# The Impact on Household Income and Welfare of the pilot Social Cash Transfer and Agricultural Input Subsidy Programmes in Mlomba TA, Machinga District, Malawi

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## Summary

This report describes a survey designed to evaluate the impact on household economy and welfare of two Government of Malawi programmes: (i) A pilot 'Social cash transfer' programme (SCT) designed to provide a cash payment to defined categories of vulnerable households. (ii) The Agricultural Input Subsidy Programme (AISP) which distributed vouchers permitting the recipient to purchase 50kg of fertiliser at a heavily subsidised price.

The findings are based on a random sample of 212 households drawn from villages in Mlomba TA, Machinga District. Information was collected on household membership, land and other asset holdings, income, fertiliser use, gifts received and a range of other personal characteristics (eg school attendance, orphan status) and household characteristics (e.g. selection for the social cash transfer programme. The study was made with reference to the period January 31st 2007 – February 1st 2008.

The main findings were:

**(i)** **The social cash transfer programme.** This was targeted at households meeting the criteria of a high dependency ratio i.e. labour poor and falling into the 'ultra poor' income group (the poorest 22% of the population). The SCT assessment failed to accurately target this group. Specifically: (i) The proportion of households selected for SCT was very similar in each of the income quintiles: 23.5% (quintile 1- poorest), 14.7% (quintile 2), 29.4% (quintile 3), 20.6% (quintile 4) ,11.8%(quintile 5-richest). (ii) A large proportion of the households selected for the SCT did not meet the 'labour poor' criterion. Of the 34 households which had been selected to receive a cash transfer, 19 (55.9%) met the DR criteria, whilst 15 (44.1%) did not.

The proportion of households selected for SCT in the survey households (16%) exceeded the intended proportion (10%) although the difference was not statistically significant. For those survey households which met the selection criteria the payment assessed for the SCT and the amount calculated from the survey data varied between households but were broadly similar.

**(ii)** **The fertiliser subsidy programme.** 84.6% of surveyed households obtained subsidised fertiliser. The proportion of households obtaining subsidised fertiliser vouchers did not vary markedly with income although poorer households received on average less fertiliser than better off ones. 18.8% in the poorest income quintile and 6.7% in the richest quintile used 0.5 voucher i.e. 25 kg fertiliser. Using 1 voucher i.e. 50kg fertiliser, the percentages were 75% and 63% respectively.

A simulation based on assumptions about the maize return with and without fertiliser suggests that: (i) all households using fertiliser gained income, with the richest households on average gaining most. (ii) the gross gain in income substantially exceeded the cost of the subsidy.

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# 1. Introduction

This report describes a survey designed to evaluate the impact on household economy and welfare of two Government of Malawi programmes: (i) A pilot 'Social cash transfer' programme (SCT) designed to provide a cash payment to defined categories of vulnerable households. (ii) the Agricultural Input Subsidy Programme (AISP) which distributed vouchers permitting the recipient to purchase 50kg of fertiliser at a heavily subsidised price. The survey was conducted in Mlomba TA, Machinga District, at the request of the Malawi Vulnerability Analysis Committee (MVAC).

Mlomba TA lies within Machinga District to the north east of Zomba. The populated area is approximately 375Km$^2$. Mlomba TA was selected for the survey as it lies within one 'livelihood zone' (the Phalombe Plain) where it could be assumed that the economy was reasonably consistent i.e. households are exploiting similar economic opportunities; the TA was part of the pilot Social Cash transfer scheme and had received fertiliser vouchers.

The populated area of Mlomba is largely flat with sandy soils, although most villages have access to 'dimba' land – either wetter more fertile areas of land by streams and rivers or marshland which abuts the eastern border of the TA. The chief upland crops are maize, cassava, sweet potatoes, pigeon peas and a variety of other legumes: dimba is chiefly used for rice cultivation although green maize and vegetables are also grown. Livestock include poultry (chickens, ducks, guinea fowl, pigeons and turkeys), goats and occasional sheep and cattle. A large part of the income of almost all households is obtained from self employment e.g. petty trade, fishing, or wage employment most of which is agricultural day labour. Small quantities of wild plant foods are gathered and there is some hunting for small birds and other game (rabbits, small antelope and mice), although few wild animals remain.

## 1.1. The pilot social cash transfer scheme

The aim of the pilot social cash transfer scheme (SCT) is to: [1]

1. Reduce poverty, hunger and starvation in all households living in the pilot area which are ultra poor and at the same time labour constrained.
2. Increase school enrolment and attendance of children living in target group households.
3. Generate information on the feasibility, costs and benefits and on the positive and negative impact of a SCT as a component of a Social Protection Programme for Malawi.

In order to qualify for the scheme households have to meet two criteria : (i) they should be 'ultra poor' i.e. in the lowest expenditure quintile and under the ultra poverty line (only one meal per day, not able to purchase soap, clothing, school costs, utensils and other essential non-food items). (ii) they should be 'labour constrained' , defined as having no able bodied member in the age group 19-64 who is fit for work, or has to care for more than 3

[1] Manual of Operations for the Malawi Pilot Social cash Transfer Scheme, GOM Lilongwe, August 2007.

dependents (household members who are under 19 years of age or over 64 years of age, or people who are chronically sick, disabled or handicapped).

### 1.2 The Agricultural Input Subsidy Programme.

This scheme was started in the 2005/06 season with the stated objectives of improving smallholder productivity and food and cash crop production and reducing vulnerability to food insecurity and hunger. Coupons which can be redeemed for subsidised fertiliser were allocated to targeted households (able bodied farmers who would otherwise be unable to purchase inputs) by Village Development Committees. A coupon could be redeemed for one 50kg bag of fertiliser at a cost of MK950 representing roughly 28% of the full cost, with government paying for the remaining 72% (MK2,443) i.e. a total cost of MK3,393/50Kg with a subsidy of MK2,443/ 50Kg. [2] The allocation procedures used varied widely between different areas. In Mlomba households were supposed to receive two vouchers, one for basal dressing and one for top dressing. In practice most farmers received one coupon for either basal or top dressing.

## 2. The survey

### 2.1 Methods

A random sample of households was drawn in the following way. 1. A list of all villages in Mlomba, developed by the district Social Welfare Department for the pilot social cash transfer programme, was obtained. 20 villages were randomly selected from this list. Some additional villages were selected to be used as alternative sample sites in the event that villages did not meet the survey criteria of being willing to participate in the survey and at least 15 households in size. Selected villages were visited in turn and if these met the criteria a sketch map was drawn showing all houses in the village. Each household on the map was then numbered and a random sample of 12 numbers drawn from this list, again with some additional numbers to act as alternatives in case a household was found to be empty or was for some other reason unable to participate in the survey. The sample design was constrained by the need to allow the survey to be completed with the number of interviewers, vehicles and within the time available.

A difficulty which was encountered in village selection was that in a number of cases villages were found to have split to create new small villages, sometimes as small as 3 – 4 households. These were too small to be accommodated in the sample design, although on enquiry no evidence was found to suggest that the exclusion of these villages introduced any large distortion.[3]

[2] Evaluation of the 2006/7 agricultural input subsidy programme, Malawi. Final report. School of Oriental and African Studies (SOAS), London, Wadonda Consult, Michigan State University (MSU) Overseas Development Institute (ODI),Undertaken for the Ministry of Agriculture and Food Security. March 2008

[3] The number of villages listed by the Social Welfare Department in the TA exceeds the number shown on the 1998 census map by about 100 villages i.e. an apparent increase of about 60%. Despite very complete coverage by the survey mapping team no village was found which was not included on the Social Welfare Department list. On enquiry the subdivision of villages appears to have been originally due at least partly to

The aim was to obtain a sample of more than 200 households, a number which preliminary estimates based on data from previous work in Malawi suggested would be sufficient to produce acceptable error estimates for the lowest 4 income quintiles.

The field assessment team was composed of 8 students from Bunda College and Chancellor College, University of Malawi and a representative of the Malawi Vulnerability Assessment Secretariat.[4] The supervising staff and four members of the field assessment team had prior experience of the interview technique used. The remaining 5 interviewers were trained under the supervision of other trained members of the team before being allowed to conduct interviews on their own.

The interview technique used has been developed over several years. In summary this requires that: (i) the interviewer has a good working knowledge of the local economy e.g. crop types and probable returns, employment opportunities, seasonality, prices etc. (ii) questions are asked in a way which is likely to allow a respondent to recall all sources of income e.g. for employment income this will involve working through the year month by month, in some cases separately by male/female/ family employment. (iii) interviews are short, typically less than 1 hour in length and each interviewer conducts only a small number of interviews each day (3 on this survey) to avoid the deterioration in interview quality which results from interviewer and respondent fatigue . (iii) the data is checked and verified ideally on the day of collection, but in sufficient time to allow the household to be revisited if required.

Household interviews related to the year January 31st 2007, February 1st 2008, a period selected to include the entire maize harvest in the 2007 – 2008 agricultural year. Each interview covered:

i. Household membership, by age and sex, absentees (e.g. men working at a distance) and the period of absence.

ii. Current school attendance or completed school grade, social status (married, divorced, orphans who had lost 1 or both parents).

iii. Household land cultivated in the reference year (categorised as lowland dimba, upland dimba, upland and 'domestic garden' i.e. upland close to the household residence) and the status of this land i.e. owned, rented, loaned.

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disagreements within villages about engagement with aid projects (rice irrigation schemes were specifically mentioned) although it was clear that residents of small villages were aware that small villages enjoyed an advantage with respect to receiving assistance from current programmes and specifically the social cash transfer programme e.g. with 10% of a village entitled (other criteria being met) a village of 4 households would be more likely to receive at least one cash transfer.

