments within the employed. Indeed a number of explanatory variables that are important for the non-poor in determining the expenditure may not be important for the poor group of the employed. This in turn suggests that the overall expenditure function (model I) is really an uncomfortable aggregate of below and above poverty expenditure.

Econometrically, this amounts to questioning whether the parameter sets derived from the poor and non-poor expenditure functions estimated separately are different enough to convince us that these two segments belong apart and should not be pooled. The chow-test is tailor made to resolve this dispute.

Appendix table 4.1 shows separate (poor and non-poor) regression equations. As with the logit model, both FEI and CBN are used to define the split. The chow test results are presented at the bottom of the table and show that the separate poor/non-poor expenditure models for both FEI and CBN are fully justified.

With regard to the dummy variables, the poor/non-poor coefficients are markedly different from the overall model therefore validating the chow test result. Looking at gender in the poor group, female's expenditure is still higher than the males and the coefficients are highly significant.

From the coefficients of the main occupation dummy variable, unpaid family worker, subsistence farmer and commercial farmer (FEI) do not yield significant results for the non-poor group, while this is significant for the poor group, this implies that unpaid family worker, subsistence farmer and commercial farmer are found predominantly below the poverty line as presented in appendix table 4.1.

University education coefficient is significant in the overall OLS regression (table 4.6), as compared to the poor groups in model III (appendix table 4.1). This means that majority of

those with university education live above the poverty line as shown in table 4.3. University education is important in allocating persons above or below the poverty line.

For the continuos variables, the coefficients of age and age squared are both significant for the non-poor group, while work experience is more significant in the aggregate model (table 4.6) than in model III, for both poor and non-poor groups in appendix table 4.1.

In summary, comparing model II and I in table 4.6, the main occupation dummy variables are significant for both models and have the same signs. Preschool dummy variable is not significant both models, but has a negative sign. This implies that preschool is not a significant determinant of expenditure, and is not a good predictor of poverty status. The continuous variables are significant in both models and have similar signs.

Model III clearly shows that the explanatory variables impact differently on both groups. As can be seen preschool and STD 1-8 is only significant for the poor group. There is therefore need to divide the sample *ex- ante*, in order to see how these variables impact on these two different group.

4.2.2   THE FORMAL SECTOR

<u>**Model I – Log of expenditure**</u>

In the formal sector, expenditure in the female-headed households is still higher than the male- headed households, and the difference is significant at 5 percent. A skilled public sector worker's welfare is approximately 24 percent higher than that of an unskilled private sector worker. An unskilled public sector worker's welfare is approximately 16 percent higher than an unskilled private sector worker, but this coefficient is not significant. It is interesting to note that the coefficient of a skilled private sector worker is less than that of a skilled public sector worker.

Location is still significant in this sector, an urban residents' welfare is approximately 60 percent higher than a rural residents' welfare.

All the coefficients of the education dummy variables are significant in determining expenditure. University education is very significant with a magnitude of 1.305. As one moves to a higher level of education, welfare increases significantly. In the continuous variables, age and age squared are significant. As one becomes older, welfare improves by 0.06 percent. Work experience is not significant in this sector.

Table 4.7: Two models of expenditure (Formal sector) N=2842

| | Model I Log of Exp. (OLS) | | Logit Model II (1 non poor/0 poor) | | | |
| | | | FEI | | CBN | |
	Coeff.	t-value	Coeff.	z-value	Coeff.	z-value
Constant	7.975	42.51*	3.144	5.16*	3.112	5.17*
Gender (Female)						
Male	-0.085	-1.99**	-0.371	-2.42**	-0.352	2.35*
Main occupation (Unskilled private sector worker)						
Skilled public sector worker	0.242	5.38*	0.633	5.03*	0.662	5.31*
Unskilled Public sector worker	0.159	0.32	0.089	0.66	0.117	0.86
Skilled private sector worker	0.142	3.30*	0.502	4.06*	0.504	4.12*
Location (Rural)						
Urban	0.596	15.77*	1.242	11.72*	1.257	12.14*
Education (None)						
Preschool	0.066	0.26	-1.005	-1.30	-0.972	-1.25
Standard 1-8	0.105	1.94	0.150	1.01	0.101	0.68
KCPE	0.126	2.17**	1.74	1.09	0.130	0.82
Form 1-4	0.190	3.18*	0.342	2.10**	0.296	1.83
KCSE/KACE/KCE	0.321	5.20*	0.708	4.34*	0.646	4.00*
Trade test	0.424	2.77*	0.579	1.32	0.629	1.44
Post Secondary	0.675	6.94*	1.357	4.75*	1.224	4.49*
University and above	1.305	8.81*	1.949	3.99*	1.987	4.07*
Continuous variables						
Age	-0.056	-6.11*	-0.142	-4.81*	-0.145	-4.99*
Age squared	0.0006	5.28*	0.001	4.20*	0.001	4.43*
Work Experience	0.002	1.00	0.007	1.05	0.006	0.90
Adjusted R^2/Pseudo R		0.20		0.12		0.12
F/Chi^2		44.25*		434.51*		442.82*

* Significant at 1%
** Significant at 5%

Model II- Logit Estimates

The gender variable coefficient yields significant results, with the female's welfare still being greater than the male, this means that gender in this sector is significant enough to place an individual above or below the poverty line.

The main occupation dummy variables are significant apart from unskilled public sector worker. This implies that while these two occupations (skilled public and private sector worker) are determinants of expenditure, they are also important in determining whether one lives above or below the poverty line.

The coefficient of location dummy variable is significant and determines the poverty status of a person. For education level, Form 1-4, KCSE, post secondary and university education and above are significant determinants of poverty status.

Age and age squared are significant determinants of welfare while work experience is not.

Model III- Log of expenditure estimates (Welfare analysis)

The chow F test is very significant; the implication is that the separation into poor and non-poor groups is fully justified (appendix table 4.2).

The coefficient of the gender variable is not significant for both the poor and non-poor groups. From the main occupation dummy variable, a skilled public sector worker in the non-poor group has significantly more expenditure than an unskilled private sector worker, while this is not so in the poor group.

University and post secondary education coefficients are not significant for the poor group while it is very significant for the non-poor group. Trade test is not significant for both groups. The coefficients age and age squared are significant for both groups while work experience is not significant in this case.

Comparing model I and II, Preschool education coefficient is not significant in determining expenditure, and decreases the probability of being above the poverty line. While KCPE is a significant determinant of expenditure, it is not significant in placing one above the poverty line. The coefficients of model III have different signs for both groups, justifying the need for segregation.

4.2.3 THE INFORMAL SECTOR

Model I- Log of expenditure

In the informal sector, the coefficient of the gender dummy variable is not significant although male- headed households have approximately 0.3 percent higher expenditure than a female- headed households, as shown in table 4.8.

Table 4.8: Two models of expenditure from employment (Informal sector) N=1331

	Model I Log of Exp. (OLS)		Logit Model II (1 non poor/0 poor)			
			FEI		CBN	
	Coeff.	t-value	Coeff.	z-value	Coeff.	z-value
Constant	7.268	33.30*	1.643	2.48*	1.509	2.30**
Gender (Female)						
Male	0.003	0.07	-0.171	-1.09	-0.219	-1.40
Main occupation (Unskilled Private sector worker)						
Unpaid family worker	0.423	2.81*	0.527	1.51	0.621	1.78***
Skilled private sector worker	0.152	1.36	0.233	0.78	0.338	1.13
Business man	0.303	3.63*	0.557	2.70*	0.603	2.93*
Location (Rural)						
Urban	0.554	9.36*	1.094	6.99*	1.067	7.00*
Education (None)						
Preschool	1.034	2.25**	0.860	0.91	1.021	1.08
Standard 1-8	0.283	4.04*	0.672	3.87*	0.760	4.37*
KCPE	0.392	4.60*	0.787	3.84*	0.794	3.90*
Form 1-4	0.630	6.05*	1.205	4.84*	1.176	4.83*
KCSE/KACE/KCE	0.749	6.96*	1.780	6.36*	1.862	6.74*
Trade test	0.627	2.60*	1.136	1.87	0.954	1.67
Post Secondary	0.669	1.98**	1.021	1.21	1.137	1.35
University and above	5.660	7.66*	1.629	1.50	1.798	1.66
Continuous variables						
Age	-0.042	-4.69*	-0.105	-3.81*	-0.105	-3.85*
Age squared	0.0004	4.73*	0.001	3.62*	0.001	3.75*
Work Experience	0.0003	0.12	0.011	1.27	0.006	0.75
Adjusted R^2/Pseudo R		0.19		0.11		0.11
F/Chi^2		20.29*		189.22*		195.72*

* Significant at 1%
** Significant at 5%

With regard to the coefficients of the main occupation dummy variable, an unpaid family workers' expenditure is approximately 42 percent higher than an unskilled private sector

worker, whereas the businessman's expenditure is 30 percent higher. Being a skilled private sector worker is not significant in this sector.

Location dummy variable coefficient is significant with the urban resident having 55.4 percent more expenditure than a rural resident.

As education level rises, the magnitude of the coefficient also rises. A person with university education for example spends approximately 6 times more than one without any education For the continuous variables, as age increases, expenditure increases by 0.04 percent and is very significant. Work experience is not significant in this sector.

Model II – Logit Estimates

The coefficient of the gender dummy variable is not significant in promoting expenditure above the poverty line although the female's expenditure is higher in this case.

The location dummy coefficient is significant, what this reveals is that while a person's expenditure will increase when moving to an urban area, this effect operates across the whole distribution of expenditure and is particularly influential in boosting expenditure above the poverty line.

From the main occupation dummy variable, working as an unpaid family worker and businessman significantly increases the probability of living above the FEI and CBN poverty lines.

University education coefficient is very significant in placing one above the poverty line. This could be because the informal sector is highly competitive, therefore higher qualifications implies credibility and therefore income is affected positively.

At a lower age expenditure is less while as age increases expenditure also increases. Age is a good predictor of being above or below the poverty line. Work experience is not significant in determining poverty status.

