DRAFT

The use of household economy approaches to provide information for the design of social protection policies and programmes

John Seaman

Celia Petty

This report does not necessarily reflect the views of DFID.

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Foreword

This paper was commissioned by DfID and reflects a concern to find new methods of effectively reaching the poorest. It is widely agreed that unless there is a concerted effort to implement social protection measures across Africa and the poorer developing world, the Millennium Development Goals will not be reached. Although the basic principles of social protection are well understood, the successful implementation of social protection programmes requires detailed knowledge of the actual economy of different beneficiary groups. Methods are needed that can identify the needs of different populations; allow choices to be made between available policy options (for example cash vs food aid); set the level of cash transfer and other interventions that will meet programme objectives, and predict and monitor the impact of interventions under changing operational conditions. There is no method in current use that can provide this information.

DFID plans to make substantial investments in social protection in the near future. To achieve the anticipated development returns from these investments, new policy support tools are needed that provide a relatively quick, low cost and predictive method of setting and evaluating social protection policy.

The Household Economy Approach (HEA) was designed to meet these criteria. HEA uses a simplified household budget data set to (i) describe the economy of defined populations; (ii) model people's capacity to acquire food and non-food goods under specified conditions; (iii) indicate potential lines of intervention and their relative cost and impact; (iv) monitor the impact of interventions.

HEA provides, for a defined population, a description of the sources and levels of income of defined wealth groups, their asset holdings by type, and the relationship of their economy to markets for different commodities. The model allows users to estimate the vulnerability of the economy of each wealth group to change. Changes in the price or production level of any commodity can be incorporated in the model in any combination; this includes changes that result from climatic or other incidental causes, or from programme interventions or policies (e.g. cash or food transfers, price changes from macro-economic policy change). The impact on households can be expressed seasonally allowing choice about the timing of interventions.

This analysis provides a basis for decisions about the needs of different populations. It can be used to model and choose between different interventions and the seasonal

timing of these; to manage policies aimed at protecting the poor under the constantly changing conditions of many poor countries; and to estimate the capacity to pay for goods e.g. service charges set at any given level, and the costs of providing safety nets to a defined level of access. In essence, it estimates “how much of what is needed, when and by whom?” to meet social protection objectives and can be used to estimate the impact of these interventions.

HEA was designed as an operational method capable of routine large-scale use and has been widely and successfully applied over several years, chiefly in Eastern and Southern Africa.

Standardised data collection methods have been developed which largely overcome the cost and data quality problems of conventional household budget and panel surveys, and provide results within a much reduced time frame. Training materials are available. Analytic techniques have been devised which can be used routinely, and produce output in a form which is accessible to decision-makers and is expressed in terms which provide a basis for operational decisions.

Where greater analytic depth is required the Individual Household Method (IHM), a derivative of HEA that uses the same basic principles, can be used. This method uses data from individual households and has been successfully tested at local level in several countries. Experience is now sufficient to allow the approach to be standardised and training materials developed. The method can provide more detailed insight into process and the information necessary for some tasks e.g. establishing targeting criteria, understanding the economic impact of some changes e.g. HIV/AIDS.

To sustain an information base for social protection policy (i) data must be updated. (ii) expertise must be maintained. HEA data refers to a defined reference year and requires only periodic updating, with large cost advantages over conventional techniques. Current experience suggest that the most cost effective way of developing and maintaining this expertise would be through graduate and post-graduate curriculum development, in national universities. This would also encourage local ownership and research capacity.

The use of household economy approaches to provide information for the design of social protection policies and programmes

Summary

This paper presents a method for predicting the need for social protection interventions and for modelling possible outcomes of policy choices. It includes worked examples of the various uses that are outlined in the text and estimates of the costs of implementation. The approach is based on the tried and tested methodology of Household Economy analysis that is widely used in Africa for assessing food security. The method is uniquely able to provide data over wide areas, while being based on easily taught and reproducible methods. It does not rely on expensive statistical surveys and is based on good applied fieldcraft that has been used by governments, NGOs and academics for many years.

1. Social protection covers three main areas of intervention:

(i) Protecting income and reducing the vulnerability of whole populations against defined shocks or events. A wide variety of interventions can be 'socially protective' ranging from individual insurance schemes to labour market reform and crop floor price guarantees[1].

(ii) Providing additional income to groups below a defined standard of living through direct transfers in cash or kind ('social assistance and social welfare'). If they are set at an appropriate level, social assistance transfers can be transformative –allowing people to invest in their own development rather than simply increasing consumption.

(iii) Changing the conditions that contribute to poverty and enabling groups or populations to take advantage of opportunities by removing legislative, institutional and other obstacles while mitigating risks ('social transformation').

The methods described in this paper are primarily concerned with risk management and social assistance. However, given the availability of relevant contextual data, the effects on social protection of socially transformative change (e.g. widening employment options to groups that are currently discriminated against, securing inheritance rights for women etc) can also be modelled using these methods.

[1] See World Bank Social risk management model.

2. Social assistance can be defined as a transfer in cash or kind designed to raise the living standards of the poorest households to an agreed level. Social assistance programmes face the central problem of any welfare system: i.e. the need to define targeting criteria and to assess the cost and benefits of targeted vs. universal transfers. Social assistance systems must also define their objectives clearly and establish a means of understanding or relating the size of any transfer to the achievement of the objectives set. The high cost and complexity of means testing and the need for frequent revision limits the use of this mechanism in most poor countries. Various community-based approaches have been adopted and a range of 'objective' criteria applied but all have drawbacks [2].

3. Household economy approaches were designed to model the responses of households to shocks and on this basis, to make predictions of emergency assistance needs. They can also be used to model and make predictions as to the size of transfers that would be required to protect a defined level of consumption and the likely micro economic effects of social protection policies. HEA uses a simplified data set which describes economies in terms of the household budgets[3] and asset holdings of 'typical' households in defined wealth groups. It therefore captures internal variation in income and asset holdings within economies. Individual economies can be built up into larger national or regional sets and some aspects of inter-economy relationships captured

4. The models produced from Household economy studies allow the effect of a range of different interventions to be simulated. This offers the possibility for it to be used as a practical policy making tool.

5. The 'household economy approach' (HEA) was first developed to make predictions of the need for emergency food aid at regional and national scales. It is extensively used in Africa and has been proved to be accurate.