[4] The student teams were led by Dr Patrick Kambewa (Dept of Economics, Chancellor College) and assisted by Kondwani Zimba. The Bunda College students (Stella Ngoleka, Lucky Mfungwe, Matthews Kanyenga, Vilante Mzunzu (assistant lecturer)) had recently completed undergraduate courses in agricultural economics. The Chancellor College students were Precious Chimbamba, Venancio Mzonda, Alick Wella and Thulasoni Chidamwa and had just completed their undergraduate degrees in economics. Simon Muhungu was seconded from the MVAC secretariat.

iv. Holdings of major assets (the number of livestock by type, bicycle, radio, significant agricultural equipment etc). Minor assets such as hoes, were not recorded.

v. Household income obtained during the reference year as food and money from crops, livestock, employment, wild foods, 'gifts' and remittances. Gifts include gifts from kin and external assistance e.g. from NGOs. For traded items e.g. crop sales the actual price obtained was recorded.

vi. Selection for the SCT programme and if selected the start date for payment and the amount of the payment per month.

vii. Any credit taken during the reference year, its source and the reason for taking this.

viii. The agricultural inputs used, their source, quantity and price and their use i.e. the percentage of all inputs applied to different types of land and crop.

The price of produce and labour sold by households is that recorded on the survey for each household and each transaction.

Conversion factors for local measures (e.g. plates to basins) to metric measures were available from previous surveys and new values gathered when required. The conversion of food items to their food energy equivalent was done using standard reference sources. When no value could be found an estimate was made.[5]

Land areas were recorded in acres. In the case of upland plots close to the household these were identified and the area estimated by pacing: the area of other land holdings was estimated by calculation from the dimensions reported and confirmed in discussion (e.g. 'from that tree to the house').

Additionally, data was gathered from 146 households on their consumption of kerosene, soap, clothes, school costs (uniform and school materials), house repairs, water expenses, salt and household utensils and their consumption of local beer and tobacco. This was used to establish a standard of living threshold. [6] The threshold was set at a level commensurate with social inclusion.

At the end of each day the interview data was entered into the 'IHM' software, to allow the data to be reconciled and checked for inconsistencies. Interview findings which were found to be inconsistent or were otherwise known to be incomplete e.g. due to the absence of a

[5] Some wild foods can be identified only by their local name. Where possible a sample is obtained and if not a description ("small fruit with many seeds") is used to estimate the food energy value.

[6] Allocated by person or as a household cost as follows: kerosene (MK565/year, household cost), soap(MK926/year, household cost), utensils (MK300/year, household cost), primary school costs(MK290/year, children aged 6-15years), replacement clothes for an adult man(MK200/year, 16 + years), adult woman(MK350/year, 16 + years) and child(MK75/year, 3 – 15 years) and salt(MK260/year/ each person in the household).

household member, were then revisited. If it was then found that the interview could not be completed that interview was rejected. [7]

## 2.2 The presentation of results

Rural households obtain their income as food (from their own crop and livestock production, gifts and payment in kind, hunting and gathering, payment in kind) and as cash (from employment, cash gifts and the sale of food and non-food production and other income in kind). As there is no market for some produce (e.g. wild foods, some livestock production) or prices vary substantially between transactions, food income cannot be consistently converted to its cash value.

Therefore the results have been presented as household 'disposable income' i.e. the cash income remaining after the household has met its food energy requirement at a specified level, either from its own production or when this is insufficient by food purchase. In this calculation:

- The food energy requirements used are the UN requirements by age and sex for a population of a typical developing country. [8]
- Household income has been standardised by the number of 'adult equivalents' in the household, where an adult equivalent is defined as the average food requirement of a young adult male and female.
- Purchased food is maize at a price of MK20/ Kg. This price is somewhat arbitrary. The average maize sale price recorded was MK22/Kg (range MK6/ Kg – MK80/Kg, 28 sales) the variation presumably reflecting the timing and location of the sale i.e. trade within villages tends to be at much lower prices than at trading centres and prices immediately after the harvest lower than later in the year.

Disposable income/ adult equivalent is a standardised normative presentation of household income which allows the income of households to be directly compared. [9]

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[7] The software was designed for the management of household income and associated data. It allows data to be quickly reconciled in terms of household food energy requirement, income and other household characteristics and for data analysis. At the lower end of the income distribution household income tends to be very low. Households were included only when a very low income was consistent with the circumstances observed e.g. one household was recorded by the interviewer as "actually starving".

[8] Individual food energy requirement was calculated by age and sex from World Health Organisation 'Energy and protein requirements' (WHO technical report series 724, Geneva 1985) for the population of a typical developing country. Averaged over the entire population requirement approximates to 2100 kcal/ person/ day.

[9] In fact (i) because of a lack of money and the seasonal rise in food prices poorer households would often not consume maize, particularly in the 'hungry season' at the end of each year, but cut their consumption to one meal/ day and/or consume cheaper items such as cassava and maize bran. (ii) The estimated average food energy requirement of 2100kcal/person/day is certainly higher than that actually eaten by most people in Mlomba. (iii) some better off households would spend rather more of their income on food of higher quality.

Disposable income/ adult equivalent does not account for differences in the nutrient composition of food produced and consumed by the household, although as the greater part of the population consume a diet largely of cereals the distortion is not likely to be large.

The cost of fertiliser where this was paid during the reference year i.e. not purchased on credit, has been subtracted from the income estimates. No data was gathered on other production costs i.e. payment of labour, and crops retained for seed, given away or used in other ways.

# 3. Survey Results

239 interview forms were used. In 7 cases it was found that the selected household did not exist in the previous year (largely newly married people or new migrants into the village) and there were no alternative households available in that village i.e. 232 households were interviewed. Of these, 18 were rejected either because they were un-cooperative or because the interviewee did not have all the relevant information. [10] All rejected households were followed up on at least one occasion. 212 households are included in the analysis.

## 3.1 Error estimates

Calculated by disposable income quintile these are (+/- 2SEMean): 6.5%(N=43), 18.2%(N=43), 19.2%(N=43), 10.8%(N=43), and 17.7%(N=42) from the poorest to the best off quintiles respectively.

## 3.2 The household economy of Mlomba

### 3.2.1 Population

The population of the 212 households was 1,117 people of whom 49% were male and 52% female. Figure 1 shows the distribution of population by age and sex. The distribution is similar to that found in the 2004-2005 Integrated Household Survey (IHS). [11] Two households are known to have falsely claimed resident orphans raising the concern that this might be a wider problem. However, the proportion of children in each 5 year age group up to age 15 years was very close to those found in the IHS, suggesting that this did not occur at least on any large scale.

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The food requirement used is normative i.e. the minimum that people should get. Varying the food price and/ or the food requirement would tend to move the disposable income curve up or down.

[10] Non-cooperation included false claims that the household was supporting orphans and recorded income being inconsistent with biological needs and/ or the observed standard of living despite revisits. 'Insufficient information' was due in most cases to the absence of a household member with the required information.

[11] Integrated Household Survey 2004-2005, National Statistical Office, Zomba, October 2005

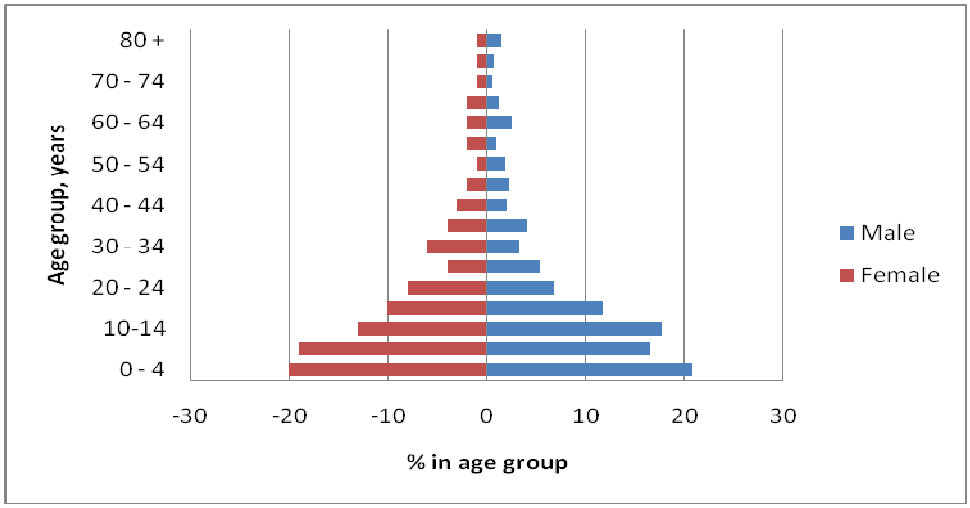


**Figure 16: Population pyramid**

The average household size was 5.27 people (range 1 -14).

### 3.2.2 Household Assets

The average area of land cultivated in the reference year by disposable income quintile is shown in Table 1: livestock holdings and other major asset holdings in Tables 2 and 3. The average land area cultivated in the reference year and ownership of livestock holdings and other assets all increase with income. Ownership of livestock and other major assets are very low, many households owning none.