Model III- Log of expenditure estimation (Welfare analysis)

Looking at appendix table 4.3, age and age squared are significant for the non-poor group only. Gender in not significant for both groups. In both groups, a male's expenditure is higher than females'.

Location dummy variable coefficient is significant for both groups. With regard to main occupation dummy variable, businessman is significant for the non- poor group only.

From the education dummy variable, coefficients of standard 1-8, KCPE, form 1-4 and KCSE yield significant results in the poor group, while university education is significant for the non-poor group.

Model I and II have similar signs for most of the explanatory variable apart from trade test, post secondary and university education and above. While the coefficients of these three education dummy variables are significant determinants of expenditure, they are not significant enough to place one above the poverty line. In model III, university education is important for the non-poor group relative to model I which shows that university education is a very significant determinant of expenditure.

4.2.4   AGRICULTURAL SECTOR

Model I- Log expenditure

In the agricultural sector, female- headed households have approximately 15 percent more expenditure than male-headed households, holding other variables constant. As shown in table 4.9.

The coefficient of the activity dummy variable show, for example, that a commercial farmer has approximately 71 percent more expenditure than that of a Pastoralist, while a

subsistence farmer has approximately 34 percent more expenditure than that of a Pastoralist. These coefficients are highly significant.

Table 4.9: Two models of expenditure from the employed (agriculture) N=5670

| | Model I Log of Exp. (OLS) | | Logit Model II (1 non poor/0 poor) | | | |
| | | | FEI | | CBN | |
	Coeff.	t-value	Coeff.	z-value	Coeff.	z-value
Constant	7.200	68.26	1.111	4.00*	1.158	4.16*
Gender (Female)						
Male	-0.147	-6.73*	-0.284	-4.62*	-0.278	-4.49*
Main occupation (Pastoralist)						
Commercial farmer	0.705	10.53*	1.092	8.1*	1.081	8.00*
Subsistence farmer	0.336	9.05*	0.484	5.48*	0.437	4.92*
Location (Rural)						
Urban	-0.025	-0.28	-0.142	-0.59	-0.101	-0.42
Education (None)						
Preschool	-0.073	-0.46	-0.055	-0.13	0.166	0.04
Standard 1-8	0.072	2.40**	-0.052	-0.69	-0.080	-1.04
KCPE	0.121	2.84*	0.245	2.34**	0.188	1.80
Form 1-4	0.257	4.70*	0.454	3.61*	0.414	3.29*
KCSE/KACE/KCE	0.256	3.94*	0.593	3.83*	0.540	3.49*
Trade test	0.397	2.06**	1.138	2.57*	1.019	2.36**
Post Secondary	1.077	3.19*	1.197	1.93	1.266	2.04**
University and above	0.014	0.05	0.453	0.59	0.511	0.66
Continuous variables						
Age	-0.038	-9.07*	-0.082	-7.36*	-0.086	-7.63*
Age squared	0.004	9.21*	0.008	7.161*	0.0008	7.41*
Work Experience	0.002	2.17**	0.009	3.13*	0.010	3.12*
Adjusted R^2/Pseudo R		0.07		0.03		0.03
F/Chi^2		27.35*		236.69*		224.69*

* Significant at 1%
** Significant at 5%

A rural resident will have approximately 2.5 percent more expenditure than an urban resident, but this coefficient is not significant. The significant coefficients of the education dummy variables are from std. 1-8 to post secondary education. A person with university degree and above has only 1.4 percent more expenditure than one without education. For

the continuous variable, as work experience increases by a year, welfare increases by 0.2 percent. Age and age squared are both significant in the agricultural sector.

Model II – Logit Estimates

From the main occupation dummy variable in table 4.9, both the coefficients of the commercial and subsistence farmers, yield significant results. In the agricultural sector, working as a commercial or subsistence farmer increases the probability of living above the FEI or CBN poverty lines. This means that while these activities are significant in determining changes in a person's expenditure, they are also important in determining whether a person lives above or below the poverty line. The location variable is very interesting, in that it is not significant. Gender is significant for both CBN and FEI poverty lines. Being a female employed is likely to place one above the FEI and CBN relative to the male employed. All the three continuous variables are significant for both models with age squared and work experience increasing the probability of being above the poverty line.

Model III -Log of expenditure estimates (Welfare analysis)

The coefficient of the gender dummy variable is significant in the non-poor group as shown in appendix table 4.4. For the main occupation dummy variable, it can be noticed that being a commercial or subsistence farmer is more significant for the poor group, which has a bigger coefficient than the non-poor group.

The location dummy variable coefficient is significant for the non-poor group. A rural resident will have approximately 22.0 and 24.0 percent more expenditure than an urban resident for FEI and CBN respectively, for the non-poor groups.

The education dummy variable shows that the coefficients of STD 1-8, KCPE, form 1-4 and KCSE are the only significant education levels for the poor group, while KCPE and

post secondary levels are significant for the non-poor group. From the continuous variables, work experience is not significant for any group.

Comparing model I and II regression results, university education is not significant for both models, and model III as well. Post secondary education is only significant for the non-poor grouping model III. It is interesting to not that while being a commercial or a subsistence farmer is significant in model I and II, these activities are only significant for the poor group in appendix table 4.4, this implies that these activities are mostly undertaken by poor people.

4.2.5   CASUAL LABOUR

Table 4.10: Two models of expenditure (Casual Labor) N=342

| | Model I Log of Exp. (OLS) | | Logit Model II (1 non poor/0 poor) | | | |
| | | | FEI | | CBN | |
	Coeff.	t-value	Coeff.	z-value	Coeff.	z-value
Constant	7.831	19.36*	2.814	2.48**	2.782	2.44**
Gender (Female)						
Male	-0.022	-0.19	-0.376	-1.21	-0.369	-1.19
Main occupation (Unskilled Private sector worker)						
Skilled private sector worker	0.189	1.69***	0.249	0.89	0.249	0.88
Location (Rural)						
Urban	0.423	3.08*	0.840	2.68**	0.796	2.54*
Education (None)						
Preschool	-0.488	-0.87	-	-	-	-
Standard 1-8	-0.025	0.23	-0.026	-0.89	-0.326	-1.09
KCPE	-0.135	-1.02	-0.467	-1.28	-0.740	-1.98**
Form 1-4	0.132	0.80	0.193	0.46	0.098	0.236
KCSE/KACE/KCE	-0.080	-0.35	-0.422	-0.66	-0.388	-0.61
Trade test	0.284	0.45	-0.487	-0.32	-0.447	-0.30
Post Secondary	2.390	1.60	-	-	-	-
University and above	0.242	0.28	-	-	-	-
Continuous variables						
Age	-0.060	-3.22*	-0.130	-2.45**	-0.130	-2.44**
Age squared	0.0006	3.07*	0.001	2.32**	0.001	2.35**
Work Experience	-0.003	-0.60	-0.010	-0.66	-0.10	-0.68
Adjusted R^2/Pseudo R		0.07		0.05		0.05
F/Chi^2		2.74*		23.44**		23.92**

* Significant at 1%
** Significant at 5%

Model I – Log of expenditure

From model I on table 4.10, female- headed households haves 2.2 percent higher
expenditure than male- headed households in the casual labour sector, although this variable
is not significant. A skilled private sector worker has a greater welfare than an unskilled
private sector worker. With regard to education, no category has significant coefficients.

Model II – Logit estimates

In this model, female- headed households' increase the probability of being above the poverty line. Being in the urban area significantly increases the probability of being above the poverty line.

University education dummy variable coefficient is not significant in this sector. Post-secondary education predicts being above the poverty line perfectly, while pre-school predicts being below the poverty line perfectly. Age squared is significant and is a good predictor of poverty status, but work experience is not significant.

Model III – Log of expenditure estimates within poverty line

From appendix table 4.5, the coefficients of the non-poor group have a higher magnitude for the location dummy variable as compared to the poor group, and are significant as well. Post-secondary education is a perfect determinant of expenditure for the non-poor group. The overall model is not significant but the chow F-test result is significant and therefore justifying the separation.

There was need to run separate regressions for these sectors in order to determine how the explanatory variables impact on different sectors of the economy.

4.3   POVERTY PROFILES

4.3.1   Profiles by main occupation

Main occupation from table 4.11 pastoralists have the highest headcount index of approximately 71 percent, followed by subsistence farmers. The lowest incidence of poverty using the headcount index is found among the businesspersons. Skilled private sector workers have a higher headcount index than skilled public sector worker.

Table 4.11: Poverty profiles by sector of employment and main occupation

Main Occupation	Absolute Poverty Measure (%)						Percentage contribution to total poverty	
	P=0		P=1		P=2		P=2	
	FEI	CBN	FEI	CBN	FEI	CBN	FEI	CBN
Unpaid family worker	37.2	39.5	13.34	14.89	6.98	7.85	0.55	0.63
Commercial farmer	42.5	44.2	12.39	14.32	5.38	6.35	2.05	2.42
Subsistence farmer	58.2.	60.4	22.94	25.19	12.53	13.94	51.6	57.40
Pastoralist	71.2	70.9	35.95	38.18	23.02	24.74	21.09	22.67
Skilled public sector worker	22.5	23.9	6.11	7.16	2.68	3.16	2.48	2.92
Unskilled public sector worker	40.7	42.2	14.47	16.13	7.48	8.44	2.74	3.10
Skilled private sector worker	31.2	32.9	9.83	11.20	4.63	5.35	3.83	4.42
Unskilled private sector worker	47.6	49.7	17.43	19.37	9.23	10.35	9.82	11.00
Business person	31.2	32.9	11.27	12.55	5.95	6.68	5.86	6.57
Sector of Employment								
Agricultural sector	59.28	61.24	24.39	26.62	13.80	15.23	74.74	82.47
Formal sector	31.97	33.63	10.23	11.63	4.93	5.66	13.07	15.01
Informal sector	33.26	35.07	11.94	13.32	6.31	7.08	8.02	9.00
Casual labour	57.71	60.00	23.40	25.35	12.99	14.36	4.19	4.63
Overall Employment	48.31	50.18	18.83	20.71	10.35	11.50		

Source: computed from welfare monitoring survey II data

In terms of income gap (P=1), the pastoralists have the highest income gap of 35.95 (FEI) and 38.18 (CBN) below the poverty line. The subsistence farmers have an income gap of 22.94 and 25.19 percent for FEI and CBN respectively. The skilled public sector worker has the lowest income gap of 6.11 percent (FEI) and 7.16 percent (CBN).

