Determinants of regional poverty in Uganda

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Abstract

The study sought in-depth knowledge of the key factors that account for regional poverty differentials in Uganda so as to contribute to more focused targeting of programmes for the poor. The research objectives were: to estimate the national and regional food poverty lines to identify poor households, to compare the socioeconomic and demographic characteristics of the poor households between and within the regions, to compute poverty indexes for Uganda based on national and regional food poverty lines, to identify the key determinants of regional poverty, and to derive policy implications for poverty alleviation in Uganda.With primary data from the Integrated Household Survey, 1992, the study used the Greer–Thorbecke methodology to compute poverty lines and poverty indexes. The logistic regression was used to analyse the key determinants of poverty and five models were fitted (one national and four regional).

Northern Uganda was found to be the poorest region; it has the largest depth of poverty and worst inequality. It is characterized by the poor having large mean household sizes, least education, least mean household income, least expenditure on health, lowest chance of child survival and highest concentration in the rural areas. Educational level of household head, household size and migration status were found to be significant determinants of poverty at multivariate levels.

The broad policy recommendation is that government should use regional poverty lines for the planning and budgetary allocation process for effective poverty alleviation.

1. Introduction

Poverty alleviation is a key policy debate in recent development literature. Many researchers of development economics, for example Emwanu et al. (1995), have argued that the fight against poverty is a necessary condition for growth. The elaboration of policies for poverty alleviation requires a thorough knowledge of the poverty phenomenon as well as an understanding of the efficiency of implemented programmes.

According to the World Bank (1990), the burden of poverty is spread evenly among regions of the developing world, among countries within those regions and among localities within those countries. Nearly half of the world's poor live in south Asia, a region that accounts for about 30% of the world's population. People in sub-Saharan Africa, along with those in south Asia, are among the poorest in the world, both in real incomes and in access to social services. The World Bank reports that about 45% of the approximately 590 million people in sub-Saharan Africa live below the national poverty lines.

In Zimbabwe, for example, major pockets of poverty and social inequality existed prior to enhanced structural adjustment programmes (ESAP) (Engbert-Pederson et al., 1996). In the rural areas large differences in income and consumption existed not only along racial lines but amongst Africans between regions and within specific communities. Madzingira (1997) found that Zimbabweans aged 60 years and above were generally poor, with the majority of the very poor being mostly female and residing in rural areas. The other major causes of poverty that were identified included unemployment and retrenchment, recurrent droughts, low paid jobs, and high prices for basic necessities. Poverty in rural areas was associated with the crisis in the agricultural sector due to intermittent rainy seasons, persistent droughts, lack of draught power and lack of proper agricultural technology. This situation was reversed in the urban areas where the majority of the elderly population were non-poor. However, individuals with higher incomes could still be poor, especially in the urban areas where the standard of living was generally high compared with rural areas.

A probit equation estimated for urban poverty in Côte d'Ivoire in 1997 indicated that education helped reduce the likelihood of being poor. For the rural sector, the results showed that with the lower stock of human capital, any additional year of education for a member of a rural household had a poverty reducing effect that was more than twice as high as in the urban household. Another important factor found to influence the poverty level in urban areas was the location effect, which makes it much more likely that otherwise similarly endowed households would be poorer in other towns relative to the capital city, Abidjan. It was also found that income diversification in rural areas did not play a significant role in avoiding poverty (Grootaert, 1997).

The nature and pattern of poverty in Mauritania, notwithstanding its per capita GNP of around US$570—which is higher than in many African countries—is such that a significant proportion of the population finds itself below the poverty line and with significant inequality, with poorer households failing to benefit from the more remunerative productive activities. The higher income households tend to be very concentrated in the main economic centres where many of these productive activities are based. Levels of poverty are high in the small towns and rural areas, reflecting the limited economic opportunities available to households in these areas and the concentration of many economic activities in main towns. In rural areas in particular, conditions for agriculture are very harsh as the country has been subjected to repeated droughts (Colombe and Mackay, 1996).

The rural poor remain heavily engaged in subsistence agriculture and many of them are largely insulated from the market in their role as consumers. The potential deleterious consequences of fluctuations as well as secular changes in real consumer prices are thus mitigated for this group as are the potential benefits from favourable relative price changes since the poor are active participants in markets as agricultural producers. While many rural people are engaged actively as producers and sellers of agricultural products, they tend not to use improved technology and use few, if any, modern inputs. Thus subsidies on inputs such as fertilizer usually benefit the non-poor. The rural poor also generally lack access to other rationed products and services such as public health and education services.

Studies in West Africa have identified several factors that explain the causes of poverty in rural areas. These include the short farming season, which results in under-utilization of labour resources. And given the small range of basic crops, all of which are harvested within a short period, economic life in the savannah is much riskier, in terms of the consequences of variations in crop size, than in the southern forests, where most farmers subsist on a greater variety of crops that are harvested at different seasons. The climate is so unreliable and the dates of the first planting, rains and harvest are so variable, that given requirements between one harvest and the next may vary so widely that long-term planning is difficult. The under-utilization of labour resources along with the concept of too-poor-to-farm suggests that some degree of destitution is likely to occur in most communities where permanent cultivation is preferred to agronomic systems and where poorer farmers have few opportunities for significantly supplementing their income either by growing special crops or by pursuing remunerative non-farming occupations. Such factors were believed likely to have general relevance to the Hausa communities where the farmers mainly grow basic crops and where few men engage in hereditary crafts (Hill,1982).

The urban poor are in most ways more vulnerable to external shocks and policy changes as they produce little of their own food and are thus more vulnerable to changes in market prices. To the extent that reforms eliminate poorly targeted entitlements without installing new initiatives with improved targeting, the urban poor stand to lose, albeit less than the non-poor. However, the urban poor are more likely to be employed in public sector enterprises or as civil servants than are the rural poor. While the generalizations

are useful in gaining some insight in the poo'r role in the economy as producers, consumers and beneficiaries of government spending, the fact remains that the poor are a large and diverse group in Africa (Sahn et al., 1996).

Adjustment policies in Africa are argued to redistribute real income in a way that is marginally beneficial to the poor. Some of the poor and vulnerable, especially those in urban areas and retrenched public sector employees, may suffer from economic reforms. The biggest losers from adjustment policies, however, are the urban elite who prior to reforms had access to official markets and prices. While adjustment policies are not a threat to the welfare of Africa's most poor, it is also true that these policies have not generated rapid economic growth and as a result they have not contributed substantially to poverty alleviation, in part reflecting poor implementation of adjustment policies. In light of the distributional impact of adjustment policies to the detriment of the non-poor, the pace of reform in much of Africa has been retarded by the influence of politically astute and persuasive elements of society who benefited from access to rents, particularly by controlling under-priced foreign exchange, subsidized credit and other rationed goods.

Some schools of thought, especially in the developed countries, argue that poverty exists because people are lazy or lack power and there is no great need to reduce social inequality. However, Chambers (1983) argues that there may be no evidence to support the view that the rural poor are improvident, lazy and fatalistic. What does emerge is that some do sometimes behave in ways that can be thus interpreted. They may not save, may not always be visibly working and may appear to accept fate passively. But there is evidence that the failure to save and invest reflects pressing needs for immediate consumption goods, insecurity of land tenure, and the likelihood that any savings would attract the attention of begging relatives and social predators.

According to Chambers (1983), a household is characterized as poor when it has few assets, its hut, house or shelter is small and made of wood, bamboo, mud, grass, reeds, palm fronds or hides, its meagre furnishings include only mats or hides for sleeping and perhaps a bed, cooking pots and a few tools, and there is no toilet. The household has no land or has land that does not assure or barely assures subsistence. It has no livestock or has only small stock (hens, ducks, goats, a pig, etc.). The household's stocks and flow of food and cash are low, unreliable, seasonal and inadequate. It is either locked into dependence on one patron for whom most work is done or continues a livelihood with a range of activities that reflect tenacious ingenuity in the face of narrow margins for survival. Returns to the family labour are low and in the slack seasons often very low if indeed there is any work at all. Poor households tend to have few buffers against contingencies; small needs are met by drawing on slender reserves of cash, by reduced consumption, by barter, or by loans from friends and relatives. These situations make the household so vulnerable that the family is especially prone to sickness and death. Chambers also uses the concept of the deprivation trap to explain poverty as a vicious circle. It is also argued that the isolation factor (lack of education, remoteness, being out of contact) sustains poverty. Services cannot reach those who are remote, and illiterates cannot read information of economic value and have difficulty obtaining loans. Evidence by Colombe and Mackay (1996) in their Mauritania poverty study also suggests that the isolation factor is critical in poverty issues.

A study by CDRN (1995) presents an argument that attributes poverty in Uganda to the imbalance between population and resources. It stresses the negative effects of uncontrolled population growth and low technology on land productivity, which often results in soil overuse and deterioration, and consequently impoverishment. Thus, population pressure, decreasing acreage of farmland holdings, deteriorating soil fertility, declining stocks of animals, and cultural attitudes and practices have all combined to create a new situation of poverty as well as entrenching a process of impoverishment.