**Table 1. Average land cultivated by type and income quintile, acres**

| | Income quintile | | | | |
|---|---|---|---|---|---|
| | **1(poorest)** | **2** | **3** | **4** | **5** |
| **Number of households** | 43 | 43 | 43 | 43 | 40 |
| **Upland dimba** | 0.06 | 0.04 | 0.05 | 0.20 | 0.56 |
| **Dimba** | 0.17 | 0.36 | 0.38 | 0.41 | 0.40 |
| **Domestic upland** | 0.18 | 0.20 | 0.15 | 0.30 | 0.31 |
| **Other upland** | 0.77 | 0.80 | 1.00 | 0.96 | 1.24 |
| **All dimba** | 0.22 | 0.41 | 0.43 | 0.61 | 0.96 |
| **All upland** | 0.94 | 1.00 | 1.15 | 1.26 | 1.55 |

**Table 2. Average livestock holding by type and income quintile**

| | Income quintile | | | | |
|---|---|---|---|---|---|
| | **1(poorest)** | **2** | **3** | **4** | **5** |
| **Cattle** | 0.00 | 0.00 | 0.00 | 0.00 | 0.23 |
| **Poultry** | 1.86 | 2.30 | 2.63 | 4.74 | 6.89 |
| **Goats & sheep** | 0.00 | 0.05 | 0.33 | 0.19 | 1.03 |

**Table 3. Average ownership of other major assets**

| | Income quintile | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| **Bicycle** | 0.12 | 0.16 | 0.26 | 0.40 | 0.65 |
| **Brewing equipment** | 0.00 | 0.00 | 0.02 | 0.00 | 0.03 |
| **Cell phone** | 0.02 | 0.02 | 0.00 | 0.02 | 0.10 |
| **Radio** | 0.09 | 0.33 | 0.33 | 0.42 | 0.73 |
| **Brick mould** | 0.07 | 0.21 | 0.19 | 0.35 | 0.30 |
| **Building tools** | 0.00 | 0.02 | 0.00 | 0.00 | 0.03 |
| **TV and battery** | 0.00 | 0.00 | 0.02 | 0.00 | 0.03 |
| **Drums** | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 |
| **Fishing equipment (lines, baskets etc)** | 1.37 | 2.51 | 2.49 | 2.93 | 25.08** |
| **Ox cart/ plough** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Sewing machine** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Treadle pump** | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| **Watering can/ wheelbarrow** | 0.05 | 0.00 | 0.05 | 0.00 | 0.03 |

** Mostly fishing lines: one household owned 600.

### 3.2.3. Household Income

**Income as food**

Household income is obtained in kind, chiefly as food obtained from crop and livestock production, wild foods and hunting, gifts and payment in food. Money income is obtained from the sale of crops, livestock and livestock products, wild foods and gifts, from employment, and from cash gifts.

In Mlomba almost all household food income is obtained directly from crop production. Only one household (a single 75 year old woman who rents her land out) did not cultivate. The relative importance of all crops produced**,** calculated by their total food energy, is shown in Table 4 and Figure 2. 'Other crops' includes tobacco and 18 types of fruits and vegetables. Maize, legumes (8 types of beans were cultivated), rice and cassava account for 83.9% of all food energy obtained from crop production.

**Table 4. Relative importance of all crops produced**

| Maize | Rice | Beans | Cassava | Millet & sorghum | Sweet potato & cocoyam | All other crops |
|---|---|---|---|---|---|---|
| **% of crop production, calculated as food energy** | | | | | | |
| 51.47 | 15.83 | 10.76 | 5.83 | 1.95 | 0.89 | 13.27 |

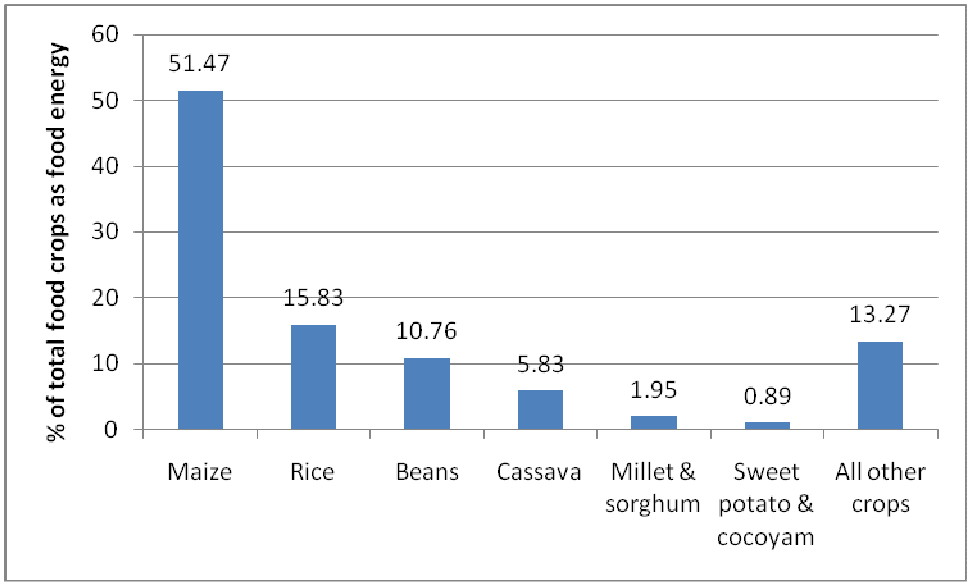


**Figure 2: Contribution of different food crops to total food crop production. Percent of total food energy**

**Money income**

Table 5 and Figure 3 show the relative importance of different categories of money income. Most money income from employment was obtained from agricultural day labour (31.1%); 29.9 % from fishing and associated trades (trap making, bait selling) with the remaining 38.9% coming from a very wide range of specialised occupations (brewing, shoe making, watch repair, drumming etc) and from petty trade. Fishing is a high value occupation: 82% of households were occupied in agricultural labour, 25% in fishing. Two salaried people (a headman and a teacher) were recorded: the teacher was the only person recorded with a professional occupation.

**Table 5: the relative importance of different categories of money income**

| Employment | Crop sales | Gifts/ gift sales | Sale of livestock & livestock products | Wild food sales |
|---|---|---|---|---|
| % of all money income | | | | |
| 70.26 | 22.60 | 5.61 | 1.47 | 0.07 |


**Figure 17. Contribution of different sources of income to gross money income**

Crop sales were dominated by rice (49.7% of all crop sales by money value); tobacco (22.4%), maize (8.6%) and pigeon peas (1.3%).

**Income by household**

Disposable income / adult equivalent by household and those households falling below the standard of living threshold are shown in Figures 4 and 5. 48.9% of households fell below the standard of living threshold. Household values below the horizontal axis in Figure 4 i.e. negative disposable income, do not have sufficient income to acquire even the set food energy requirement.

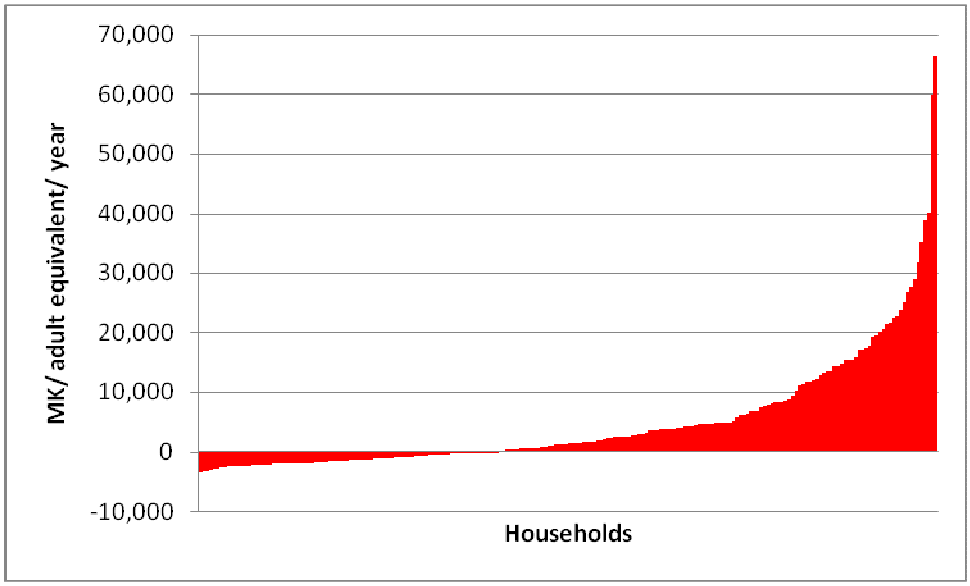


**Figure 4: Disposable income MK /adult equivalent/ year**

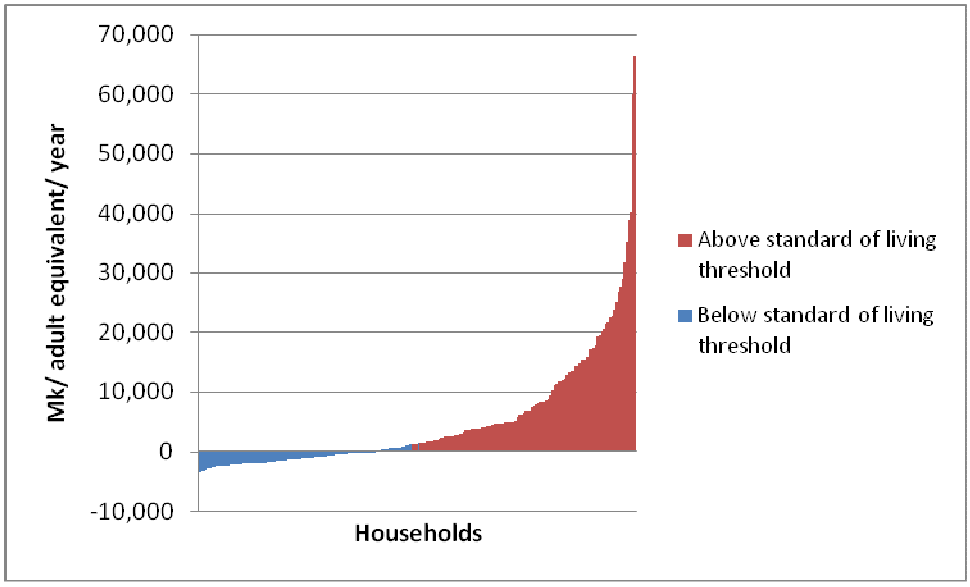


**Figure 5: Disposable income MK/ adult equivalent/ year, showing households falling below the standard of living threshold**

The pattern of food and money income by income quintile is shown in Figures 6 and 7.

