Malawi Assessment

The impact of HIV/AIDS on household economy in two villages in Salima district, Malawi

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Table of contents

List of Figures and Tables

Executive Summary

This is the third in a series of studies undertaken in southern Africa to improve understanding of the relationship between HIV/AIDS, poverty and food security. These studies have all explored the use of the Individual Household Model (IHM) as a practical tool for poverty assessments and programme interventions.

The aim of the Malawi study was (I) to pilot the methodology in an environment that was significantly poorer than earlier studies[1] and (ii) to demonstrate practical applications of the IHM in the design, monitoring and evaluation of social protection interventions, including their impact on households affected by HIV/AIDS.

The study was conducted in two rural communities in Salima district, Malawi, where maize production is the main source of income. Study sites were selected in Save the Children US programme areas.

Household economy methods were used to describe and quantify the components of household income and expenditure, including food production and employment.

Detailed demographic information was collected for all household members, in both villages (Salima I and Salima II). The presence of orphans[2] in a household was used as a proxy for HIV/AIDS[3]. Orphans made up 8.9% and 10.7% of the total population of Salima I and Salima II respectively. Orphans were resident in 23% of households in Salima I and in 29% of households in Salima II.

A 50% random sample was used for the economic survey in Salima I, and a whole village economic survey was carried out in Salima II, due to its smaller size.

Comparisons were made between the income and standard of living of households across the study population. These were based on comparisons of disposable income i.e. income remaining after the household had met its food requirements. A minimum standard of living was established, including basic needs and primary

[1] These studies were conducted in a highvelt Swaziland community and a rural trading centre in Mozambique. See main report, Introduction, for references.
[2] Orphans are defined locally (and in this study) as children who have lost one or both parents.
[3] The cause of death was not known definitively; however, adult HIV prevalence in this area is estimated at 21% so it is reasonable to assume that a large number of 'prime age' adult deaths resulting in orphans can be attributed to HIV/AIDS.

school costs; the standard was designed to be consistent with international Millennium Development Goals (MDGs). In Salima I just under 34% of households fell below the minimum standard of living threshold. In Salima II, nearly 39% of all households fell below the threshold.

An estimate was made of the cost of supporting orphans, to meet minimum standard of living criteria (see Table 7). The total cost of supporting all orphans, including food, school costs and other non-food costs was estimated at around $US 1,900 per year.

The impact of possible social protection interventions on household poverty was simulated, using the IHM method. This included market interventions (e.g. commodity price subsidies) and programme interventions (food aid, school feeding and cash transfers).

The IHM simulations indicated that improving returns on maize production would have the greatest impact on poverty reduction in the study areas. Assuming households used the same amount of land as they did in the reference year and returns rose to 580kg/acre (equivalent to the highest maize return recorded by an individual household) average disposable income in Salima I would rise by nearly 25%. The proportion of households below the standard of living threshold would fall from around 34% to 20%.

The poverty impact of an unconditional cash transfer of $2 per month to all households would be similar to an annual food aid distribution of Kg 200/household/year. However, food aid, including transport, would be far more expensive than a cash transfer, which would cost $3,400/year in Salima I.

Analysis of household economy, demography and living standards using IHM methods provides new insights into the distribution of poverty and the characteristics of poor households in communities affected by HIV/AIDS. The IHM also provides a practical method for modelling the poverty impact of different social protection mechanisms and can be used to evaluate the effectiveness of programme interventions against poverty objectives (illustrated by the analysis of targeted food aid, Figure 7).

HIV/AIDS and Household Economy in Two Villages in Salima district, Malawi

A Study conducted in September 2004

1. Introduction

This is the third in a series of studies undertaken in southern Africa, with the aim of improving understanding of the relationship between HIV/AIDS, poverty and food security [4]. The earlier studies were carried out in Swaziland and Mozambique in 2003. In one of these studies, Swaziland, an attempt was made to estimate the impact of HIV/AIDS on individual household economies. It was found that although the impact was negative, and for some households catastrophic, the average size of the impact was comparatively small relative to the effect of other economic fluctuations, chiefly because many of the people affected were under employed or unemployed. It was also found that many of the commonly used indicators of HIV/AIDS vulnerability (for example, the presence of orphans in the household, chronic illness, the proportion of available land cultivated etc) provided a poor guide to a more objective estimate of need. However, both the Swaziland and Mozambique studies were located in countries and communities that were, by the standards of rural southern Africa, comparatively affluent. The Malawi study was carried out in Salima district, which has a recent history of famine[5], high levels of poverty and a lack of off farm employment options, as well as a high prevalence of HIV/AIDS.[6]

The aim of this study was to inform the wider debate around effective programming for orphans and vulnerable children (OVCs) by

- exploring whether there were differences in the relationship between orphans, poverty and food security in a poorer setting than the two earlier studies.

[4] HIV/AIDS and household economy in a Highveld Swaziland community (Seaman J, Petty C with Narangui H. SC UK March 2004) A rural trading community in Manica province, Mozambique: the impact of HIV/AIDS on household economy (Petty C, Sylvester K, Seaman J. SC UK March 2004).

[5] Distress migration from rural areas to Salima town occurred in 2002; there were cholera deaths among the displaced and malnutrition rates of 19% were recorded.

[6] HIV prevalence rates in Salima range from 13%-25% (Salima Socio-economic profile Republic of Malawi 2002). HIV prevalence in the Swaziland site was 38% and the Mozambique site was around 21%.

- demonstrating a practical methodology for field research and data analysis that provides reliable, quantitative descriptions of household economy and demography in extremely poor, HIV affected communities.
- modelling a range of interventions and their impact on poor households (including households with and without orphans).

This report presents a summary of the main findings of the study. A number of issues, including the choice of interventions to more effectively reduce levels of poverty and vulnerability and the implications of different targeting methods, will be treated in greater depth, and comparisons made with the findings of the other two studies, in a future paper.

2. Background and context: Salima district[7]

Salima district is located in the central region of Malawi bordering the western side of Lake Malawi. The district extends from the Rift Valley lakeshore plain (altitude 200m-500 m) adjacent to Lake Malawi, to the central upland area in the west (altitude 500m -1000 m).

Salima has one main rainy season (November to April) and average temperatures of around 22 C. Lowland soils are made up of clay loam and alluvial deposits and include extensive dambos [8]. The upland areas have shallow stony soils.

Salima has one of the highest rates of soil erosion in the country, with a registered soil loss of 41-50 ha/year. There has been extensive deforestation and the estimated current rate of deforestation across the district is just under 4%.[9]

Customary land comprises 76% of the district and can be allocated by Traditional Authorities (local chiefs). 20% of land is held privately and is mostly used by estate farmers for commercial farming. The District has 486 private estates, occupying 56146 ha (average around 115 ha). 4% of land is used for schools, hospitals, forest reserves and markets.

[7] See also Salima socio-economic profile, (Republic of Malawi, 2002).
[8] Defined as 'seasonally waterlogged, predominantly grass covered depressions bordering headwater drainage lines'.
[9] See Salima Socio-economic profile, (Republic of Malawi, 2002).

Demography, population characteristics and availability of services

Population

The 1998 Population and Housing Census recorded a district population of 248,214 people. Salima district had an annual population growth rate of 2.5% between 1987/1998. At that time, children aged less than 9 years made up around 33% of the population.

Education

Primary education is available free of charge. However, around 30% of primary school children have an average travel time to school of over an hour. Pupils are expected to provide books, school materials and to pay an annual 'community contribution'. Staff: pupil ratios are above the national average and there is a shortage of staff housing. Literacy rates in Salima are low (around 38%).

Health and health services

Infant mortality is estimated at 132 per 1000[10]. There is one referral hospital in the district. 42% of the population lives within 2 hours' walk of a health post and 29% of the population within 1 hours' walk. Malaria, anaemia and pneumonia are the main causes of under 5-year hospitalisation. Estimates of the prevalence of HIV/AIDS ranges from 25-13%.

Water

Only 43% of the population has access safe drinking water. Charges are made for access to boreholes and other improved water sources.

Electricity

2% of the population has access to electricity and 80% use paraffin for lighting.

Roads and Transport

Two well-maintained main tarmac roads pass through Salima. Most of the remaining road infrastructure (around 77%), including feeder roads connecting villages and rural trading centres, become impassable in the rainy season.[11]

[10] National infant mortality is 121 per 1000.

[11] Salima socio-economic profile 2002.

Main sources of income

Crops

More than 75% of land in Salima used for crop production, including maize, pulses, groundnuts, cotton, tobacco, cassava, sorghum, sweet potatoes, mangoes and bananas. Rain fed maize is the main crop, occupying 40% of arable land. Cotton and tobacco are the main cash crops. Tobacco production has fallen in the past 3 years (from 1,013,656 MT in 1999-2000 T to 997,386 MT in 2001-02). Cotton production increased in the same period from 5,521 MT to 7,529 MT. It has been suggested that this is due to lower input costs.

Livestock

Despite good conditions for cattle production, livestock are mainly limited to goats, pigs and chickens. Lack of cattle is explained by problems of disease, raiding and widespread poverty, preventing farmers from building up herds or restocking to replace losses.

Sources of employment

Agricultural labour, mainly on private estates, is the main source of income for an estimated 85% of the district's population. In lakeshore areas fishing also provides employment. Other employment opportunities, including government service, NGOs and private business, are extremely limited

Around 80% of households are engaged in farming.

Food aid and Community Based Organisations (CBO)

From 2003 to June 2004, a special food aid distribution ('food aid plus') was made available to 'orphans and vulnerable households'. SC UK carried out the distribution in the study area. Food was made available to local community based organisations (CBOs) which were responsible for targeting assistance, with the co-operation of community leaders.[12] The monthly ration was made up of 50 kg maize, 25 kg Soya, 4 litres cooking oil and 50 kg beans. There are 9 registered orphan care support programmes in Salima. In addition to their role in food aid distribution these groups are also involved in implementing a range of HIV/AIDS and OVC programmes.

[12] The source of food was WFP stocks from the previous year's emergency programme.

3. Field work

Study sites

Two study sites (Salima I and Salima II) were selected in consultation with Save the Children US.[13]

Salima I is located in Kalonga Traditional Authority (TA), about 45 minutes' walk from the tarmac road and 14 km from Salima town. Salima II is in Khombedza TA, about 5 minutes walk from the main road and 40 km from Salima town. Criteria for the selection of the study communities included:

- the presence of a local CBO working in the field of HIV/AIDS that had been supported by Save the Children, could facilitate access to the community and might benefit from information arising from the assessment.
- a rural location that was reasonably typical of the district i.e. at least an hour's walk from a main town and not part of a rural trading centre.

The fieldwork was conducted in two stages over a period of 14 days. The first stage was to obtain as complete an overview of the economy as possible, from the secondary literature and key informants including farmers (men and women from different economic groups); village heads; CBO leaders; the local agricultural extension worker and others. This overview was then used to inform the more detailed information collection from individual households.

Stage 1

The information collected included:

(a) A comprehensive list of all crops (including minor crops, fruit trees, vegetables etc.) and all livestock and their uses (traction, milk, meat, live sale and sale of products).

(b) For each agricultural activity information was recorded on:

[13] SC US supports CBOs implementing programmes for orphans and vulnerable children in the study sites.

(i) Seasonal agricultural labour requirements (crops and livestock) i.e. a labour calendar, identifying the labour inputs for a defined area of land, for each task (e.g. land preparation), and who (men/women/children) typically does this work.

(ii) The costs of all crop and livestock inputs (land, labour, fertilisers and pesticides, veterinary services etc); the yields expected at different input levels and for upland and dambo cultivation; and details of seasonal prices.

(iii) All types of employment. For each type of paid employment (including salaried and self-employment) information was obtained on the amount of labour typically available for each type of employment (days per month), seasonal variation in this, typical wage rates, and any requirements for employment (e.g. age, gender, skill or qualifications).

(iv) Market information, including the names and locations of local markets for goods and services. Information was collected on the operation of markets, e.g. price setting for major traded commodities and on local barter arrangements (e.g. maize for fish).

(v) Information on credit, loans and local farm input support schemes.

(vi) Information on the social and economic context e.g. land tenure and inheritance, who in the extended family is normally considered responsible for supporting orphans, the availability of external NGO and government support etc.

(vii) A map of the community. Each homestead and the name of the household head was drawn on a sketch map, to assist in the location of households and to ensure that all households were visited.

Stage 2

The second part of the fieldwork involved individual household interviews.

Two questionnaires were designed and administered separately. 1. A census questionnaire. 2. An economic questionnaire. The economic questionnaire was

designed on the basis of information obtained in the first stage of the enquiry, to ensure that all potential income sources were included. The census questionnaire sought information on all people normally resident in the household (i.e. people usually sleeping and eating there) and included details of household members absent at the time of the census, orphan status, the relationship of each household member to the head of household, and school attendance of each child. Additional information on orphans included the year in which their parent or parents died and the last occupation of the deceased parent. In the case of female-headed households, women were identified as never married, widowed or divorced.

The economic questionnaire included:

(i) All sources and amounts of household income in the defined reference year, whether obtained from household production (food and cash crops, livestock production, wild foods and gifts [14]) or in cash or food from paid employment and self-employment. This chiefly includes agricultural labour ('Ganyu') and trade (i.e. the sale of cash and food crops, livestock and livestock products, wild foods, cash gifts, handicrafts etc).

(ii) Household assets (livestock, hoes and other agricultural implements, bicycles etc). Information on cash savings was not sought, as it was not thought that accurate information would be obtained.

(iii) The use of agricultural inputs in the reference year.

For this assessment, the reference year, was defined as the year preceding the survey (Oct 2003-September 2004).

In Salima I, all households were included in the census. Because of the large number of households, a 50% sample was taken for the economic interviews. To avoid selection bias every second household was selected from the map. In Salima II, a smaller village, all households were included in both the census and economic survey.

The assessment team

The team included 5 field assistants (recent graduates in agricultural science); a translator/facilitator; a team leader with experience of the individual household

[14] 'Gifts' include all transfers between households and to households on 'non-market' terms. This would include charitable gifts, gifts between kin, reciprocal arrangements between households and food aid.

method (IHM) and two experts with responsibility for overall design, implementation, analysis and documentation.

The field assistants were given an initial, half-day induction. Further training was carried out on a daily basis in relation to specific tasks (e.g. village mapping, household economy information etc) and data was reviewed regularly.

4. Description of methodology

In order to make meaningful comparisons between the income and standard of living of different households, household income must be reduced to common terms. There are three difficulties in making these comparisons:

(i) Households obtain income both as food (from cultivation, gifts, wild foods and payment in food) and money (from the sale of food and non-food production, employment, gifts, remittance) in different amounts and from a different pattern of sources.

(ii) Some food items are not traded (in this case, chiefly wild foods) and therefore have no price.

(iii) The chief interest of the study is not in gross income but in disposable income i.e. the amount of money available to the household to procure goods and services after unavoidable costs (such as food and taxes) have been met.

These difficulties have been resolved by:

(i) Calculating the *disposable income* of each household i.e. the money remaining to the household after their minimum food needs have been met. As most households produce less food income than their requirement, any household food need not met by production is met by the purchase of maize at the price prevailing in the study period.[15]

[15] At the time of the survey the price of maize as Kw16/kg. However, maize prices vary during the year (approximately Kw11/kg post 2004 harvest) and according to where and how much is purchased. A price of Kw13.5 has been taken as a reasonable average of the price which would have been paid by most households during the reference year.