6. Household Economy methodologies are designed to be relatively cheap to implement and to utilise standardised methods of social enquiry. Standardised

[2] Targeting the poorest by social and economic categories e.g. 'landless'; 'female headed' produces serious inclusion and exclusion errors; targeting the poor by 'community consensus' also results in error. Poverty is a moving target and there is a need for constant re-classification.

[3] Food and non-food income, and expenditure.

data gathering techniques and a simplified data set allow reliable data to be collected for large areas, at relatively low costs. However, because of the method of data collection, HEA can only be used in rural areas.

7. The 'Individual Household method' (IHM) uses standard sampling techniques and more conventional demographic and budget data from individual households. It allows a similar model to the HEA to be used at the level of individual households. To date, IHM has been used only for studies of individual villages but could be scaled up for larger area work. [4] Its chief value is in providing detailed quantitative and qualitative insight into causal relationships at the level of individual households and defined groups of households e.g. those below a standard of living or other threshold. The IHM data set is similar to national household budget and Living Standard Measurement Surveys (LSMS) and potentially, IHM could draw on this information.

8. The IHM has two main applications for social protection and poverty analysis.

(i) To evaluate the potential impact and relative cost of different policy/ programme decisions where a finer level of discrimination between households is required and to monitor the impact of policy change on different groups of households.

(ii) To provide in-depth analysis on a range of issues that are considered to have a major impact on poverty (e.g. HIV/AIDS; commodity price changes) and to guide future policy and programmes in these areas.

9. Both methods use structured participatory social enquiry skills that are widely used and are relatively easily transferred. A large amount of HEA training has been carried out and training materials are available. While data collection is relatively easy, the data analysis does require extra training. HEA has the advantage over other methods of requiring a one-off baseline survey and occasional, much cheaper updates. IHM is most likely to be applied at a local level as special studies and surveys. Academic institutions in southern Africa are interested in the methodology and offer a possible route to institutionalising training.[5]

[4] Studies have explored the impact of HIV/AIDS and the impact of coffee price fluctuations on household poverty and links between malnutrition and household economy in Bangladesh.
[5] HEA data has been gathered for wide areas of southern and eastern Africa at different periods over the last decade. This falls into three broad groups (i) national / large area data in electronic format gathered from 1995-98 as part of an EU funded FAO collaboration for

Household economy approaches in the design of Social protection policy and interventions

Statement of objective

To analyse the practicality of using household economy based approaches (the standard Household Economy Approach (HEA) and the Individual Household Method (IHM)) as a means of assessing and measuring poverty and vulnerability and providing a robust evidence base for planning and monitoring social protection policy and programmes.

1. *Introduction*

The term 'social protection' describes public actions designed to reduce poverty by protecting or enhancing household income, or lowering costs. To achieve these ends, social protection requires reliable measures of poverty and vulnerability; however, these measures are not widely available.

The purpose of this paper is to:

- describe the practical applications of household economy approaches (HEA and IHM) to provide information to achieve these policy objectives.

- provide sufficient information on data collection and data analysis techniques, to inform discussions on the potential to incorporate HEA in national household budget work[6], and to assess whether this information could be used for social protection programme design.

Section 1 provides a brief introduction to the role of social protection in current development theory and practice.

Ethiopia, parts of Sudan, Kenya and Uganda, Malawi, Swaziland, Lesotho and Zimbabwe. This is now dated, in a simplified format and readable only with specialised software. (ii) data gathered on a large number of area assessments. Some of this is available in electronic format (mostly Excel), and a large proportion as hard copy reports. USAID FEWSNET/FEG holds additional data. (iii) Data gathered as part of the current National VAC assessments in Malawi, Lesotho and Swaziland, which will be retained in a purpose designed database (See Annexe 1: Section 4), and it is hoped will be available for wider use.

Section 2 describes household economy methods and their practical application in the development of social protection policy and programmes.

Annexe (I) gives additional details of methodology.

Annex (II) gives information on practical implementation including costs, the skills and amount of time required for assessments and analysis.

Section I Social protection and poverty reduction in poorer developing countries

2. Social protection covers three main areas of intervention:

(i) Protecting income and reducing the vulnerability of whole populations against defined shocks or events ('income smoothing or stabilisation'). [7]

(ii) Providing additional income to groups below a defined standard of living through direct transfers in cash or kind ('social assistance and social welfare'). [8] Social assistance transfers can provide a basis for investment and accumulation as well as supporting immediate consumption needs.

(iii) Changing the conditions that contribute to poverty among defined groups or populations ('social transformation').[9]

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[6] Despite extensive efforts and the full co-operation of DfID country offices, it has not been possible, to date, to access original household budget data sets.

[7] This includes market interventions and various forms of price insurance and guarantees, and personal insurance schemes.

[8] Conditional transfers e.g. education or food vouchers and fee waivers for service charges are included in this category

[9] Protecting and enhancing income may create the conditions for economic security and accumulation, resulting in 'social transformation' for some groups. However, legislative, institutional and attitudinal change may also be required in circumstances where discrimination prevents defined groups (e.g. women, ethnic minorities, people with disabilities) from accessing employment, land and other assets on equal terms. (see Devereux S and Sabates-Wheeler R, 'Transformative Social Protection' IDS Working Paper 232 (2004)); Whilst these changes require action in other domains, the IHM may be useful in quantifying the likely economic impact of a defined change at household level-see section II.

2.1 To achieve social protection objectives, quantitative information is required on poverty and vulnerability. Depending on circumstances, this may be at a large or local scale; however, in every case it is necessary:

(i) to know how a particular shock or policy change will affect different groups within a population; and from this, the type and size of transfer or change that is needed to meet a defined policy objective (e.g. to protect the assets of a particular group or groups).

(ii) to establish targeting criteria and given the high cost and complexity of means testing, to assess the cost and benefits of targeted vs. universal transfers[10].

2.2 This paper explores the potential to use household economy based approaches in the selection of appropriate social protection measures and to strengthen capacity to monitor the poverty and social impacts of policies and interventions.

2.3 The two household methods described here were developed with a view to providing operationally useful information relevant to these objectives. The first, the 'Household economy approach' (HEA), was originally developed as an approach to famine prediction, with a view to providing the information necessary for famine prevention and quantifying and targeting a response. The second, the 'Individual household method' (IHM) is a refinement of HEA that allows more disaggregated analysis and can be applied to a wider range of policy questions and development problems. Both methods use household income/ asset data as a measure of poverty, and to model the probable impact of shocks and other changes on household income, asset depletion and standard of living.