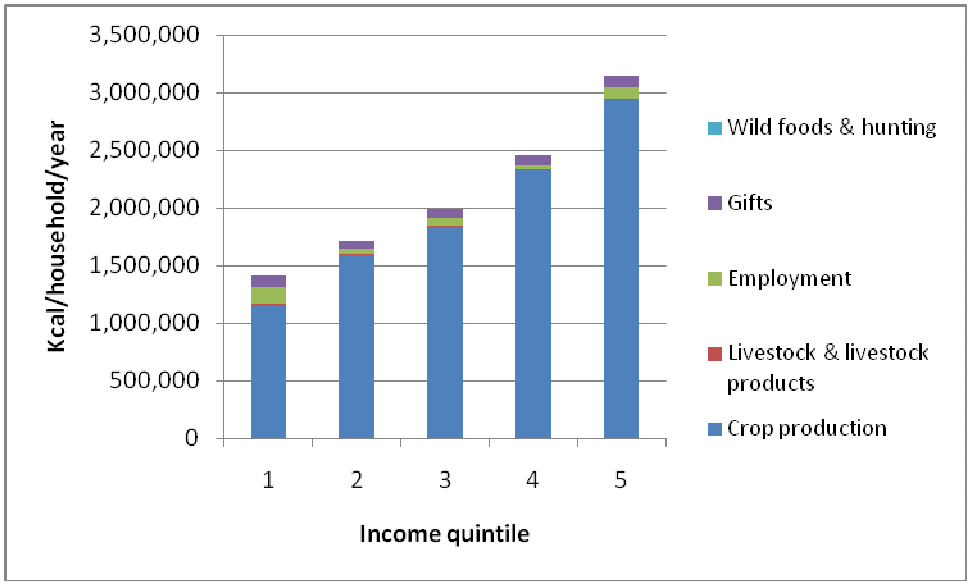


**Figure 6. Income as food (Kcal/ adult equivalent/ year) by income quintile.**

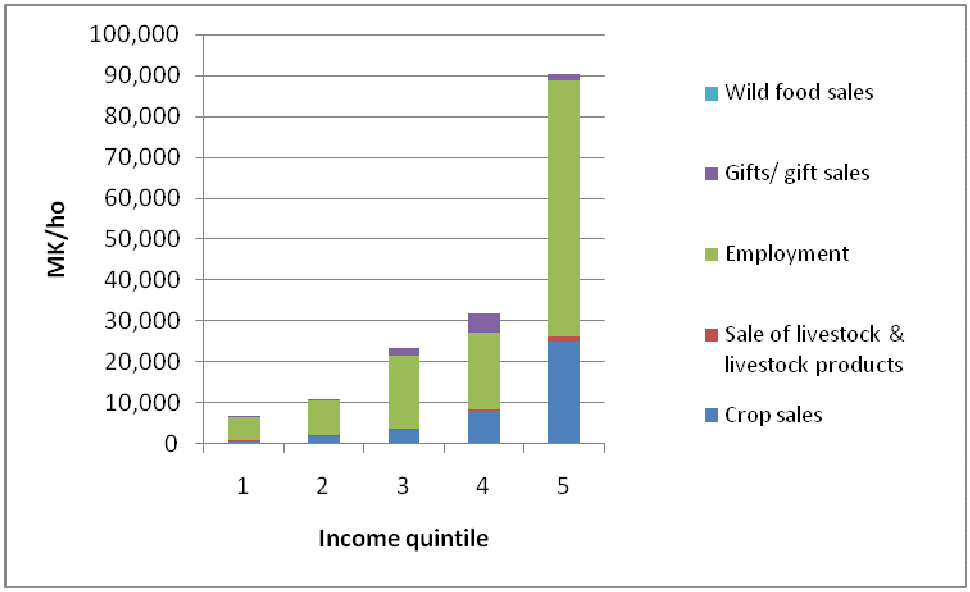


**Figure 7. Income as money (MK/ adult equivalent/ year) by income quintile**

## 4. The Social Cash Transfer Programme

The period in which households were selected to receive the SCT and the survey reference year did not coincide. Some households were receiving the SCT from November 2007, the end of the survey reference year (January 31st 2007 – February 1st 2008). Other survey households had been selected after the end of the reference year but had not actually received any cash payment.

A household qualifies for the SCT when it:

- falls below the 'ultra poverty' line, set at an expenditure of less than K27/ person/day. This cut off was obtained from the 2004-2005 integrated household budget survey (Footnote 11). It was estimated that this cut off would include approximately 22% of the population.
- is 'labour poor' i.e. it has a dependency ratio greater than 3 (the average for the poorest expenditure quintile in the 2004 2005 integrated household budget survey). A dependent is a person aged 19 years or less, greater than 64 years of age, or who is disabled or chronically sick. It was estimated in the programme design that this criterion would include approximately half of the 'ultra poor' group i.e. 10% of the total population.

The size of the cash transfer received by a selected household is calculated as follows:

- 1 person household, K600
- 2 person household K1,000
- 3 person household K1,400
- 4 and more persons in household K1,800

To this K200 is added for each child enrolled in primary school, and K400 for each child enrolled in secondary school.

The following section examines the performance of the SCT in terms of:

1. The accuracy of actual targeting relative to the targeting criteria.
2. The accuracy of size of the cash transfer allocated to each household, relative to the set criteria.

### 4.1 The proportion of households selected

In the design of the pilot SCT programme it was estimated that approximately 10% of households would be eligible. In the survey it would be expected that of the 212 households included, 21 households would have been selected to receive a cash transfer. In fact it was found that 34 households (16.0%) of households had been selected to receive a cash transfer although this difference is not significant (Chi $^2$ = 3.008, 1DF, p<0.05).

### 4.2 Targeting relative to household income.

Figure 8 shows household disposable income/ adult equivalent and identifies those households which were either receiving the SCT or had been selected to receive this. Table 6 shows the number and percentage of selected households falling into each income quintile. Disposable income has been calculated omitting any SCT received by any household i.e. the absolute and relative household income approximates that at the time when the SCT selection was made.

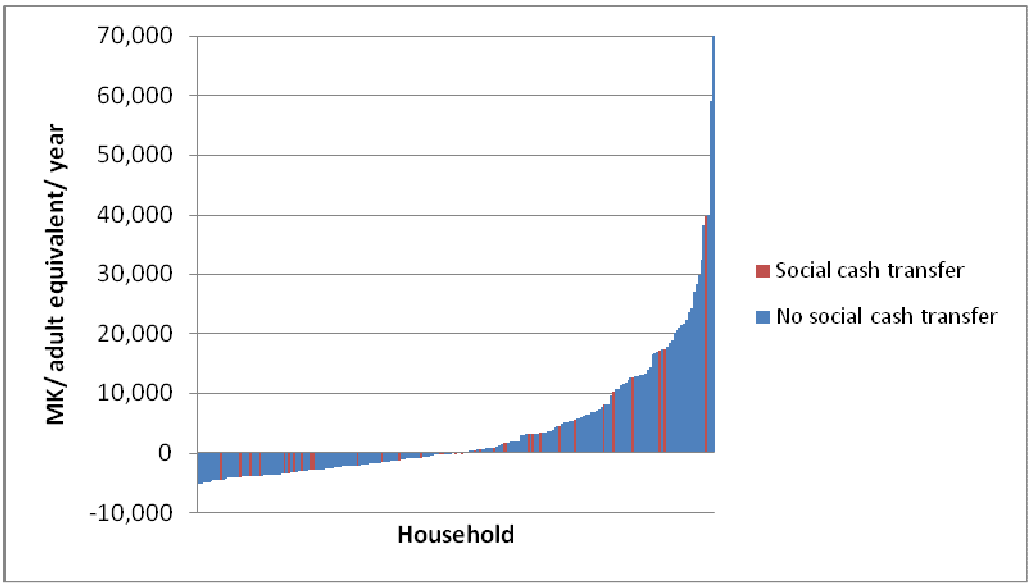


**Figure 8. Disposable income MK/ adult equivalent/ year, showing households which had been selected to receive the social cash transfer. Disposable income has been calculated excluding social cash transfer payments made during the reference year.**

**Table 6. Number of households selected to receive cash transfer by income quintile**

| | Income quintile | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| **Number of households selected to receive cash transfer** | 8 | 5 | 10 | 7 | 4 |
| **Percent** | 23.53 | 14.71 | 29.41 | 20.59 | 11.76 |

The expenditure threshold (K27/person/day) used in the design of the SCT programme and the income data obtained on this survey cannot be directly compared as these use different measures of poverty and there is a 4 year gap between the two measurements. Therefore to test the relationship between household income and household selection to receive a cash transfer three poverty cut off thresholds have been used: (i) the poorest 22% of households. (ii) the level at which household income is just sufficient to meet household food energy requirement at the set level, diet and food price i.e. all households with negative income in Figure 4. (iii) the calculated standard of living threshold.

Table 7 shows the percentage of the 34 selected households falling under each threshold.

**Table 7. Number of households receiving SCT by three poverty levels**

| | **In the poorest 22% of households** | **Unable to meet set food energy requirement (40% of households)** | **Below the survey Standard of living threshold (49.06% of households)** |
|---|---|---|---|
| **Percent (Number) of households selected for cash transfer** | 17.65% (N=6) | 38.24% (N=13) | 44.12%(N=15) |

In each case the proportion of households selected is very close to the proportion of households under the cut off i.e. the SCT selection failed to select the poorest in each case.

### 4.3 Targeting relative to the household dependency ratio

The dependency ratio for each surveyed household was calculated using the SCT criteria. Cases of chronic illness and disability were noted on the survey, although few cases were found. [12]

[12] 7 households (3.3%) reported illness: 3 of these fell into the dependent age groups (a woman of 89 years who could cultivate but could no longer manage to do Ganyu; a 69 year old woman with an unspecified illness who could not work and a 16 year old girl who reported asthma). The remaining 4 included a man of 60 years who lost 3 months work in the reference year because of an infected hand; a man of 45 unable to work at all in the reference year and a 54 year old woman intermittently unable to work, both from unspecified illness, and a man of 54 with cataracts. This low rate contrasts with the 2004 IHS survey (Op cit, Footnote 11 ) which found an average rate of chronic illness for Malawi of 9%. The difference may well be explained by the way in which the two surveys approached the question, the IHS asking the question directly ("What chronic illnesses do you

Figure 9 shows all households in the survey sample showing those which met the SCT dependency ratio criteria. 58 households (26.9%) met the criterion.