Uganda is one of the poorest countries in the world, with a per capita income of Ush91,144 in 1990. The trends in aggregate per capita growth rates indicate not only that Ugandans are poor but that poverty has increased over the last 20 years, leaving the population increasingly vulnerable and deprived. Average per capita income levels conceal the extent and depth of this poverty since Uganda suffers from a skewed distribution of income. Results from the household budget survey of 1988 confirm the wide spread of expenditure patterns and marked differences in expenditure levels between and within rural and urban areas in Uganda (Connick, 1992). The average urban household spent 2.5 times as much as the average rural household, with a large proportion of the rural households clustered in the lowest expenditure groups. Over 90% of all rural households spent Ush30,000 or less in a month in 1988, compared with less than 60% of urban households, while only 2% of rural households spent more than Ush50,000 a month, compared with 30% of the urban households. The regional differences in expenditure were also confirmed by this study; most notable was the northern region, with spending on average Ush11,908—only 67% of the national average.

At the macro level, however, Uganda has registered a positive macroeconomic performance ever since the adoption of the structural adjustment programmes (SAPs). GDP has been growing at about 5% per annum and inflation has been under control and relatively stable at an average monthly rate of approximately 5% for the period March 1990–June 1994. The parallel market foreign exchange rate premium fell from over 100% in 1986 to less than 0.5% by December 1994, while the private sector investment–GDP ratio rose from about 1.02% in 1984 to 5.62% in 1994 (Okurut, 1997). Because of this glowing macroeconomic performance, Uganda has become a model touted by the World Bank and IMF as one of the success stories of the SAPs. Yet despite the glowing macro performance, the poverty situation at the micro level needs to be examined critically.

World Bank (1993) estimated two relative poverty lines for Uganda, US$110 and US$55. The US$110 represents the minimum per capita income at which the poor can meet basic food needs and other non-food expenditures and the US$55 represents the minimum per capita income at which only basic food needs can be met. Furthermore, the report also stated that the north was the poorest region of Uganda and it greatly attributed this to civil war. But given that other regions, like the Luwero Triangle and Eastern Uganda, also experienced similar civil war, it became necessary to investigate other determinants of regional poverty. The study carried out a regional analysis of the poverty status of households in Uganda in terms of their socioeconomic and demographic characteristics and other critical factors that drive poverty. This was aimed at enhancing the understanding of the determinants of regional poverty differentials and how best to target poverty alleviation programmes.

Using total expenditure as a measure of welfare and a poverty line of US$110, some 55% of Ugandans were defined as “poor”. The poor are disproportionately found in the rural areas: 57% compared with about 38% in urban areas. The discrepancy between rural and urban levels of poverty is even worse using the core poor poverty line, where 96% of the core poor live in rural areas.

2. Background and objectives

Uganda is divided into four regions: Central, Eastern, Western and Northern. Central region comprises Kalangala, Kampala, Luwero, Masaka, Mpigi, Entebbe, Mubende, Mukono, Rakai, Sembabule, Kiboga and Nakasongola districts. Eastern region comprises Iganga, Jinja, Kamuli, Kapchorwa, Kumi, Mbale, Pallisa, Soroti, Tororo, Katakwi, Bugiri and Busia districts. Western region is made up of Bundibugyo, Bushenyi, Hoima, Kabale, Kabarole, Kasese, Kibaale, Kisoro, Masindi, Mbarara, Rukungiri and Ntungamo districts, and Northern region of Apac, Arua, Gulu, Kitgum, Kotido, Lira, Moroto, Moyo, Nebbi and Adjumani districts.

Ugandan livelihoods

Agriculture (mainly small-scale farming) employs 70.3% of Uganda's population. The main traditional cash crops are coffee, tea and cotton, while the food crops include bananas, cereals (millet and sorghum), cassava, sweet potatoes, beans, peas, simsim and groundnuts. Coffee and tea are mainly grown in Central and Western regions and cotton is mainly grown in Northern and Eastern regions. The other sources of livelihood include employment income (13.3%), property income (8.0%) and trading (6.0%). On a regional basis, the Northern region is predominantly dependent on farming as a main source of economic livelihood (80%), followed by Western region (77.6%), Eastern region (76.3%) and Central region (54.3%). Employment income, which ranks as the second most important source of economic livelihood, is more predominant in Central region (22.8%), followed by Eastern region (10.1%), Western region (9.0%) and Northern region (7.2%). This pattern of relative importance of employment income may partly be explained by the fact that the administrative capital city and most industrial establishments that offer good employment opportunities are located in Central region. Jinja, which is the second most industrial town, is located in Eastern region. Property income as a source of household livelihood is also most significant in Central region (10.2%), followed by Northern region (7.5%), Eastern region (6.9%) and Western region (6.7%). Trading and other income also rank as significant sources of income in Central region compared with other regions (Table 1).

According to the UDN and UWONET (1998), the recurrent expenditure transfers by region in 1997/98 were highest to Eastern Uganda (27.0%), followed by Central (26.4%), then Western (25.9%) and Northern region (22.8%). (See Appendix A.) The district average transfers were lowest in Northern region (2.1%), followed by Western region (2.2%), Eastern region (2.3%) and Central region (2.4%). This distribution is not

Table 1: Percentage distribution of households by economic activities by region

	Farming	Trading	Employment income	Property income	Cottage industry	Other
Central	54.3	9.3	22.8	10.2	1.0	2.4
Eastern	76.3	5.3	10.1	6.9	0.5	0.8
Western	77.6	4.6	9.0	6.7	0.6	1.5
Northern	80.0	3.0	7.2	7.5	1.1	1.2
Total	70.3	6.0	13.3	8.0	0.8	1.5

Source: MFEP (1991).

favourable to Northern Uganda, the region that was found to be the poorest (World Bank, 1993).

It should be noted that Northern region has been adversely affected by a civil war that has been raging on for the past decade. This war has resulted not only in loss of human lives and of property, but also in disruption of economic activity.

Study objectives

Against this background of varying regional economic activities, this study had the following objectives:

1. To estimate national and regional food poverty lines to identify poor households.
2. To decompose poor households into the four regions of Uganda and compare their socioeconomic and demographic characteristics between and within regions.
3. To compute the poverty indexes for Uganda on the basis of national and regional food poverty lines.
4. To estimate the key determinants of regional poverty in Uganda.
5. To derive policy implications for poverty alleviation in Uganda.

3. Methodology

The study applied the Greer and Thorbecke (1986) food energy intake methodology in the computation of poverty lines.

Data sources

The study used primary data from the Integrated Household Survey of 1992 carried out by the Statistics Department, Ministry of Finance and Economic Planning. The survey instruments covered areas like household composition, education costs, health, mortality, fertility, household income, loans, savings, transfer payments and asset ownership. The variables used in this study were picked from all the sections except asset ownership other than land. The food energy intake method was used to compute poverty lines using information on food cost and consumption from purchases, home produced and gifts in the one month preceding the survey. The computed poverty lines were then used to identify the poor households. The total sample size used for analysis was 9,924 households, distributed as given in Table 2.

Table 2: Percentage distribution of households by region

Region	No. of households	%
Central	2,820	28.4
Eastern	2,512	25.3
Western	2,485	25.0
Northern	2,107	21.2
Total	9,924	100.0

Food energy intake (FEI) method

The FEI method of setting the poverty line stipulates the cost of attaining a predetermined level of food energy intake. There are a number of ways of estimating the total expenditure needed to arrive at the stipulated food energy intake. The common procedure is to run a regression of the cost of a basket of commodities consumed by each household over the calorie equivalent or the food energy implied from the basket of goods. The next step is to calculate how much it would cost to buy a basket of commodities

that would be considered sufficient. The energy intake is a predetermined value expressed in terms of calorie equivalents. Another procedure is to take a subsample of households with total expenditure that is equivalent or close to the stipulated calorie level and compute a simple average. The FEI method automatically provides the total expenditure implied by the level of food expenditure that gives the calorie intake, since the latter is a dependent variable in the regression equation.

The study used the following specific steps in the analysis of determinants of regional poverty differentials following Greer and Thorbecke (1986):

(a) Total value of food (X_{*j}) consumed by each household, which is equal to the sum of the value of purchased food (V_{*j}) and the value of own production consumed (K_{*j}), was determined; hence

$$X_j^* = V_j^* + K_j^* \tag{1}$$

The value of purchased food consumed V_j^* by each household was established by multiplying the quantities of different food types purchased (D_i) by the prices per unit (P_i).

$$V_j^* = \sum_i D_{ij} P_{ij} \tag{2}$$

where

V_j^* = value of purchased food consumed by the *j*th household

D_{ij} = the quantity of *i*th food items purchased by *j*th household

D_{ij} = the local price paid by the *j*th household for the *i*th food item

The value of own output or donated food consumed by the household K_j^* is the product of own production (including donations) (M_i) and the local prices (P_i). The quantity M_i is the imputed value of consumption.

$$K_j^* = \sum_i M_{ij} P_{ij} \tag{3}$$

(b) The adult equivalent H_j for each household was proxied by the household size.