2.4 Potential for convergence with national household survey data sets

The household methods are similar to some approaches based on national household budget and expenditure surveys and panel data. With the exception of qualitative participatory poverty assessments [11], the chief differences are in the methods of data collection and data analysis, the analytic perspective and

[10] See for example Coady D, Grosh M, Hoddinott J (2004) 'Targeting of transfers in Developing Countries: review of lessons and experience' World Bank.

[11] See, for example Norton, A. 'A Rough Guide to PPAs: an introduction to theory and practice (ODI, 2001)

operational relevance. Conventional household budget data is in some cases of questionable quality, data is not routinely available for operational use[12], there are often long delays between data collection and the publication of findings, and the analytic perspective is mainly 'top down', often highly technical and inaccessible to non-economists, and used to inform macroeconomic policy. The household methods were developed explicitly to be operationally practical, accessible to the non-specialist, reasonably cheap to use and to be practically applicable to policy formulation and the design of interventions.

2.5 The approaches are potentially complementary in that (i) they use similar data and data might be shared between the two; (ii) it is now recognised that there would be gains from combining "results from a computable general equilibrium model … with information from standard household surveys." [13]

Section II Household economy methods and their practical application in the development of social protection policy and programmes

3. The Household economy approach (HEA)

Background to the development of HEA

3.1 The Household economy approach (HEA) was developed from 1993 in collaboration with the FAO/GIEWS (Global Information and Early Warning System). FAO/GIEWS required a method of early warning that could be applied at national geographic scale and which would identify areas and populations at risk of hunger, given crop production data from remote sensing and country reports.

3.2 Famine is often seen as a special category of event i.e. an emergency demanding a 'life saving' intervention. However, the reality is that although in most poor countries climatic, price and other extraneous shocks are common, starvation

[12] Despite extensive efforts and the full co-operation of DfID country offices, it has not been possible, to date, to access original household budget data sets. Several household questionnaires are available. These are in our view over long (the longest is 147 pages) and could not in our experience be expected to yield accurate household data.
[13] See Bourguignon and da Silva. 2003, The Impact of economic policies on poverty and income distribution. World Bank/OUP

on any scale is rare. [14] In most cases people survive shocks without external assistance, but at the cost of reduced consumption and service use, and impoverishment, as livestock and other assets are sold to meet consumption needs.[15] This is now recognised as contributing significantly to impoverishment.[16]

3.3 Technically, a method was required which could (i) estimate people's ability to acquire food under changed conditions, where household non-food needs (soap, clothes, school costs etc) and a desirable level of asset preservation are specified; (ii) indicate potential lines of intervention and their relative cost; (iii) allow timely intervention, before people have sold assets or taken other extreme steps which are damaging to their livelihoods.

3.4 The approach developed uses a model to simulate the impact of a 'shock' on household food access, taking non-food consumption and assets into account. [17] The model (i) is based on recent household economic data, obtained using low cost methods; (ii) is laid out as a 'literal' stepwise simulation of the way in which a shock will affect a household and the capacity of the household to respond to this. The aim is to allow a user to develop a quantified argument or hypothesis about the most likely outcome, where the uncertainties and assumptions are declared. This approach has several practical advantages:

(i) output is accessible to non-technicians i.e. it takes the form of a narrative argument, and is expressed in operationally useful terms. [18] For example, it allows the modelling of different potential interventions e.g. the impact of market stabilisation, food aid, other income transfers.

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[14] To the authors' knowledge there have been, excluding siege and the starvation often associated with camps of refugees and displaced people, less than 20 cases in Africa in the last 30 years, some of these on a local scale.

[15] For example there is a case that assets sold by the poorest groups in the 1992 Malawi drought i.e. a few goats, had not been fully replaced by the late 1990s, and it is certain that the current crisis in Zimbabwe has led to an increase in the number of girls taking up prostitution to meet family food needs.(see O'Donnell M, Khozombah M, and Mudenda S 'The Livelihoods of Commercial Sex Workers in Binga District, Zimbabwe', SC UK 2002)

[16] see World Bank Social Protection Strategy, www.worldbank.org/sp

[17] This was based on Sen's (1981) theory of 'exchange entitlements', which defines famine in terms of people's ability to acquire food, rather than in terms of aggregate food supply.

[18] Many methods have been used. Most are based on 'proxy indicators' e.g. precipitation, crop production, food prices, the assumption being that changes in these will 'indicate' changes in food access. The chief limitations of this are that (i) the interpretation of indicator changes requires knowledge of the underlying economy e.g. a food price rise matters only to the extent that the population depends on food purchase and has money; (ii) it is a 'black box' i.e. it yields an opinion that there is likely to be a problem, but can give no clue as to the scale, severity or timing of this and no means of judging if the opinion is true.

(ii) it provides a way to manage the intrinsic uncertainty of prediction. A hypothesis suggests 'indicators' which *should* be observed if the prediction is correct, and allows this to be revised if they are not. For example, if it was thought that a given shock should lead poorer people to sell livestock to survive, then livestock sales or a fall in livestock prices should be observed.

(iii) Information of uncertain quality, particularly on shocks, [19] can be accommodated by developing different scenarios at different values.

3.5 Additionally, the approach provides useful information on rural economy, and a way of operationalising concepts of economy and food security. From an NGO standpoint, it is striking that although most development work has economic objectives or implications, practitioners often have very little information on the way in which people actually live, and no reliable means of assessing the possible welfare gains from any intervention. (Annexe 1:8)

3.6 Computer software is used to simplify the development of simulations.

3.7 The HEA predicts the extent and effect of shocks, and has been widely used, mainly in eastern and southern Africa, for a decade. Large areas have been mapped (Figure 1) and it has been found to be a reliable predictive method (Annexe 1, Section 1).

[19] Measures of crop production are in many cases still little more than rough estimates e.g. that maize production is expected to be down by 20-30% relative to some other year. It is rare for any current information to be available on fishery or rangeland production, or employment.