For severity index, (P=2), the pastoralists are still ranked first, followed by subsistence farmers. Businesspersons have the lowest severity index.

Subsistence farmers contribute approximately 52 percent to total poverty; this is the highest so far. The main reason for this is because of the weighted population share. The bigger the population for a subgroup, the bigger the population share and the greater the impact on national poverty. The skilled private sector worker contributes more to total poverty than a skilled public sector worker.

4.3.2   Profile by sector of employment

The agricultural sector has the highest headcount index, 59.28 percent (FEI) and 61.24 percent (CBN), and a high-income gap of 24.39 and 26.62 percent for FEI and CBN respectively.

The informal sector has higher poverty measures as compared to the formal sector. Casual labour sector is ranked second after the agricultural sector.

For overall employment, approximately 50 percent of the employed live below the poverty line, with an approximate income gap of 20 percent with a severity index of 11 percent.

Chapter

5

Conclusion and Policy Implications

5.0   CONCLUSION

From the study, it is clear that agriculture is still the predominant economic activity in this country. Agricultural sector contributes the highest percentage to national poverty, with pastoral, commercial and subsistence farming being the main activities carried out by the majority, who are poor. University education in the agricultural sector does not play any significant role in term of improvement in productivity. A plausible explanation to this finding could be that the rewards in terms of remuneration in this sector is not commensurate with the amount of time and money invested in training, therefore there tends to be human resource flight from this sector. This could be a reason why this sector is lagging behind in terms of development and poverty reduction. Work experience is important in this sector

The formal sector of employment is better placed than the other three sectors. There is low incidence of poverty measured by income and severity gap. Post secondary and university education are very significant in this sector. A skilled public sector worker' has a higher welfare than a skilled private sector worker.

The informal sector has a higher incidence of poverty as compared to the formal sector. University education is an important determinant of welfare but is not significant in placing one above the poverty line. From the study, as income increases poverty incidence tends to decrease.

Casual laborers are also a vulnerable segment of the employed. More than 50 percent live below the poverty line, while education level is not significant in determining welfare in this sector.

In any case, an individual without any form of education is better off than those with some level of education.

There is a strong correlation between female-headed households and higher welfare. The research findings show that female- headed households are associated with higher welfare as compared to male – headed household. It is only in the informal sector where male headed households have higher welfare than female-headed households. Female labour activities have positive externality effects that improve welfare.

Poverty is still a rural phenomenon and is mostly concentrated in the agricultural sector. Households that depend on agriculture have a high risk of becoming poor. More specific findings on agriculture and land holding are treated elsewhere (see Alemayehu *et al*, 2001;Oyugi *et al* 2000). Urban areas have less poverty incidence.

Education level of the head of household is significant in determining the poverty status of a household. Post secondary and University education are associated with less poverty. Lack of education is very significant in explaining the probability of being poor.

Certain occupations are associated with low incidence of poverty; a businessman, skilled public or private sector worker is associated with less poverty, while pastoralism is significant in explaining the probability of being poor.

5.1   POLICY IMPLICATION

In this study, we examined the poverty status of the employed in Kenya, using the 1994 Welfare Monitoring Survey data. Although several conclusions have been drawn from the estimation results, the following are the major policy implications of the study:

First, the study has explicitly shown that economically active females are very significant in explaining the probability of not being poor. Initiating programmes that lead to female economic empowerment would be a first step towards poverty eradication. A female is a welfare-oriented

person and therefore her economic activities have positive externality effect to others, which improves welfare.

Second, poverty is concentrated in rural areas in general and particularly in the agricultural sector. Being employed in the agricultural sector explains a good part of the probability of being poor. The research findings show that university education is not significant in explaining the probability of being non-poor. Therefore, investing in this sector in ways that will reduce poverty should be given priority. Improved training on agricultural extension services as well as creating incentives to curb human resource flight, especially by university graduates trained in agriculture is very important in solving this problem.

Third, education should be an important element of poverty reduction, there is an inverse relationship between poverty and education level (see also Mwabu *et al*, 2001; Aigbokhan, 2000); this is because educational attainment of household head (particularly post secondary and university education) increases the welfare of an individual, because it imparts knowledge which makes an individual self- reliant (Manda *et al*, 2000). Thus promoting education in key in addressing poverty. More specific policy implications on education are addressed in Kimalu *et al* 2001.

Last, the pastoralists, subsistence and commercial farmers are the hardest hit victims of poverty. In order to reduce poverty, the government should embark on initiatives that will promote these activities by creating an enabling business environment, profit opportunities and access to markets for the end products. Several industries such as coffee, sugar, rice, pyrethrum and meat industries, which house these activities need to be revived in order to promote sustainable economic activities in order to alleviate poverty.

There is still need for further research in the agricultural sector in order to determine the factors that impede growth in this sector as well as to determine whether liberalization or privatization of various industries in this sector is the way forward for poverty alleviation. There is

still need to disaggregate the analysis further by gender, in order to examine how these variables impact on these two groups.

The mentioned policy implications are in line with the objectives of the Poverty reduction strategy paper. However, the national development plan (2002-2008) has addressed labour market issues in a casual manner, while the labour market determines to a large extent, the way in which an economic system responds to policy changes and incentives and also whether any adjustment process is socially and politically acceptable.

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APPENDICES

APPENDIX I: SUMMARY STATISITCS OF CALORIES AND EXPENDITURES BY REGIONS.

Appendix Table 1.0: Summary statistics of daily kcalories and expenditure for the national sample

	Observation	Mean	Std. Dev.	Minimum	Maximum
Kcalories	7833	2518.47	1083.24	1000.50	5498.30
Food expenditure (Kshs)	7833	24.08	13.25	4.523	98.10
Non food exp. (Kshs)	7833	12.01	24.52	0.05	1075.16
Total expenditure (Kshs)	7833	36.09	32.09	4.80	1171.99

Appendix Table 1.1: Summary statistics of daily kcalories and expenditure for the Central Province

	Observation	Mean	Std. Dev.	Minimum	Maximum
Kcalories	1471	2550.63	1040.82	1009.50	5848.58
Food expenditure (Kshs)	1471	25.776	12.28	6.53	97.33
Non food exp. (Kshs	1471	12.01	16.56	0.22	226.82
Total expenditure (Kshs)	1471	37.78	23.94	7.24	315.68

Appendix Table 1.2: Summary statistics of daily kcalories and expenditure for the Coast province

	Observation	Mean	Std. Dev.	Minimum	Maximum
Kcalories	678	2421.31	1045.93	857.17	5160.12
Food expenditure (Kshs)	678	27.98	14.71	5.96	98.10
Non food exp. (Kshs	678	11.89	17.00	0.07	172.85
Total expenditure (Kshs)	678	39.85	26.75	6.17	250.92

Appendix Table 1.3: Summary statistics of daily kcalories and expenditure for the Eastern province

	Observation	Mean	Std. Dev.	Minimum	Maximum
Kcalories	1187	2578.45	1105.23	989.91	5671.41
Food expenditure (Kshs)	1187	21.48	12.01	4.57	84.86
Non food exp. (Kshs)	1187	10.77	15.34	0.09	210.20
Total expenditure (Kshs)	1187	32.25	23.70	5.55	257.07

Appendix Table 1.4: Summary statistics of daily kcalories and expenditure for the Nairobi Province

	Observation	Mean	Std. Dev.	Minimum	Maximum
Kcalories	198	2974.81	1238.65	1011.89	5711.80
Food expenditure (Kshs)	198	38.67	19.06	10.12	97.32
Non food exp. (Kshs)	198	46.76	110.00	0.77	1075.16
Total expenditure (Kshs)	198	85.42	120.24	12.33	1171.99

Appendix Table 1.5: Summary statistics of daily kcalories and expenditure for the North Eastern province

	Observation	Mean	Std. Dev.	Minimum	Maximum
Kcalories	397	1965.90	918.96	849.67	4918.89
Food expenditure (Kshs)	397	21.24	11.70	6.47	75.51
Non food exp. (Kshs)	397	8.54	8.36	0.11	59.88
Total expenditure (Kshs)	397	29.78	17.74	6.93	122.02

Appendix Table 1.6: Summary statistics of daily kcalories and expenditure for the Nyanza province

	Observation	Mean	Std. Dev.	Minimum	Maximum
Kcalories	1360	2736.14	1207.21	881.30	6644.67
Food expenditure (Kshs)	1360	23.55	12.26	5.04	91.89
Non food exp. (Kshs)	1360	8.91	15.12	0.10	345.31
Total expenditure (Kshs)	1360	32.45	22.95	5.61	427.65

Appendix Table 1.7: Summary statistics of daily kcalories and expenditure for the Rift valley province

	Observation	Mean	Std. Dev.	Minimum	Maximum
Kcalories	856	2697.14	1158.49	1005.15	6433.32
Food expenditure (Kshs)	856	23.41	13.31	4.53	97.16
Non food exp. (Kshs)	856	12.96	17.30	0.16	187.27
Total expenditure (Kshs)	856	35.87	25.83	5.74	240.41

Appendix Table 1.8: Summary statistics of daily kcalories and expenditure for the Western Province

	Observation	Mean	Std. Dev.	Minimum	Maximum
Kcalories	570	2310.69	1012.47	1030.30	5749.73
Food expenditure (Kshs)	570	20.95	11.99	4.75	91.76
Non food exp. (Kshs)	570	9.02	11.69	0.05	124.09
Total expenditure (Kshs)	570	29.96	20.46	4.80	165.40

Appendix Table 1.9: Summary statistics of daily kcalories and expenditure for the rural areas

	Observation	Mean	Std. Dev.	Minimum	Maximum
Kcalories	6588	2491.70	1076.54	982.55	5492.77
Food expenditure (Kshs)	6588	22.35	11.74	4.53	98.10
Non food exp. (Kshs)	6588	9.10	11.74	0.05	226.82
Total expenditure (Kshs)	6588	31.45	19.44	4.80	260.80