(c) Total value of food consumed per adult equivalent was derived by dividing the total value of food by household adult equivalent:

$$X_j = \frac{X_j^*}{H_j} \tag{4}$$

where:

X_j^* = total value of food consumed by *jth* household

H_j = adult equivalent for *jth* household

X_j = total value of food consumed per adult equivalent units

(d) The different types and quantities of foods consumed by the different households were converted to calories C_j using the calorie equivalents presented in Appendix B.

(e) A regression model was fitted to estimate parameters to be used in determining food poverty lines:

$$\text{In } X_j = a + bC_j \tag{5}$$

where:

X_j = total food expenditure per adult equivalent by household *j*

C_j = total calorie consumption per adult equivalent by household *j*

a and *b* are parameters to be estimated.

(f) The food poverty line, *Z*, which is the estimated cost of acquiring the calorie recommended daily allowance (RDA) was estimated as:

$$Z = e^{(a+bR)} \tag{6}$$

where:

Z = food poverty line

R = Recommended daily allowance of calories per adult equivalent of 2,200

(g) The various measures of poverty (P_α) were computed using the following formula:

$$(P_\alpha) = \frac{1}{n}\sum_{l=1}^{q}\left(\frac{Z - Y_l}{Z}\right)\alpha \tag{7}$$

where:

Z = food poverty line
P_i = per capita food expenditure for ith household (i = 1, 2,...,q) living below the poverty line
q = number of households below the poverty line
n = total number of sampled households
α = 0,1,2

The simplest measure of the incidence of poverty is the proportion of households that fall below the food poverty line or the *head-count index (P_o)*. This is equal to the number of households falling below the poverty line divided by the total number of households.

The *poverty-gap index (P1)* captures the total proportional shortfall or depth of poverty (i.e., the difference between per capita food expenditures and the food poverty line and then divided by the food poverty line). If we simply add up the difference between the expenditure measure and the poverty line for all those who are below, we have the total money required to eliminate poverty. The degree of inequality (distribution) is captured by the Foster–Greer–Thorbecke index (P_2). A particular strength of the P_a indicators is that they are decomposable; that is, indicators for the whole country can be calculated as a population weighted average of the indicators for each region. The contribution of each area to national poverty can also be calculated.

(h) The relationship between the socioeconomic and demographic characteristics of the households and the poverty status was investigated using cross tabulation and an analysis of variance technique was used to test the difference between group means.

(i) Key regression variables for the poverty model were identified, including: years of education of household head, household size, gender of household head, land holding in acres and total credit to the household. Other variables were access to health care proxied by the cost of treatment, household income, remittances, proportion of children surviving and age of head of household, with poverty status as the dependent variable. The parameters used are presented in Appendix C and the distributions of the variables are given in Appendix D; the percentile distribution of variables is shown in Appendix E.

(j) Logistic regression models were used to identify the significant determinants of poverty. The explained variable was poverty status. Logistic regression was chosen because of the dichotomous dependent variables and because the technique has no restrictive distribution assumptions.

4. Discussion of survey findings

The living standards of households reflect the income–generating opportunities available to the household and its members and the needs of the household, the latter including such issues as size and composition of the household (Colombe and Mackay, 1996). With this approach, the determinants of poverty are identified as those factors, mostly household characteristics, that lead to households having low income levels (proxied by consumption in this context) relative to their needs. Demographic variables, the most important determinants of household needs, can be expected to be of relevance across all groups of households, including household size, composition and dependency ratios. The characteristics of the economic head of the household, including educational level, gender and marital status, may also be important for the determination of living standards, though here the influence is not exclusively on household needs but perhaps also on the earning potential of households.

Poverty line

The poverty analysis was done at two levels, national and regional. The national analysis used the national food poverty line and a total sample size of 9,924 households. For the regional analysis, the region-specific food poverty line and the corresponding subsample for each region were used (Table 3).

The national food poverty line was computed to be US$68.6 per annum (which represents the minimum per capita food expenditure required to meet the recommended daily calorie allowance per adult equivalent). The Northern region had the lowest poverty line of US$44.0 per annum. The poverty lines for Central region (US$80.4) and Western (US$76.2) far exceed the national poverty line (Table 3). The gender poverty line was computed to be US$68.5 per annum for male-headed households and US$68.8 for female-headed households, both close to the national poverty line. The rural food poverty line of US$58.7 falls below the national poverty line, while the urban poverty line of US$89.9 exceeds the national one.

The analysis of poverty lines confirms the findings by World Bank (1993) that Northern region is the poorest. The computed US$44 poverty line is even lower than the World Bank estimated average of US$55, implying that the magnitude of poverty is more pronounced. The rest of the regions have poverty lines above the World Bank (1993) average of US$55.

Table 3: Food poverty lines (z-values) by region, sex of household head and residence

	Food poverty line - per month (Ush)	Food poverty line per year (US$)*
Region		
Central	6,807.53	80.4
Eastern	5,339.25	63.1
Western	6,452.07	76.2
Northern	3,722.06	44.0
Sex		
Male	5,796.03	68.5
Female	5,827.84	68.8
Residence		
Urban	7,614.80	89.9
Rural	4,972.46	58.7
Uganda	5,805.14	68.6

*Exchange rate was the average monthly official exchange rate for 1992: US$1=Ush1,016.

Apart from confirming the World Bank (1993) conclusion that Northern Uganda is the poorest region, the finding has helped shed more light on the gravity of the poverty situation in Northern Uganda. While all other regions have their poverty lines above the World Bank (1993) average of US$55, Northern region is the peculiar case with a poverty line of US$44. What this brings to play is that in any effort to alleviate poverty, it is critical to incorporate region specific poverty indicators in the planning process.

Comparison of socioeconomic and demographic characteristics

Grootaert (1997) categorized the household endowments that determine poverty into two major groups: human capital and physical capital. Human capital is embodied in the members of the household, and the ability to use this capital effectively in the labour market is a function of the age and sex of the household members. The human capital of the household head is particularly important, with the head's education and work experience having a profound influence on the way the household relates to the labour market.

Socioeconomic and demographic characteristics of the households were investigated within and between regions with respect to the poverty status. The computed national poverty line was used to identify the poor households for the between-region analysis and the regional food poverty lines were used to investigate the within-region characteristics.

Mean household size

Evidence from other studies points to the link between poverty and household size. The larger the household, the higher the dependency ratio, hence the tendency to perpetuate poverty in the long run. In a subsistence economy, the large household size tends to increase competition for land resource use between food crops and cash crops, which may be coupled with declining soil productivity. This may result in low output, low household income and the perpetuation of poverty.

The national mean household size for the sampled households is 4.89; Northern region has the highest mean of 5.27, followed by Eastern region (5.00), Western region (4.77) and Central region (4.60). Table 4 shows that poor households have bigger household sizes compared with non-poor households. The poor households in Northern Uganda have the highest mean household size of 5.92, although, interestingly, non-poor households in Northern Uganda have the lowest mean household size. Northern Uganda being predominantly rural implies that the major production factor that they depend on is land. As the household increases, the land will be continuously fragmented, resulting in decreasing returns due to overuse.

Table 4: Mean household size by poverty status and region based on national poverty line

	Poverty status		Regional
	Poor	Non-poor	
Central	5.52	4.06	4.60
Eastern	5.73	4.15	5.00
Western	5.52	4.21	4.77
Northern	5.92	3.81	5.27
National	5.70	4.09	4.89

$F_{4,9916;0.000}=178.390$

On the basis of regional poverty lines, Northern Uganda still exhibits the highest average household size among poor (6.19) and non-poor (4.56) households (Table 5). The differences in mean household sizes using the two poverty lines arise because the regional poverty line for Northern Uganda is lower than the national poverty line. The result is that some households that are classified as poor using the national poverty line fall in the category of non-poor using the regional poverty line, but with large household sizes resulting in high mean household sizes for the non-poor. This also explains the shift in mean household sizes for other regions.

Table 5: Mean household size by poverty status by region based on regional poverty lines

	Poor	Non-poor	Significance
Central	5.41	3.93	$F_{1,2818;0.000}$=160.079
Eastern	5.82	4.20	$F_{1,2510;0.000}$=150.806
Western	5.47	4.10	$F_{1,2483;0.000}$=159.317
Northern	6.19	4.56	$F_{1,2105;0.000}$=170.449

Mean age of household head

The mean age of the household head based on the national poverty line is 41.6 for poor households and 38.7 for non-poor households. Table 6 shows that the age of the household head varies significantly between poor and non-poor households and among regions. Household heads of poor households are older and are oldest in Central region (42.4 years), followed by Eastern region (41.9), Northern (41.0) and Western region (40.9).