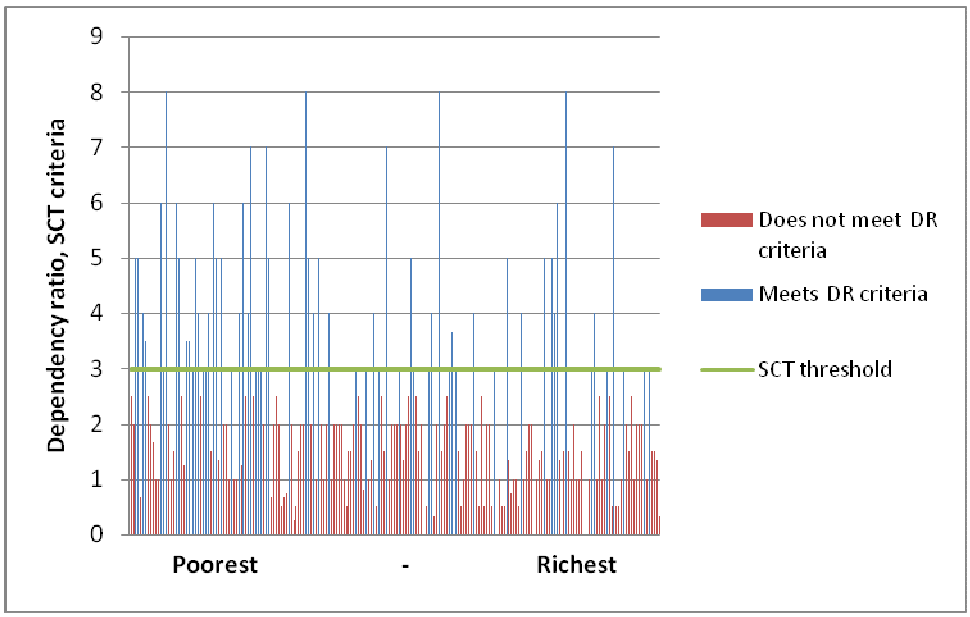


**Figure 9: Dependency ratio by household identifying households which did and did not meet the SCT criteria.**

Of the 34 households which had been selected to receive a cash transfer, 19 (55.9%) met the dependency ratio criterion, 15(44.1%) did not.

### 4.4 The amount of the actual or intended cash transfer relative to the household entitlement calculated from the survey data.

Data on the actual or intended monthly SCT payment is available for 33 households, 17 of which met the dependency ratio criterion and 16 which did not. Table 8 compares the assessed payment with the amount calculated as due to surveyed households according to the payment schedule and the amount due to households which did not meet the dependency ratio criteria.

suffer from" with a prompt list) versus the open ended question asked on this survey. It is striking that 32.8% of the chronic illness recorded on the IHS was under category arthritis/ rheumatism and a further 24.4% as chronic malaria, neither of which would be likely to emerge on this survey unless the condition was serious.

**Table 8: Difference between the SCT payment allocated by the SCT programme and the entitlement calculated from the survey data and payments allocated by the SCT programme to households which did not meet the SCT criteria**

| | | Households which met the SCT dependency ratio criteria | Households which did not met the SCT dependency ratio criteria |
|---|---|---|---|
| | Amount of actual or intended SCT payment (MK/ household/month) | % difference (+ or -) between the actual or intended SCT payment and the SCT entitlement calculated from survey data | Amount of actual or intended payment (K/ household/month) |
| | 2700 | -3.57 | 3,800 |
| | 2000 | -33.33 | 1,500 |
| | 2000 | 25.00 | 600 |
| | 3200 | 14.29 | 2,800 |
| | 2800 | 16.67 | 2,400 |
| | 1600 | -20.00 | 600 |
| | 3600 | 38.46 | 2,000 |
| | 3100 | 29.17 | 2,400 |
| | 2400 | 33.33 | 1,800 |
| | 2000 | -23.08 | 2,000 |
| | 2000 | -33.33 | 1,000 |
| | 2600 | 0.00 | 1,200 |
| | 3600 | 50.00 | 3,000 |
| | 600 | -75.00 | 1,000 |
| | 600 | 0.00 | 2,600 |
| | 1000 | -16.67 | |
| | 1400 | 0.00 | |
| **N** | 17 | 17 | 15 |
| **Average** | 2,188 | 24.2 | 1,913 |

The individual differences between the assessed amount and the amount calculated as being due from the survey data is fairly small. It may be assumed that this is at least partly due to errors in the assessment of school attendance by both the SCT assessment survey and this survey i.e. whether a child is or is not in school can be ambiguous as children may attend irregularly. It is also possible that some households inaccurately reported school attendance.[13] Over and under estimates are on average almost equal (-29.6, +29.3).

[13] That is, that some households may have thought that this survey was intended to decide on a programme entitlement.

### 4.5 The impact of the SCT on household disposable income

Figure 10 shows the change in disposable income / adult equivalent which would be expected from a full year of SCT payments for the selected households). Figure 11 shows the same results where the households have been put into ascending order i.e. showing the change in the relative income of households receiving the payment.

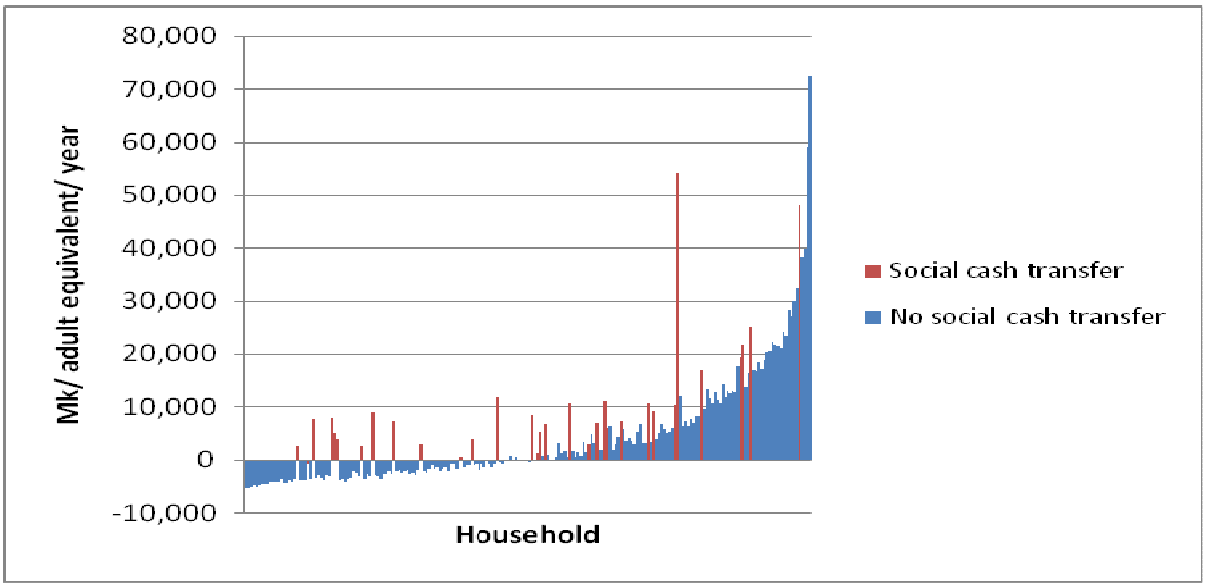


**Figure 10: Disposable income MK/ adult equivalent showing the change in income which would be expected from a full year of cash transfers, including all households selected to receive SCT, whether or not these meet the dependency ratio criteria. The obviously large value is a household of a single 60 year old receiving an inappropriately large payment (MK 2,600/ month): the value shown is further exaggerated as the household is < 1 adult equivalent in size. A household with one member is supposed to receive MK600 per month.**

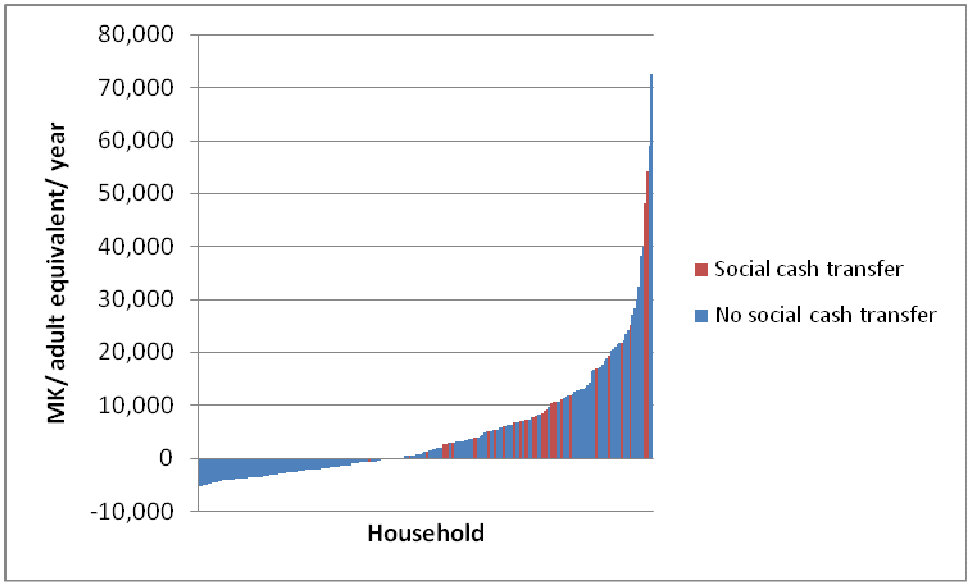


**Figure 11: The same data as in Figure 10 but with households rearranged in ascending order of disposable income/ adult equivalent to show the relative income of households after a full year of SCT payments.**

The SCT payments are large relative to actual household disposable income. As would be expected households receiving SCT improved their income relative to households not receiving SCT, but in some cases this moved households to a much higher income quintile. The average change in relative income of households receiving a cash transfer would move a household up by 43 positions in ranked income. Figure 12 shows the change in relative income of each household which would be expected following a full year of social cash transfer payments.