4. HEA data requirements

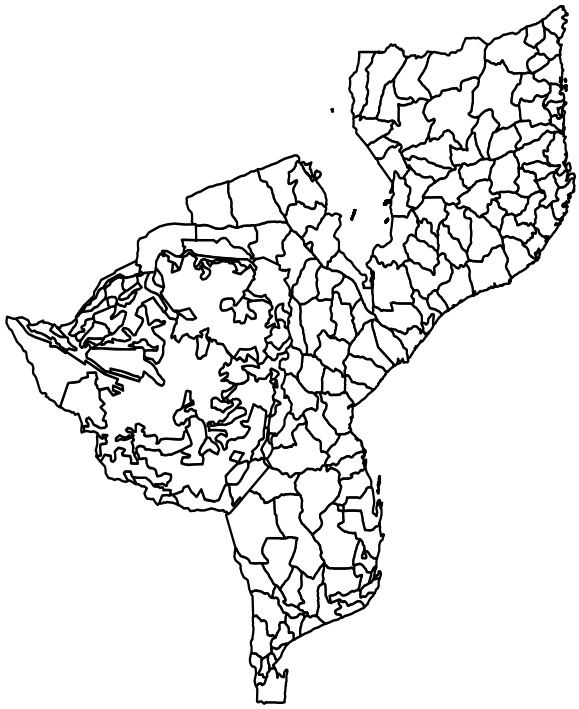


Figure 1. Areas of Mozambique, Zimbabwe and Swaziland mapped (data from SC UK/FAO collaboration and Government of Mozambique).

4.1 A data set was devised which (i) was simple enough to be acquired reasonably quickly and cheaply over large areas, but (ii) retained a sufficient measure of a household's ability to acquire food and variations in this within and between populations, to allow useful predictions to be made.

4.2 Within a country or other larger area the data set defines (Figure 2):

- Populations (of households) in terms of a 'reasonably common economy' i.e. within which people exploit broadly the same set of resources and economic opportunities. This is referred to here as 'an economy' [20]. These are often broadly contiguous with 'agro-economic' zones. More than one economy may be found within any area. Areas may be larger or smaller according to use. For a national early warning system, where the aim is to provide a preliminary estimate of the impact of a production or other change, so that a more detailed

[20] Sometimes referred to as a 'Food Economy Zone'.

assessment can be carried out, these areas may be very large. For example, the map of Ethiopia in Figure 2 uses very broad geographical/population divisions.[21] The approach can be scaled down, a village being the smallest unit.

- The wealth distribution of each defined population. The definition of household wealth is that used by the people themselves i.e. it may reflect ownership or control of livestock, land, labour or some combination of these.

- For each wealth group, a budget is established for a household 'typical' of that wealth group, with defined demography and for a defined reference year. A reference year may be a recent 'normal' year i.e. one of neither plenty nor want, or a recent year in which conditions are known. Figure 3 shows an example of a household data set from NW Ethiopia.

4.3 Accurately measuring the income (and expenditure) of individual households is a long-standing problem[22] as (i) there are technical problems relating to income in kind, sporadic income sources etc; (ii) the accuracy of information is sometimes in doubt, the assumption often being made that respondents will conceal income sources.

4.4. HEA information is obtained through group interviews, not from individual households. Information on wealth groups, asset holding etc is obtained from a general group discussion i.e. usually a village meeting. Household data is obtained from groups drawn from each wealth group (typically 6-10 people including a range of ages, men and women). This technique has the advantages that (i) as people are discussing a hypothetical household, not their own, this leads to open and contested discussion; (ii) if the household budget does not balance, an explanation must be sought. (Annexe 1:2)

4.5 The data set describes (i) the household's food and cash income in the reference year; (ii) cash savings, livestock and other tradable assets which might be used to acquire food; (iii) sources of income that the household might exploit under changed

[21] The area in the Southeast of the country might be argued to include at least 4 distinct economies (flood retreat cultivators on the lower R. Shabelle, transhumant/ cultivating pastoralists trading largely with Hargeisa, pastoralists trading livestock to the south and a sedentary cultivating population).

[22] See Deaton A and Grosh M, 2000 'Consumption', in M Grosh et al eds 'Designing Household Survey Questionnaires for Developing countries: lessons from 15 years of living standards measurement study'. Washington DC: World Bank

conditions and the amounts of income that would be obtained e.g. an increased consumption of wild foods, long distance labour migration. A large amount of supporting information is also gathered e.g. on prices, economic behaviour under changed conditions etc. (Annexe 1:2)

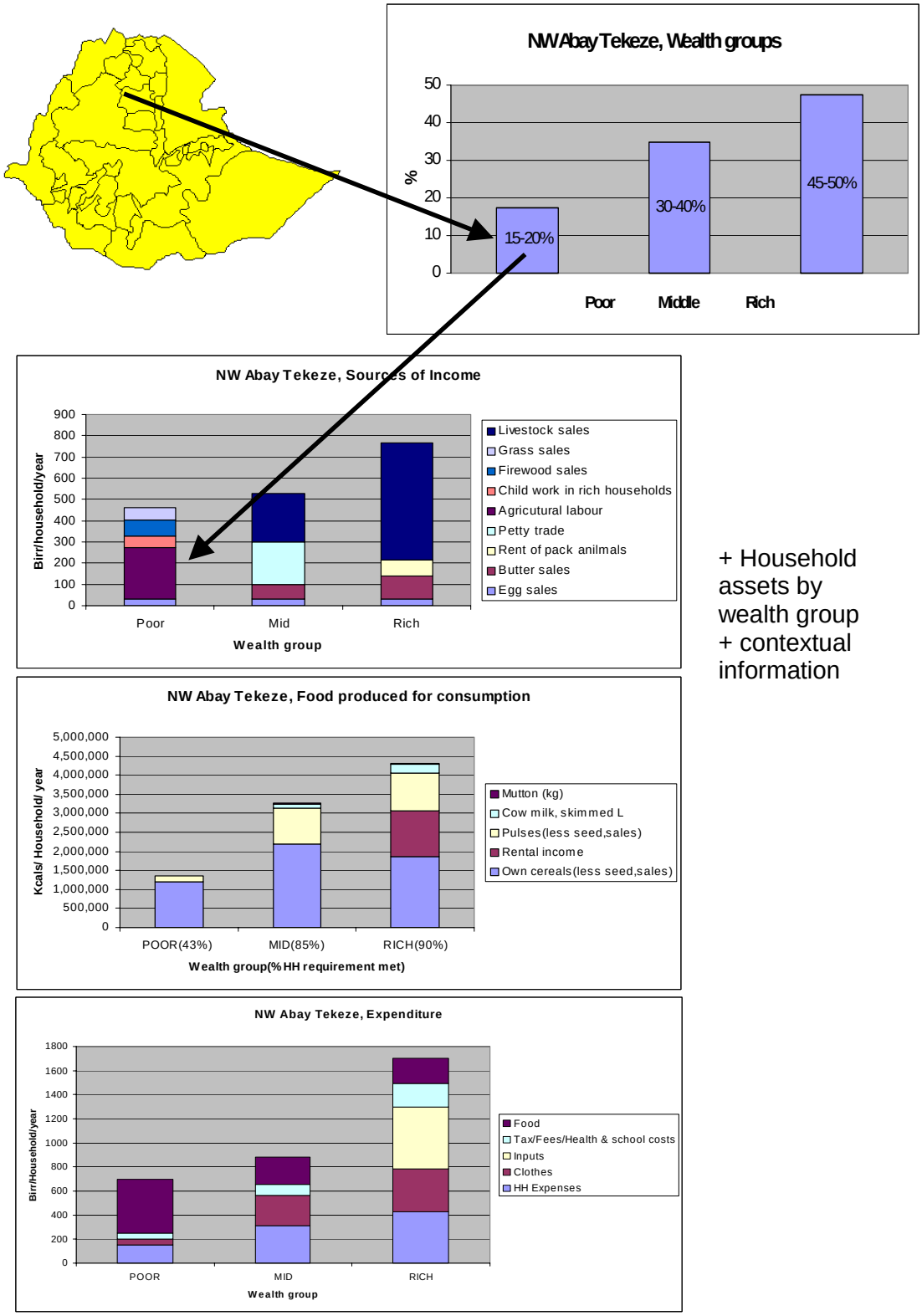
4.5 An essential feature of the data set is that it retains qualitative and quantitative detail. For example, a change in the price of groundnuts on household entitlement can be simulated only if the contribution of groundnuts to household entitlement is known.