Table 6: Mean age of household head by poverty status by region using national poverty line

	Poverty status		Regional
	Poor	Non-poor	
Central	42.4	38.3	39.8
Eastern	41.9	39.7	40.9
Western	40.9	38.3	39.4
Northern	41.0	38.9	40.3
National	41.6	38.7	40.1
	$F_{4,9916;0.000}$=23.818		

Within the regions, the household heads of the poor in Eastern Uganda are relatively older, with a mean age of 42.1 years, followed by Central region (41.9), Western (41.2) and Northern (40.9) regions (Table 7). The high mean age of heads of poor households in Eastern region may partly be explained by the fact that in this region the main mode of investment was the acquisition of cattle, which accumulated wealth might be lost through cattle rustling, leaving no alternative source of wealth. Although Northern Uganda was also affected by cattle rustling, the region had a unique coping mechanism of communal digging that had long existed hand-in-hand with the ox-plough. In Eastern region, the main mode of farming was by use of ox-ploughs and people took long to adjust to communal digging.

Table 7: Mean age of head of household by poverty status by region based on regional poverty lines

	Poor		Non-poor		Significance
	N	Mean age of household head	N	Mean age of household head	
Central	1,283	41.9	1,537	38.1	$F_{1,2818;0.000}$=40.717
Eastern	1,244	42.1	1,268	39.7	$F_{1,2510;0.000}$=15.000
Western	1,212	41.2	1,273	37.7	$F_{1,2483;0.000}$=31,682
Northern	919	40.9	1,188	39.9	$F_{1,2105;0.125}$=2.354

Education of household heads

Education is vital for boosting the productivity of the human factor and making people more aware of opportunities for earning a living. It has been found that a one-year increase in the average length of schooling could push up GDP by 3% (Grootaert, 1997).

In Uganda, the majority of households whose heads had no education are poor except in Central region, where only 47.0% of those without education are poor. There is a significant difference in the poverty status of households according to the different levels of educational attainment of the household head in all regions. The higher the educational level, the greater the proportion of non-poor households within the sample. This finding seems to support the fact that a certain minimum level of education is essential for increasing household productivity and income earning potential as evidenced by Grootaert (1997). Again, Northern Uganda stands out. A very high percentage (73.8%) of the houseolds in Northern Uganda whose heads had no education are poor and 58.1% of Northern Uganda households whose heads had secondary education are poor, compared with 25.9% in Central, 28.8% in Western and 42.7% in Eastern regions (Table 8).

The evidence tends to confirm the argument that there is a link among educational attainment, the income earning potential of the household and poverty. The illiterate tend to resist modern ideologies and technology, so that a certain minimum level of education is necessary to enhance appreciation and adoption of new technologies that can be instrumental in increasing household productivity, hence earning more income. The increased income will enable the households to move out of poverty. As the labour market is becoming highly competitive, with higher academic qualifications being demanded for jobs that previously required lower qualifications, these results tend to suggest that Northern region may be marginalized in the labour market in the long run if the education trend continues, as the majority of the population in Northern Uganda (69.1%) are poor.

Table 8: Percentage distribution of households by educational attainment of the household head and region based on national poverty line

	Central region		Eastern region		Western region		Northern region	
	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor	Poor	Non- poor
No education	47.0	53.0	59.6	40.4	51.6	48.4	73.8	26.2
Primary	40.6	59.4	58.9	41.1	43.5	56.5	72.3	27.7
Secondary	25.9	74.1	42.7	57.3	28.8	71.2	58.1	41.9
Tertiary	12.3	87.7	22.9	77.1	18.3	81.7	39.7	60.3
Regional	36.9	63.1	54.0	46.0	42.6	57.4	69.1	30.4
X^2		117.364		99.571		81.492		64.669
df		3		3		3		3
p		0.000		0.000		0.000		0.000

Annual household income

The annual income earned by households in the survey area is presented in tables 9 and 10 by poverty status of the households. As expected, poor households earn much less annual income than non-poor households (Table 9), with poor households in the North earning the least (Ush370,575.56), followed by Western region (Ush391,703.63), Eastern (Ush403,195.28) and Central (Ush468,270.66). The regional mean income differences are highly significant (p = 0.000).

Table 9: Distribution of mean annual household income (Ush) by poverty status by region using national poverty line

	Poverty status (Ush)		Total
	Poor	Non-poor	
Central	468,270.66	1,016,008.90	813,812.02
Eastern	403,195.28	881,906.27	623,493.81
Western	391,703.63	748,327.45	596,349.73
Northern	370,575.56	738,985.09	484,403.09
National	404,840.08	872,936.50	641,246.72

$F_{4,9916;0.000}$=161.283

Within the regions, the poor in Northern and Eastern regions have the lowest mean income levels (Table 10). There is a significant difference in the mean incomes of poor and non-poor households between and within regions. The income differentials between regions may be explained by the location of major industries and the capital city effect, which render high paid employment opportunities to those nearest. The capital city (Kampala) is located in the Central region, while the largest industrial town is Jinja, Eastern region.

Table 10: Mean income (Ush) by poverty status by region based on regional poverty line

	Poor	Non poor	Significance
Central	503,384.59	1,072,938.80	$F_{1,2818;0.000}$=148.768
Eastern	395,812.68	846,865.56	$F_{1,2510;0.000}$=133.461
Western	406,164.20	777,421.93	$F_{1,2483;0.000}$=196.166
Northern	316,585.40	614,221.68	$F_{1,2105;0.000}$=64.074

Remittances

Another way of coming out of poverty is through remittances that supplement household incomes. The higher the remittances, the better off someone becomes. Remittances received by households in the 12 months prior to the date of the survey are shown in tables 11 and 12. Poor households inevitably receive lower remittances than non-poor households, with poor households in the Northern region receiving the least (Table 11).

Table 11: Mean remittances (Ush) received by the household by poverty status by region using national poverty line

	Poverty status				Total	
	Poor		Non-poor			
	N	Remittances	N	Remittances	N	Remittances
Central	1,041	48,271.43	1,779	98,818.56	2,820	80,159.14
Eastern	1,356	42,621.89	1,156	82,523.92	2,512	60,988.61
Western	1,059	43,371.68	1,426	65,866.07	2,485	56,288.45
Northern	1,456	42,515.57	651	91,689.08	2,107	57,708.71
National	4,912	43,953.64	5,012	84,760.76	9,924	64,562.80

$F_{4,9916;0.000}$=36.731

The differences in remittances are significant. On a regional basis, poor households in Northern region receive the lowest remittances (Ush33,637.02), followed by Eastern region (Ush41,070.17), Western region (Ush45,353.70) and Central region (Ush49,165.71) (Table 12).

Table 12: Mean remittances (Ush) by poverty status by region based on regional poverty status

	Poor	Non poor	Significance
Central	49,165.71	106,030.70	$F_{1,2818;0.000}$=36.334
Eastern	41,070.17	80,530.05	$F_{1,2510;0.000}$=42.191
Western	45,353.70	66,699.22	$F_{1,2483;0.000}$=14.602
Northern	33,637.02	76,329.82	$F_{1,2105;0.000}$=51.033

Expenditure on health care

Because Uganda is in the tropics, it experiences a high prevalence of tropical diseases such as malaria, with the result that households inevitably have to expend on medical care. While the overall mean monthly household expenditure on health care was Ush4,957, the lowest expenditure was in Northern region (Ush3,163) and the highest was in Central region (Ush5,998), as shown in Table 13. Given that government expenditure on medical services continues to be budget-constrained, hence the introduction of the cost-sharing scheme to improve the quality of health care services (e.g., availability of more drugs and better equipment), poor households may not be able to meet the user fees and thus revert to self-treatment or traditional healers. This has implications for the productivity of the labour force and hence household potential to earn income.

Table 13: Mean monthly expenditure (Ush) on medical care by region and poverty status using national poverty line

	Poverty status		Regional
	Poor	Non-poor	
Central	4,650.85	6,853.10	5,998.40
Eastern	3,779.10	5,830.81	4,682.73
Western	4,167.41	6,506.18	5,415.98
Northern	2,830.93	3,998.71	3,163.19
National	3,817.68	6,178.09	4,957.87

$F_{4,4859;0.000}$=12.746

The analysis based on both the national and regional poverty lines suggests that there is significant difference in health care expenditures between the poor and the non-poor in each region. The regions with highest mean income are the ones that spend more on medical care. Because a healthy labour force is needed to engage in productive activities that will lead to higher incomes (hence enabling the household to move out of poverty), the poverty situation may tend to be perpetuated in the North (Table 14).

Table 14: Mean expenditure (Ush) on medical care by poverty status by region based on regional poverty lines

	Poor	Non poor	Significance
Central	4,847.99	7,088.53	$F_{1,1410;0.010}$=6.716
Eastern	3,756.72	5,669.59	$F_{1,1601;0.013}$=6.230
Western	4,322.03	6,663.91	$F_{1,1017;0.000}$=13.897
Northern	2,405.06	3,843.60	$F_{1,831;0.002}$=10.034

Survival of children may be affected by various factors, including lack of health care, poor feeding and the ignorance of the parents. Previous findings have shown that poor households spend less on medical care, probably due to low income and the poor education of household heads. It is therefore not surprising that the proportion of children surviving is lower among poor households (0.81) than non-poor households (0.82) (Table 15).