The cost of any maize purchase is subtracted from the household's money income. [16] [17]

(ii) Standardising disposable income by the number of 'adult equivalents' in the household. The number of adult equivalents in a household = the total annual household food energy requirement / average (male and female) annual adult (aged 25-26 years) energy requirement. Household food energy requirement is calculated as the sum of the food energy requirement of each household member, using WHO (1995) requirements by age and sex for a population of a developing country.

Note that in deriving a disposable income it is not assumed that the calculated diet is the actual diet eaten by these households. Although the quality of the calculated diet does closely approximate that of poorer households, it is assumed that better off households would purchase a larger quantity of food and a wider range of food items from their disposable income.

The standard of living.

A minimum standard of living has been defined as the ability of a household to obtain sufficient food to meet its needs and:

- basic household expenses i.e. kerosene, matches and utensils.
- personal expenses i.e. clothing and soap.
- primary school costs i.e. school dues, uniforms and books.

[16] For example, a household with a requirement of 1000kg maize/ year to meet its consumption needs, which cultivated 400kg maize/ year for consumption, and had a cash income of Kw 20, 000/ year from employment would be calculated to have a disposable income of: (Kw 20,000 - (cost of 600kg maize, i.e. Kw 600 * 13.5)) = Kw 11,900/year. If there were 3.2 adult equivalents in the household the calculated disposable income would be standardised to Kw3719/ adult equivalent/ year.

[17] Household food income was in excess of household requirement in 10 households out of 59 included in the analysis in Salima I, and 8 households out of 31 households in Salima II. The main reason for the excess was the distribution of food aid. In these cases the money value of the excess food (calculated at the maize price) was added to disposable income.

The cost of farm inputs has not been included. Much of the fertiliser used was obtained free from a DFID funded 'starter pack' programme and it is unclear how much people would spend on fertiliser if they were paying for this at the full commercial rate (see Section 5). Detailed information on the costs and use of health services could not be collected within the time available but levels of expenditure varied considerably. Similarly, enquiries on access to vet services were limited by practical constraints.

As demographic composition varies between households, the cost of meeting a minimum standard of living has been calculated for each household separately as: household costs + (personal expenses x number of people in household) + (number of primary school age children x cost per child). Primary school age has been taken as 6 years to 16 years of age.

The standard of living threshold set represents a bare minimum.[18] An allowance for medical costs (Kw1200/year/household) has been made, although this is somewhat arbitrary as real costs will vary from household to household and in different periods. It would add substantially to non-food expenses for many households.[19]

This methodology has been designed to allow comparisons between households to be made in reasonably common terms. The only specific omission is the difference in the food quality (i.e. nutrient composition) of food grown by each household for its own consumption. As maize accounted for almost all food energy production for domestic consumption in the reference year, and the contribution of livestock production, fruit, and wild foods to the diet is very low, this distortion is small.

[18] Annual household costs = matches (Kw21), salt (Kw60), utensils (Kw250), paraffin (Kw1080), borehole maintenance (Salima I this is an annual levy, in Salima II charged only when required) Kw360, health costs Kw1200. Annual personal costs = laundry soap (Kw160) and salt (Kw60) (all people in household), clothes, females > 16 years Kw160, males > 16 years Kw400. Annual school costs (children 6-16 years) (Kw350). For many very poor households diesel rather than paraffin is used for lighting fuel, soap is a seasonal luxury and school uniforms might be provided for some children, but not all. Children who did not have uniforms were said to be reluctant to attend.

[19] Child health services are free. However, transport costs are high K160 from Salima I to Salima town and women are encouraged to take their children for growth monitoring every 3 months.

Modelling the impact of changes affecting a household

A cross sectional survey can only give a snapshot of recent economic conditions. In fact, the absolute and relative level of household income will vary over time, as changes occur, both within the household (e.g. births, illness and deaths, the adoption of orphans) and in the external context to which all households relate (e.g. changes in crop production and crop and input prices, availability of food aid etc). However, the data set we collected can be used to simulate the impact of some external changes on current household disposable income and standard of living: in other words, it can be used to model the vulnerability of households to specified changes. This is done by recalculating disposable income under the stated changed conditions (for example, with and without food aid). A simple example is given in Annexe 2.[20] In practice this involves a large amount of calculation, and software was written for the analysis.

5. Findings and analysis

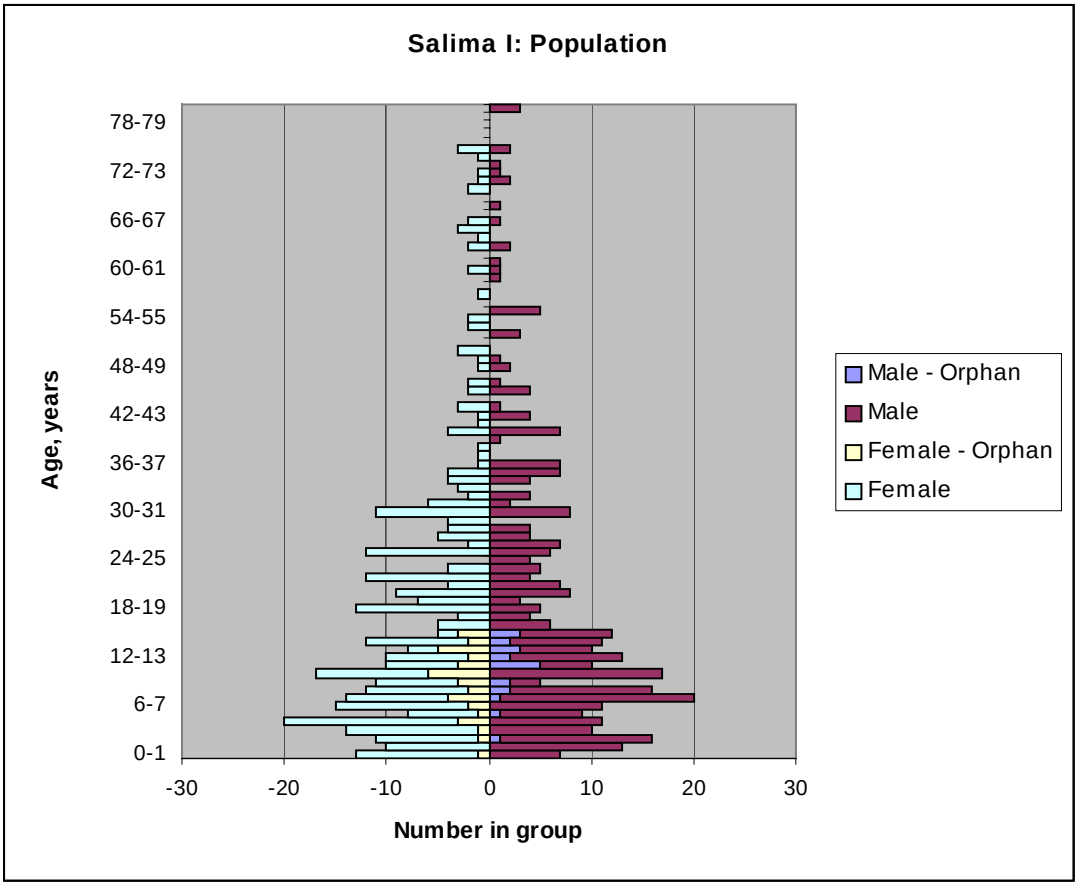
Population

Orphans have been defined as children under the age of 17 years who have lost one or both parents.[21]

Grandparent headed households included one or two grandparents.

The population of Salima I is 683 (complete census) and Salima II 168 people. Figure 1a shows the recorded population of each village grouped by one-year divisions from birth to 79 years of age, and all ages above 79 years, distinguishing male and female orphans. Note that younger ages are probably accurately recorded to the nearest year, but some older people did not always confidently know their ages and there is an element of estimate for older age groups. The data is summarised in Figure 1b and Table 1.

[20] The approach could also be used in a longitudinal study to monitor and quantify change over time, including responses to external shocks and changes in household demography.
[21] A cut-off of 17 years was used, rather than the 18years recommended by WHO, to maintain consistency with earlier studies. The use of a higher threshold makes little difference to the results. Older people have not been included as dependants as age did not seem to be a bar to full economic activity.



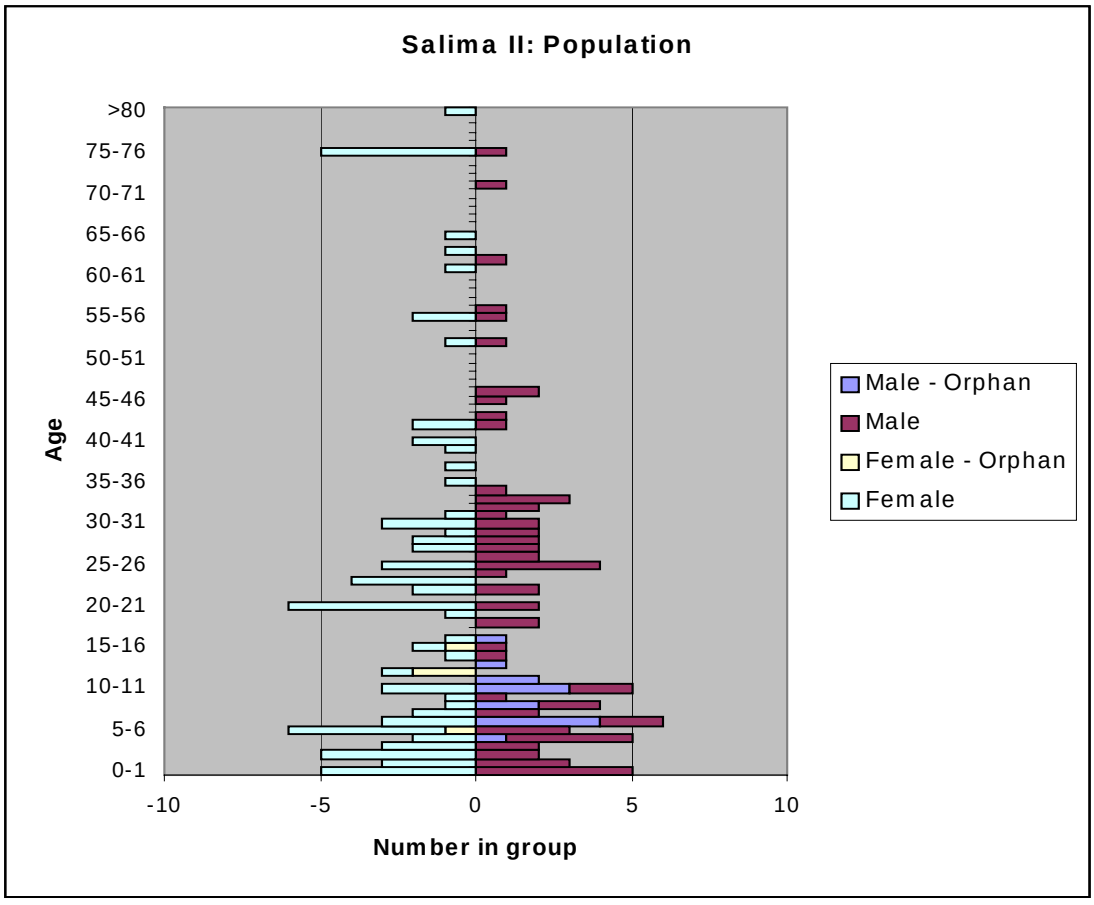
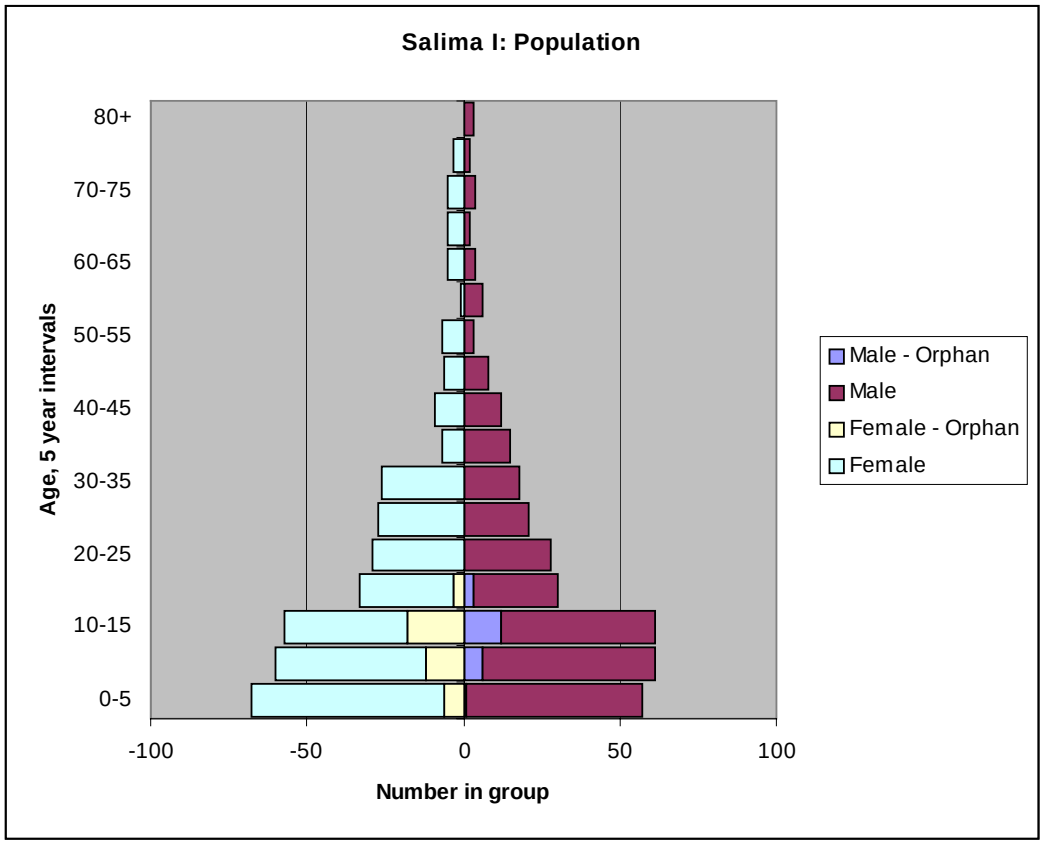


Figure 1a. Population of Salima I and Salima II by 1 year age groups.