Appendix Table 1.10: Summary statistics of daily kcalories and expenditure for the urban areas

	Observation	Mean	Std. Dev.	Minimum	Maximum
Kcalories	1245	2640.24	1112.55	980.96	6154.06
Food expenditure (Kshs)	1245	33.22	16.62	7.08	97.33
Non food exp. (Kshs)	1245	27.46	52.65	0.22	1075.16
Total expenditure (Kshs)	1245	60.68	61.33	9.76	1171.99

Appendix Table 1.11: Summary statistics of monthly expenditure for the employed by sector of employment in KShs

Sector	Observation	Mean	Std. Dev.	Minimum	Maximum
Formal	2878	1794.40	2755.70	30.68	86122.98
Informal	1380	1672.25	2092.90	21.18	30894.79
Agriculture	5877	975.42	986.62	17.96	14644.93
Casual	350	1000.88	927.37	70.44	6889.21
Overall employment	**10485**	**1292.78**	**1838.91**	**17.96**	**86122.98**

Appendix Table 1.12: Summary statistics of total household monthly expenditure by gender of Household head

	Observation	Mean	Std. Dev.	Minimum	Maximum
Male household head	7837	1289.269	1946.22	17.95	86122.98
Female household head	2648	1303.178	1476.59	21.182	26485.08

APPENDIX II: CONSTRUCTION OF POVERTY LINE USING FEI METHOD

Appendix Table 2.0: Food Poverty Lines Based on Semi-Log cost of calorie Function (Log Food Expenditure= $\alpha + \beta$ Calories)+e

Region	Estimated coefficients (Absolute t-ratios in parenthesis)		R^2	Sample Size	Unadjusted Poverty Line
	α	β			
National	2.117662 (219.664)	0.0003682 (104.706)	0.58	7834	571
Eastern	1.99452 (74.436)	0.0003659 (37.432)	0.54	1187	505
Central	2.225098 (118.257)	0.0003715 (52.687)	0.65	1471	640
Rift Valley	2.165631 (72.083)	0.0003309 (30.330)	0.52	857	551
Nyanza	2.085426 (99.045)	0.0003599 (48.897)	0.64	1360	543
Western	1.946163 (56.197)	0.000441 (30.047)	0.61	570	567
North-Eastern	2.020682 (59.749)	0.0004078 (29.435)	0.69	397	566
Nairobi	2.451696 (51.426)	0.0003717 (24.461)	0.75	198	804
Coast	2.250641 (66.746)	0.0003532 (30.479)	0.58	678	631
Urban	2.406362 (126.126)	0.0003851 (55.670)	0.71	1245	792
Rural	2.066641 (213.030)	0.0003636 (102.623)	0.62	6589	537

Source: Computed from the welfare monitoring survey data, 1994.

Appendix Table 2.1: Absolute Poverty Lines Based on Log-Log Calorie Function
(Log Calories = α + β Log Food Expenditure)+ e

Region	Estimated coefficients (Absolute t-ratios in parenthesis)		R^2	Sample Size	Unadjusted Poverty Line
	α	β			
National	6.209314 (288.654)	0.4519299 (72.291)	0.40	7833	826
Eastern	6.31132 (120.413)	0.4374153 (27.829)	0.40	1187	749
Central	6.023871 (108.347)	0.4899226 (31.066)	0.40	1471	954
Rift Valley	6.172678 (88.712)	0.4609296 (22.843)	0.38	856	859
Nyanza	6.015367 (114.123)	0.5325281 (33.982)	0.46	1360	735
Western	6.114115 (90.425)	0.461162 (22.310)	0.47	570	973
North-Eastern	5.727808 (63.580)	0.5808178 (21.201)	0.53	397	924
Nairobi	6.314268 (46.195)	0.3824845 (11.625)	0.41	198	1180
Coast	6.258801 (81.530)	0.4400175 (20.352)	0.38	678	828
Urban	5.975615 (107.757)	0.4580591 (32.483)	0.46	1245	1348
Rural	5.997684 (250.826)	0.5282027 (73.779)	0.45	6588	780

Source: Computed from the welfare monitoring survey data, 1994.

Appendix Table 2.2: Food and Non-food Component of CBN Overall Poverty Lines

Region	Components		Non price unadjusted Absolute Poverty Line
	Non-food expenditure	CBN-food expenditure	
National	272.60	602	875.08
Eastern	269.80	539.80	809.60
Central	271.60	626.90	898.50
Rift Valley	270.30	522.30	792.60
Nyanza	204.50	533.00	737.50
Western	242.50	594.00	836.50
North Eastern	243.70	706.80	950.50
Nairobi	890.80	852.00	1742.80
Coast	278.50	731.00	1009.50
Urban	551.70	838.90	1390.60
Rural	244.60	567.50	812.10

Source: Computed from the welfare monitoring survey data, 1994

APPENDIX III: CONSTRUCTIN OF POVERTY LINE USING CBN METHOD.

Appendix table 3.0: National Daily Food Poverty Line per Capita

Food item	Calorie/1000g	Calorie intake per day per capita	Calorie intake as ratio of daily intake	Calories recommended per day per capita	Quantity needed to meet daily calorie requirement (Kg)	Kshs per Kg at 1994 prices	Food expenditure needed to meet daily calorie requirement
Bread	2400	58.69714	0.027086	60.94447	0.025394	30.66	0.778566
Maize grain	3450	931.0977	0.429665	966.7466	0.280216	16.21	4.542308
Maize flour	3350	436.7215	0.20153	453.4423	0.135356	18.51	2.505438
Rice	3350	93.40946	0.043105	96.98582	0.028951	33.64	0.973911
Beans	3200	186.4564	0.086042	193.5953	0.060499	30.97	1.873639
Beef	2350	41.49044	0.019146	43.07899	0.018331	93.75	1.718577
Fish	2550	13.57792	0.006266	14.09777	0.005529	87.25	0.482365
Milk	790	47.98052	0.022141	49.81755	0.06306	26	1.639565
Cooking fat	8800	139.5645	0.064404	144.908	0.016467	85.4	1.406266
Sukuma	450	26.49697	0.012227	27.51145	0.061137	7.85	0.479922
Onion	380	1.890446	0.000872	1.962826	0.005165	36.55	0.188793
Tomato	220	2.515379	0.001161	2.611685	0.011871	27.79	0.329903
Potato	750	49.33059	0.022764	51.21931	0.068292	11.76	0.803119
Sugar	3750	135.7794	0.062657	140.9779	0.037594	48.53	1.824442
Tea leaves	400	2.022887	0.000933	2.100337	0.005251	102	0.535586
		2167.031		2250		Daily	20.0824
						Monthly	602.472

Note: Col 1-3 are derived from data; col 4=col 3/2167.031;col 5=2250*col 4;col 6=col 5/col 2; col 7 is given; col 8=col 7*col 6

Appendix table 3.1: Urban Daily Food Poverty Line per Capita

Food item	Calorie/1000g	Calorie intake per day per capita	Calorie intake as ratio of daily intake	Calories recommended per day per capita	Quantity needed to meet daily calorie requirement (Kg)	Kshs per Kg at 1994 prices	Food expenditure needed to meet daily caloric requirement
Bread	2400	156.9006	0.074917	168.5641	0.070235	30	2.107051
Maize grain	3450	275.0848	0.131348	295.5338	0.085662	13.5	1.156437
Maize flour	3350	636.8501	0.304085	684.1916	0.204236	18	3.676253
Rice	3350	163.0266	0.077842	175.1456	0.052282	33.5	1.751456
Beans	3200	141.5985	0.067611	152.1244	0.047539	28.5	1.354858
Beef	2350	97.1782	0.046401	104.4021	0.044426	100	4.442644
Fish	2550	20.9496	0.010003	22.50693	0.008826	130	1.147412
Milk	790	91.1261	0.043511	97.90014	0.123924	27	3.345954
Cooking fat	8800	204.2764	0.097539	219.4617	0.024939	85.5	2.13227
Sukuma	450	65.49268	0.031272	70.36121	0.156358	8.5	1.329045
Onion	380	5.304298	0.002533	5.698603	0.014996	37.7	0.565361
Tomato	220	7.929611	0.003786	8.519075	0.038723	30	1.161692
Potato	750	72.71451	0.03472	78.11989	0.10416	10.3	1.072846
Sugar	3750	153.3735	0.073233	164.7748	0.04394	46.25	2.032222
Tea Leaves	400	2.509751	0.001198	2.696319	0.006741	102	0.687561
		2094.315	1	2250			27.96306
							838.8919

Note: Col 1-3 are derived from data; col 4=col 3/2094.315;col 5=2250*col 4;col 6=col 5/col 2; col 7 is given; col 8=col 7*col 6

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Appendix table 3.2: Rural Food Poverty Line per Capita

Food item	Calorie/1000g	Calorie intake per day per capita	Calorie intake as ratio of daily intake	Calories recommended per day per capita	Quantity needed to meet daily calorie requirement in Kg	Kshs per Kg at 1994 prices	Food expenditure needed to meet daily calorie requirement
Bread	2400	40.14147	0.018407	41.41576	0.017257	30.74	0.530467
Maize grain	3450	1055.052	0.483798	1088.545	0.31552	16.6	5.237637
Maize flour	3350	398.907	0.18292	411.5704	0.122857	18.59	2.283908
Rice	3350	80.2552	0.036801	82.80292	0.024717	33.66	0.831984
Beans	3200	194.9324	0.089387	201.1205	0.06285	31.49	1.979152
Beef	2350	30.96817	0.014201	31.95126	0.013596	92.86	1.262551
Fish	2550	12.18503	0.005587	12.57184	0.00493	81.14	0.400031
Milk	790	39.82811	0.018263	41.09246	0.052016	25.86	1.345128
Cooking fat	8800	127.3371	0.058391	131.3794	0.014929	85.39	1.274828
Sukuma	450	19.12868	0.008772	19.73592	0.043858	7.76	0.340335
Onion	380	1.245395	0.000571	1.28493	0.003381	36.39	0.123049
Tomato	220	1.492353	0.000684	1.539728	0.006999	27.61	0.193236
Potato	750	44.91217	0.020595	46.33791	0.061784	11.96	0.738935
Sugar	3750	132.4549	0.060738	136.6597	0.036443	48.86	1.780585
Tea Leaves	400	1.930893	0.000885	1.99219	0.00498	119.2	0.593673
		2180.771	1				18.9155
							567.465