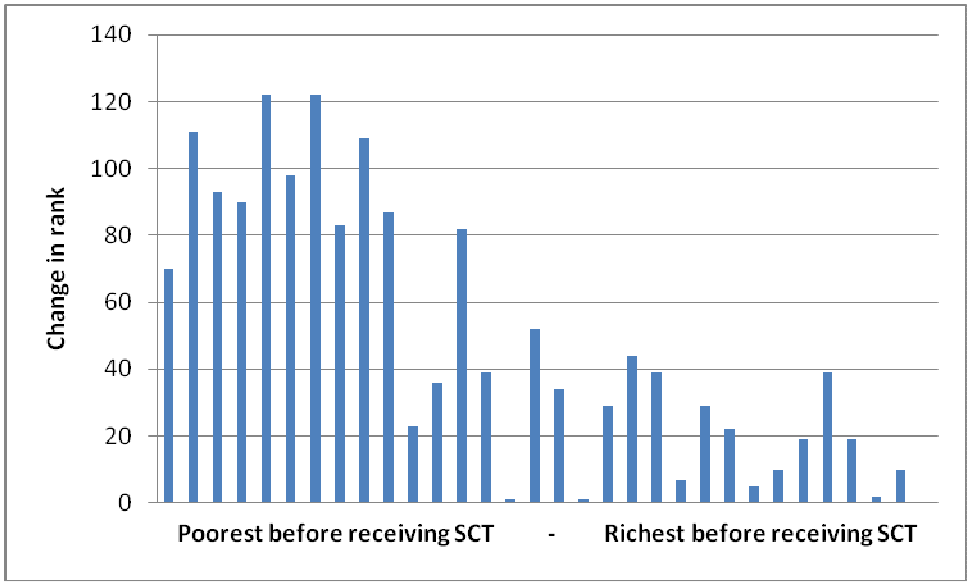


**Figure 12: Change in relative income of households selected to receive SCT payment following a full year of payments e.g. the first household on the left of the histogram, the poorest household selected to receive a SCT payment increased its relative income by 70 positions from rank 10 (the 10th poorest**

**household) to rank 80, in the middle of the income distribution. Poorer households (before the SCT payment) tend to increase their rank more than better-off ones because income changes relatively little over the bottom half of the income distribution.**

## 5. The Fertiliser voucher scheme

In the reference year 189 (89.2%) households used fertiliser obtained from one or more sources (Table 10).

**Table 10: Quantity of fertiliser used by source**

| Fertiliser source: | N | % all households | Average amount of fertiliser used, by households using fertiliser (Kg) | Price, MK/ Kg |
|---|---|---|---|---|
| Voucher | 170 | 84.58 | 55.44 | 19 |
| Purchased | 13 | 6.47 | 42.08 | 49.7(15-90) |
| From NGO | 2 | 1.00 | 15.00 | 0 |
| Purchased voucher | 9 | 4.48 | 62.78 | 19.6(14-29) |
| Fertiliser for work on road rehab | 1 | 0.50 | 100.00 | ? |
| Gift from kin | 6 | 2.99 | 40.33 | 0 |

Two households which did not use fertiliser used animal manure.

The total quantity of all fertiliser used by the surveyed households was 10,909 Kg (57.7Kg/household using fertiliser). 84.6% of all fertiliser used was obtained using the AISP vouchers at the subsidised rate of MK19/Kg: 7.7 % of the fertiliser used was obtained from other subsidised sources i.e. an NGO, a purchased voucher or a gift from kin. 5.0% of all fertiliser used was purchased commercially. The remaining 2.7% was obtained as payment for work on road rehabilitation.

Table 11 and Figure 13 show the number of vouchers used: 13.5% of households used 0.5 of a voucher (25Kg), dividing a voucher with another household.

**Table 11: Number of fertiliser vouchers used**

| Number of vouchers used | 0.5 | 1 | 2 | 3 |
|---|---|---|---|---|
| Fertiliser obtained | 25kg | 50kg | 100Kg | 150kg |
| Number of households | 23 | 118 | 28 | 1 |
| | 13.53 | 69.41 | 16.47 | 0.59 |

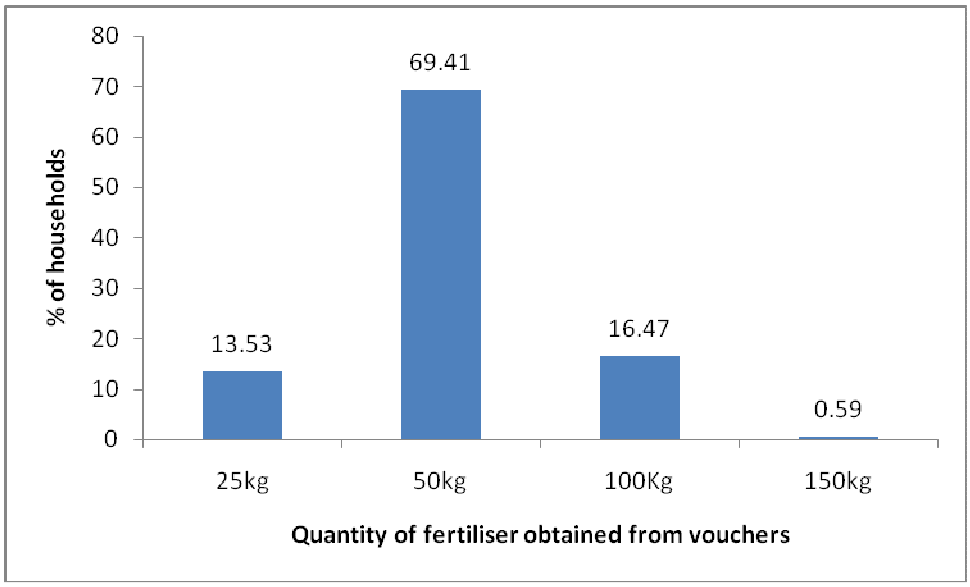


**Figure 13. Percent of households receiving different quantities of fertiliser from vouchers.**

A single voucher was reported as having been sold (for MK500); another household reported giving a voucher away, although it was reported independently that in fact it had been sold.

42 households did not receive a voucher. The reasons for this were not systematically sought. Vouchers were received fairly equally by households at different income levels (Table 12). It might be expected that households with a significant non-farm income might be less interested in obtaining a voucher but no obvious relationship was found e.g. only 2 of 12 fishermen did not receive a voucher.

The quantity of fertiliser obtained by households in the poorest quintile was on average less than that received by better-off groups, which is explained by the greater tendency of this group to divide vouchers between households.

**Table 12: Proportion of households receiving voucher by income quintile.**

| | Income quintile | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| **Number of households in quintile** | 43 | 43 | 43 | 43 | 40 |
| **% receiving voucher(N)** | 74.42 | 86.05 | 79.07 | 86.05 | 82.5 |
| **Number receiving voucher** | 32 | 37 | 34 | 37 | 30 |
| **Average received (kg)** | 48.44 | 53.38 | 52.21 | 60.14 | 63.33 |
| **Received 0.5 vouchers, % (N)** | 18.75 (6) | 18.92 (7) | 14.71 (5) | 8.11 (3) | 6.67 (2) |
| **Received 1 vouchers, %(N)** | 75.00 (24) | 64.86 (24) | 76.47 (26) | 67.57 (25) | 63.33 (19) |
| **Received 2 voucher, % (N)** | 6.25 (2) | 16.22 (6) | 5.88 (2) | 24.32 (9) | 30.00 (9) |
| **Received 3 voucher % (N)** | 0 | 0 | 2.94 (1) | 0 | 0 |

### 5.1 Fertiliser use

Most fertiliser was used on maize (98.9%). Small quantities were used by 2 households, both in the richest income quintile, on rice (0.91% of all fertiliser used) and by 2 households on groundnuts and mustard (0.2% of all fertiliser used).

Of the fertiliser used on maize 97.4% was applied to upland.

### 5.2 The impact of subsidised fertiliser on production

To estimate the impact of fertiliser on production it is necessary:

i. To know how much additional fertiliser was used as a result of the subsidy programme.

ii. To differentiate between the impact on production of subsidised fertiliser and fertiliser obtained from other sources.

iii. To know the difference in return which would be expected with and without fertiliser and at different rates of fertiliser application.

The following assumptions have been made:

i. The fertiliser used would not have been used if farmers had to purchase this at the commercial price. In the reference year the open market price was very high, most farmers struggle to find money for fertiliser purchase and it seems likely that without the subsidy few farmers could have afforded to purchase fertiliser at all.

ii. The survey data does not provide complete information on the area of land used by each household for maize cultivation and it is not possible to confidently estimate the rate of fertiliser application and the maize return with and without fertiliser. [14] Interviews with farmers in Mlomba indicated that without fertiliser the expected maize return on upland would be 1-1.5 bags/acre (125 -187.5Kg/Ha) which approximates other published rates (191kg -250Kg/ Ha) .[15] Using the same source it is assumed that the use of fertiliser would increase production by a factor of about 4.

**The estimated impact of the fertiliser subsidy on household disposable income**

A comparison has been made between:

- The disposable income calculated from the survey data
- Disposable income where maize production was reduced by 75% for those households receiving subsidised fertiliser i.e. to simulate the effect of no fertiliser use.

[14] Specifically we omitted to systematically record the proportion of maize which was grown on dimba, from which a higher return would be expected.

[15] School of Oriental and African Studies, Op cit. Footnote 11

All other values were held constant i.e. the sale prices of all traded items were those recorded on the survey and the purchase price of maize was MK20/Kg. As already noted the cost to the farmer of the fertiliser has been subtracted from the household income. Households which did not receive a voucher have been included with no change in income.

The effect is summarized in Table 13 and Figure 14.