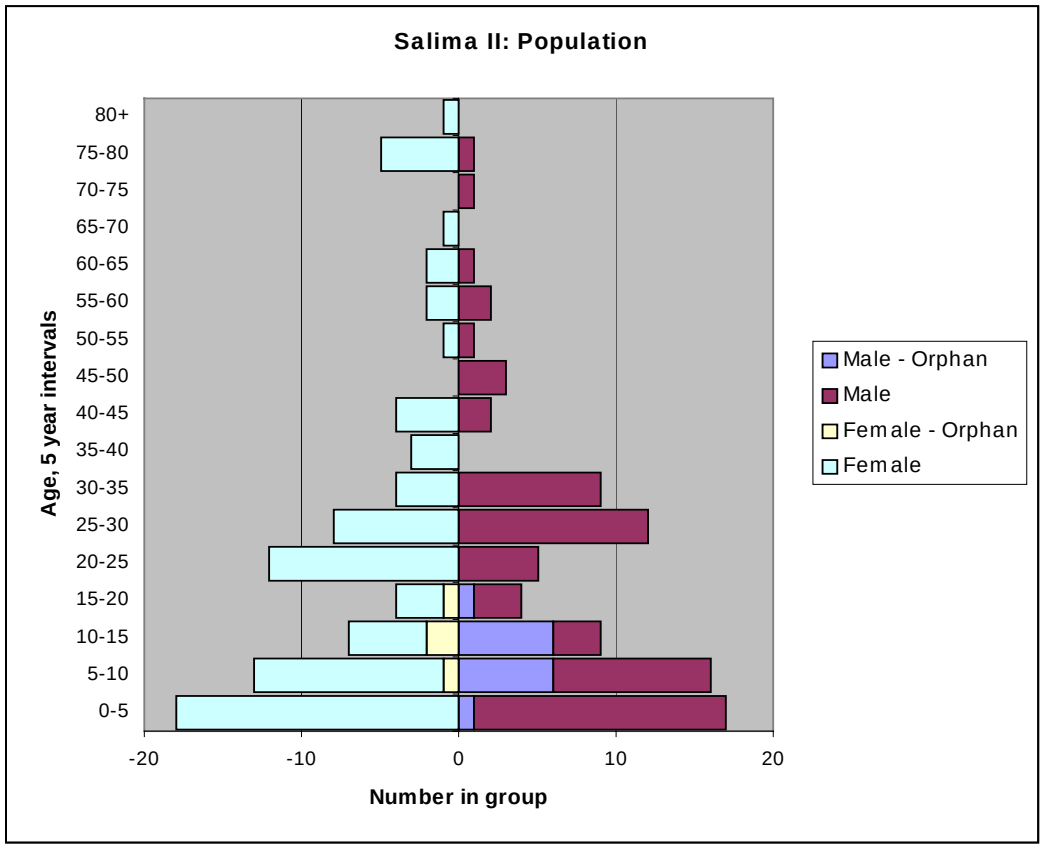


Figure 1b. Population of Salima I and Salima II by 5 year age groups.

Orphans make up 8.9% and 10.7% of the total population of Salima I and Salima II respectively, and 15.6% and 21.2% of the under-17 year population. In Salima I, orphan girls outnumber orphan boys by 1.8: 1. In Salima II the ratio is reversed (1:3.5)[22].

Table 1 Population Categories

	Salima I			Salima II		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Orphans	22	39	61	14	4	18
All other people	313	299	612	69	81	150
Total	335	338	673	83	85	168
Children under 17 years age	197	195	392	44	41	85

In Salima I, 61orphans were recorded in 32 households (22.5%) out of a total of 142 households. Twenty-two (15.5%) households were female headed and 20 (14%) headed by one or two grandparents. Seven of the 20 grandparent headed households are also female headed. Orphans were recorded in 4.2% of female headed household (N=6.); 5.6% of grandparent headed households (N=8); and 1.4% of female headed grandparent households (N=2).

In Salima II, orphans were resident in 9 (29%) of all (N=31) households. Two households (6.5%) were female headed and 3 (9.7%) were grandparent headed. One grandparent headed household was also female headed. Orphans were recorded in all grandparent headed households.

The average household size in Salima I was 5.3 people and in Salima II 4.6 people.

School attendance

In Salima I, 83% of all children aged 6-16 years were attending school (male 85%, female 80%) and in Salima II, 66.7% of children aged 6-16 years were attending school (male 69%, female 58%).[23]

[22] An excess of girls was found in our studies in Swaziland and Mozambique and is consistent with other reports. The reason for the reverse ratio in Salima II is unclear. The question 'what happens to boys?' requires further rigorous investigation. The assumption is that many leave their communities prematurely and migrate to urban areas.

[23] The reasons for non attendance were not researched in depth, but interviews suggested that lack of money for uniforms deters a proportion of poorer children from attending.

Sources and levels of household income [24]

Household income in the reference year was to some extent distorted by the distribution of food aid. In the following section, results have been presented as these were recorded, including food aid as a source of income.

A list of all sources of food and cash income is given in Annexe 2. Table 2 shows the respective contributions of the main categories of income to total village food and cash income. Food for consumption makes up a little over half of the cash value of all income in both villages (Salima I 58% Salima II 52%).

Crops produced for consumption were chiefly maize, groundnuts and beans. Non-relief gifts of cash and food were all gifts from kin. Food payments in kind were made in maize. Wild foods make only a very small contribution to the diet and are highly seasonal. These include a range of wild fruits and plants of low energy value and Baobab fruit and wild Okra. Mangoes were classified as a cultivated crop. Aside from some seasonal fishing (in Salima II) the only wild animal hunted, excepting occasional birds, is the field mouse, which is caught in large numbers in fields and granaries.[25] Almost no foods of animal origin are consumed.

Table 2 Sources of income as food and cash

	Salima I	**Salima II**
Source of income as food	**% of all food income(as food energy, Kcal)**	
Crops	53.2	76.7
Livestock and livestock products	1.6	2.1
Payment in kind	3.6	7.5
Non-relief gifts	10.9	3.5
Relief	29.6	9.6
Wild foods	1.2	0.6

[24] Note that the economic analysis described in the following paragraphs is based on a 50% sample in Salima I (every even numbered household) and all households in Salima II.

[25] Examples of all wild foods were obtained, but not all could be identified. For items that were of very low energy content e.g. a fruit eaten for its sweet taste, but with virtually no edible flesh, the energy value was estimated. The energy values of the major items (chiefly Okra, Baobab fruit) were known. Mice were obtained in edible form and weighed, and their energy value estimated from values for other game.

	Salima I	Salima II
Source of cash income	**% of all cash income (Kw)**	
Crop sales	38.0	26.8
Sale of livestock and livestock products	4.6	6.7
Employment	55.8	65.9
Cash gifts, and the sale of gifts	1.7	0.5
Sale of wild foods	0	0

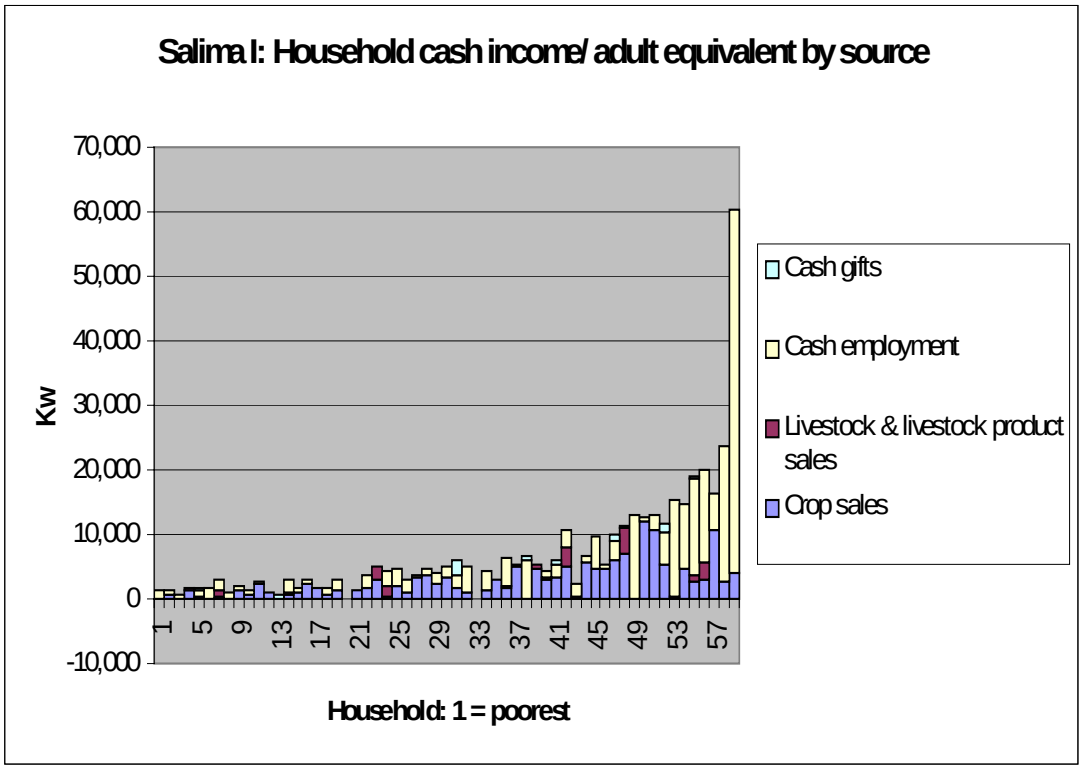
Income from crop sales in both Salima I (38.0% of all income) and Salima II (26.8%) is principally from groundnuts and cotton. Employment makes up a large proportion of cash income in both locations (Salima I, 55.8%, Salima II, 65.9%). The bulk of this is (i) seasonal agricultural work (often as a contract for a defined area and task e.g. land preparation) on which all available household labour is used and (ii) off-season labouring (e.g. water carrying for construction, firewood collection). Salaried income was scarcely recorded in either village (the exception being the small stipend paid to the Village Head). No salaries or remittances from skilled workers were recorded. Figure 2 shows employment income / adult equivalent by income source. In Salima I the shopkeeper has the largest cash income and in Salima II a small trader.

Figure 3 shows the monetary value of total (i.e. not disposable) household income / adult equivalent obtained as cash and food in the reference year (i.e. food produced for consumption has been converted to its cash equivalent). Items for which no price could be obtained, including wild foods which, as noted, are not traded, were omitted[26]. Some food aid items were sold, although the prices given seem low[27].

Average household income in Salima I (Kw16, 012/ adult equivalent/ year) is the same as that of Salima II (Kw16, 101/ adult equivalent/ year).

In the reference year, 80% of households in Salima I and 74% of households in Salima II purchased some maize to meet their consumption needs.

[26] The only exception is field mice, although the study households none were sold).
[27] E.g. a maize price of Kw7/kg (versus Kw11-16 for locally produced maize). This may partly reflect inferior quality (from the point of view of local tastes), but the rice price was also low (kw10/Kg) so this explanation may not hold.



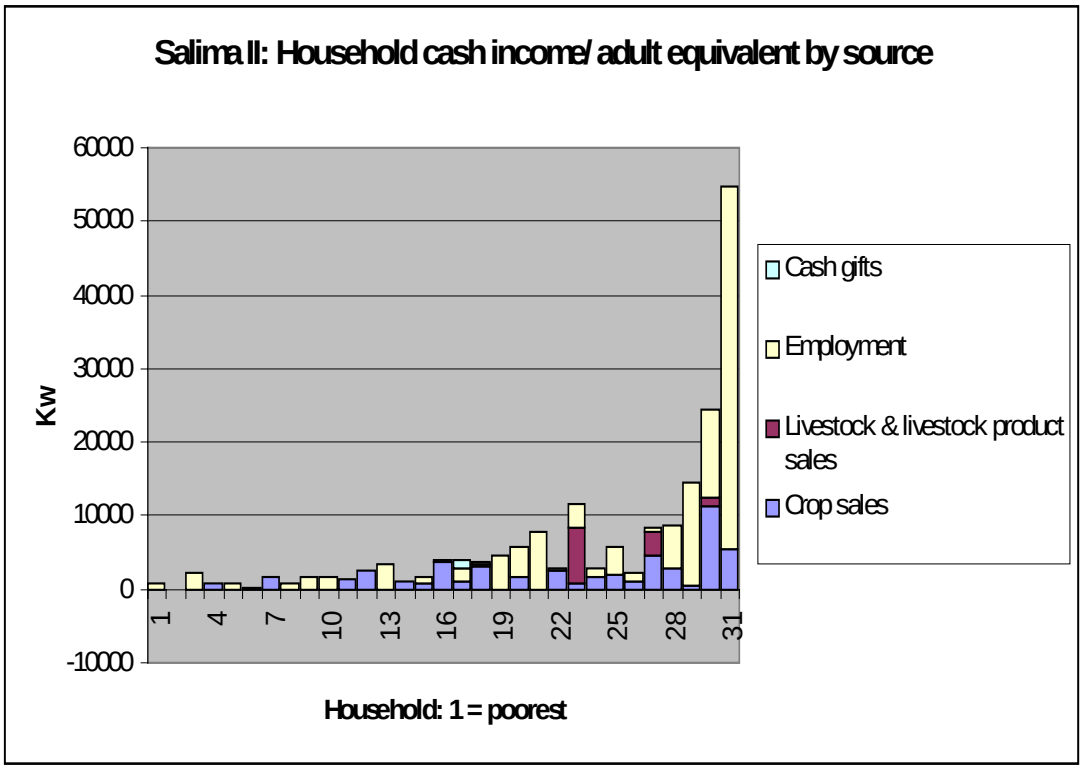
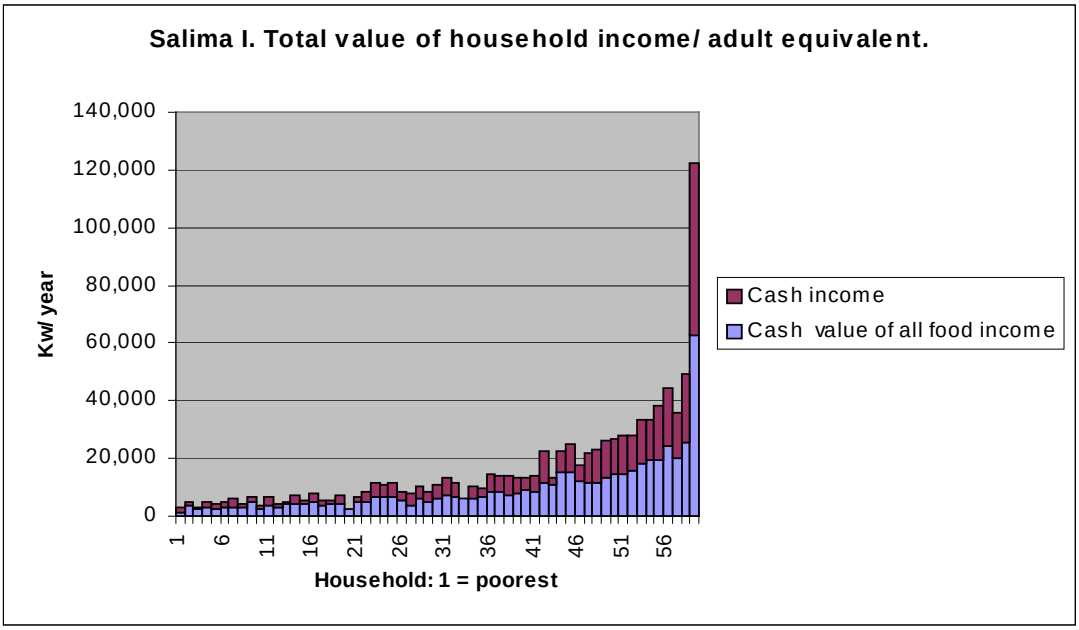


Figure 2. Household cash income/adult equivalent by source, Salima I and Salima II. Shown in ascending order of disposable income



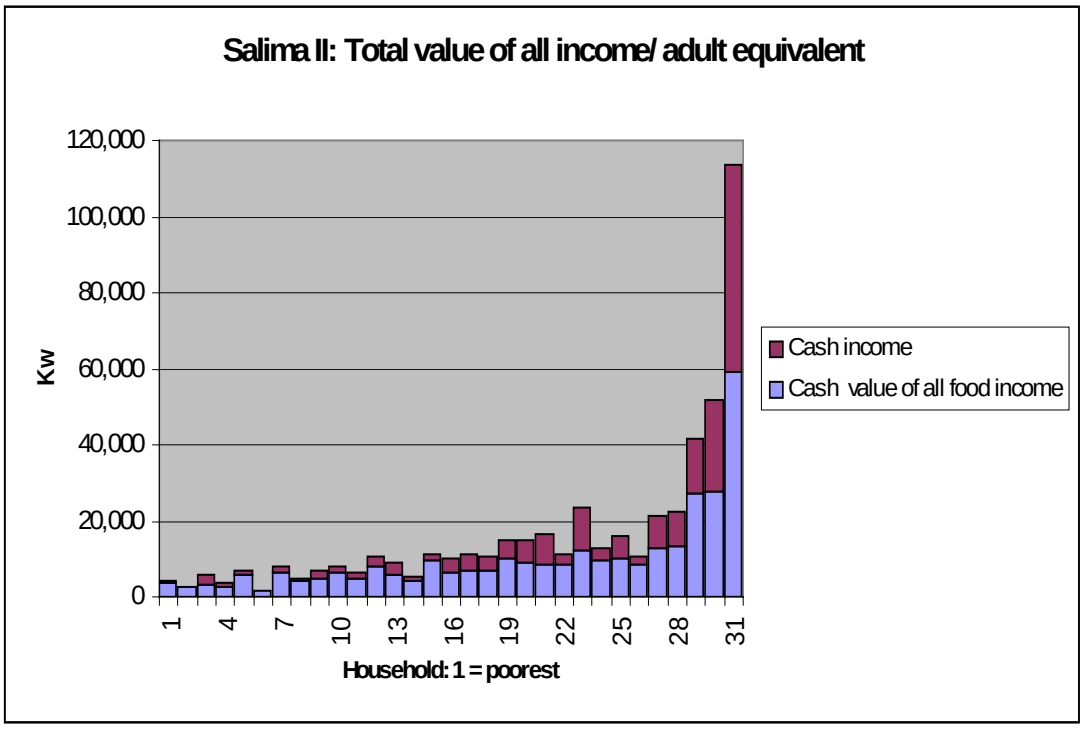


Figure 3 Total income as cash value of food and cash Salima I and Salima II. Omits the value of wild foods and some relief foods. Shown in ascending order of disposable income.