Note: Col 1-3 are derived from data; col 4=col 3/2180.771;col 5=2250*col 4;col 6=col 5/col 2; col 7 is given; col 8=col 7*col 6

Appendix table 3.3: Eastern Province Food Poverty Line per Capita

Food Item	Calorie/1000g	Calorie intake Per day per capita	Calorie intake as ratio of daily intake	Calories Recommended per day per capita	Quantity needed to meet daily calorie requirement (Kg)	Kshs per Kg at 1994 prices	Food expenditure needed to meet daily calorie requirement
Bread	2400	49.64514	0.022542	50.71993	0.021133	30	0.633999
Maize grain	3450	1119.167	0.508176	1143.396	0.331419	15.15	5.020999
Maize flour	3350	240.1948	0.109064	245.3949	0.073252	19.5	1.428418
Rice	3350	72.91636	0.033109	74.49496	0.022237	33	0.733831
Beans	3200	350.0385	0.158941	357.6167	0.111755	27.8	3.106795
Beef	2350	33.91356	0.015399	34.64777	0.014744	90	1.326936
Fish	2550	0.340917	0.000155	0.348298	0.000137	80	0.010927
Milk	790	32.55232	0.014781	33.25706	0.042098	24	1.010341
Cooking fat	8800	128.0994	0.058166	130.8727	0.014872	87	1.293855
Sukuma	450	13.07448	0.005937	13.35754	0.029683	8	0.237467
Onion	380	2.035491	0.000924	2.079558	0.005473	33	0.180593
Tomato	220	2.286867	0.001038	2.336377	0.01062	28.2	0.299481
Potato	750	36.64122	0.016638	37.43448	0.049913	11.5	0.573995
Sugar	3750	119.6924	0.054348	122.2837	0.032609	50	1.63045
Tea leaves	400	1.722466	0.000782	1.759756	0.004399	115	0.50593
		2202.321		2250			17.99402
							539.8205

Note: Col 1-3 are derived from data; col 4=col 3/2202.321;col 5=2250*col 4;col 6=col 5/col 2; col 7 is given; col 8=col 7*col 6

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Appendix table 3.4: Central Province Food Poverty Line per Capita

Food item	Calorie/1000g	Calorie intake Per day per capita	Calorie intake as ratio of daily intake	Calories recommended per day per capita	Quantity needed to meet daily calorie requirement (Kg)	Kshs per Kg at 1994 prices	Food expenditure needed to meet daily calorie requirement
Bread	2400	63.04984	0.029401	66.15245	0.027564	30	0.826906
Maize grain	3450	651.2412	0.303684	683.288	0.198054	15.1	2.990623
Maize flour	3350	482.9816	0.225222	506.7485	0.151268	18.4	2.783335
Rice	3350	158.0287	0.073691	165.8051	0.049494	32.2	1.593709
Beans	3200	217.4493	0.1014	228.1498	0.071297	28.6	2.039089
Beef	2350	43.59213	0.020328	45.73725	0.019463	100	1.946266
Fish	2550	2.103259	0.000981	2.206757	0.000865	75	0.064905
Milk	790	59.53217	0.027761	62.46168	0.079065	24	1.89757
Cooking fat	8800	186.3233	0.086885	195.4921	0.022215	88	1.954921
Sukuma	450	22.33109	0.010413	23.42997	0.052067	7.3	0.380086
Onion	380	1.62777	0.000759	1.707871	0.004494	30.7	0.137978
Tomato	220	2.304487	0.001075	2.417889	0.01099	21.3	0.234096
Potato	750	108.6709	0.050675	114.0185	0.152025	9.65	1.467038
Sugar	3750	143.0097	0.066688	150.0471	0.040013	48	1.920602
Tea leaves	400	2.227338	0.001039	2.336942	0.005842	113	0.660186
		2144.473	1	2250			20.89731
							626.9193

Note: Col 1-3 are derived from data; col 4=col 3/2144.473;col 5=2250*col 4;col 6=col 5/col 2; col 7 is given: col 8=col 7*col 6

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Appendix table 3.5: Rift -Valley Province Food Poverty Line per Capita

Food item	Calorie/1000g	Calorie intake per day per capita	Calorie intake as ratio of daily intake	Calories recommended per day per capita	Quantity needed to meet daily calorie requirement (Kg)	Kshs per Kg at 1994 prices	Food expenditure needed to meet daily calorie requirement
Bread	2400	42.31058	0.018655	41.97445	0.017489	30	0.524681
Maize grain	3450	1223.743	0.539565	1214.021	0.35189	16.2	5.700622
Maize flour	3350	347.5977	0.153261	344.8363	0.102936	15	1.544043
Rice	3350	35.97871	0.015864	35.69288	0.010655	30	0.319638
Beans	3200	176.3739	0.077766	174.9727	0.054679	29.25	1.59936
Beef	2350	30.25022	0.013338	30.0099	0.01277	90	1.149315
Fish	2550	4.351819	0.001919	4.317247	0.001693	86.5	0.146448
Milk	790	63.312	0.027915	62.80902	0.079505	23	1.828617
Cooking fat	8800	114.377	0.05043	113.4684	0.012894	85	1.096001
Sukuma	450	41.60826	0.018346	41.27771	0.091728	4	0.366913
Onion	380	1.471408	0.000649	1.459718	0.003841	32.4	0.12446
Tomato	220	1.808922	0.000798	1.794551	0.008157	24	0.195769
Potato	750	46.71875	0.020599	46.34759	0.061797	9.3	0.57471
Sugar	3750	136.3032	0.060098	135.2204	0.036059	48	1.730821
Tea leaves	400	1.812407	0.000799	1.798008	0.004495	113	0.507937
		2268.018		2250			17.40934
							522.2801

Note: Col 1-3 are derived from data; col 4=col 3/2268.018;col 5=2250*col 4;col 6=col 5/col 2; col 7 is given; col 8=col 7*col 6

Appendix table 3.6: Nyanza Province Food Poverty Line per Capita

Food item	calorie/1000g	Calorie intake per day per capita	Calorie intake as ratio of daily intake	Calories recommended per day per capita	Quantity needed to meet daily calorie requirement (Kg)	Kshs per Kg at 1994 prices	Food expenditure needed to meet daily calorie requirement
Bread	2400	49.79822	0.022863	51.44164	0.021434	30	0.64302
Maize grain	3450	1221.605	0.560853	1261.919	0.365774	15.75	5.760937
Maize flour	3350	357.0404	0.163921	368.8232	0.110096	15.8	1.739525
Rice	3350	61.00362	0.028007	63.01683	0.018811	30	0.56433
Beans	3200	107.4897	0.04935	111.037	0.034699	30	1.040972
Beef	2350	44.08057	0.020238	45.53529	0.019377	100	1.937672
Fish	2550	38.06393	0.017476	39.3201	0.01542	71.5	1.102505
Milk	790	25.45262	0.011686	26.29259	0.033282	27	0.898608
Cooking fat	8800	138.0882	0.063398	142.6453	0.01621	89.7	1.45401
Sukuma	450	28.48251	0.013077	29.42248	0.065383	6.8	0.444606
Onion	380	1.38358	0.000635	1.42924	0.003761	32.1	0.120733
Tomato	220	2.283286	0.001048	2.358638	0.010721	28.7	0.307695
Potato	750	9.502398	0.004363	9.815991	0.013088	10.5	0.137424
Sugar	3750	92.52914	0.042481	95.58273	0.025489	48	1.223459
Tea leaves	400	1.315742	0.000604	1.359163	0.003398	115	0.390759
		2178.119	1	2250			17.76625
							532.9876

Note: Col 1-3 are derived from data; col 4=col 3/2178.119;col 5=2250*col 4;col 6=col 5/col 2; col 7 is given; col 8=col 7*col 6

Appendix table 3.7: Western Province Food Poverty Line per Capita

Food item	Calorie/1000g	Calorie intake per day per capita	Calorie intake as ratio of daily intake	Calories recommended per day per capita	Quantity needed to meet daily calorie requirement Kg)	Kshs per Kg at 1994 prices	Food expenditure needed to meet daily calorie requirement
Bread	2400	52.54845	0.029652	66.71674	0.027799	30.2	0.839519
Maize grain	3450	836.2804	0.471894	1061.761	0.307757	15.5	4.770232
Maize flour	3350	293.8595	0.165818	373.0908	0.11137	16.3	1.815338
Rice	3350	42.19816	0.023811	53.57578	0.015993	32	0.511769
Beans	3200	143.6932	0.081083	182.4362	0.057011	28.8	1.641926
Beef	2350	43.60249	0.024604	55.35874	0.023557	90	2.120122
Fish	2550	26.06591	0.014708	33.09389	0.012978	72	0.934416
Milk	790	37.93944	0.021408	48.16881	0.060973	27	1.646276
Cooking fat	8800	96.99399	0.054731	123.1458	0.013994	83	1.161489
Sukuma	450	26.83344	0.015141	34.06836	0.075707	6	0.454245
Onion	380	1.67117	0.000943	2.121756	0.005584	36	0.201009
Tomato	220	1.87227	0.001056	2.377077	0.010805	24.2	0.261479
Potato	750	22.83806	0.012887	28.99574	0.038661	11.3	0.436869
Sugar	3750	143.9652	0.081236	182.7816	0.048742	48	2.339604
Tea Leaves	400	1.817028	0.001025	2.306942	0.005767	115	0.663246
		1772.179		2250			19.79754
							593.9261

Note: Col 1-3 are derived from data; col 4=col 3/1772.179;col 5=2250*col 4;col 6=col 5/col 2; col 7 is given; col 8=col 7*col 6