4.6 These techniques cannot usually be used for urban populations (Annexe 1:2.12).

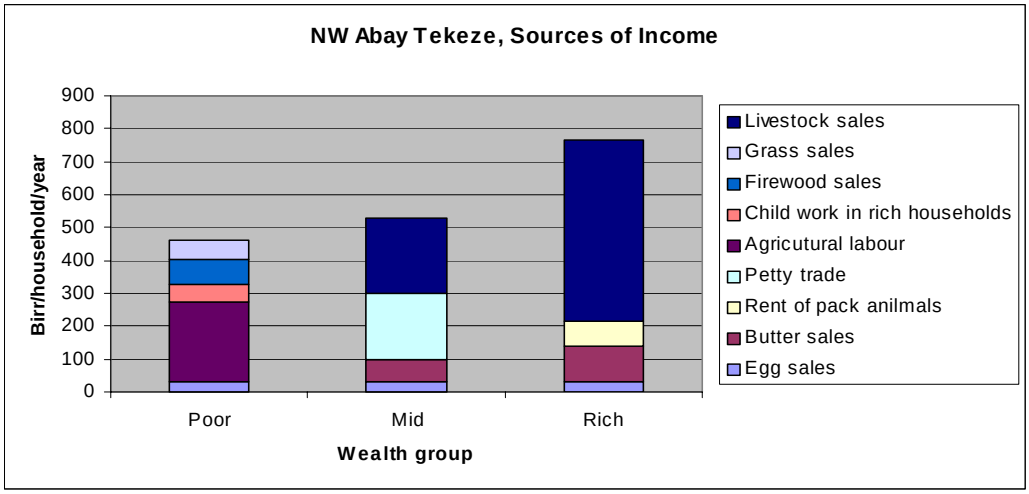
4.7 For rapid assessments the data set can be further simplified (Annexe 1:2.21)

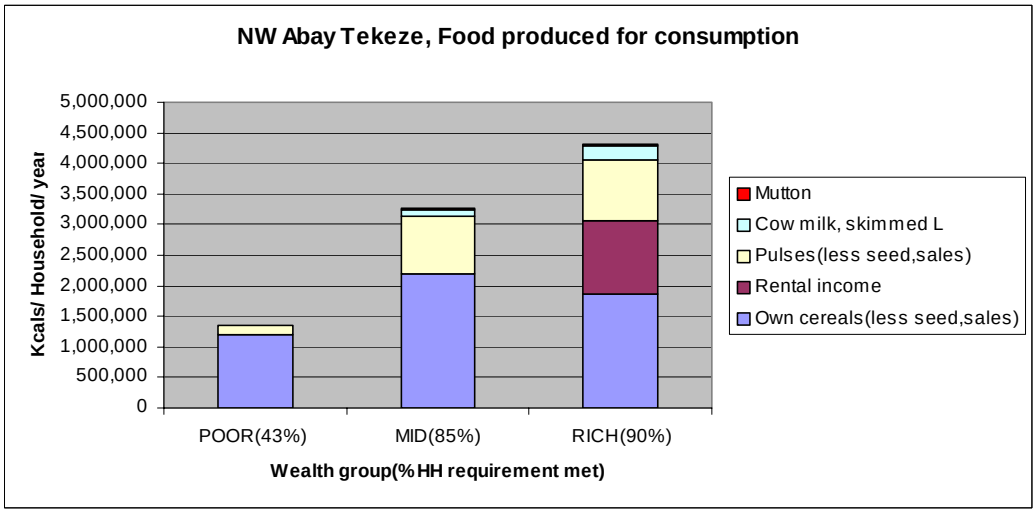
4.8 Sample sites are deliberately rather than randomly selected (Annexe 1:3)

Figure 2. The HEA data set



+ Household assets by wealth group
+ contextual information





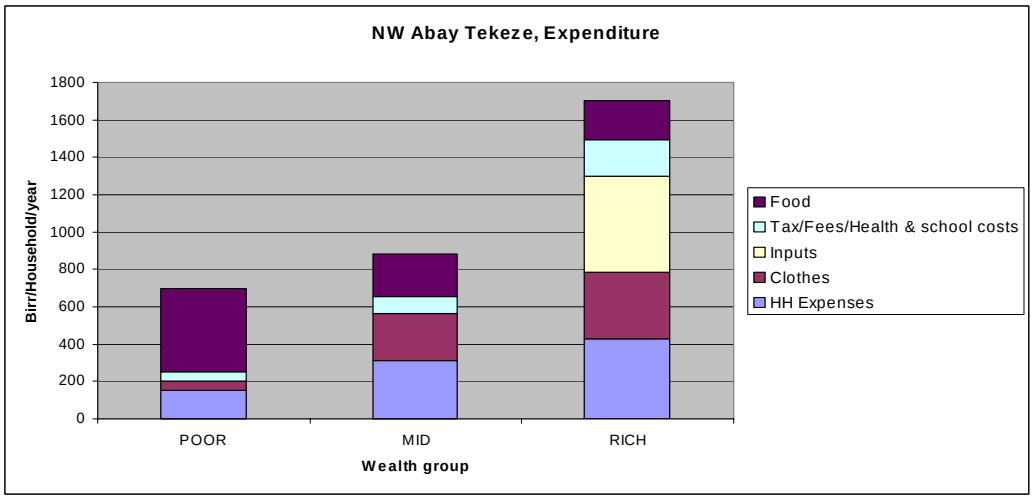


Figure 3. Household budget data for NW Abay Tekeze zone, Ethiopia. Source Cassandra Chapman/ Haile Kiros, SC UK Ethiopia