**Table 13: Simulated impact on disposable income of fertiliser use**

| | Income quintile | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| **Average disposable income/ adult equivalent (MK) simulating a 75% fall in maize production i.e. no fertiliser** | -3,547 | -1,861 | 638 | 4,612 | 23,135 |
| **Average disposable income/ adult equivalent (MK) using fertiliser i.e. survey values** | -2,840 | -837 | 1,673 | 6,466 | 25,550 |
| **Change in disposable income/ adult equivalent** | 707 | 1,025 | 1,034 | 1,853 | 2,414 |
| **Average subsidy/adult equivalent** | 623 | 627 | 673 | 1,100 | 1,115 |
| **Change in disposable income/ adult equivalent - average subsidy/adult equivalent** | 84 | 398 | 361 | 753 | 1299 |

As would expected the income of all 170 households using fertiliser increases and the increase is relatively more for better off households as these produced more maize.

Figure 14 shows the estimated increase in household disposable income/ adult equivalent by household; Figure the difference between the increase in household disposable income/ adult equivalent and the subsidy to that household. Figure 15 shows the same figure minus the cost of the fertiliser subsidy to that household. In 126 cases the increase in household income exceeds the cost of the subsidy: in 53 (29.6%) households it does not.

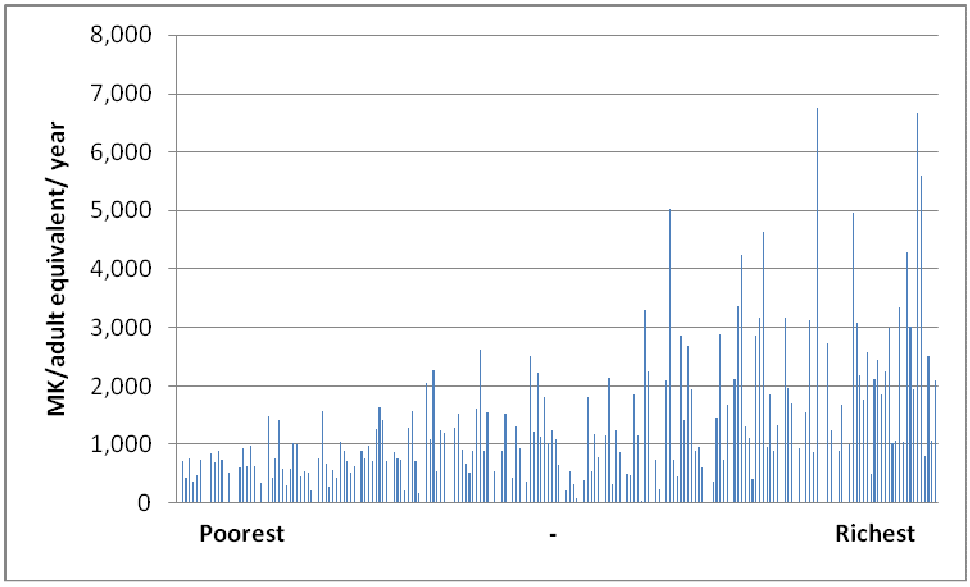

**Figure 14** Change in income (MK/ adult equivalent) between income values from the survey i.e. using fertiliser, and values calculated at 25% of maize production i.e. simulating no fertiliser use.

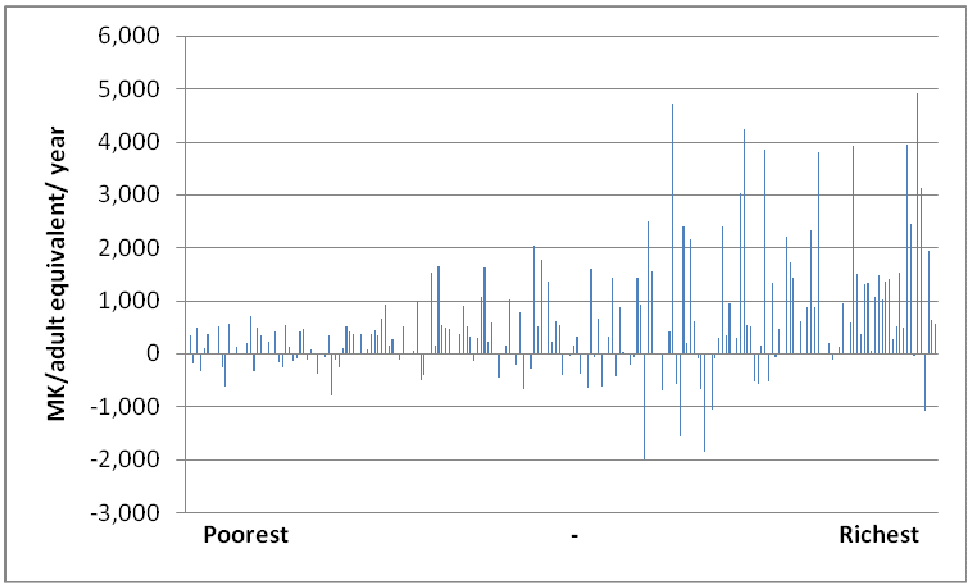


**Figure 15: Estimated increase in income from fertiliser use (MK/ adult equivalent/year) between income values from the survey i.e. using fertiliser, and values calculated at 25% of maize production i.e. simulating no fertiliser use, minus the cost of the subsidy to each household.**

In this model, the total cost of the fertiliser subsidy (@MK2443 /50Kg) to the 170 survey households which received fertiliser vouchers was MK 488,111: the total estimated additional return to households using vouchers in terms of disposable income was MK 866,309 i.e. the total increase in household income exceeds the total subsidy cost by MK 378,197.

The impact on disposable income is shown in Figure 16. The increase in income for poorer households is insufficient to change the proportion of households falling below the standard of living threshold (49.5%).

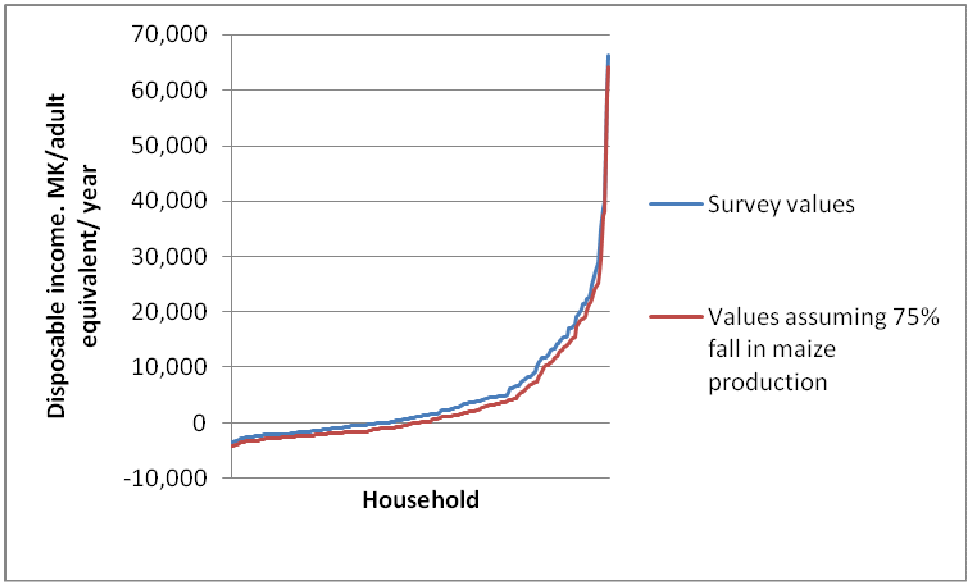


**Figure 16: Change in disposable income assuming a reduction in maize production of 75%. Both series in ascending order i.e. households are not in the same order in each curve. A line has been used for clarity.**

Varying the expected return on fertiliser use suggests that the breakeven point of fertiliser cost and return to households in terms of disposable income would be 2:1 i.e. a 50% increase in maize production using subsidised fertiliser.

**ANNEXE 1**

## The relationship between income and household and personal characteristics

### Status of the head of household

Table 1:1 shows the number of households in each income quintile and the status of the head of household.

**Table 1:1. Status of head of household by income quintile**

| | Income quintile, disposable income/adult equivalent | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| | **Number of households** | | | | |
| **Child headed household** | 1 | 0 | 0 | 0 | 0 |
| **Grandparent headed household.** | 5 | 2 | 5 | 3 | 2 |
| **Widow/ widower headed household.** | 8 | 6 | 6 | 9 | 2 |
| **HOH Divorced** | 4 | 8 | 9 | 3 | 4 |

Only one child headed household was recorded. Grandparent headed and widow/ widower headed households tend on average to have lower incomes (Table 1:2) than households which do not have these characteristics. Households where the head of household is divorced have a higher average income than households which do not.

**Table 1:2. Average income by status of head of household**

| | **Households with characteristic** | **Remaining households** |
|---|---|---|
| | **Average disposable income/ adult equivalent (MK)** | |
| **Grandparent headed household.** | 3,969 (N=17) | 5,022(N=185) |
| **Widow/ widower headed household** | 2,771 (N=31) | 5,308 (N=181) |
| **Head of household divorced** | 5,273 (N=28) | 2,729 (N=184) |

### Orphans

Orphans were defined as children less than or equal to 18 years of age who had lost one or both parents. Table 1:3 shows the number of households with one or more orphans (ii) the average number of orphans in households with orphans, by income quintile.

**Table 1:3. Number of households with resident orphans and average number of orphans in household by income quintile**

| | Income quintile, disposable income/adult equivalent | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| | **Number of households with one or more orphans** | | | | |
| **Orphans who had lost one parent** | 9 | 5 | 5 | 10 | 3 |
| **Orphans who had lost both parents** | 6 | 5 | 8 | 3 | 2 |
| **Orphans who had lost one or both parents** | 15 | 10 | 13 | 13 | 5 |
| | **Average number of orphans in households with orphans** | | | | |
| **Orphans who had lost one parent** | 2.89 | 4.40 | 2.20 | 2.50 | 1.67 |
| **Orphans who had lost both parents** | 2.00 | 2.60 | 2.00 | 1.00 | 2.50 |
| **Orphans who had lost one or both parents** | 2.53 | 3.50 | 2.08 | 2.15 | 2.00 |

There are fewer single orphans in the richest quintile (5) and fewer double orphans in quintiles 4 and 5.