Table 15: Proportion of children surviving by region and household poverty status using national poverty line

	Poverty status		Regional
	Poor	Non-poor	
Central	0.82	0.82	0.82
Eastern	0.81	0.82	0.81
Western	0.83	0.83	0.83
Northern	0.80	0.80	0.80
National	0.81	0.82	0.81

$F_{4,9350;0.000}$=5.162

Among the poor households, the proportion of children surviving is lowest in Northern region (0.80), followed by Eastern (0.81), Central (0.82) and Western (0.83). On the whole, children of Western region have the highest chance of surviving compared with other regions. This result suggests that the survival of children is not driven entirely by poverty, but is also affected by other factors, as the overall survivorship is 80% for all categories. This may be explained by the vigorous immunization campaign of children by the Ministry of Health. However, child survival tends to be influenced by the educational level of the household head (Appendix F).

Rural–urban residence

As has been demonstrated by a number of other scholars, poverty is more pronounced in rural areas as economic activities tend to be concentrated in urban areas. Table 16 shows that 62.1% of the urban residents in Eastern region are non-poor while 62.4% of its rural residents are poor. The implication is that residence tends to influence poverty; by being in the rural area, one is more likely to be poor. This pattern is also depicted in Central and Western regions. In Northern region, however, whether one is in the urban or rural area, one is likely to be poor. About 54% of urban residents in Northern Uganda are poor, while 76.0% of its rural residents are poor. This is a reflection of the general level of poverty prevalent in Northern region.

Table 16: Percentage distribution of poor households by region and residence using national poverty line

	Poor		Non poor		X^2	df	p
	Urban	Rural	Urban	Rural			
Central	24.2	45.8	75.8	54.2	136.284	1	0.000
Eastern	37.9	62.4	62.1	37.6	136.016	1	0.000
Western	28.3	50.0	71.7	50.0	107.155	1	0.000
Northern	53.9	76.0	46.1	24.0	104.224	1	0.000

The relationship between the rural and urban poor is highly significant. The same pattern of poor households being more predominant in the rural areas is observed even when the analysis is based on the regional poverty line (Table 17).

Table 17: Percentage distribution of poor households by region and residence using regional poverty lines

	Poor		Non poor		X^2	df	p
	Urban	Rural	Urban	Rural			
Central	32.4	54.6	67.6	45.4	136.016	1	0.000
Eastern	34.1	57.6	65.9	42.4	124.756	1	0.000
Western	34.4	56.2	65.6	43.8	106.884	1	0.000
Northern	28.5	50.6	71.5	49.5	88.770	1	0.000

Some of the variables that were thought to be important determinants of poverty like land holding and access to credit were left out of the analysis. Credit was omitted because very few households reported having access to any loan; as for land, even most of the richer households did not have land.

Poverty indexes

The study used the Greer and Thorbecke (1986) food energy intake method to compute the poverty lines and the various measures of poverty. The "head-count index", P_0, is the proportion of households below the poverty line. The higher the P_0, the worse the poverty situation. The poverty gap index (P_1) is the total proportion of income required to enable poor households below the poverty line to acquire the minimum recommended daily calorie allowance, thus moving to the poverty line. The higher the value of P_1, the greater the depth of poverty. The severity of poverty is captured by P_2. The higher the P_2, the more severe the poverty situation.

Northern region has 69.1% of the sampled households falling below the national poverty line. The corresponding figure for Eastern region is 54.0%, Central 36.9% and Western 42.6%. Thus, based on the P_0 measure, Northern Uganda has the highest proportion of poor households. The poverty gap index, P_1, also reflects that Northern region has the greatest depth of poverty, 30.8%. The severity of poverty captured by P_2 also suggests that Northern and Eastern regions have more severe poverty, 17.3% and 11.9%, respectively. All three measures together suggest that the poverty situation is worse in the Northern region (Table 18).

Table 18: Poverty indexes based on the national poverty line

	P_0	P_1	P_2
Central	0.369	0.134	0.069
Eastern	0.540	0.220	0.119
Western	0.426	0.163	0.087
Northern	0.691	0.308	0.173
Uganda	0.495	0.200	0.108

At the national level, Western and Central regions have the lowest incidence of poverty, but the regional analysis suggests that within the regions, Eastern region has the highest incidence of poverty (49.5%), followed by Western (48.8%), Central region (45.5%) and Northern (43.6 %). The depth and the severity of poverty within the regions are all worse in the Eastern and Western regions (Table 19).

Table 19: Poverty indexes based on regional food poverty lines

	P_0	P_1	P_2
Central region	0.455	0.175	0.092
Eastern region	0.495	0.194	0.103
Western region	0.488	0.193	0.105
Northern region	0.436	0.155	0.076

The results in Table 20 further suggest that the poor are mainly in the rural areas as evidenced by 58.0% of the rural households being below the poverty line compared with only 34.1% of urban residents. Both the depth and the severity of poverty are worse in

rural areas. The two poverty measures,P_0 and P_1, by gender reflect that male-headed households are poorer than female-headed households. However, the severity of poverty for both the female- and male-headed households is almost the same. The estimates presented in Table 20 are based on aggregated household data by residence irrespective of regional location.

Table 20: Poverty indexes based on the national poverty line

Residence	P_0	P_1	P_2
Urban	0.341	0.128	0.071
Rural	0.580	0.239	0.129

The rural–urban regional poverty differentials further confirm that the rural poor in Northern Uganda are worse off (Table 21): the head-count index is 76%, the poverty gap is 35% and the severity is 19.7%.

Table 21: Poverty indexes computed using the national poverty line for residence by region

Residence	Urban			Rural		
	P_0	P_1	P_2	P_0	P_1	P_2
Central	0.242	0.085	0.046	0.458	0.167	0.085
Eastern	0.379	0.139	0.074	0.624	0.262	0.142
Western	0.283	0.108	0.064	0.500	0.192	0.099
Northern	0.539	0.217	0.118	0.760	0.350	0.197

Among urban households, Western region has the highest percentage (34.4%) falling below the poverty line. The corresponding percentages for Eastern, Central and Northern regions are 34.1, 32.4 and 28.5%, respectively (Table 22). The regional rural poverty indexes suggest that the poverty situation is worse within Eastern region.

Table 22: Urban and rural poverty measures based on the regional food poverty line

Residence	Urban			Rural		
	P_0	P_1	P_2	P_0	P_1	P_2
Central	0.324	0.114	0.061	0.546	0.216	0.115
Eastern	0.341	0.120	0.064	0.576	0.232	0.123
Western	0.344	0.129	0.074	0.562	0.226	0.120
Northern	0.285	0.101	0.054	0.505	0.180	0.087

5. Multivariate determinants of poverty

A number of variables were fitted in logistic regression models to identify significant determinants of poverty. This technique was chosen because of the discrete dichotomous nature of the outcome variable, the poverty status of the household. Five models were fitted: a national model using the national poverty line and four regional models using the region-specific poverty lines.

In a logistic regression model, the probability, *p*, that a household is non-poor is given by

$$p = \frac{e^z}{1+e^z} \tag{8}$$

Central to the use of logistic regression is the logit transformation of *p* given by *Z*

$$Z = In\left(\frac{p}{1-p}\right) \tag{9}$$

where

$$Z = B_0 + B_1X_1 + B_2X_2 + ...B_kX_k \tag{10}$$

where

B_i are the regression parameters

X_i are the independent variables

Categorical variables (educational level of the household head, gender of the head and region of residence) were fitted by creating dummies and the last categories taken as reference. The results of the fits, selecting only the significant variables, are shown in tables 23–27. The last row in the tables gives the number of cases used in the process.

Households with better educated heads are less likely to be poor. The odds of being non-poor for those without education are 0.12 compared with households whose heads have tertiary education. They are 0.16 for households whose heads have primary education

and 0.34 for households whose heads have secondary education. This pattern can also be seen in Tables 24–27 for Central, Eastern, Western and Northern regions.

Table 23: Logistic regression parameters, national sample N=9761

Variables	Parameter estimates	p-value	Odds change
Education of household head			
No education	-2.1449	0.0000	0.1171
Primary	-1.8190	0.0000	0.1622
Secondary	-1.0766	0.0000	0.3408
Tertiary	0.0000		1.0000
Region of residence			
Central	1.2425	0.0000	3.4642
Eastern	0.5742	0.0000	1.7758
Western	1.1370	0.0000	3.1175
Northern	0.0000		1.0000
Household size	-0.2151	0.0000	0.8065
Always lived in this area			
Yes	-0.1348	0.0037	0.8738
No	0.0000		1.0000

Large households are more likely to be poor and this is shown to be true for all the regions. Northern Uganda is 1.8 times worse off than Eastern region, 3.5 times worse off than Central and 3.1 times worse off than Western Uganda.

The larger the household size, the poorer the household. This is because the larger number of household members would likely be children, who are unproductive and yet they take a big proportion of household income in terms of school requirements, medical attention, food and clothing.

The migration variable is only significant in the National and Eastern region models. The households whose heads migrated from their places of birth were less likely to be poor as compared with those who did not migrate. That migrant households are better off is possibly because the majority who move are education selected and they go for better paying jobs.