Appendix table 3.8: North-Eastern Province Food Poverty Line per Capita

Food item	Calorie/1000g	Calorie intake per day per capita	Calorie intake as ratio of daily intake	Calories recommended per day per capita	Quantity needed to meet daily calorie requirement (Kg)	Kshs per Kg at 1994 prices	Food expenditure needed to meet daily calorie requirement
Bread	2400	7.853569	0.004229	9.514572	0.003964	34	0.13479
Maize grain	3450	632.8579	0.340758	766.7052	0.222233	20	4.444668
Maize flour	3350	565.0353	0.304239	684.5384	0.20434	22.6	4.61808
Rice	3350	144.1499	0.077616	174.6371	0.05213	38.5	2.007023
Beans	3200	73.76414	0.039718	89.365	0.027927	36	1.005356
Beef	2350	9.098836	0.004899	11.02321	0.004691	80	0.375258
Fish	2550	0.174801	9.41E-05	0.211771	8.3E-05	118	0.0098
Milk	790	69.63425	0.037494	84.36166	0.106787	29	3.09682
Cooking fat	8800	40.40605	0.021756	48.95179	0.005563	75	0.417203
Sukuma	450	1.790175	0.000964	2.168791	0.00482	12.5	0.060244
Onion	380	0.26576	0.000143	0.321967	0.000847	50	0.042364
Tomato	220	0.657126	0.000354	0.796106	0.003619	36.5	0.132081
Potato	750	3.746755	0.002017	4.539181	0.006052	18	0.10894
Sugar	3750	303.58	0.163461	367.7861	0.098076	55	5.394197
Tea Leaves	400	4.192396	0.002257	5.079074	0.012698	135	1.714187
		1857.207	1	2250			23.56101
							706.8304

Note: Col 1-3 are derived from data; col 4=col 3/1857.207;col 5=2250*col 4;col 6=col 5/col 2; col 7 is given; col 8=col 7*col 6

Appendix table 3.9: Nairobi Province Food Poverty Line per Capita

Food item	Calorie/1000g	Calorie intake per day per capita	Calorie intake as ratio of daily intake	Calories recommended per day per capita	Quantity needed to meet daily calorie requirement (Kg)	Kshs per Kg at 1994 prices	Food expenditure needed to meet daily calorie requirement
Bread	2400	196.7922	0.083955	188.8998	0.078708	30	2.361248
Maize grain	3450	123.4971	0.052686	118.5442	0.034361	13.5	0.463869
Maize flour	3350	878.4777	0.374776	843.2461	0.251715	18	4.530875
Rice	3350	166.9318	0.071216	160.237	0.047832	33.5	1.60237
Beans	3200	132.7116	0.056617	127.3892	0.039809	28.5	1.13456
Beef	2350	87.42516	0.037297	83.91895	0.03571	100	3.571019
Fish	2550	25.17288	0.010739	24.16332	0.009476	130	1.231855
Milk	790	100.7927	0.043	96.75038	0.122469	27	3.306659
Cooking fat	8800	278.9296	0.118997	267.7431	0.030425	85.5	2.601367
Sukuma	450	100.5062	0.042878	96.47541	0.21439	8.5	1.822313
Onion	380	7.555893	0.003223	7.252862	0.019086	37.7	0.71956
Tomato	220	10.50401	0.004481	10.08274	0.045831	30	1.37492
Potato	750	90.69339	0.038692	87.05611	0.116075	10.3	1.195571
Sugar	3750	140.6792	0.060017	135.0372	0.03601	46.25	1.665459
Tea leaves	400	3.33798	0.001424	3.204109	0.00801	102	0.817048
		2344.007		2250			28.39869
							851.9607

Note: Col 1-3 are derived from data; col 4=col 3/2344.007;col 5=2250*col 4;col 6=col 5/col 2; col 7 is given; col 8=col 7*col 6

Appendix table 3.10: Coast Province Food Poverty Line per Capita

Food item	Calorie/1000g	Calorie intake Per day per capita	Calorie intake as ratio of daily intake	Calories recommended per per capita	Quantity needed to meet daily calorie requirement (Kg)	Kshs per Kg at 1994 prices	Food expenditure needed to meet daily calorie requirement
Bread	2400	116.365	0.051112	115.0021	0.047918	31	1.485443
Maize grain	3450	533.8925	0.234506	527.6394	0.152939	18.2	2.783489
Maize flour	3350	766.2474	0.336566	757.2728	0.226052	22.5	5.086161
Rice	3350	163.0544	0.07162	161.1446	0.048103	35	1.683601
Beans	3200	198.8928	0.087361	196.5633	0.061426	40	2.457041
Beef	2350	58.92938	0.025884	58.23918	0.024783	100	2.478263
Fish	2550	34.99267	0.01537	34.58282	0.013562	65	0.881523
Milk	790	43.95013	0.019305	43.43537	0.054981	27	1.4845
Cooking fat	8800	134.9914	0.059293	133.4104	0.01516	90	1.364424
Sukuma	450	21.86945	0.009606	21.61331	0.04803	9.7	0.465887
Onion	380	4.052518	0.00178	4.005054	0.01054	40.5	0.426854
Tomato	220	4.963324	0.00218	4.905192	0.022296	30.4	0.677808
Potato	750	24.25071	0.010652	23.96668	0.031956	13.5	0.4314
Sugar	3750	168.1222	0.073846	166.1531	0.044307	45	1.993837
Tea leaves	400	2.090861	0.000918	2.066372	0.005166	128.5	0.663822
		2276.665	1	2250			24.36405
							730.9216

Note: Col 1-3 are derived from data; col 4=col 3/2276.665;col 5=2250*col 4;col 6=col 5/col 2; col 7 is given; col 8=col 7*col 6

APPENDIX IV: WELFARE ANALYSIS

Appendix table 4.1: Welfare Analysis (overall employment)

Variables	Model III Log of Expenditure FEI				Model III Log of Expenditure CBN			
	Poor		Non-poor		Poor		Non-poor	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Constant	6.228	76.11*	7.677	105.54*	6.235	77.26*	7.664	103.68*
Gender (Female)								
Male	-0.018	-0.97	-0.062	-0.3.61*	-0.020	-1.13	-0.060	-3.46*
Main occupation (Pastoralist)								
Unpaid family worker	0.331	3.23*	0.109	1.07	0.404	3.35*	0.133	1.28
Commercial farmer	0.362	7.67*	0.029	0.58	0.443	7.86*	0.034	0.67
Subsistence farmer	0.188	7.40*	0.053	1.45	0.225	8.03*	0.076	2.03**
Skilled public sector worker	0.326	7.15*	0.224	4.81*	0.397	7.44*	0.232	4.95*
Unskilled Public sector worker	0.203	4.14*	0.161	3.03*	0.237	4.38*	0.172	3.20*
Skilled private sector worker	0.262	6.31*	0.150	3.33*	0.318	6.75*	0.162	3.54*
Unskilled private sector worker	0.195	5.83*	0.108	2.49**	0.233	6.32*	0.131	2.97*
Business man	0.206	5.43*	0.169	3.85*	0.255	6.07*	0.182	4.08*
Location (Rural)								
Urban	0.083	2.43**	0.270	12.39*	0.091	2.62*	0.259	11.89*
Education (None)								
Preschool	0.141	1.26	-0.002	-0.02	0.130	1.09	-0.024	-0.19
Standard 1-8	0.170	8.18*	-0.033	-2.91*	0.185	8.25*	-.065	-2.88*
KCPE	0.195	6.98*	-0.095	-3.68*	0.227	7.49*	-0.089	-3.37*
Form 1-4	0.223	6.73*	-0.039	-1.37	0.260	7.13	-0.036	-1.26
KCSE/KACE/KCE	0.227	5.89*	-0.011	-0.40	0.269	6.30*	-0.013	-0.46
Trade test	0.216	1.84***	0.043	0.60	0.279	2.18**	0.046	0.64
Post Secondary	0.311	2.84*	0.184	3.52*	0.391	3.16*	0.185	3.52*
University and above	0.136	0.80	0.720	8.93*	0.125	0.69	0.696	8.75*

Continuous variables								
Age	-0.017	-5.28*	-0.016	-5.51*	-0.017	-5.37	-0.015	-5.15*
Age squared	0.0002	5.28*	0.0002	5.88*	0.0002	5.32	0.0002	5.47*
Work Experience	0.0002	0.82	-0.001	-1.42*	0.0005	0.54	-0.001*	-1.23
Adjusted R^2/Pseudo R		0.08		0.11		0.09		0.10
Observations		4910		5275		5101		5084
Chow –F test				535.83*				536.91*

* Significant at 1%
** Significant at 5%

Appendix table 4.2: Welfare Analysis (Formal sector)

Variables	Model III Log of Expenditure FEI				Model III Log of Expenditure CBN			
	Poor		Non-poor		Poor		Non-poor	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Constant	6.529	33.81*	7.995	43.89*	6.556	34.55*	7.98	43.65
Gender (Female)								
Male	-0.03	-0.60	-0.016	-0.41	-0.036	-0.72	-0.015	-0.37
Main occupation (Unskilled private sector worker)								
Skilled public sector worker	0.053	1.26	0.083	2.04**	0.052	1.27	0.068	1.68
Unskilled Public sector worker	-0.059	-1.45	0.016	0.33	-0.058	-1.45	0.005	0.10
Skilled private sector worker	-0.014	-0.34	0.019	0.48	-0.004	-0.12	0.008	0.214
Location (Rural)								
Urban	0.151	3.57*	0.273	9.08*	-0.145	3.55*	0.257	8.56*
Education (None)								
Pre-school	0.408	1.93	0.338	0.88	0.389	1.85	0.339	0.89
Standard 1-8	0.175	3.61*	-0.045	-0.85	0.187	3.88*	-0.033	-0.62
KCPE	0.260	4.71*	-0.071	-1.30	0.265	4.88*	-0.062	-1.13
Form 1-4	0.267	4.58*	-0.049	-0.92	0.272	4.74*	-0.039	-0.72
KCSE/KACE/KCE	0.281	4.70*	-0.005	-0.08	0.298	5.04*	0.002	0.04
Trade test	0.319	1.77	0.127	1.039	0.289	1.62	0.120	0.99
Post Secondary	0.364	2.92*	0.175	2.36**	0.412	3.44*	0.186	2.50**
University and above	0.131	0.63	0.580	5.58*	0.118	0.57	0.571	5.54*
Continuous variables								
Age	-0.020	-2.21**	-0.027	-2.94*	-0.020	-2.23*	-0.024	-2.68*
Age squared	0.0002	1.89***	0.0002	2.65*	0.0002	1.81***	0.0003	2.35**
Work Experience	0.002	1.14	-0.002	-0.76	0.003	1.20	-0.002	-0.067
Adjusted R^2/Pseudo R		0.08		0.09		0.08		0.08
Observations		904		1938		952		1890
Chow –F test				154.42*				160.53*