Livestock holdings

Livestock holdings at both sites were very low. The reasons for this included (i) livestock sales during the 2001/2002 famine [28]; (ii) the theft of larger stock; (iii) the loss of animals to disease (which was identified from interviews as the main cause.) Large numbers of poultry were lost to Newcastle disease in 2003, cattle to foot-and-mouth disease, and pigs and goats to unspecified epidemic diseases. Animals are not generally vaccinated, although for a charge, some vaccines and veterinary services are available [29]. 71% of all households in Salima I and 61% of households in Salima II held some livestock. Average household livestock holdings are given in Table 3.

Table 3 Livestock holdings

	Goat	Pig	Chickens	Ducks	Guinea fowl
	Average number of animals/ household				
Salima I	1.0	0.8	3.8	0.5	0.1
Salima II	0.0	0.44	0.56	5.2	0.0

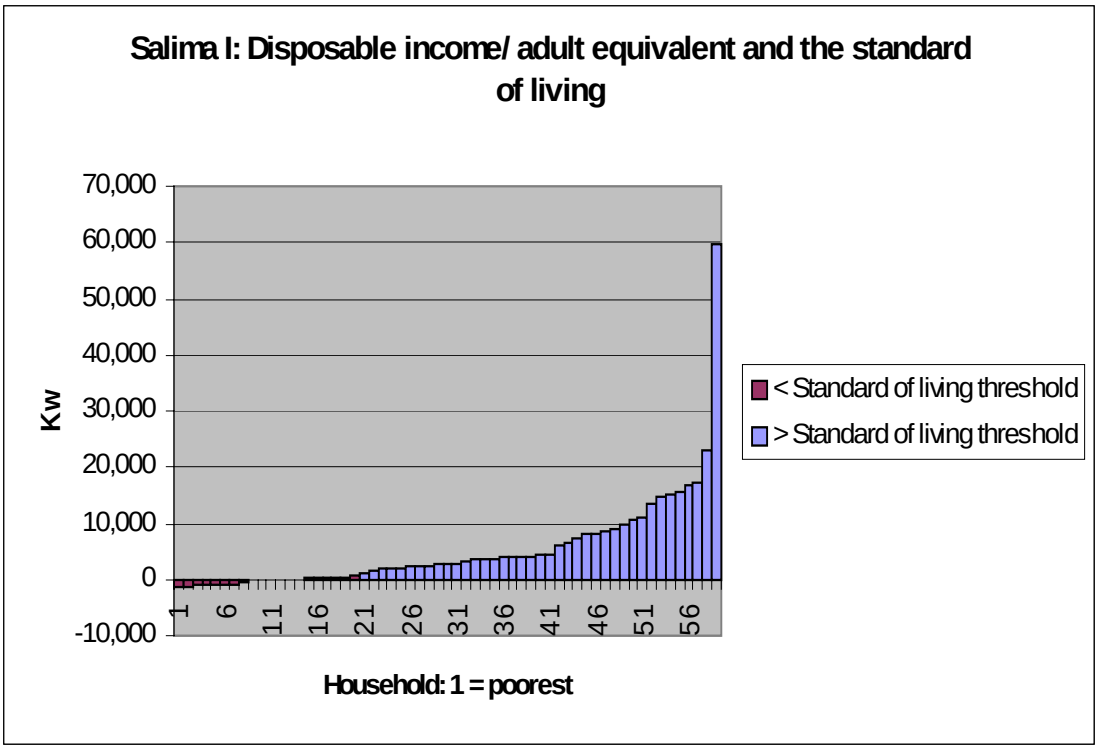
Disposable income and the standard of living

Figure 4 shows disposable income/ adult equivalent by household (i.e. cash remaining after household food costs have been met) in ascending order of disposable income. Households that fall below the defined minimum standard of living are shown in red (see section 4). In Salima I, 33.9% of all households fall below the defined poverty threshold and in Salima II 38.7 %.

In Figure 4, several of the poorest households are shown with a negative disposable income. This is to say that in the reference year, the recorded household food and cash income was insufficient to meet the household's food needs. All of these households were observed to be very poor. The explanation includes: (i) a lower actual level of food consumption than was used in calculation; (ii) possibly some under-reporting of small income sources, particularly charitable gifts and off-season Ganyu; (iii) the possibility that the household was using savings and other capital to survive, or (iv) the household was in fact failing.

[28] In which some people in Salima I died (see "Waiting for food in Salima").

[29] Cattle theft was common (apparently sponsored by a known individual in Salima). Although theft is not now considered a major problem it remains one reason for not investing in cattle. Although the question was not systematically asked of all households, people do not routinely vaccinate animals, if at all. In Salima II Guinea fowl are preferred to chickens because of their disease resistance: chickens are used to incubate Guinea fowl eggs, which are sold at apremium.



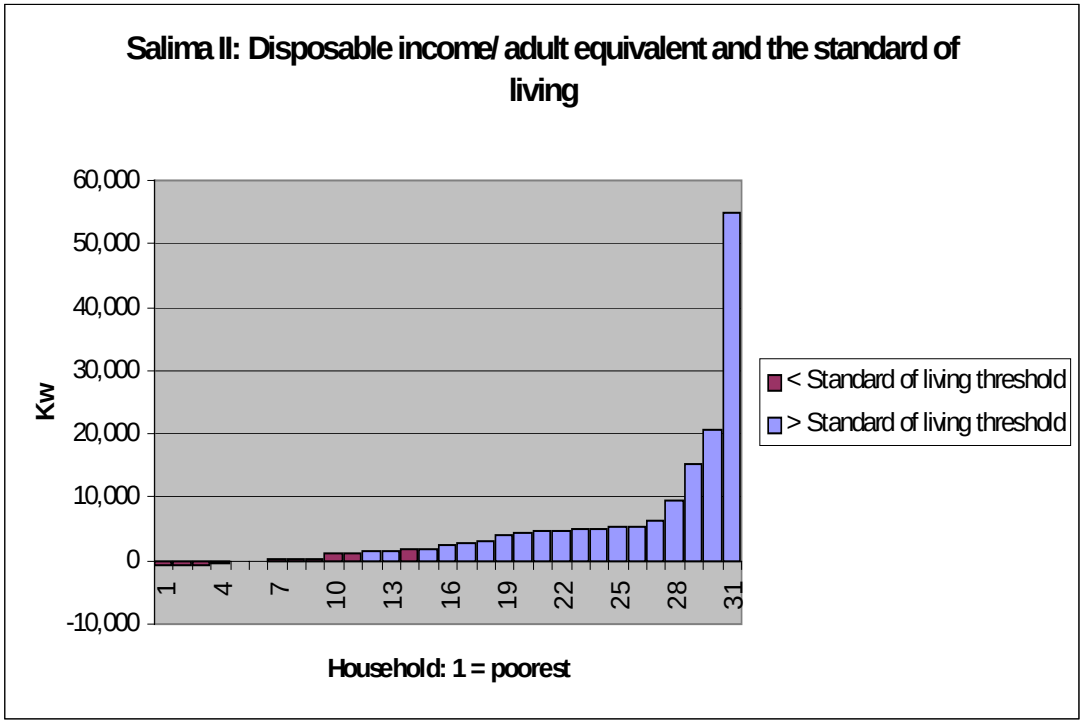
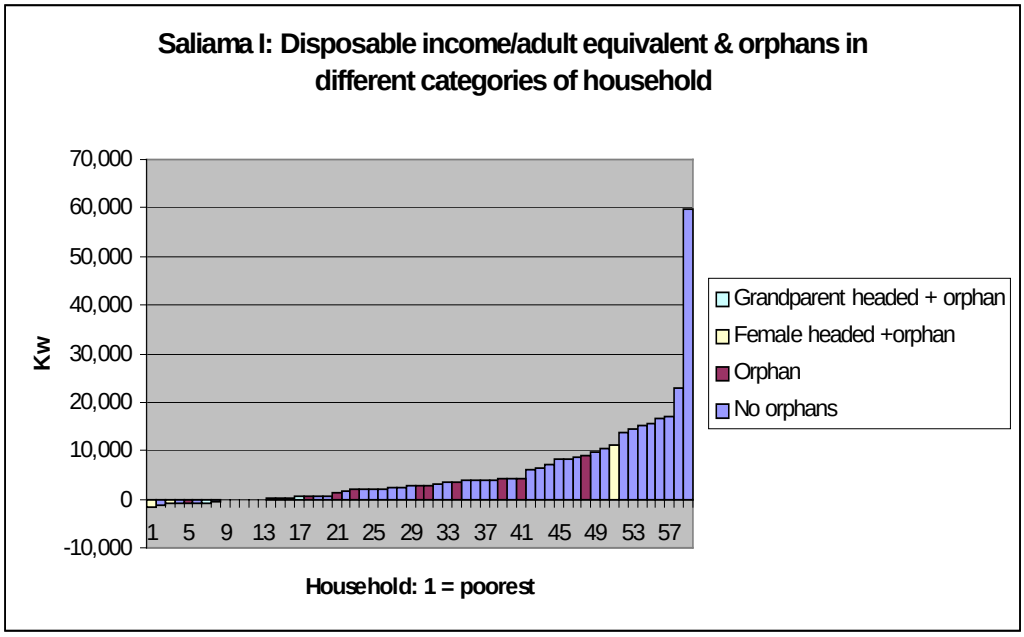


Figure 4. Salima I and Salima II. Household disposable income/adult equivalent, showing households below the standard of living threshold. Shown in ascending order of disposable income.

Disposable income is very unequally distributed, ranging from less than zero to Kw 5,375/ adult equivalent/year and in Salima I and Kw 5,184/ adult equivalent/ year in Salima II (US$1 = approximately Kw100 at the time of the survey)

Disposable income and orphan residence

Figure 5 shows disposable income/ adult equivalent and identifies those households with resident orphans in female headed, grandparent headed and female grandparent headed households.



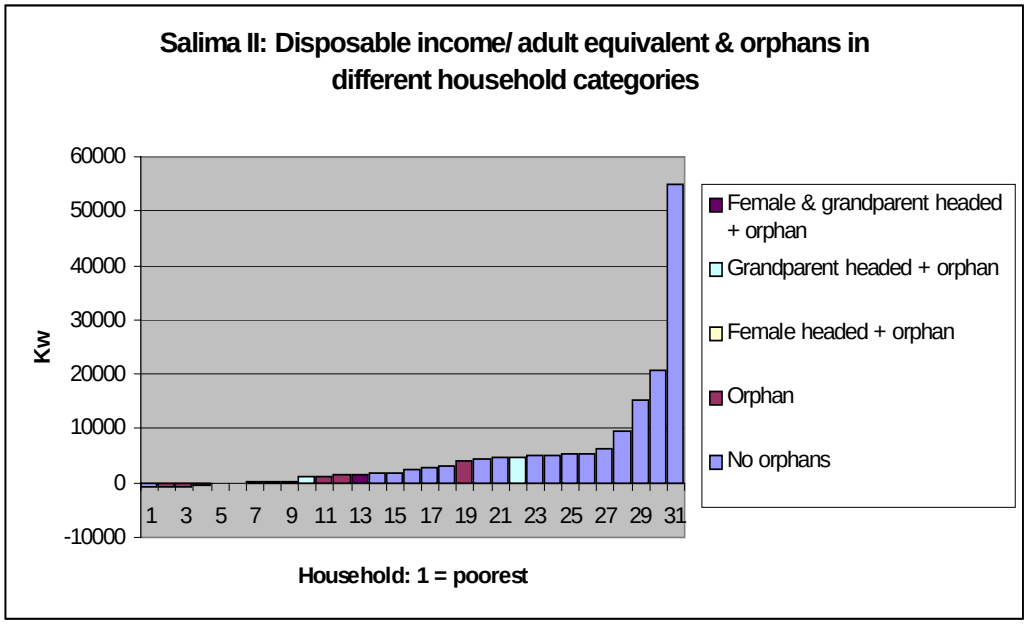


Figure 5. Salima I and Salima II. Household disposable income/adult equivalent in ascending order of disposable income, showing households with orphans.