Table 24: Logistic regression parameters, Central region subsample N=2666

Variables	Parameter estimates	p-value	Odds change
Education of household head			
No education	-2.3223	0.0000	0.0981
Primary	-1.8744	0.0000	0.1534
Secondary	-1.1429	0.0000	0.3189
Tertiary	0.0000		1.0000
Household size	-0.1939	0.0000	0.8238

Table 25: Logistic regression parameters, Eastern region subsample N=2509

Variables	Parameter estimates	p-value	Odds change
Education of household head			
No education	-2.1951	0.0000	0.1113
Primary	-2.0266	0.0000	0.1318
Secondary	-1.2834	0.0000	0.2771
Tertiary	0.0000		1.0000
Household size	-0.1985	0.0000	0.8200
Always lived in this area			
Yes	-0.2170	0.0125	0.8049
No	0.0000		1.0000

Table 26: Logistic regression parameters, Western region subsample

Variables	Parameter estimates	p-value	Odds change
Education of household head			
No education	-1.7366	0.0000	0.1761
Primary	-1.3528	0.0000	0.2585
Secondary	-0.7627	0.0041	0.4664
Tertiary	0.0000		1.0000
Household size	-0.1959	0.0000	0.8221
	N=2480		

Table 27: Logistic regression parameters, Northern region subsample N=2106

Variables	Parameter estimates	p-value	Odds change
Education of household head			
No education	-2.5956	0.0000	0.0746
Primary	-2.1426	0.0000	0.1174
Secondary	-1.1433	0.0020	0.3188
Tertiary	0.0000		1.0000
Household size	-0.2635	0.0000	0.7683

6. Conclusions and recommendations

Two sets of poverty lines were computed, the national and the region-specific. Based on the national poverty line, Northern Uganda has been found to be the poorest area in the country; it has the largest depth of poverty and the worst inequality. Using the region-specific poverty lines, Northern Uganda compares more favourably with the other regions on various measures of poverty. This may be because the Northern regional poverty line is low and income differentials are not marked, as people are generally poor. Using region-specific poverty lines, Eastern region has the worst indicators of poverty.

Conclusions

The results suggest that while a household may be relatively better off according to the national poverty line, it could actually be poor given the high cost of living prevalent within the region. Northern region is characterized by the poor having large mean household sizes, least education, least mean household income, least expenditure on health and lowest chance of child survival, as well as by the highest concentration of the poor in rural areas. The poor households in the Eastern region have older household heads, while the mean remittances are lowest in Central region.

At the multivariate level, education of household head, household size, region of residence and migration status were found to be significant in determining household poverty status in Uganda. Households with heads who were better educated were less poor and those whose heads migrated were better off in terms of poverty status particularly in Central region. This may be explained by the fact that those who migrate often do so in order to get paid jobs and they are generally more educated. The study has shown that Northern Uganda is the poorest region. This is followed by Eastern, Central and Western regions in that order.

Recommendations

Generally, large households are poor and have limited access to health care services. There is need to increase provision of health care services, including family planning services, to the poor. The proposed health insurance scheme may not be feasible given the high prevalence of poverty in the country.

The study has found that the majority of poor households had low education and that the households with more education were less likely to be poor. This calls for improving

access to education by the poor households. But the government white paper on education stipulates that all households will bear the full cost of education at higher levels; for poor households that cannot meet the education cost, a loan scheme, payable on completion and attainment of gainful employment, is proposed (*New Vision*, 1998). However, this has a lot of implications for the poor. For instance, the definition of gainful employment is vague. Currently, government is the main employer in Uganda and the fixed minimum wages are low. This implies that a graduate from a poor household will take several years servicing the debt, and during that time will not be able to help other members of the household. Given that this is a loan scheme, if interest is put on it, then the amounts may be compounded to unbearable levels. Such a scenario may perpetuate poverty. In view of these considerations, it is recommended that the resources allocated to the districts under decentralization arrangements should be used to give bursaries to poor children as opposed to a loan scheme. In addition, universal primary education should be extended to all children in a family instead of the current four. There is need for government to allocate more resources from the savings made from higher education to cater for secondary education.

According to the review of the social sector recurrent expenditure transfer figures for 1997/98, Northern region, which is the poorest, was allocated 20.8%. This allocation is insufficent if the region is to come out of poverty. It is therefore recommended that budgetary allocations be increased for poor regions to cater for social services. For effective poverty alleviation in Uganda, the planning process and the budgetary allocations should take into account the region-specific poverty lines.

Generally, poor households are more predominant in rural areas and engage mainly in agriculture with poor infrastructure. It is recommended that rural infrastructure be improved as this has potential benefits to enable poor households to come out of poverty (Pellekaan et al., 1995). Improved rural infrastructure would link rural areas to the rest of the market, reduce transport costs and probably increase producer prices due to increased competition.

Most poor households did not have access to credit, which has great potential to assist them out of poverty. It is recommended that a credit delivery mechanism targeting poor households be developed by government and non-government organizations.

References

Chambers, R. 1983. *Rural Development, Putting the Last First.* Longman.

Colombe, H. and A. Mackay. 1996. "Modelling determinants of poverty in Mauritania." *World Development*, vol. 24, no. 6: 1015–31.

CDRN. 1995. *Poverty in Selected Districts of Uganda.* A study undertaken by Community Development Resource Network on behalf of ActionAid, Oxfam and NOVIB. Preliminary Report, November.

Connick, J. 1992. "Evaluating the impact of NGOs in rural poverty alleviation: Uganda country study". *ODI Working Paper 51.*

Emwanu, T., J. Kanyerezi Bwoogi and J. Muwonge. 1995. *Data Collection Problems in Measuring Poverty Levels*. Statistics Department, Ministry of Finance and Planning, Uganda.

Engbert-Pederson P., P. Gibbon, P. Raikes and L. Udsholt. 1996. *Limits of Adjustment in Africa.* Centre for Udviklingsforkning. Heinemann.

Greer, J. and E. Thorbecke. 1986. "A methodology for measuring food poverty applied to Kenya". *Journal of Development Economics*, vol. 24: 59–74.

Grootaert, C. 1994. "Poverty and basic needs fulfilment in Africa during structural change: Evidence from Côte d'Ivoire". *World Development*, vol. 22, no. 10: 1521–34.

Grootaert, C. 1997. "The determinants of poverty in Côte d'Ivoire in the 1980s". *Journal of African Economies*, vol. 6, no. 2: 169–96.

Hill, P. 1982. "Causes of general poverty in Hausaland (1972)". In A. Chris, ed., *Sociology of Developing Societies, Sub-Saharan Africa.* London: Macmillan Press Ltd.

Madzingira, N. 1997. "Poverty and aging in Zimbabwe". *Journal of Social Development in Africa*, vol. 12, no. 2: 5–19.

MFEP. 1992. *Housing and Population Census*, Statistics Department. Entebbe: Ministry of Finance and Economic Planning.

MFEP. 1992. *Integrated Household Survey.* Statistics Departmen. Entebbe:, Ministry of Finance and Economic Planning. Entebbe.

MFEP. 1993. *Key Economic Indicators*, 13th Issue: April 1993. Entebbe: Ministry of Finance and Economic Planning.

MFEP. 1995. *Use of Household Consumer Expenditure Survey Data for Measuring Poverty Trends in Uganda.* Entebbe: Ministry of Finance and Economic Planning.

MFEP. 1997. *Background to the Budget 1997/98*, June 1997. Entebbe: Ministry of Finance and Economic Planning.

New Vision. 1998. "Press release on Education White Paper". *New Vision Newspaper,* Tuesday, 13 October 1998, vol. 13, no. 245:2.

Okurut F.N. 1997. "The Impact of foreign aids flows on private sector investment in Uganda, 1984–94". A final report submitted to AERC.

Pellekaan, J.H., P. Romand-Heuyer and D. Bigman. 1995. "The role of infrastructure and credit in rural development and poverty reduction: Lessons from experience and analysis". Paper presented at a seminar on the Challenge of Growth and Poverty Reduction, Kampala, November.

Ravallion, M. 1994. "Poverty comparisons". In *Fundamentals of Pure and Applied Economics* No. 56. Harwood Academic Publishers.

Ravallion, M. 1996. "Issues in measuring and modelling poverty". *The Economic Journal,* 106 (September): 1328–43.

Sahn, D., E. Dorosh and S. Younger. 1996. "Exchange rate, fiscal and agricultural policies in Africa: Does adjustment hurt the poor?" *World Development,* vol. 24, no.4: 719–47.

UDN and UWONET. 1998. "Review of budgetary policy and expenditure in the social sector in Uganda". May, 1998.

West, C.E., F. Pepping and C.R. Temalilwa. 1988. *The Composition of Foods Commonly Eaten in East Africa*. Wageningen: Wageningen Agricultural University.

World Bank. 1990. *World Development Report.* Oxford: Oxford University Press.

World Bank. 1993. *Uganda: Growing Out of Poverty.* Washington, D.C.: The World Bank.