5. The HEA model

5.1 The HEA model can be used at different geographical scales and at different levels of complexity and using spreadsheets and other software (Annexe 1:4).

5.2 The model is currently organised to give output in terms of a household's capacity to obtain sufficient food, given a stated level of non-food consumption and asset preservation. This reflects the current main use of the method for crisis prediction and management, where the aim is to establish the range and cost of interventions which would allow people to survive while maintaining a stated standard of living and preserving a defined level of assets. For some social protection interventions e.g. to assess the capacity of poorer households to access health care, pay school fees or water charges etc the model can be arranged to give output in terms of household capacity to acquire non-food goods and services, given a particular level of food access. This presentation is used with IHM (Section 9 below).

5.3 Given that, an analysis requires the definition of:

- the cost of the non-food needs which a household must meet before food is acquired. This typically includes taxation, housing, clothing, fuel, soap, school fees and health expenses sufficient to meet a basic respectable standard of living in that place. This is normative i.e. is set by the user at the level a household 'should' have, and is often above the actual non-food consumption of the poorest households.
- The level of assets which a household should be allowed to retain (e.g. 2 cows or 5), and activities which are 'permitted' (e.g. long distance migration).

5.3 There are two main steps in the model:

Step 1. A calculation of the direct impact of a shock on households in each wealth group. This is a simple arithmetic calculation e.g. if a household usually obtains 50% of its food consumption needs from sorghum and sorghum production falls by 10%, then the contribution of sorghum to household needs would fall to 45%. Shocks may include changes to production or exchange of any item produced or traded by a household, in any combination. The calculations remain the same. Food deficits can

be calculated relative to observed food energy requirements or international norms (Annexe 1.5.21).

Step 2. An estimate of the ability of the household to compensate for any loss of income in step 1, given the set level of asset preservation and non-food consumption. This is done stepwise through each possible step the household might take, calculating the food value of each and the contribution of this to overcoming any deficit. The steps are (i) obtaining increased gifts [23] (ii) expanding wild food consumption (iii) consuming food stocks (iv) using cash savings to purchase food (v) selling livestock to purchase food (vi) finding additional employment. These steps can be incorporated in different orders (Annexe 1:5.15).

5.4 Step 2 is often affected by secondary impacts on price e.g. a harvest failure may lead to a fall in household food income from crops, a fall in crop sales and a rise in the price of crops. As people sell assets to purchase food, asset prices fall and a collapse of the terms of trade between assets and food is a common outcome (Figure 4). Secondary price changes are usually accommodated by specifying an expected price for each relevant commodity although more complex market models have been used (Annexe 5.7).

[23] 'Gifts' includes charity, food aid and other official assistance; obligatory transfers between households e.g. of livestock in some pastoral areas, and gifts given on reciprocal terms, where there is an expectation of some return at a future date. These are not always strictly 'non-market', for instance where some token service is required by the giver, but the distortion is small.

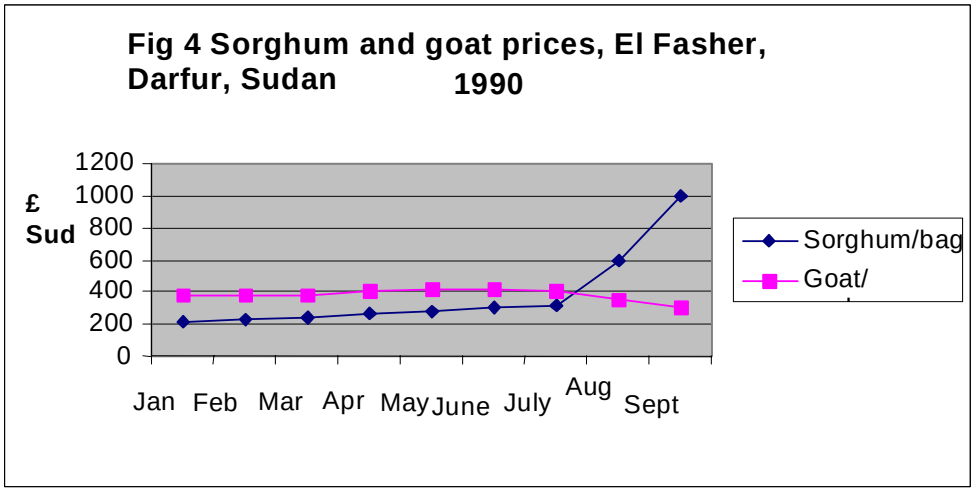


Figure 4. Sorghum and goat prices El Fasher, Sudan, 1990 showing the change in terms of trade following a production failure.

5.5 An example of the working of the model is given in Figures 5.1, 5.2, 5.3. This uses data from Malawi in 2001/2002, when famine followed a fall in maize production and a rise in maize prices.

5.6 Seasonal household income flow, and the ability of the household to access food and non-food goods at different periods of the year can be estimated by combining income data with information on the time at which income is obtained (Figure 15, Annexe 1:11.). Changes over periods of several years preceding the year of interest can be modelled (Annexe 1:5.18).

5.7 Output from the model is used to provide a quantified framework from which a narrative argument is developed, setting out the likely connection between a shock and household entitlement, where the assumptions are clearly stated and uncertainties in the data are recognised. Where the model is used for prediction, seasonal analysis can be used to estimate the probable evolution of a problem and the timing of events.