Table 4 Disposable income, orphan residence, female and grandparent headed households

	Salima I		Salima II	
	Poorest 30 households	Richest 29 households	Poorest 16 households	Richest 15 households
Orphan households (%, number)	30%(9)	17%(5)	50%(8)	13.3%(2)
Number of orphans	22	7	12	3
Average number orphans/ orphan household	2.4	1.4	1.5	1.5
Female headed households (%, number)	23.3%(7)	6.9%(2)	12.5%(2)	0%(0)
Number of female headed households with orphans	1	1	1	
Grandparent headed households (%, number)	13.3%(4)	10.3%(3)	12.5%(2)	6.6%(1)
Grandparent headed households with orphans	2	0	2	1

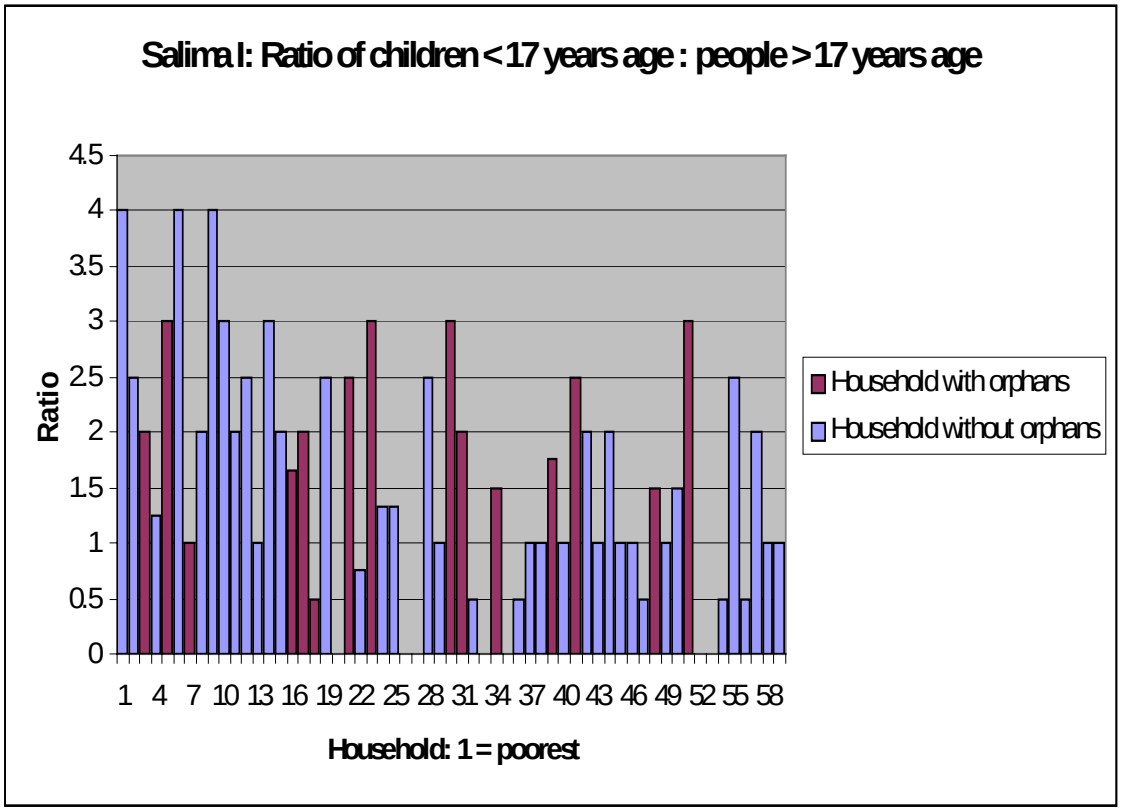
At both sites (Table 4) more households with orphans fell in the poorer part of the income distribution. In Salima I, but not in Salima II, the average number of orphans per orphan household was greater in the poorer group. More female-headed households fell in the poorer group, but orphans were found in only 3 female headed households from a total (both sites) of 11 female headed households[30]. In the Salima I sample, orphans were found in 2 out of 4 grandparent headed households in the poorer group, and not in grandparent headed households in the better off group. In Salima II all grandparent headed households had resident orphans.

The dependency ratio

The dependency ratio (calculated as the ratio of people under 17 years of age: number over 17 years age[31]) and those households with resident orphans are shown in Figure 6, in order of disposable income. Although the trend is for poorer households to have higher ratios, at neither site is there a significant relationship between the dependency ratio and household disposable income (Salima I r^2 = 0.0657, Salima II r^2 = 0.1911, $p>0.1$). Grouping the data into the poorest and richest suggests a higher dependency ratio in poorer households, particularly in Salima II (Salima I, 1.98 in the poorest 30 households, 1.64 in the richest 29); Salima II, 1.43 in the poorest 16 households, 0.73 in the richest 15.). As would be expected,

[30] Note that households were female headed through divorce as well as widowhood.
[31] See footnote 16.

households with orphans have a higher average ratio (Salima I, 2.06, Salima II, 1.64) than households without (Salima I, 1.41, Salima II, 0.83).



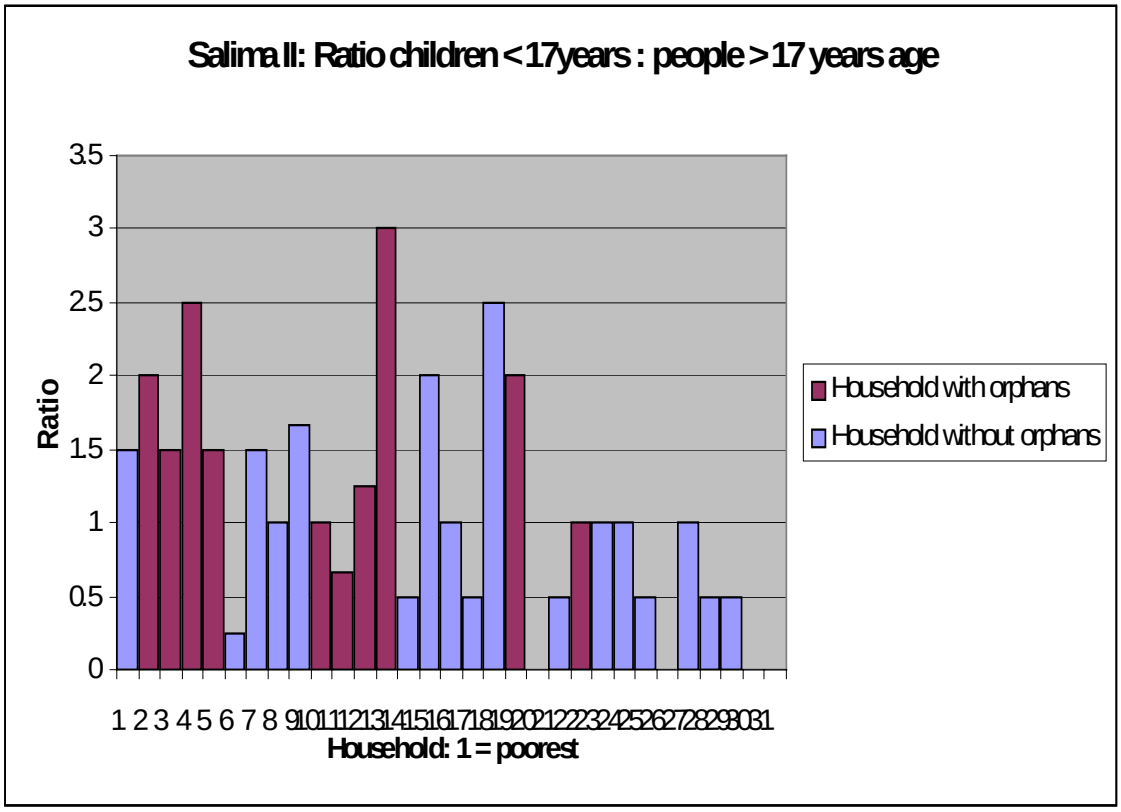


Figure 6. Salima I and Salima II. Household dependency ratio, showing households with orphans. Shown in ascending order of disposable income.

However (Figure 6) in Salima I there is no obvious relationship between disposable income, the dependency ratio and the presence of orphans in a household. Of the 30 poorest households, non-orphan and orphans households have a similar dependency ratio (1.94 and 2.07).

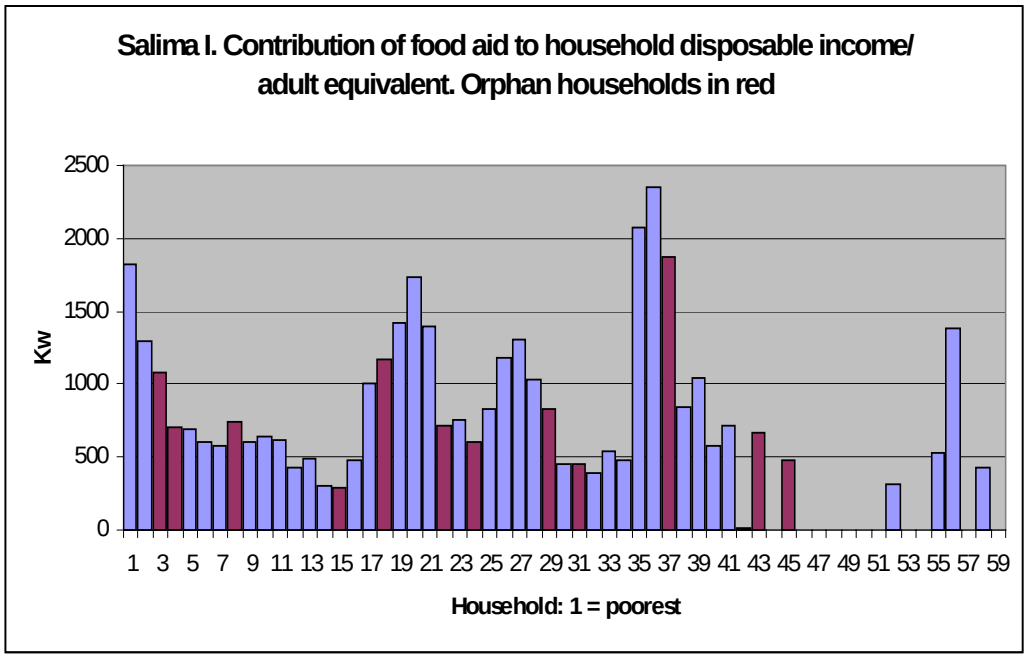
In Salima II, almost all orphan households fall the poorest half of the wealth distribution. Within this group, the poorest 7 orphan households have a higher dependency ratio (1.68) than the poorest 8 non-orphan households (1.20).

The impact of food aid on disposable income and food aid targeting criteria

Food aid in the reference year made a substantial contribution to the total income and disposable income of some households (Figure 7). Recalculating disposable income omitting food aid as a source of income, suggests that in Salima I, food aid increased average household disposable income by 6.9% and in Salima II by 5.6%. This calculation assumes that had food aid not been distributed, other household economic activities and income would have remained the same. This seems likely to be broadly true i.e. for most households it seems unlikely that the receipt of a small amount of food aid would act as an economic disincentive or incentive, but is untrue for some of the very poorest households. For example in Salima I an ill single woman household with no other source of income was wholly dependent on food aid and small charitable gifts and we cannot know what would have happened if food aid had not been supplied.

Note that recalculating disposable income omitting food aid alters the relative disposable income of each household, as households that received significant amounts of food aid become relatively poorer. In the example given of an ill single woman household in Salima I this household is, omitting food aid, the poorest household (with effectively no income); with a full ration and some charitable gifts, the household is the 20th poorest. Omitting food aid increases the proportion of all households below the standard of living threshold, from 33.8% to 42.4% in Salima I and from 38.7% to 41.9% in Salima II. Omitting food aid also reduces the number of households with food income in excess of household requirement (See Section 4); in Salima I, this falls from 16.9% to 6.8% of households and Salima II, from 25.8% to 22.5% of households.

Omitting food aid represents more fairly the actual pattern of need prior to the food aid distribution.



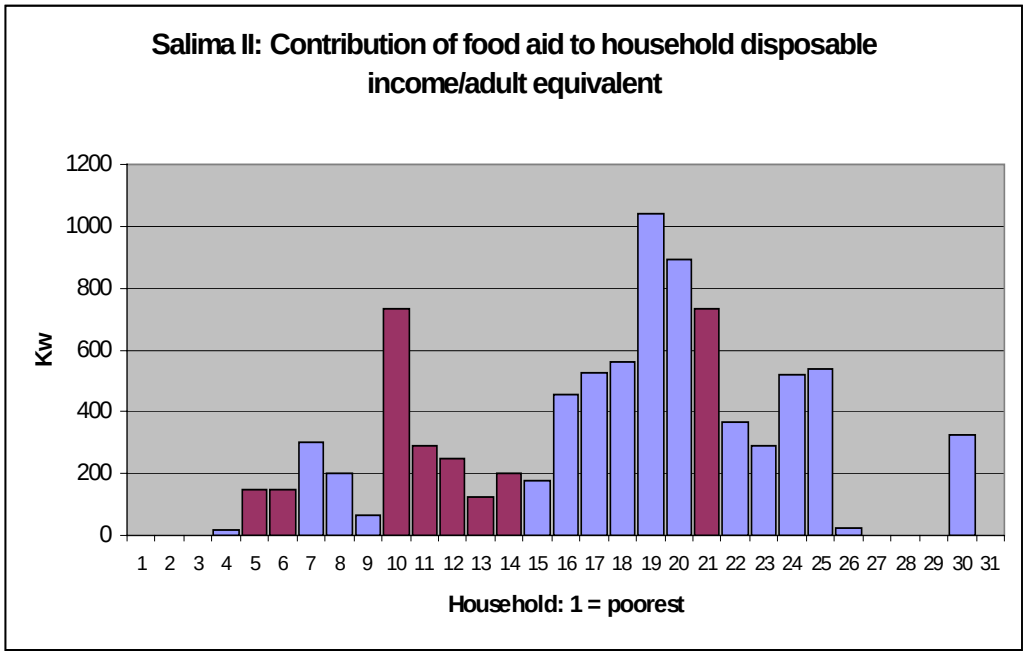


Figure 7. Salima I and Salima II. Contribution of food aid to household disposable income. Shown in ascending order of disposable income calculated without food aid. In Salima II households 2 and 3 were orphan households which did not receive food aid.

Who received food aid?

The criterion for the supply of food aid was that this should be distributed to orphan and vulnerable households, the CBO being given some latitude in the definition of vulnerability. The following section describes the households that received food aid where the level of disposable income has been calculated *without food aid* i.e. simulating the situation before food aid was distributed. The standard of living threshold is used as a measure of vulnerability, but this is not necessarily the criterion used by the CBO.

Table 5 Households receiving food aid

	Salima I	**Salima II**
	% (number of households)	
% all households with orphans receiving food aid	63.6% (11)	20%(2)
% all non-orphan households receiving food aid	43%(19)	33%(7)
Households < Standard of living threshold	42.5%(25)	41.9% (13)
% households with orphans below Standard of living threshold receiving food aid	100%(7)	22% (2)
% non- orphan households below Standard of living threshold receiving food aid	32%(8)	33%(2)

In Salima I, 60% (15 of 25) households below the standard of living threshold received food aid. All 7 households with orphans falling below the standard of living threshold received aid. 44% of households above the standard of living threshold received food aid (15 of 34 households). 50% of households with orphans (4 of 7) above the standard of living threshold received aid.

In Salima II of 13 households below the standard of living threshold, 4 (31%) received food aid. Of 7 households with orphans below the standard of living threshold, 2 received aid. Three households with orphans above the threshold did not receive aid.

Pre-school feeding

In Salima I, where 25 households received pre-school food, pre-school feeding increased average disposable income by 2.7%. In Salima II, 10 households received pre-school meals which contributed 1.8% to average disposable income. [32]

Characteristics of households below the standard of living threshold

Table 6 shows the characteristics of those 25 households in Salima I which fall below the standard of living threshold, calculated *omitting* food aid.

Table 6 Characteristics of households below the standard of living threshold, Salima I

	Salima I. Household characteristics.						
	Illness	**Orphan/s**	**Female headed**	**Divorced**	**Grand parent headed**	**Other social/economic**	**Dependency ratio**
Household							
1(poorest)	**X**		**X**				0
2	**X**				**X**		0
3		**X**	**X**				2
4		**X**					3
5			**X**	**X**			4
6					**X**		2
7						**X**	2.5
8						**X**	2.5
9		**X**			**X**		1
10						**X**	1.25
11					**X**		1
12			**X**	**X**			4
13						**X**	2
14		**X**					0.5
15			**X**	**X**			3
16			**X**	**X**			4
17							2
18			**X**				3
19			**X**				1.7
20						**X**	2
21						**X**	1.7
22		**X**					2.5
23						**X**	2.5
24						**X**	0
25						**X**	0.75

[32] Both CBOs organising pre school activities included members from adjacent villages. Salima I pre school was situated in the centre of the community; Salima II preschool at a short distance.