Appendixes

Appendix A: Uganda recurrent expenditure transfers by region, 1997/98

Region	Number of districts	Shs (million)	Percentage	District average	
				Total (Ush mn)	Percentage
Northern	10	40,836	20.8	4,084	2.1
Eastern	12	53,114	27.0	4,426	2.3
Central	11	51,841	26.4	4,713	2.4
Western	12	50,856	25.9	4,238	2.2

Source: *Review of Budgetary Policy and Expenditure in the Social Sector in Uganda.* Report prepared for UDN and UWONET (1998: Table 9: 22).

Appendix B: Calorie values used in estimating food poverty lines

Foods	Kilocalories per 100 grams of edible part
Fresh yellow maize	165
Dry white maize grain	345
Maize flour	335
Finger millet grain	315
Finger millet flour	320
Rice	335
Sorghum grain	345
Sorghum flour	335
Bread, white	240
Bread, brown	235
Fresh cassava	140
Cassava flour	320
Sweet potato	460
Fresh yam	110
Fresh beans	105
Fresh peas	105
Dried beans	320
Dried cow peas	320
Dried soya beans	405
Groundnuts	570
Simsim	592
Eggplant	30
Matoke	82
Sweet banana	82
Beef	235
Goat meat	170
Pork	625
Mutton	255
Poultry	140
Chicken egg	140
Dried fish	255
Cow milk	79
Powder milk	355
Orange	44
Passion fruit	48
Pineapple	48
Mango	60
Cabbage	25
Dodo	58
Tomato	22
Cheese	885
Butter	885
Ghee	885
Oil	900
Margarine	745
Animal fats	890

Source: West et al. (1988).

Appendix C: Parameters used in estimating poverty lines

Uganda

	Parameter	se	*T*	*P*
a	8.666265	0.007596	1140.863	0.0000
b	1.061313×10^{-7}	1.62251×10^{-8}	6.541	0.0000

Central

	Parameter	se	*T*	*P*
a	8.821827	0.014894	592.297	0.0000
b	1.798820×10^{-6}	1.58885×10^{-7}	11.322	0.0000

Eastern

	Parameter	se	*T*	*P*
a	8.582619	0.014521	590.792	0.0000
b	1.009344×10^{-7}	$2.18775 * 10^{-8}$	4.614	0.0000

Western

	Parameter	se	*T*	*P*
a	8.772077	0.014313	612.873	0.0000
b	3.569706×10^{-8}	2.23702×10^{-8}	1.596	0.1107

Northern

	Parameter	se	*T*	*P*
a	8.216102	0.017179	478.265	0.0000
b	2.695336x10-6	1.61435x10-7	16.696	0.0000

Note: a = the intercept and b = the parameter estimate derived using equations 5 and 6.

Appendix D: Distribution of the variables

Table D1: National distribution

Variable	Mean	SE Mean	Kurtosis	Skewness	N
AGE	40.11	0.15	0.15	0.86	9924
HHSIZE	4.89	0.03	5.05	1.43	9924
MEDICAL	4957.87	194.42	589.25	19.40	4867
LOAN	127535.61	26326.35	1066.80	29.54	2326
LANDVAL	598203.84	63949.17	420.27	18.45	2480
EARNINGS	558333.78	9431.93	160.50	9.61	9924
FEES	83990.06	2939.86	119.79	8.23	4883
OTHINCOM	82912.92	2437.55	2070.17	37.85	9924
ENERGY	312278.89	20513.16	1427.53	31.76	9816
FOODCOST	31233.49	294.97	33.72	3.84	9924
REMITANC	64562.80	1819.62	153.17	9.58	9924
FOODPC	7602.86	63.57	14.53	2.77	9924
CALOPC	75240.24	4664.28	1156.92	28.26	9816
INCOME	641246.70	10035.93	151.73	9.55	9924

Definition of variables

AGE - Age of household head (years)
HHSIZE - Household size
MEDICAL - Medical expenses in the last 30 days (Uganda shillings)
LOAN - Loan acquired by the household in the last 12 months (Uganda shillings)
LANDVAL - Value of land owned by the household (Uganda shillings)
EARNINGS - Earnings in the last 12 months from the main source of income (Uganda shillings)
FEES - Expenditures on school requirements in the last 12 months (Uganda shillings)
OTHINCOM - Earnings in the last 12 months from other sources of income (Uganda shillings)
ENERGY - Total energy (in calories) consumed by the household in the last 30 days
FOODCOST - Total cost of food consumed by household in the last 30 days (Uganda shillings)
REMITANC - Remittances received by the household in the last 12 months (Uganda shillings)
FOODPC - Per capita food cost in a month (Uganda shillings)
CALOPC - Per capita energy consumption in a month (calories)
INCOME - Total household income in the last 12 months (Uganda shillings)

Table D2: Regional distribution

(a) Central region

Variable	Mean	SE Mean	Kurtosis	Skewness	N
AGE	39.83	0.30	0.16	0.90	2820
HHSIZE	4.60	0.06	3.39	1.40	2820
MEDICAL	5998.41	432.99	537.20	19.46	1412
LOAN	169511.23	64874.17	589.60	23.29	847
LANDVAL	877097.62	125547.11	223.61	13.45	839
EARNINGS	724616.80	22552.41	86.71	7.55	2820
FEES	145086.30	8777.04	62.98	6.30	1343
OTHINCOM	89195.08	5262.01	1193.78	29.17	2820
ENERGY	155308.76	6970.03	388.80	17.10	2789
FOODCOST	36467.99	672.11	38.74	4.05	2820
REMITANC	80159.15	4727.07	117.26	9.08	2820
FOODPC	9296.07	138.10	9.39	2.40	2820
CALOPC	38173.58	1621.51	986.88	26.54	2789
INCOME	813811.87	23854.78	84.21	7.50	2820

(b) Eastern region

Variable	Mean	SE Mean	Kurtosis	Skewness	N
AGE	40.92	0.31	-0.19	0.73	2512
HHSIZE	5.00	0.07	8.53	1.86	2512
MEDICAL	4682.73	383.63	482.68	18.73	1603
LOAN	160793.67	62887.67	149.22	11.74	316
LANDVAL	592802.50	180159.25	259.30	15.46	327
EARNINGS	525868.37	17795.52	101.18	8.15	2512
FEES	79215.21	4867.76	39.90	5.43	1235
OTHINCOM	97625.42	6767.68	1517.98	35.43	2512
ENERGY	408862.29	6035.32	1015.47	28.61	2495
FOODCOST	29195.78	565.30	18.45	3.53	2512
REMITANC	60988.61	3062.18	118.67	8.23	2512
FOODPC	6929.62	110.66	9.42	2.40	2512
CALOPC	98883.18	13148.29	884.31	26.0	2495
INCOME	623493.79	20029.23	122.84	9.10	2512

(c) Western region

Variable	Mean	SE Mean	Kurtosis	Skewness	N
AGE	39.42	0.31	0.40	0.96	2485
HHSIZE	4.77	0.06	1.20	0.91	2485
MEDICAL	5415.98	315.40	50.33	5.83	1019
LOAN	114269.72	22139.32	96.65	9.55	614
LANDVAL	531362.76	65725.75	103.49	9.46	725
EARNINGS	531121.49	13268.44	45.92	5.42	2485
FEES	50462.45	2965.93	37.94	5.28	1197
OTHINCOM	65228.23	2304.56	77.91	7.10	2485
ENERGY	456868.50	53534.78	250.57	14.41	2451
FOODCOST	33198.82	536.17	8.38	2.29	2485
REMITANC	56288.45	2799.77	111.16	7.76	2485
FOODPC	8085.66	126.24	23.21	3.22	2485
CALOPC	111137.56	12729.91	269.05	14.26	2451
INCOME	596349.72	13760.25	4.69	5.26	2485

(d) Northern region

Variable	Mean	SE Mean	Kurtosis	Skewness	N
AGE	40.34	0.31	0.30	0.84	2107
HHSIZE	5.27	0.06	3.63	1.24	2107
MEDICAL	3163.19	227.96	101.62	8.20	833
LOAN	58468.85	22302.19	500.32	21.93	549
LANDVAL	286207.47	153933.37	568.45	23.66	589
EARNINGS	406581.33	18398.71	509.46	18.27	2107
FEES	51478.53	2984.76	19.86	3.98	1108
OTHINCOM	77821.76	3070.15	288.16	12.52	2107
ENERGY	236558.08	7136.97	409.42	15.93	2081
FOODCOST	24339.11	472.24	48.21	4.88	2107
REMITANC	57708.00	2998.69	37.44	5.24	2107
FOODPC	5569.90	108.50	21.09	3.36	2107
CALOPC	54291.38	2006.76	786.17	23.43	2081
INCOME	484403.10	18713.52	471.32	17.34	2107