Appendix table 4.3: Welfare Analysis (Informal sector)

Variables	Model III Log of Expenditure FEI				Model III Log of Expenditure CBN			
	Poor		Non-poor		Poor		Non-poor	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Constant	6.073	21.76*	7.631	41.00*	6.175	22.91*	7.661	40.84*
Gender (Female)								
Male	0.061	0.91	0.033	0.73	0.076	1.16	0.045	1.00
Main occupation (Unskilled private sector worker)								
Unpaid family worker	0.252	1.72	0.206	1.56	0.207	1.47	0.181	1.37
Skilled private sector worker	0.143	1.14	0.053	0.55	0.094	0.79	0.031	0.32
Business man	0.083	1.04	0.164	2.18*	0.066	0.86	0.147	1.94
Location (Rural)								
Urban	0.166	2.15**	0.232	5.42*	0.182	2.44**	0.227	5.31*
Education (None)								
Preschool	0.371	0.83	0.626	1.79	0.300	0.69	0.558	1.64
Standard 1-8	0.251	3.36*	-0.080	-1.42	0.215	2.98*	-0.119	-2.01**
KCPE	0.358	3.67*	-0.043	-0.67	0.343	3.72*	-0.112	-0.99
Form 1-4	0.262	2.20**	0.079	1.07	0.279	2.45*	0.060	0.81
KCSE/KACE/KCE	0.595	3.62*	0.014	0.21	0.542	3.44*	-0.118	-0.37
Trade test	0.434	1.30	0.070	0.45	0.508	1.67	0.062	0.39
Post Secondary	1.013	1.86	0.017	0.08	0.948	1.77	-0.023	-0.11
University and above	1.266	1.53	3.591	8.15*	1.109	1.39	3.394	7.97*
Continuous variables								
Age	-0.012	-1.09	-0.17	-2.25**	-0.014	-1.33	-0.017	-2.10**
Age squared	0.0001	1.17	0.0002	2.44**	0.0001	1.33	0.0002	2.21**
Work Experience	0.002	0.49	-0.005	-1.76	0.003	0.82	-0.004	-1.47
Adjusted R^2/Pseudo R		0.07		0.13		0.07		0.13
Observations		449		882		473		858
Chow –F test				81.48*				82.89*

Appendix table 4.4: Welfare Analysis (Agricultural sector)

Variables	Model III Log of Expenditure FEI				Model III Log of Expenditure CBN			
	Poor		Non-poor		Poor		Non-poor	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Constant	6.254	60.79*	7.64	83.11*	6.241	61.22*	7.619	82.22*
Gender (Female)								
Male	-0.031	-1.43	-0.112	-5.46*	-0.034	-1.61	-0.115	-5.23*
Main occupation (Pastoralist)								
Commercial farmer	0.460	7.48*	0.037	0.79	0.464	7.61*	0.039	0.82
Subsistence farmer	0.218	7.13*	0.041	1.18	0.235	7.65*	0.058	1.66
Location (Rural)								
Urban	-0.121	-1.55	0.233	2.46*	-0.129	-1.67	0.226	2.38**
Education (None)								
Preschool	0.052	0.34	-0.230	-1.69	0.034	0.22	-0.250	-1.86
Standard 1-8	0.172	6.15*	-0.040	-1.49	0.173	6.24*	-0.034	-1.25
KCPE	0.181	4.34*	-0.112	-3.29*	0.195	4.75*	-0.105	-3.00*
Form 1-4	0.248	4.61*	-0.048	-1.17	0.255	4.81*	-0.044	-1.05
KCSE/KACE/KCE	0.160	2.38**	-0.042	-0.88	0.181	2.73*	-0.038	-0.79
Trade test	0.110	0.52	-0.070	-0.61	0.173	0.85	-0.061	-0.52
Post Secondary	0.103	0.37	-0.604	2.83*	0.087	0.296	0.564	2.71*
University and above	-0.231	-0.72	-0.043	-0.19	-0.251	-0.77	-0.059	-0.26
Continuous variables								
Age	-0.017	-4.24*	-0.013	-3.56*	-0.017	-4.08*	-0.012	-3.15
Age squared	0.0002	4.33*	0.0001	4.15*	0.0002	4.20*	0.0001	3.76*
Work Experience	-0.003	-0.29	-0.001	-0.93	-0.0002	-0.18	-0.001	-0.99
Adjusted R^2/Pseudo R		0.07		0.03		0.07		0.04
Observations		3361		2309		3473		2197
Chow –F test				451.62*				444.69*

Appendix table 4.5: Welfare Analysis (Casual Labour)

Variables	Model III Log of Expenditure FEI				Model III Log of Expenditure CBN			
	Poor		Non-poor		Poor		Non-poor	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Constant	6.684	16.98*	7.674	21.44*	6.715	17.43*	7.61	20.86*
Gender (Female)								
Male	0.112	1.00	0.066	0.63	0.112	1.00	0.076	0.71
Main occupation (Unskilled private sector worker)								
Skilled private sector worker	0.191	2.05*	-0.021	-0.22	0.205	2.03**	-0.188	-0.28*
Location (Rural)								
Urban	0.005	0.05	0.222	2.11**	0.055	0.47	0.231	2.31**
Education (None)								
Pre-school	-0.081	-0.16	-	-	-0.080	-0.16	-	-
Standard 1-8	0.279	2.67*	-0.146	-1.44	0.292	2.78*	-0.130	-1.27
KCPE	0.151	1.23	-0.264	-2.37**	0.217	1.76	-0.192	-1.57
Form 1-4	0.320	1.94	-0.177	-1.42	0.341	2.07**	-0.155	-1.23
KCSE/KACE/KCE	0.309	1.21	-0.307	-1.76	0.278	1.09	-0.307	-1.76
Trade test	0.372	0.62	0.455	0.77	0.358	0.59	0.456	0.78
Post Secondary	-	-	0.500	0.85	-	-	0.479	0.83
University and above	1.308	1.64	-	-	1.294	1.62	-	-
Continuous variables								
Age	-0.041	-2.319**	-0.013	-0.73	-0.042	-2.40**	-0.010	-0.55
Age squared	0.0004	2.139**	0.0002	0.75	0.0004	2.17**	0.0001	0.57
Work Experience	0.004	0.65	-0.009	-1.62	0.004	0.80	-0.008	-1.52
Adjusted R^2/Pseudo R		0.07		0.05		0.08		0.04
Observations		196		146		203		139
Chow –F test				32.56*				32.12*

* Significant at 1%
** Significant at 5%

APPENDIX V: CORRELATION MATRIX FOR KEY VARIABLES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)	1.0000						
(2)	-1.0000	1.0000					
(3)	-0.0470	0.0470	1.0000				
(4)	0.0470	-0.0470	-1.0000	1.0000			
(5)	-0.0434	0.0434	-0.0025	0.0025	1.0000		
(6)	0.0084	-0.0084	0.0784	-0.0784	-0.0159	1.0000	
(7)	-0.2208	0.2208	0.3298	-0.3298	-0.0664	-0.1750	1.0000
(8)	0.0421	-0.0421	0.1264	-0.1264	-0.0250	-0.0659	-0.2755
(9)	0.0922	-0.0922	-0.2151	0.2151	-0.0256	-0.0675	-0.2823
(10)	0.0500	-0.0500	-0.0876	0.0876	-0.0156	-0.0410	-0.1716
(11)	0.1451	-0.1451	-0.1851	0.1851	-0.0239	-0.0631	-0.2639
(12)	0.0828	-0.0828	-0.0942	0.0942	-0.0274	-0.0721	-0.3016
(13)	-0.0177	0.0177	-0.1724	0.1724	-0.0263	-0.0693	-0.2899
(14)	0.0064	-0.0064	-0.0046	0.0046	-0.0048	0.0035	0.0113
(15)	0.0684	-0.0684	0.0519	-0.0519	-0.0297	0.0335	0.0983
(16)	0.0728	-0.0728	-0.0321	0.0321	-0.0223	0.0376	-0.0443
(17)	0.0476	-0.0476	-0.1188	0.1188	-0.0219	0.0121	-0.0957
(18)	0.1123	-0.1123	-0.1998	0.1998	-0.0227	-0.0011	-0.1865
(19)	0.0317	-0.0317	-0.0534	0.0534	-0.0070	0.0151	-0.0370
(20)	0.0198	-0.0198	-0.1047	0.1047	-0.0106	-0.0242	-0.1007
(21)	0.0453	-0.0453	-0.1176	0.1176	-0.0077	-0.0048	-0.0762
(22)	-0.2438	0.2438	0.2440	-0.2440	0.0766	-0.0552	0.1739
(23)	-0.0827	0.0827	0.1994	-0.1994	0.0414	0.0292	0.2863
(24)	-0.0853	0.0853	0.1899	-0.1899	0.0432	0.0286	0.2831
(25)	-0.1511	0.1511	0.2056	-0.2056	0.0371	0.0130	0.3169