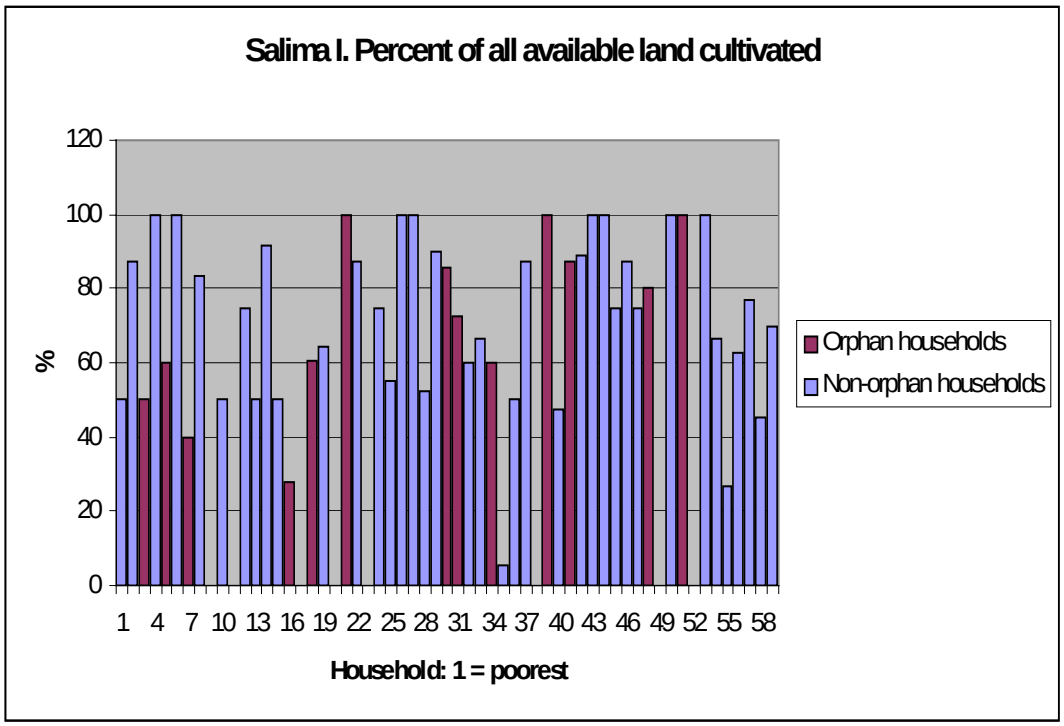
In both the two poorest households the (female) head is ill. Divorced women head four households. Other social/economic detail includes a household in which the husband only visits home irregularly and which also supports a sister's (non-orphan) children. For the most part the poorest households are those with low incomes and a large number of dependants.

Land use

In Salima I, where only upland crops are grown, most households reported unused land in the reference year. In Salima II, where most households have access to dambo (i.e. riparian) land, which is better watered and will produce a reasonable return without fertiliser, it was found that all dambo was cultivated, either by the owner or a tenant. In Salima II, as in Salima I, a variable proportion of the upland available to each household was cultivated.

Figure 8 shows, by household, the proportion of available upland cultivated in the reference year and Figure 9 the proportion of cultivated land put to the main crops grown. In Salima I the greatest proportion of land was put to the cultivation of maize, cotton and groundnuts; in Salima II cash crops are much less prominent.

In Salima I, households with orphans (N=15) and without orphans (N=44) had access to a similar amount of land (with orphans 6.25 acres, without orphans 6.47 acres) and, on average, cultivated a similar proportion of this (with orphans 61.6%, without 62.6%). In Salima II households with orphans (N=10) have access to less land (2 acres) than non-orphan households ((N=21) 2.85) and cultivate on average a larger proportion of this (90.7%) than non orphan households (68.9%), although a similar area (with orphans 1.78 acres, without 1.75 acres).



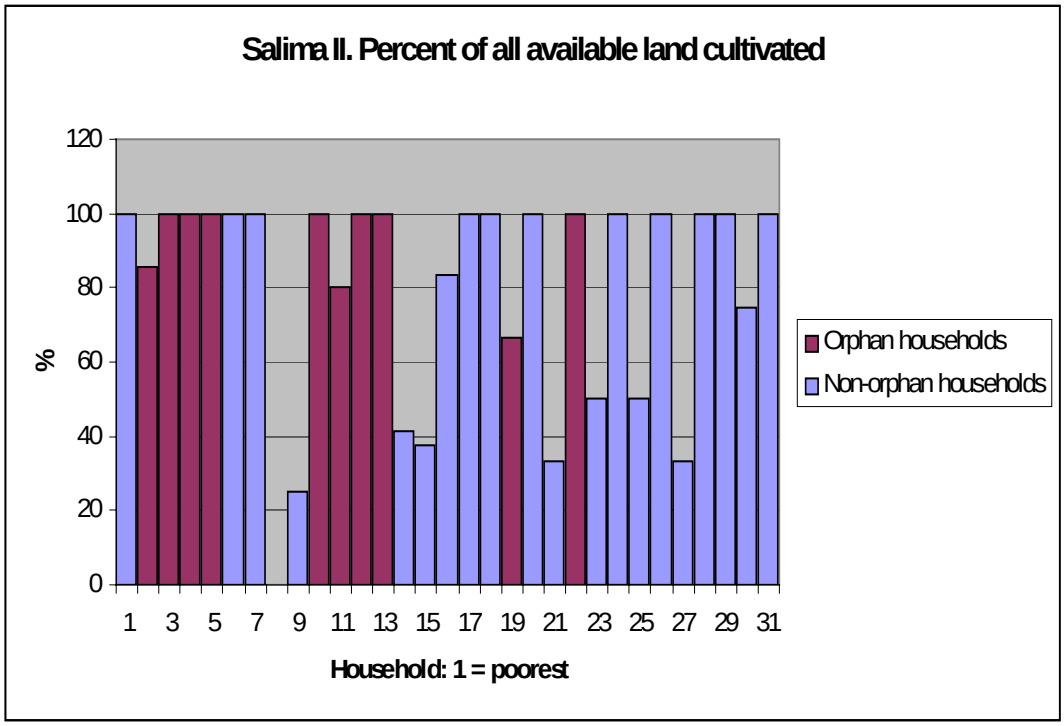
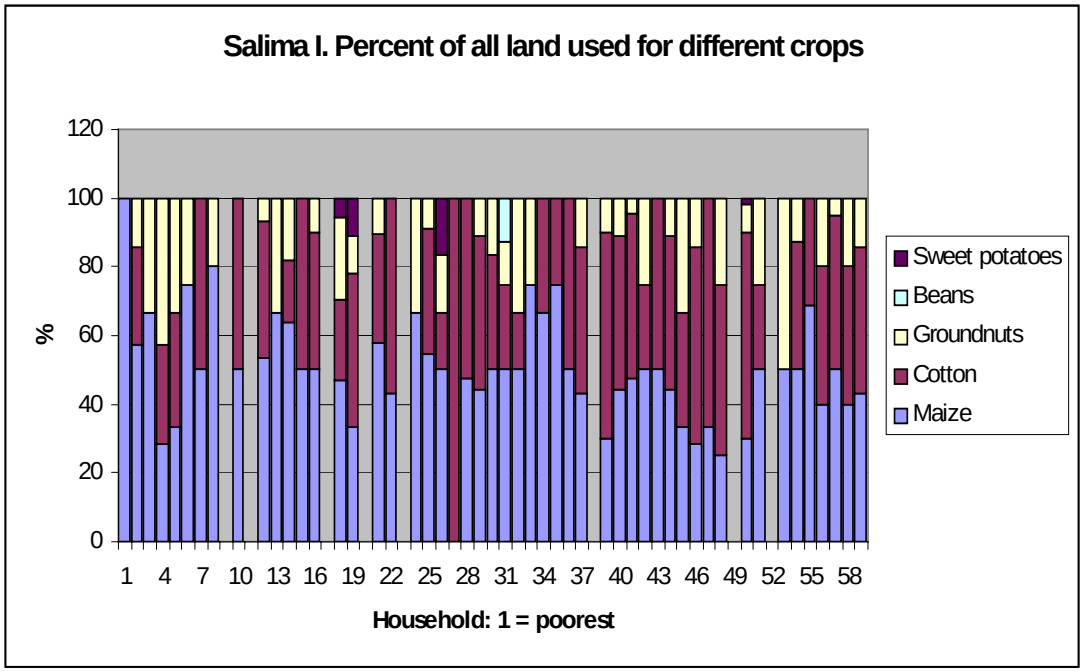


Figure 8. Salima I and Salima II. Percentage of all land cultivated. Households with orphans in red. Shown in ascending order of disposable income.



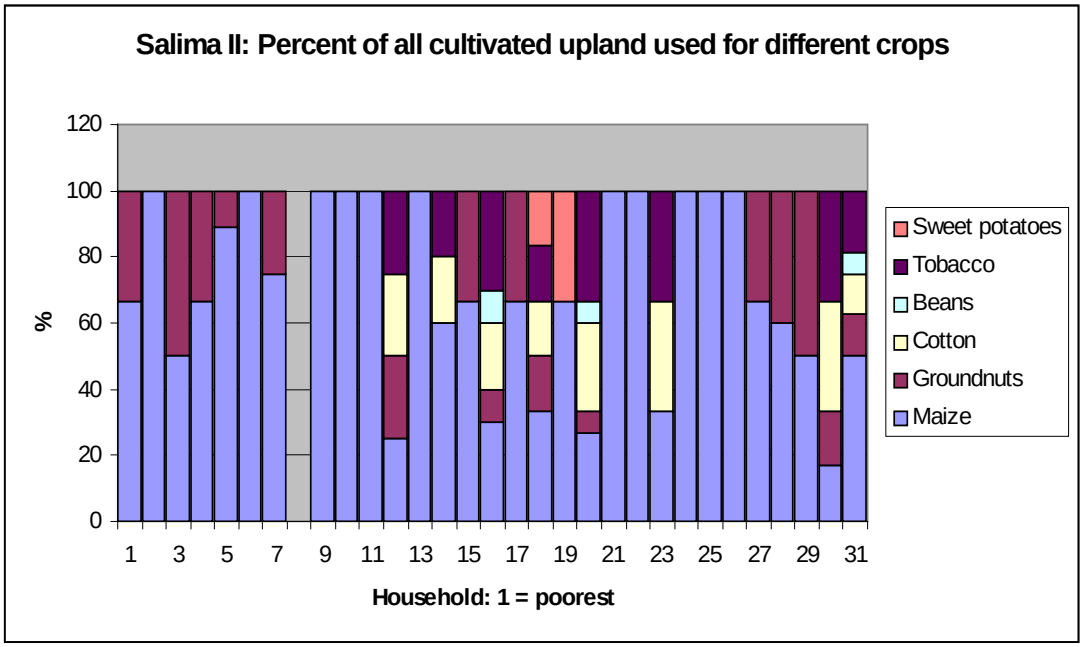


Figure 9. Salima I. Percentage of all cultivated land used for different crops. Salima II Percentage of all upland used for different crops. Shown in ascending order of disposable income.

The reason for the lower landholding by orphan households in Salima II is unclear. Households with orphans in Salima II are relatively poor: however, taking the 15 poorest households and comparing the non-orphan and orphan households suggests that a smaller land holding is specific to households with orphans (non-orphan 2.93 acres (n=7), orphan = 1.86 acres (N=8)), and is not simply a feature of household poverty.[33]

In Salima I, the 29 better off households have access to slightly more land (3.1 acres) then the poorest 30 households (2.4 acres). In Salima II the poorest 15 households have access to 2.48 acres of upland, the better off 16 households 2.66 acres.

The reasons given for not cultivating all of the available land varied (e.g. it included temporary illness) but was chiefly given as a lack of cash to purchase inputs and the high input price.

Input use and maize returns

All farmers asked gave the high cost of fertiliser for use on upland maize as their greatest concern. The only other input identified was pesticide for cotton, the cost of which was low (1 bottle / acre @ Kw10/ bottle).

Farmers obtained fertiliser from starter packs [34], on credit, and/or on the open market, including the purchase of starter packs from other recipients. Fertiliser prices varied (from zero for starter packs to Kw 44/ kg for some commercial fertiliser). Some farmers obtained fertiliser from multiple sources and in some cases starter packs were subdivided. The amount of fertiliser used/ acre and its cost varied widely, depending in each case on the particular source or combination of sources.

57% of households in Salima I and 61% of households in Salima II used some fertiliser in the reference year.

In Salima I, the quantity of fertiliser obtained by households with and without orphans was similar (orphan 30.5kg/acre, non-orphan 30 kg/acre). The poorest 30

[33] There is some indication that this may be due to widows returning to their home community and receiving a smaller than average allocation of land. However, historical analysis of landholdings was outside the scope of this study.
[34] 26 were distributed in Salima II in 2003; information not available for Salima I.

households used less fertiliser (20.9kg/acre) than the richest 29 (39.7kg/acre). In Salima II orphan households used substantially less (12kg/acre) than non-orphan households (36.2Kg/acre). The poorest 15 households used less (20kg/acre) than the richest 16 households (36.1 kg/acre).

The quantity of fertiliser used/acre and the maize return / acre are correlated (Salima I, $r^2 = 0.4741$, $p < 0.01$; Salima II, $r^2 = 0.3205$, $p<0.1$). Combining the two data sets ($r^2 = 0.4007$, N = 79, $p < 0.0.1$) and excluding households which did not cultivate, a linear regression suggests that fertiliser use accounts for approximately 40% of the variation in yield. The remaining variation is due to a variety of other factors (flooding, damage by animals, pests). From the regression, using no inputs, the average yield would be 135 kg maize/ acre, and at the maximum level of fertiliser use recorded (110kg/acre) the average yield would be 529 Kg maize/ acre[35].