Appendix E: Percentile distribution of variables

Table E1: National percentile distributions

Percentile	10	20	30	40	50	60	70	80	90
Variable									
AGE	24.00	27.00	30.00	32.00	36.00	40.00	46.00	53.00	63.00
HHSIZE	1.00	2.00	3.00	4.00	4.00	5.00	6.00	7.00	9.00
MEDICAL	250.00	500.00	1000.00	1400.00	2000.00	2800.00	4000.00	6000.00	11000.00
LOAN	2000.00	4000.00	6000.00	10000.00	15000.00	20000.00	38000.00	60000.00	150000.00
LANDVAL	15000.00	30000.00	50000.00	80000.00	105000.00	200000.00	300000.00	500000.00	900000.00
EARNINGS	84550.00	142200.00	200020.00	261120.00	336030.00	422000.00	547230.00	723000.00	1106344.00
FEES	4140.20	7200.00	10800.00	15200.00	21700.00	32383.80	53700.00	95590.00	199351.40
OTHINCOM	0.00	8000.00	19254.00	30000.00	42417.00	57000.00	78083.00	109000.00	180000.00
ENERGY	38285.25	57989.88	78598.73	100920.65	126202.63	157937.62	197429.22	257292.69	384893.00
FOODCOST	8350.00	12150.00	15700.00	19300.00	23200.00	28200.00	34345.00	43400.00	61300.00
REMITANC	0.00	0.00	0.00	0.00	5000.00	20000.00	43000.00	80000.00	180000.00
FOODPC	2221.94	3140.00	3950.00	4830.00	5874.50	7070.00	8626.79	10900.00	14800.00
CALOPC	11210.37	15918.79	20444.16	25268.21	30675.90	37359.04	46355.98	60193.19	89462.22
INCOME	11210.37	15918.79	20444.16	25268.21	30675.90	37359.04	46355.98	60193.19	89462.22

Table E2: Regional percentile distribution of variables

(a) Central region

Percentile	10	20	30	40	50	60	70	80	90
Variable									
AGE	23.00	26.00	29.00	32.00	35.00	40.00	46.00	54.00	64.00
HHSIZE	1.00	2.00	3.00	3.00	4.00	5.00	6.00	7.00	9.00
MEDICAL	300.00	650.00	1195.00	1800.00	2500.00	3500.00	5000.00	7800.00	14000.00
LOAN	3000.00	5000.00	8000.00	11000.00	20000.00	30000.00	44600.00	70000.00	150000.00
LANDVAL	20000.00	40000.00	60000.00	100000.00	150000.00	300000.00	450000.00	750000.00	1500000.00
EARNINGS	108060.00	185050.00	250000.00	332160.00	420000.00	540000.00	696058.00	917040.00	1440000.00
FEES	7000.00	12580.00	18760.00	27560.00	41125.00	61206.00	92980.00	168840.00	368957.60
OTHINCOM	0.00	0.00	9600.00	24000.00	36958.00	54750.00	79525.10	120000.00	203100.50
ENERGY	28523.28	41954.62	54990.39	69491.79	86659.55	111157.15	141265.17	189344.11	297815.47
FOODCOST	8873.00	13410.00	17550.00	21700.00	26425.00	32380.00	40100.00	51224.00	71906.00
REMITANC	0.00	0.00	0.00	0.00	5000.00	21000.00	50000.00	93720.00	200000.00
FOODPC	2875.36	4020.00	5065.00	6156.93	7269.44	8630.00	10511.67	13196.00	18150.00
CALOPC	9185.81	12836.49	15991.95	19595.55	23924.30	29381.21	36488.90	48458.35	73680.40
INCOME	159974.80	243580.00	325562.00	400251.60	497915.00	612490.20	769805.00	1017090.00	1564790.00

(b) Eastern region

Percentile	10	20	30	40	50	60	70	80	90
Variable									
AGE	24.00	27.00	30.00	33.00	37.00	42.00	48.00	55.00	64.00
HHSIZE	1.00	2.00	3.00	4.00	4.00	5.00	6.00	7.00	9.00
MEDICAL	200.00	500.00	800.00	1100.00	1600.00	2500.00	3500.00	5100.00	9760.00
LOAN	1640.00	4000.00	6045.00	10000.00	15000.00	20000.00	32645.00	60000.00	176500.00
LANDVAL	30000.00	50000.00	80000.00	120000.00	160000.00	237000.00	312000.00	500000.00	800000.00
EARNINGS	75000.00	136180.00	186500.00	244828.00	312625.00	393470.00	5044000.00	666720.00	1019280.00
FEES	4200.00	7260.00	11400.00	15900.00	22150.00	32120.00	55760.00	96160.00	194986.00
OTHINCOM	0.00	14818.80	26464.50	37260.00	49966.50	66750.00	90000.00	124053.00	207390.10
ENERGY	39642.03	60198.39	81979.04	103747.63	131091.00	164900.57	205563.08	272339.18	444416.84
FOODCOST	7793.00	11000.00	14486.00	18200.00	21850.00	25900.00	31705.00	39520.00	57435.00
REMITANC	0.00	0.00	0.00	1000.00	10000.00	20000.00	45000.00	80000.00	163500.00
FOODPC	2078.02	2941.67	3719.67	4500.00	5382.05	6408.00	7777.00	9942.71	13576.25
CALOPC	11315.79	16454.70	20985.76	26154.86	31633.57	38646.38	48568.98	65614.60	104073.24
INCOME	137142.50	202974.60	261102.70	323497.60	400796.00	483600.00	595228.90	777466.80	1145047.40

(c) Western region

Percentile	10	20	30	40	50	60	70	80	90
Variable									
AGE	23.00	26.00	30.00	32.00	35.00	40.00	45.00	52.00	62.00
HHSIZE	1.00	2.00	3.00	4.00	4.00	5.00	6.00	7.00	8.00
MEDICAL	360.00	700.00	1150.00	1600.00	2400.00	3100.00	4550.00	7000.00	13000.00
LOAN	2950.00	5000.00	10000.00	15000.00	20000.00	30000.00	50000.00	80000.00	160000.00
LANDVAL	30000.00	60000.00	90000.00	120000.00	200000.00	250000.00	360000.00	500000.00	900000.00
EARNINGS	93000.00	159000.00	225980.00	293220.00	360500.00	460000.00	576220.00	732944.00	1053033.60
FEES	3237.00	5600.00	8440.00	11600.00	15800.00	22590.00	36380.00	61700.00	125680.00
OTHINCOM	0.00	10140.00	18000.00	25000.00	36000.00	47980.00	63273.60	89427.20	139987.00
ENERGY	42003.12	62987.40	84102.06	102812.78	125218.61	153922.60	191584.06	244058.64	380769.75
FOODCOST	9500.00	13700.00	17540.00	21500.00	26300.00	31300.00	38100.00	48184.00	65150.00
REMITANC	0.00	0.00	0.00	0.00	0.00	11860.00	40000.00	80000.00	170000.00
FOODPC	2600.00	3580.25	4503.00	5550.00	6577.78	7926.67	9400.00	11406.44	15067.50
CALOPC	12126.12	16590.57	21526.92	25472.66	30256.87	36483.40	45717.47	58815.49	89103.61
INCOME	140710.20	215676.60	278060.00	342000.00	422400.00	520790.00	632516.00	816110.00	1151200.00

(d) Northern region

Percentile	10	20	30	40	50	60	70	80	90
Variable									
AGE	25.00	28.00	31.00	34.00	37.00	42.00	46.00	52.00	60.00
HHSIZE	2.00	3.00	4.00	4.00	5.00	6.00	6.00	7.00	9.00
MEDICAL	200.00	400.00	600.00	900.00	1500.00	2000.00	3000.00	4210.00	7000.00
LOAN	1500.00	3000.00	4000.00	5000.00	8000.00	10500.00	17000.00	30000.00	80000.00
LANDVAL	5000.00	13500.00	20000.00	25000.00	30000.00	50000.00	75000.00	120000.00	250000.00
EARNINGS	64960.00	108000.00	145380.00	193608.00	243150.00	307080.00	388600.00	516300.00	783942.00
FEES	3200.00	6000.00	8300.00	11000.00	15132.50	21000.00	31930.00	59960.00	149145.00
OTHINCOM	0.00	12500.00	24200.00	35200.00	48000.00	60000.00	80000.00	107026.80	167770.00
ENERGY	66306.05	97015.96	125943.05	150824.97	181143.38	213371.89	254149.79	316162.14	421411.73
FOODCOST	7548.00	10600.00	13276.00	16110.00	19167.00	22532.00	27260.00	33450.00	45160.00
REMITANC	0.00	0.00	0.00	0.00	6500.00	19480.00	40000.00	78000.00	159600.00
FOODPC	1729.71	2393.05	2918.00	3487.50	4084.00	4856.67	5983.73	7636.00	10980.00
CALOPC	15314.97	21593.75	28097.13	34035.66	39616.72	46640.54	56086.75	68760.61	96787.81
INCOME	116400.00	164086.40	210653.20	259054.20	315650.00	383506.00	464944.00	604408.20	897293.40

Appendix F: Proportion of children under five surviving in each region by educational level of the household head

	Central	Eastern	Western	Northern
No education	0.71	0.73	0.78	0.73
Primary	0.83	0.82	0.84	0.81
Secondary	0.89	0.88	0.90	0.88
Tertiary	0.91	0.90	0.94	0.89

Source: *Review of Budgetary Policy and Expenditure in the Social Sector in Uganda.* Report prepared for UDN and UWONET (1998: Table 9: 22).

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