As would be expected from the Table 1:3 the average income of households with orphans is lower than that of households without, an effect which is greater for double orphans than single (Table 1:4).

**Table 1:4: Average income of households with resident orphans**

| | **With orphan in category** | **No orphan in category** |
|---|---|---|
| | **Average disposable income/ adult equivalent (MK)** | |
| **Households with orphan(s) who had lost both parent.** | 1,472 | 5,372 |
| **Households with orphan(s) who had lost one parent.** | 3,432 | 5,186 |
| **Both** | 2,587 | 5,281 |

20.4% of children less than 18 years of age are orphans, a higher figure than that given in the 2004 2005 IHS survey for the south of Malawi (13.3%). This may be due at least in part to over-recording of orphans .

The sex ratio (all orphans) was 1.46 (male: female).

## Loans

7% (15) of households reported taking loans during the reference year (Table 1:5).

**Table1:5. Number of households taking loans by income quintile**

| | Income quintile, disposable income/adult equivalent | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| **Number of households taking loans** | 2 | 2 | 5 | 2 | 4 |

The reasons for taking a loan and the source of each loan is shown in Table 1:6. One loan was from a money lender; 3 were business loans and 11 taken from friends or relatives. Three reasons account for 11 loans: (i) to purchase maize (7 loans). (ii) to pay for hospital treatment (2). (iii) to purchase fertiliser(2). Five loans taken to purchase maize were in quintiles 2 and 3: 2 were in quintile 5, the richest group.

**Table 1:6. Reasons for taking loan by income quintile**

| | | **Business loan** | **Loan from friend or relative** | **Loan from money lender** |
|---|---|---|---|---|
| **Income Quintile** | **Reason for loan** | **Amount of loan, MK** | | |
| 1 | Medical treatment | | 1,000 | |
| 1 | Salt business (failed) | 11,000 | | |
| 2 | Fish business | 1,000 | | |
| 2 | To buy maize | | 2,200 | |
| 3 | To buy maize | | 1,000 | |
| 3 | To buy maize | | | 1,000 |
| 3 | To build house | | 6,000 | |
| 3 | To buy maize | | 1,300 | |
| 3 | To buy maize | | 3,000 | |
| 4 | To buy fertiliser | | 2,100 | |
| 4 | Fish business | 10,000 | | |
| 5 | To buy fertiliser | | 900 | |
| 5 | Hospital expenses | | 6,000 | |
| 5 | To buy maize | | 1,500 | |
| 5 | To buy maize and pay wages | | 4,000 | |

## School attendance

The current school grade or the completed school grade was recorded for each individual.

**Primary school attendance**

The selection of age cut offs for current and completed school grade is somewhat arbitrary. Table 1:7 and Figure 1:1 show the rate of school attendance by income quintile and primary grade (P1 – P8) for children aged 5 years to 14 years of age. Figure 1:2 shows the percentage of children in different primary school grades: Figure 1:3 the percentage of children in school or who have completed primary school by different age groups.

**Table 1:7 % of children greater than 5 years and less than or equal to 14 years in primary school grades by income quintile**

| | Income quintile | | | | |
|---|---|---|---|---|---|
| **Grade** | **1** | **2** | **3** | **4** | **5** |
| P1+P2 | 49.40 | 42.55 | 45.16 | 37.25 | 34.04 |
| P3+P4 | 30.12 | 27.66 | 30.11 | 27.45 | 27.66 |
| P5+P6 | 3.61 | 9.57 | 9.68 | 11.76 | 10.64 |
| P7+P8 | 0.00 | 2.13 | 2.15 | 1.96 | 2.13 |
| **Number of children in age group** | 83 | 94 | 93 | 51 | 47 |

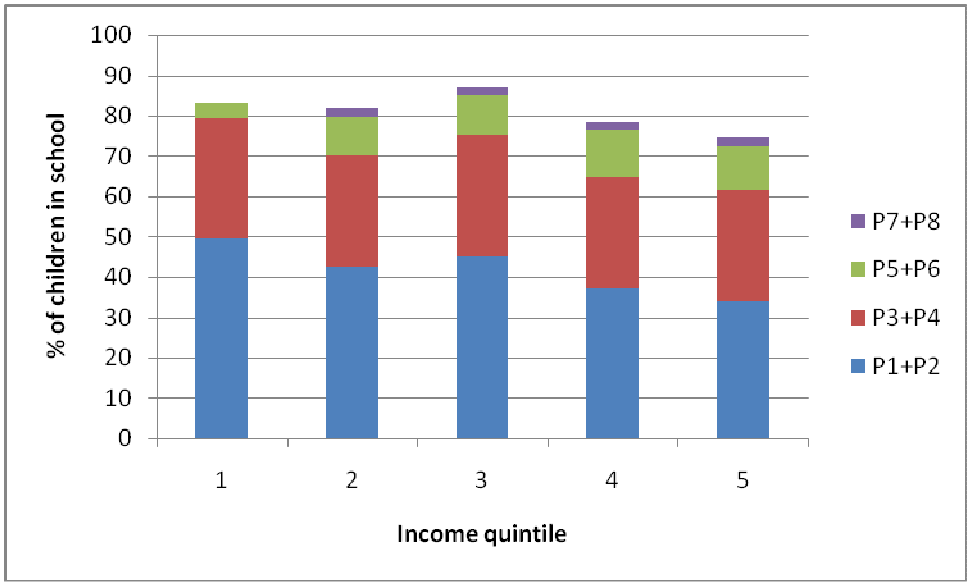


**Figure 1:1. % of children greater than 5 years and less than or equal to 14 years in primary school grades by income quintile**

Average primary school attendance in this age group is 82.1% of all children. The number of children in some groups is very small and no conclusion can be drawn from the small differences in attendance between income groups or in specific grades. Averge primary school attendance in this group was 82.1%.

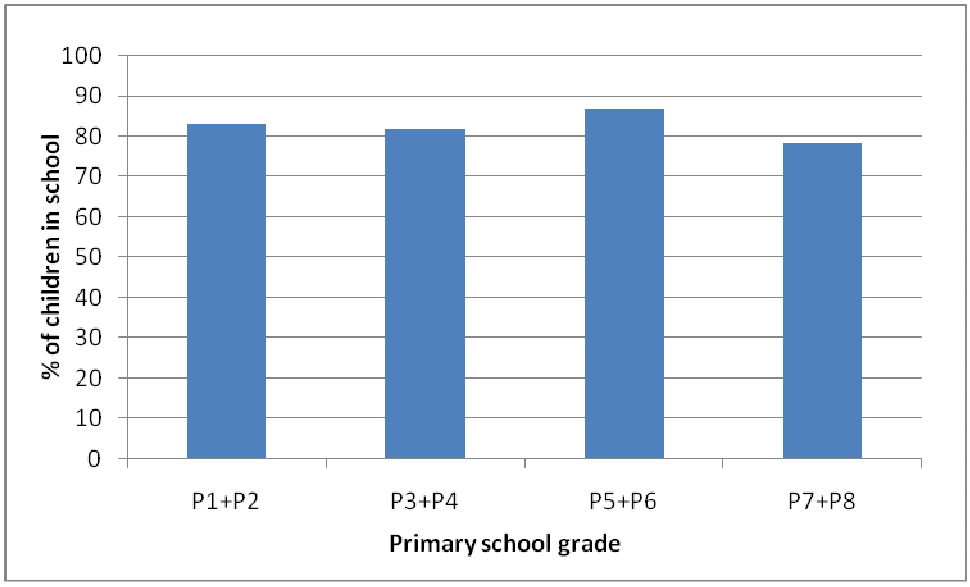


**Figure 1:2. % of children in different primary school grades**

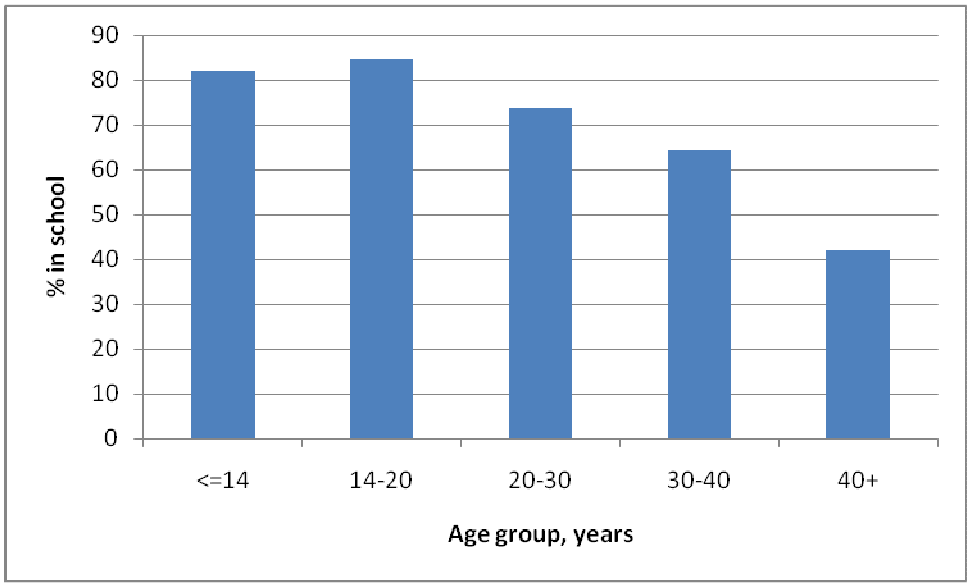


**Figure 1:3. Percent of children in school or completed primary school grade by different age groups.**

### Secondary school attendance

Table and Figure shows attendance in secondary grades (S1 –S4). Individuals less than or equal to 20 years of age were regarded as current attendees, people over 20 years as having completed their secondary education. In both cases the rate of attendance was very low. 1.8% of people under 21 years were recorded as attending secondary school (13 individuals) or whom 12 were in S1 or S2. Over the age of 20 years the rate was 7.7%.