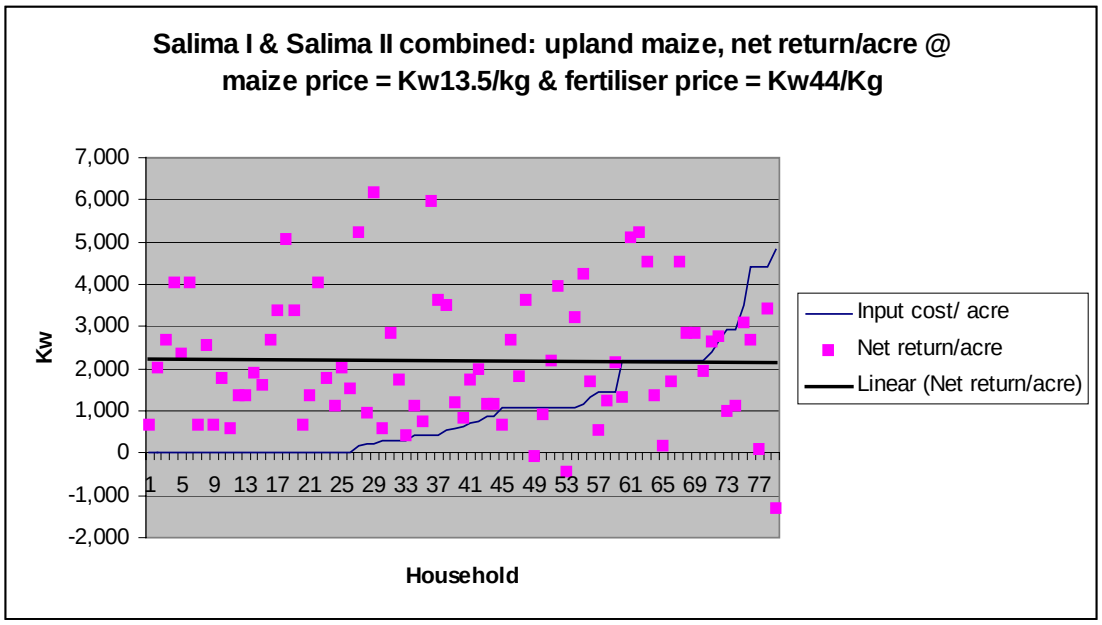
Figure 10 shows the net return on fertiliser use calculated using the actual rate of fertiliser/ acre and the actual maize yield/ acre recorded for each household, at two different levels of fertiliser price (i) Kw 44/kg i.e. roughly the commercial rate (ii) Kw 22/ Kg, i.e. half the commercial rate. The maize price has been held at Kw13.5/ kg (the mid year price used in this analysis). A doubling of the maize price (Kw27/kg) would achieve the same net return as a halving of fertiliser price.

This suggests that under the growing conditions in the reference year, at the commercial fertiliser price, a farmer would maximise the chance of obtaining some return by using no fertiliser, or very little fertiliser. At rates of fertiliser use up to 20kg/acre, the risks would have been low and net return positive, although the average return would be only slightly greater (Kw 1907/acre) than using no fertiliser (Kw1695/ acre). Over the entire recorded range of fertiliser use, about one-third of all farmers using fertiliser would have lost money and at rates of fertiliser use above 60kg/ acre all would have done so at the current commercial fertiliser price.

In reality the situation would be complicated by seasonal variations in maize price. Poorer farmers would tend to get a lower price i.e. they would have no choice but to sell or consume their maize production in a period when prices are low. Better-off farmers might be able to retain a surplus and sell at a higher pre-harvest price.

[35] Local information was that using the recommended level and types of inputs (in total 200kg/ acre) returns as high as Kg 2,000/acre can be obtained).

Farmers in Salima II estimated that that the 2005 pre-harvest maize price will be approximately Kw18/ kg, at which rate returns on fertiliser use would improve.



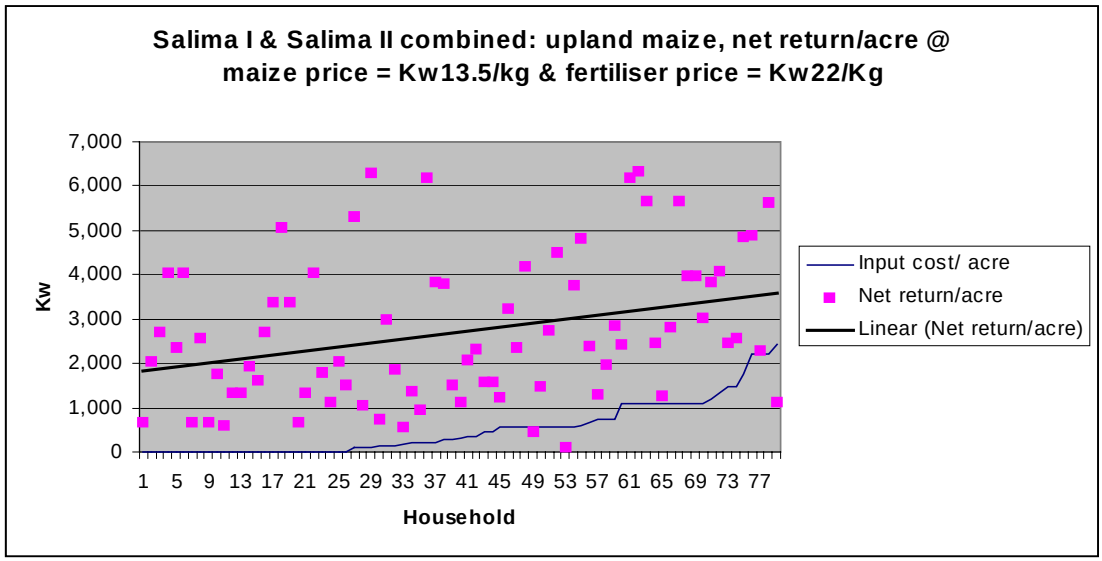


Figure 10. Salima I and Salima II. Simulated net returns on upland maize cultivation, using observed rate of fertiliser use and maize return (kg/ acre) at different fertiliser prices.

6. Summary of findings

Both villages are characterised by very high levels of poverty and the most basic, comfortless conditions of life. Households with orphans, female-headed households and grandparent headed households with and without orphans, tend to be relatively poorer than non-orphan households. In Salima II households with orphans were distinguished by less access to land, (although they cultivated a similar amount of land in the reference year); using less fertiliser and receiving less food aid. The reasons for this are not entirely clear, but may be due to the fact that some settled in the village after bereavement.

A large proportion of the poorest households do not fall into the category of either female headed or grandparent headed or orphan, and many of the female-headed households are the result of divorce rather than bereavement. In the two communities, poverty is characterised by:

(i) An absolute or relative lack of household labour in an economy where income for poor households depends entirely on manual labour for both domestic production and income from paid employment. This is variously due to a high dependency rate; illness and infirmity, the lack of a male (or female) adult household member, or a combination of these. To the extent that orphans are a proxy for HIV/AIDS and contribute to household poverty, this group makes up about 20% of those households below the standard of living threshold (Salima I).

(ii) A lack of money to acquire fertiliser and livestock.

(iii) The poor returns and high risks associated with fertiliser use at current fertiliser/maize prices.

(iv) Poor (virtually no) returns from livestock, and the loss of capital and investment in livestock, primarily resulting from a lack of access to effective veterinary services[36].

(v) Low cash crop prices, particularly for cotton.

This analysis suggests that the presence of orphans is not a reliable household level indicator for targeting assistance to the poorest. It also casts doubt on the causal link

[36] We were unable to go into this in detail, but the impression was that the charges were a deterrent. The potential returns on some livestock are substantial and the subject would merit further investigation.

between HIV/AIDS and declining levels of cereal production observed in many parts of southern Africa.

We did not gather detailed retrospective information on changes in individual household economy that would be needed to quantify the economic impact of HIV/AIDS. However, from key informant interviews with widows and others, it is clear that, following a bereavement, households in the study communities change demographic structure in a variety of ways e.g. bereaved women may follow traditional practice and marry a brother in law, or they may choose to continue alone; bereaved men may remarry, orphans move into the households of kin etc. Rigorous analysis of the economic implications of these changes requires more detailed demographic information than was obtained on this study. Interviews with households and the understanding of household economy obtained on the study do, nevertheless challenge assumptions (e.g. FAO 2004) of a steep descent into poverty following the loss of active adult male labour (from bereavement or divorce), or the adoption of children by grandparents or others into a household.

This is because (i) household heads can to some extent compensate for the lost income by expanding their own workload, albeit at some personal and social cost (e.g. during periods of high seasonal workload, time for child care is lost, and older household heads continue working in order to maximise income). (ii) In cases of bereavement or divorce, the lost income is partly compensated by a fall in household costs. (iii) Some women headed households received increased support from relatives. The income of such households would of course be more vulnerable, e.g. to illness, than households with two active adults and in this economy it would be expected that in general such households would become poorer.

The cost of supporting orphans

To illustrate the financial cost of caring for orphans, we have calculated for Salima I the total annual costs of maintaining all children who have lost one or both parents. The basic standard of living criteria set out in section 5 have been used. The costs per child, and for all (61) orphans in Salima I are set out in Table 7.

Table 7 Costs of maintaining children, to meet minimum standard of living criteria.

Item	Cost per child	Cost for all (61) orphans in Salima I
Food *	Kw 2,554	Kw 155,794
School costs	Kw 350	Kw 21,350
All non-food costs, including school costs	Kw 570	Kw 34,770
Total food and non food costs per year	Kw 3124	Kw 190,564 (approx US$1,900)

*Assumes that food, whether produced or purchased costs Kw13.5/ kg i.e. the maize price used in the analysis.

7. The potential impact of policy and programme interventions on the poorest household

To explore the practical inferences that can be drawn from this analysis, we have included a final section showing examples of the changes to disposable income that would result from a range of possible policy changes and programme interventions, with particular emphasis on the benefits which would accrue to the poorest households.

Three policy interventions have been selected either because these are current in Malawi, or are internationally topical:

(i) Fertiliser prices
(ii) Maize prices
(iii) Cotton prices

and three programme interventions

(i) The impact of general food distribution
(ii) School feeding
(iii) Cash distribution.

The aim here is to illustrate only the size and pattern of the immediate changes in disposable income that would result from each policy or programme change. Any

change that substantially increases disposable income may lead to increased consumption and/or create an opportunity for a household to invest in further productive activity and create employment opportunities. For example, a sustained reduction in fertiliser price or increase in maize price would be expected to increase investment in maize production, at least by better off farmers who could afford the inputs and absorb the risk (Section 5) and might also benefit the poor households with labour by increasing the availability of, or returns from, day labour. Similarly, in Salima I several households (around 8-10) were investing in building brick houses, as a result of better returns on cotton in 2002/2003, thus creating more day labour opportunities (water carrying, brick making, labouring, plank cutting etc).

The examples have been developed only for Salima I. The poorest households are defined as those falling below the standard of living threshold, including food aid (see Section 4).

Maize, Cotton and Fertiliser price

To illustrate the importance of maize production to household disposable income and standard of living, disposable income has been recalculated assuming that households used the same amount of land as in the reference year, and obtained a return of 580kg maize/acre (equivalent to the largest rate of return recorded on the survey). [37] The effect of this would be to increase average disposable income (all households) in Salima I by 24.3%, reduce the proportion of households falling below the standard of living threshold from 33.8% to 20.3% and increase the disposable income of households below the standard of living threshold by an average of Kw1651/adult equivalent/year (see Figure 11). All households would benefit except for one household that did not cultivate because of illness. This demonstrates the substantial impact on income and living standards that could be achieved by improving the returns on maize production.

[37] Note that it is impossible to estimate the impact of fertiliser use on household disposable income as households in Salima I already used some fertiliser, and fertiliser use accounted for only part of the variation in maize yields.

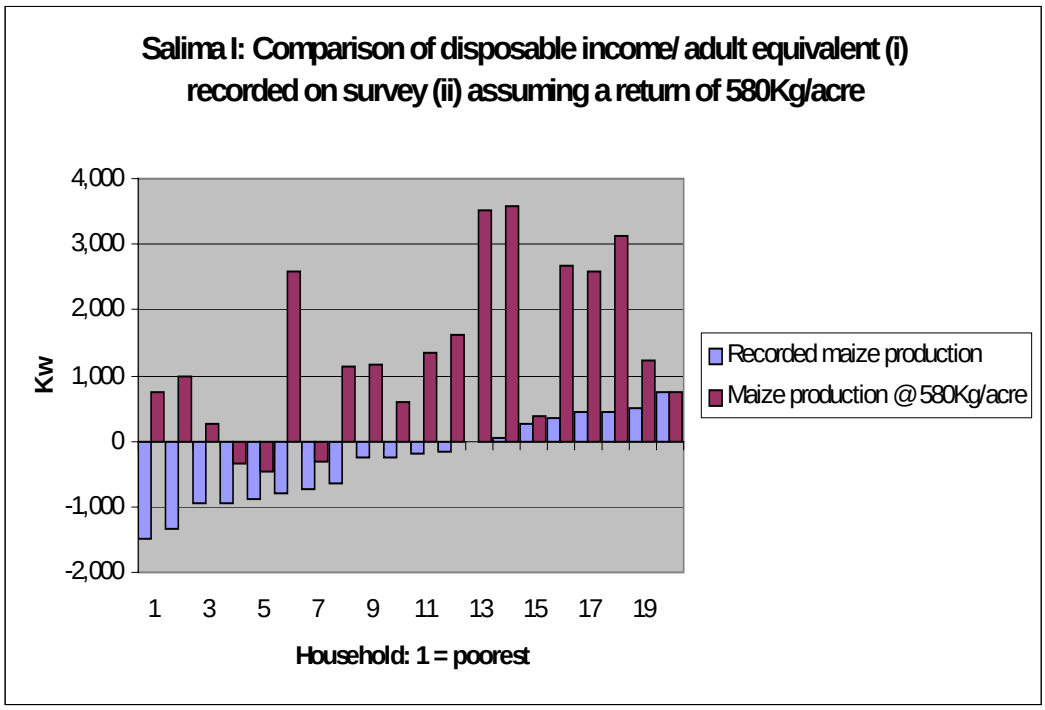


Fig 11 Effect of a return on maize production of 540kg/acre.

Reducing the price of maize

Reducing the price of maize by an arbitrary 20% (from Kw13.5/kg to Kw10.8/kg) increases average (all households) disposable income by 4.2%. Households selling maize lose income, and any gain is in proportion to the household's need to purchase grain. This makes no change to the proportion of households below the standard of living threshold.

However, for households falling below the standard of living threshold (n=20, 33.9%) the impact would be to increase disposable income by Kw390/adult equivalent/year as most of these households are heavily dependant on maize purchase. 19 of the 20 households below the standard of living threshold would benefit[38].

[38] For the same reason any significant rise in maize price has a very severe impact on the incomes of the poor as during the 2001/2002 famine. Were maize prices to rise to high levels again it is clear that in the study villages the impact on food supply would be worse than in 2001/2002 because of the loss of reserves which are chiefly in livestock i.e. from distress sales in 2002/2002 and losses to disease.

Increasing the price of cotton

Recorded cotton prices range from Kw20-35/Kg. An increase of 1% in all cotton prices leads to an increase of 0.33% in average household disposable income.

Figure 12 shows the effect on individual households of a 20% increase in cotton prices on households below the standard of living threshold. This does not reduce the proportion of households below the standard of living threshold. Only 70% (14) of households below the standard of living threshold benefit (i.e. only households growing cotton). Disposable income in this group would increase by an average of Kw122/adult equivalent/year.