	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(8)	1.0000						
(9)	-0.1063	1.0000					
(10)	-0.0646	-0.0662	1.0000				
(11)	-0.0993	-0.1018	-0.0619	1.0000			
(12)	-0.1135	-0.1163	-0.0707	-0.1088	1.0000		
(13)	-0.1091	-0.1118	-0.0680	-0.1045	-0.1195	1.0000	
(14)	-0.0145	-0.0098	-0.0042	-0.0078	0.0187	-0.0053	1.0000
(15)	-0.1541	-0.1133	0.0102	-0.0192	0.0680	0.0260	-0.0355
(16)	-0.1140	-0.0218	0.0397	0.0590	0.0538	0.0487	-0.0239
(17)	-0.1018	0.0961	0.0401	0.0862	0.0334	0.0172	-0.0209
(18)	-0.1070	0.2566	0.0361	0.1325	-0.0206	0.0365	-0.0214
(19)	-0.0290	0.0367	-0.0124	0.0619	-0.0142	0.0092	-0.0056
(20)	-0.0440	0.2695	-0.0009	0.0201	-0.0319	-0.0247	-0.0085
(21)	-0.0317	0.1466	0.0063	0.0374	-0.0187	-0.0036	-0.0061
(22)	0.3779	-0.2258	-0.0843	-0.1888	-0.0922	-0.0845	-0.0467
(23)	0.0316	-0.1265	-0.0588	-0.1440	-0.1366	-0.0894	0.0188
(24)	0.0303	-0.1349	-0.0635	-0.1406	-0.1299	-0.0819	0.0178
(26)	0.1315	-0.0966	-0.0837	-0.1488	-0.2000	-0.1671	0.0106

	(15)	(16)	(17)	(18)	(19)	(20)	(21)
(15)	1.0000						
(16)	-0.2206	1.0000					
(17)	-0.1930	-0.1297	1.0000				
(18)	-0.1981	-0.1332	-0.1165	1.0000			
(19)	-0.0516	-0.0347	-0.0303	-0.0312	1.0000		
(20)	-0.0784	-0.0527	-0.0461	-0.0473	-0.0123	1.0000	
(21)	-0.0565	-0.0380	-0.0332	-0.0341	-0.0089	-0.0135	1.0000
(22)	-0.4315	-0.2900	-0.2537	-0.2604	-0.0678	-0.1030	-0.0742
(23)	-0.0650	-0.1741	-0.1698	-0.1993	-0.0393	-0.0609	-0.0363
(24)	-0.0705	-0.1683	-0.1663	-0.1910	-0.0386	-0.0623	-0.0380
(25)	-0.0792	-0.1569	-0.1637	-0.1817	-0.0388	-0.0543	-0.0402

	(22)	(23)	(24)	(25)
(22)	1.0000			
(23)	0.4438	1.0000		
(24)	0.4378	0.9850	1.0000	
(25)	0.4287	0.7183	0.7096	1.0000

CODES

1-male

2-female

3-rural

4-urban

5- unpaid family worker

6- commercial farmer

7- subsistence farmer

8- Pastoralist

9- skilled public sector worker

10- unskilled public sector worker

11- skilled private sector worker

12- unskilled private sector worker

13- businessman

14- preschool

15- standard 1-8

16- KCPE

17- form 1-4

18- KCSE

19- Trade test certificate

20- post secondary certificate

21- university and above

22- no education

23- age

24- age squared

25- work experience

APPENDIX V: DATA PREPARATION

The data comes from the Welfare monitoring Survey II undertaken by the Central Bureau of Statistics and Ministry of finance and planning. The main step in data preparation involved converting data sets into household level format and then main data files were merged. Own production data file was merged with household food and non- food expenditure files, education expenditure file, health expenditure file and holding expenditure file to form a data file for total household expenditure. The total household expenditure file was merged with the household characteristic file to facilitate computation of percapita expenditure and percapita calorie intake.

Own produced foods were valued at farm gate prices, since these prices show the actual cost of obtaining these prices and also because most of the own produced foods did not have market prices. The food prices were available at provincial level implying that all households in a province faced the same prices. Dividing the country into rural and urban. Nairobi prices were used for the urban areas while the average price for each food, for the other provinces were taken as rural prices

The values of own produced foods were added to that of purchased food to obtain the total food expenditure for each household. The externally generated prices were then divided by the value of each food to obtain various amounts of food consumed. The quantities consumed in kilograms were converted into calorie content by applying the calorie factor for each food consumed. The calories consumed by a household were then divided by the household size in order to obtain calorie per capita. Salt, which constitutes an important part of the diet was not captured in this survey and therefore salt was not included in this analysis.

In the analysis, the sample was restricted to households with calories consumption of between 1000 and 5500 calories per capita per day. A sample of 7833 households was used out of the 10857 households, to compute the FEI and CBN poverty lines.

In analysing employment, the employment sectors were divided into four major sectors namely: formal, informal agriculture and casual labour. This was done due to the way the data was collected and group.

APPENDIX VI: PROVINCIAL PRICES

The prices set below were used in construction of the poverty line, that is in converting the value of foods consumed to quantities in kilograms

Obs	cropid	unit	coast	eastern	central	rift	nyanza	western	neastern	nairobi	national
1	bread	500gm	15.50	15.00	15.00	15.00	15.00	15.1	17.0	15.00	15.33
2	maizegr	1kg	18.20	15.15	15.10	16.20	15.75	15.8	20.0	13.50	16.21
3	maizefl	1kg	22.50	19.50	18.40	15.00	15.80	16.3	22.6	18.00	18.51
4	ricegr	1kg	35.00	33.00	32.20	34.90	30.00	32.0	38.5	33.50	33.64
5	wheatgr	1kg	28.20	27.00	27.00	24.20	26.50	26.8	30.0	25.00	26.84
6	wheatfl	2kg	58.50	56.20	56.50	62.00	55.50	56.0	60.0	52.50	55.90
7	milletgr	1kg	17.90	21.00	22.80	21.90	18.65	17.8	22.5	17.40	19.37
8	milletfl	1kg	26.40	22.00	24.00	25.90	17.90	17.0	23.0	21.00	22.15
9	sorghumg	1kg	17.00	14.80	17.80	13.50	11.80	15.6	20.2	15.70	15.80
10	sorghumf	1kg	25.60	20.50	21.90	22.00	18.30	16.8	24.0	20.00	21.14
11	beans	1kg	40.00	27.80	28.60	29.25	30.00	28.8	36.0	28.50	30.97
12	beef	1kg	100.00	90.00	100.00	90.00	100.00	90.0	80.0	100.00	93.75
13	camelmea	1kg	.	.	.	.	.	.	65.0	.	65.00
14	goatmeat	1kg	140.00	120.00	130.00	115.00	120.00	120.0	80.0	125.00	118.75
15	sheepmea	1kg	145.00	120.00	132.00	125.00	135.00	130.0	150.0	140.00	134.63
16	pigmeat	1kg	150.00	130.00	130.00	125.00	135.00	130.0	150.0	140.00	136.25
17	chickenm	1kg	140.00	125.00	140.00	135.00	120.00	120.0	115.0	135.00	128.75
18	fishmeat	1kg	65.00	80.00	75.00	86.50	71.50	72.0	118.0	130.00	87.25
19	milk	1/2litre	13.50	12.00	12.00	11.50	13.50	13.5	14.5	13.50	13.00
20	eggs	1egg	6.50	5.00	5.50	5.40	6.00	5.0	5.0	5.60	5.60
21	cookingf	1kg	90.00	87.00	88.00	85.00	89.70	83.0	75.0	85.50	85.40
22	butter	1kg	110.00	90.00	90.00	90.00	90.00	86.0	89.0	85.60	91.33
23	otherfat	1kg	65.00	65.50	70.20	70.00	68.00	75.0	68.0	61.50	67.90
24	cookingo	1kg	75.00	70.70	70.00	66.90	65.00	70.8	66.0	88.40	70.23
25	fruits	1kg	20.10	9.90	11.30	12.95	12.40	12.1	18.2	22.00	14.87
26	cabbages	1kg	10.40	9.50	6.70	6.80	8.20	6.5	11.8	6.40	8.29
27	sukumawi	1kg	9.70	8.00	7.30	4.00	6.80	6.0	12.5	8.50	7.85
28	onions	1kg	40.50	33.00	30.70	32.40	32.10	36.0	50.0	37.70	36.55
29	tomatoes	1kg	30.40	28.20	21.30	24.00	28.70	24.2	36.5	30.00	27.79
30	frenchbe	1kg	40.00	25.00	30.00	30.50	32.00	33.0	46.0	35.00	33.81
31	carrots	1kg	20.20	18.80	16.00	18.50	18.10	17.9	24.5	19.15	19.14
32	otherveg	1kg	19.20	15.50	16.30	18.80	17.10	16.0	23.5	13.20	17.45
33	otherfoo	1kg	18.00	16.80	17.00	17.20	19.50	18.8	21.4	18.60	18.41
34	englishp	1kg	13.50	11.50	9.65	9.30	10.50	11.3	18.0	10.30	11.76
35	sweetpot	1kg	10.70	12.80	19.80	16.90	16.50	18.2	23.5	17.00	16.93
36	arrowroo	1kg	25.00	18.00	15.60	18.80	16.00	15.1	25.6	13.20	18.41
37	cassava	1kg	15.00	10.50	12.30	15.00	8.20	9.5	18.0	10.80	12.41
38	yams	1kg	20.50	14.60	16.80	18.20	11.70	13.0	20.5	15.90	16.40
39	otherroo	1kg	17.40	12.00	13.30	16.00	12.20	12.0	18.2	13.00	14.26
40	whitesug	1kg	45.00	50.00	48.00	48.00	48.00	48.0	55.0	46.25	48.53
41	brownsug	1kg	42.00	45.00	45.00	43.00	42.00	40.0	50.0	38.00	43.13
42	jaggery	1kg	40.00	.	.	.	38.00	38.0	.	39.80	38.95
43	coffeein	250gm	385.00	350.00	345.00	325.00	332.00	332.0	365.0	336.80	346.35
44	coffeegr	250gm	200.00	140.00	130.00	160.00	150.00	150.0	155.0	116.00	150.13
45	tealeave	100gm	12.85	11.50	11.30	11.30	11.50	11.5	13.5	10.20	11.71
46	teabags	100gm	53.00	55.00	55.00	51.80	52.00	52.0	60.6	68.45	54.73
47	cocoa	400gm	166.70	165.00	165.00	165.00	165.00	165.0	165.0	169.50	165.78