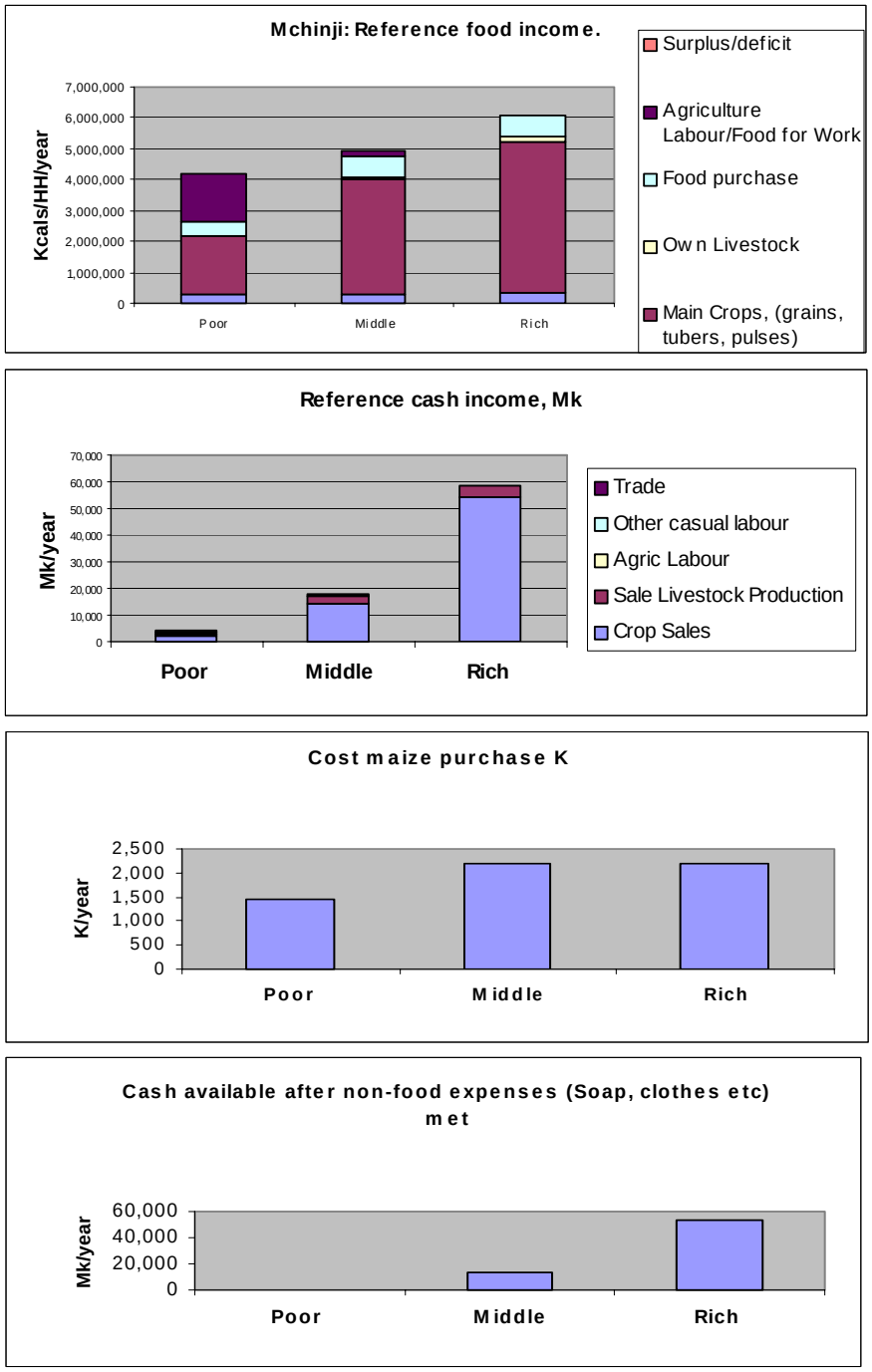


FIGURE 5.1 The reference values. Graphs I & 2 show *food and cash income* for the reference year (2000) for each of the three wealth groups (poor, middle, rich). *The cost of maize purchase* (Graph 3) is the cost of purchasing maize at the maize price in the reference year (@Kwatcha 10/kg) to the level of 2100 kcal/person/day. *Cash remaining after non-food expenses have been met* (graph 4) is that available to each household to purchase maize. In the case of the poor group this is zero: which reflects the fact that in reality these households cannot meet either the set level of food consumption or afford to consume non-food goods at the level set.