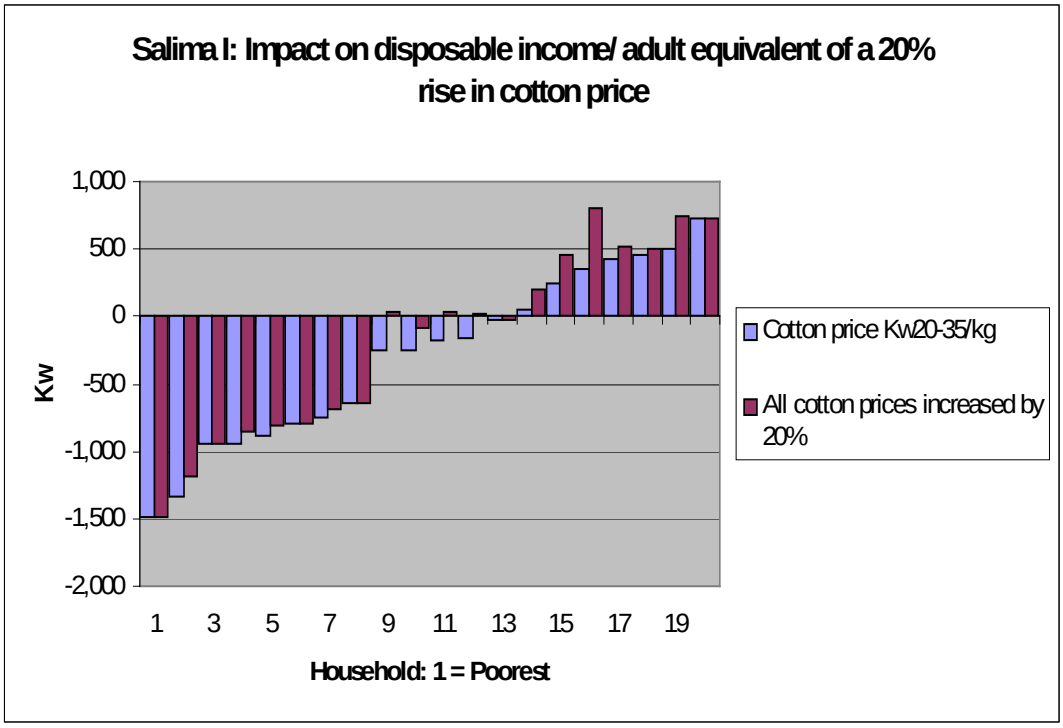


Fig 12 Effect on individual households of a 20% increase in cotton prices.

Programme interventions

Figures 13-16 show the impact on the disposable income of the poorest 20 households of the distribution in response to the following universal (i.e. untargeted) social protection interventions:

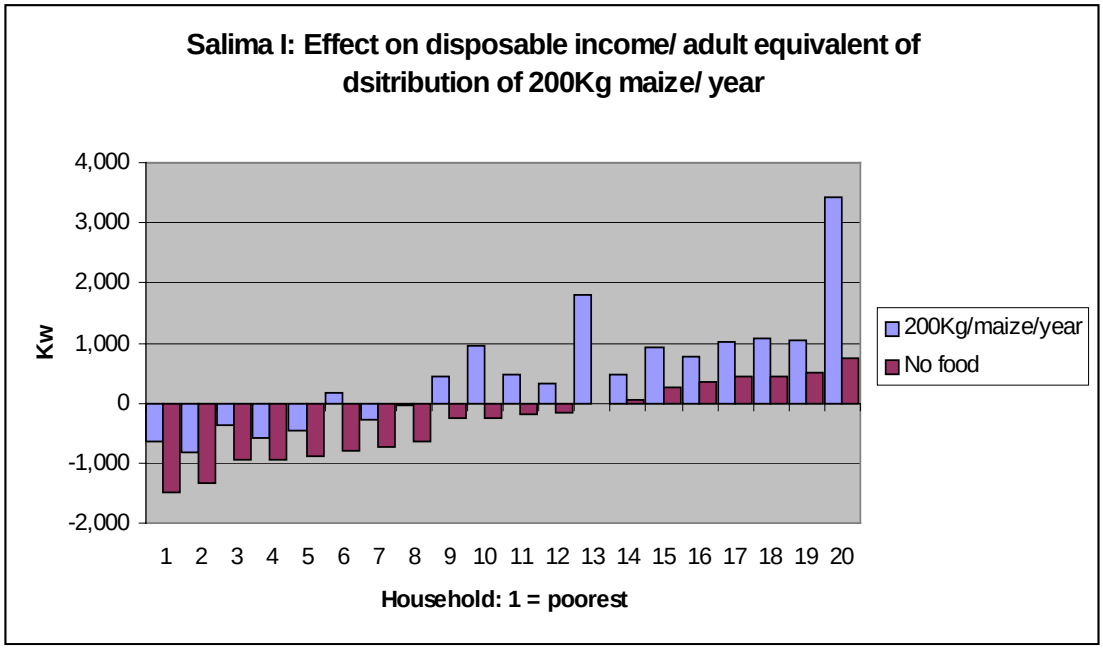


Fig 13 Effect on annual disposable income of a 200kg maize distribution (poorest 20 households).

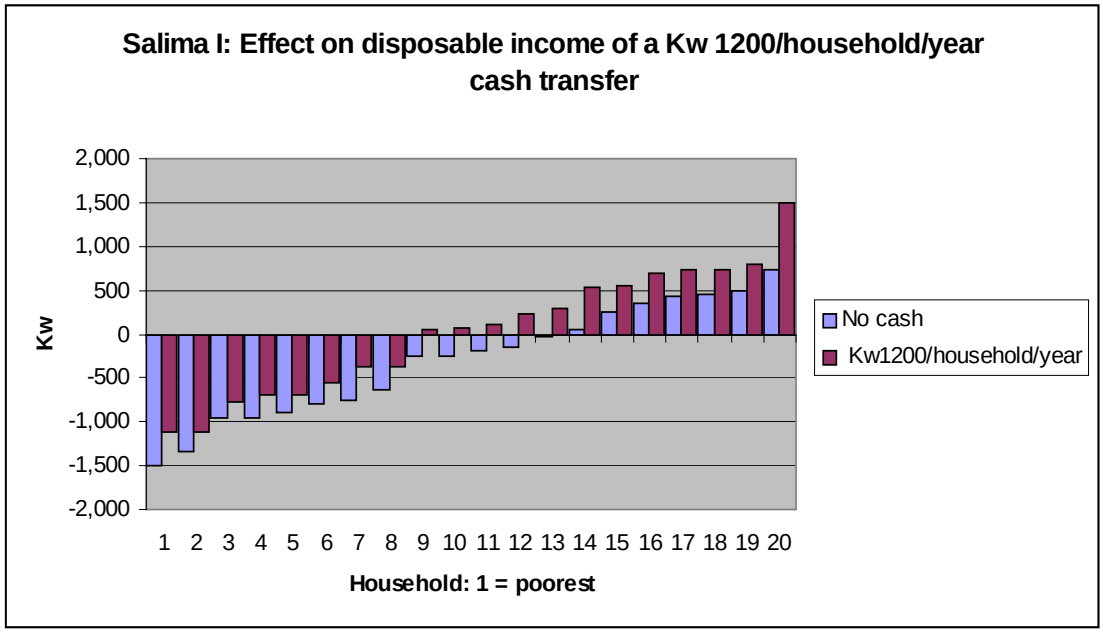


Fig 14 Effect on the poorest 20 households, of a cash income transfer of Kw1200 per household, per year.

1. A food distribution of 200kg maize/ household/ year. This increases disposable income/adult equivalent by Kw778/year. The poverty impact of the transfer is shown in Figure 13.

2. An unconditional cash transfer of Kw1200/household/year (i.e. $1/ month). This increases disposable income/adult equivalent by Kw325/year but does not change the proportion of households below the standard of living threshold (see Figure 14). If the rate is doubled to Kw 2400/household/year, disposable income/adult equivalent is increased by Kw 692/ year (see Figure 15). If Kw 4800/ month ($4/month) is given, the proportion of households below the standard of living threshold drops substantially (from 34% to 22%).

3. School meals equivalent to Kcals500 /schoolchild for 200 days / year, assuming a maize price of Kw13.5/Kg. This intervention would increase disposable income by Kw221/year. The poverty impact is illustrated in Figure 16.

The cost of these programmes would differ substantially, and in practice would vary according to the type of distribution and the degree of targeting used. In Salima I a Kg200/ household/ year food aid distribution would require 28 tons of food aid / year. No costing is available, but transport costs to and within Malawi are high. An untargeted cash distribution equivalent to $2/household/month, which would have only a slightly smaller impact on household income, would cost $3,400/ year.

School meal programmes have the advantage of comparatively easy administration, but only children who attend school benefit and there is limit to the quantity of food that can be transferred in this way (note that the proportion of children who do not attend school ranges from 15% of primary school aged boys in Salima I to 42% of girls in Salima II).

These calculations demonstrate a range of quantitative impact modelling applications of the IHM. They provide a guide to the distributional effects of policy and other potential changes in the two sites and with some development could be used as a basis for local, pilot interventions. To establish a reliable overview of the district as a whole, further data could be analysed from a representative sample of households across the district.

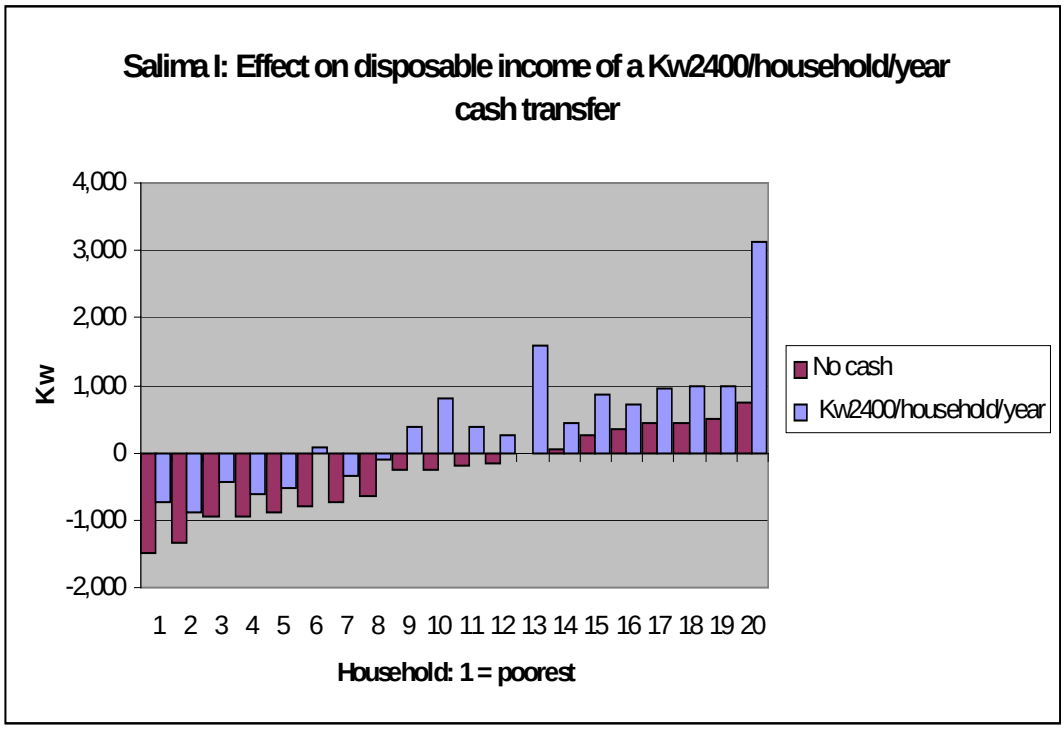


Fig 15 Effect on the poorest 20 households, of a cash income transfer of Kw24000 per household, per year.

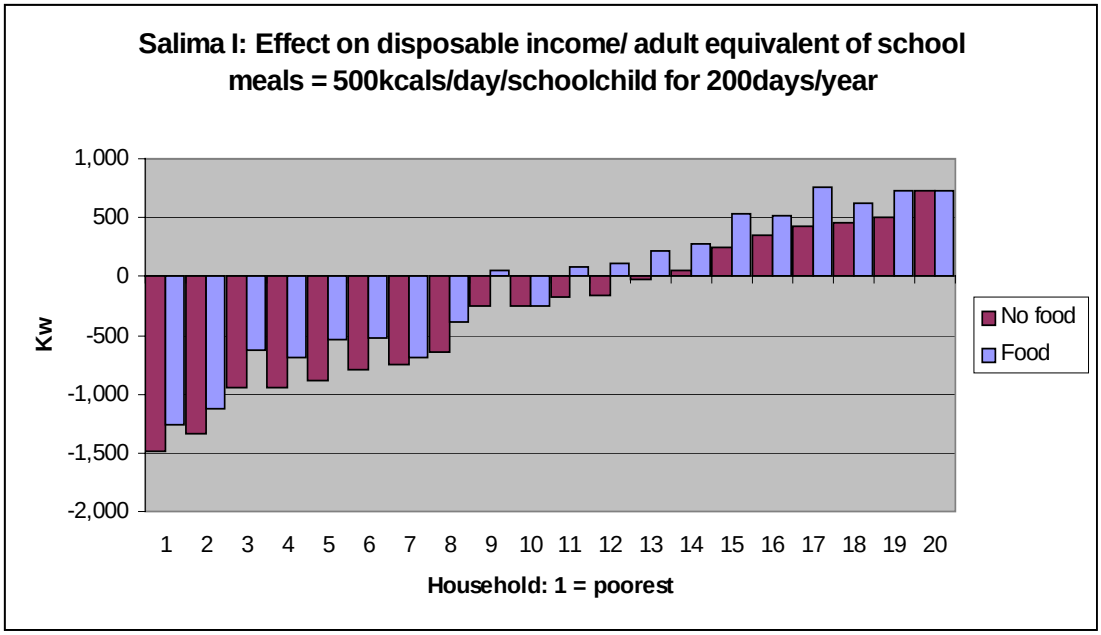


Fig 16 Effect of school meals on disposable income.

Annexe 1

Modelling change using the IHM

A simple example is the estimated change in disposable income that would result from an increase in maize production. For a household of 2 members

- with an annual food energy requirement equivalent to 400kg maize.
- maize production of 600 kg using agricultural inputs costing Kw500.
- an employment income of Kw 2000
- at a maize price of Kw10/Kg

the change would be as follows:

The calculated household disposable income would be Kw4,000 i.e. (the value of maize surplus to consumption, (200kg @Kw10)) + employment income of Kw 2,000 = Kw4000.

If production increased by 200Kg to 400Kg, disposable income would rise by Kw2,000 i.e. the value of the additional maize, to Kw6,000/ year. The cost of inputs (Kw 500) could be subtracted from this.

Multiple simultaneous changes e.g. a change in employment income, household costs, input costs and returns, can be calculated using the same method.

Annexe 2

Sources of food and income

Crops	**Livestock**	**Employment**	**Food aid**
Maize	Chickens	Agricultural labour	Food aid - rice, maize, beans, Soya, oil
Beans	Ducks	Firewood	Food for work - rice, Soya, maize
Groundnuts	Guinea fowl	Brickmaking/laying	Cash and food gifts
Sweet potatoes	Goat	Grass sales	Pre-school meals
Pumpkin	Pig	Petty trade	School feeding -maize and Soya
Bambara groundnut		General day labour	
Tomatoes		Brewing	**Wild foods**
Papaya		Fishing/ selling fish	Mice
Banana		Bicycle transport	White ants
Cotton		Village head salary	Wild okra
Millet		Blacksmith/bicycle repair	Baobab
Green leaves		Carpenter	Tamarind
Mango		Mat making	Fish
Okra		Kiosk	Wild leaves
Rice		Builder	Wild rice
Cow peas		Plank cutting	Wild fruits(Mankakhazu, Matowo fruits etc)
Mustard		Granary building	Wild birds
Cabbage			Wild fungi
Tobacco		**Other**	Banana roots
Vegetables		Land rent, dambo	

Tobacco cultivation, fishing and most pig raising were carried out in Salima II. Income from food-for-work was very small.

This is the third in a series of studies undertaken in southern Africa. The overall goal is to develop methods of measuring and analysing poverty and modelling the impact of change at household level. The aim of this study is to improve understanding of the relationship between HIV/AIDS, poverty and food security. The earlier studies were carried out in Swaziland and Mozambique in 2003.

For copies of this or other reports in this research programme please contact:

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