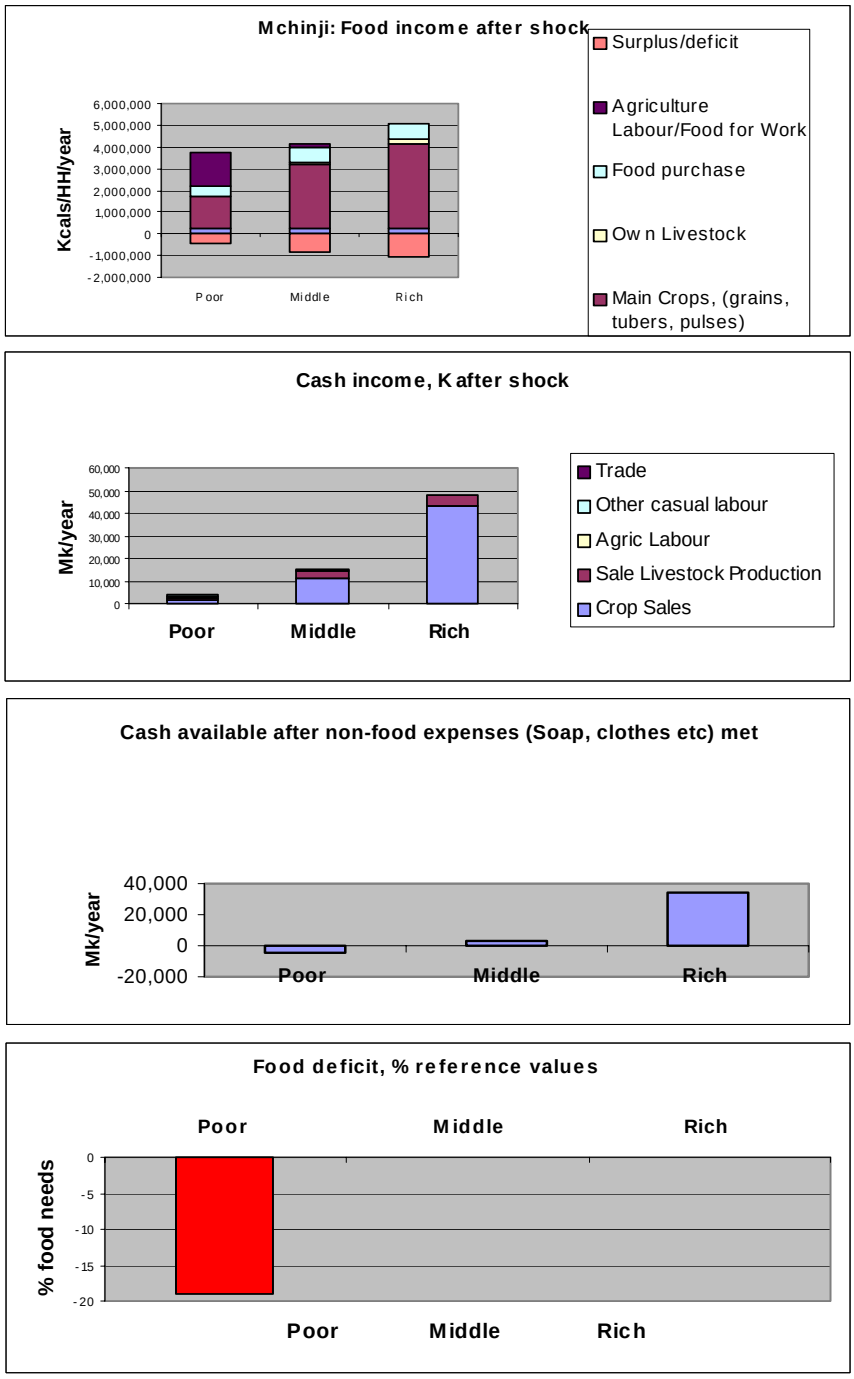


FIGURE 5. 2: HEA model Step 1. Estimated impact of a 20% fall in food crop production and doubling of maize price. Food income falls (deficit graph 1), and cash income falls (graph 2), as less maize is available for sale. The cash required to purchase food (not shown) increases (by a factor 3.9, 4.3 and 5, for the poor, middle and rich respectively) and the cash remaining to households (graph 3) falls. The final graph shows the estimated fall in food access. For the poor group this is 19%. The middle and rich groups meet their food and non-food needs.

FIGURE 5.3 HEA STEP 2.	Poor	Middle	Rich	Poor	Middle	Rich
	Original values			Food energy equivalent(Kcal/ household)		
Food stocks (maize/Kg)	0	0	100	0	0	316,200
Cash savings (Mk)	0	500	20,000	0	79,050	316,2000
Livestock sales (number of goats)	2	6	20	0	189,720	632,400
Wild foods	0	0	0			
Additional work (days)	0	0	0			
Gifts, non-market exchange	0	0	0			

FIGURE 5.3 HEA STEP 2. The ability of household to compensate for the deficit in step 1. The original values are the values collected by survey e.g. the poor, middle and rich groups had 2, 6 and 20 goats respectively. The food energy equivalent is the value of the original item when converted to food e.g. 6 goats @ K200/each is equivalent to 60kg maize. The poor have no reserves except for 2 goats: there are for all practical purposes no wild foods, additional work cannot be found and gift giving, always at a small scale, ceases. The sale of the two goats reduces the estimated food deficit of the poor from 19% (in the preceding figure, Step 1) to 17%.

HEA output can also be expressed seasonally. This increases the power of the analysis, as deficits are generally experienced as intense periods of reduced access to goods and services rather than annual averages. It also gives estimates of the time at which people are likely to reduce expenditure or dispose of assets and at which intervention will be required to achieve a defined impact (Figure 5.3.1, Annexe1: 10).

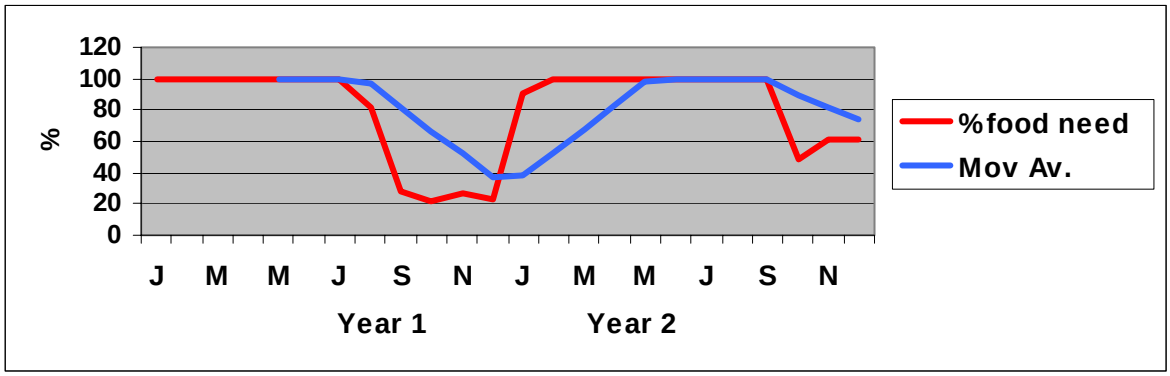


Figure 5.3.1. Monthly food access (food income + food purchase) of the 'poor' group over a 2-year period (red line), assuming (i) in year 1, a 20% fall in food crop production, a steady increase in maize price from July, and the specified minimum level of non-food consumption i.e. the same as Figure 5.2. (ii) Year 2, maize production reduced to 80% and normal maize price. A 3-year moving average (blue line) probably better represents reality, as people can to some extent ration food and smooth their consumption levels.

6. The application of HEA to social protection

6.1 The chief application of HEA to social protection is to the objective of "Protecting income and reducing the vulnerability of whole populations against defined shocks or events ('income smoothing or stabilisation'), although the method also has value at a more local scale e.g. to NGOs.

6.2 To devise effective social protection programmes through income smoothing interventions, information is needed on the number of households that will be affected by a given change or shock, the economic impact of the shock at household level and an estimate of the cost and impact of different interventions. In other words, policy makers need a means of assessing:

(i) the size, nature and location of the impact of a shock or change on household entitlement. In the context of social protection, a shock or change might be an event such as a crop failure in the current agricultural cycle; the effect of an actual or proposed macro economic policy which could include the introduction of service charges; or interventions intended to reduce the vulnerability of particular groups to future shocks and changes e.g. welfare distributions, cash pensions, waiving of user fees etc.

(ii) information to inform a decision about the size and type of response required in response to the shock, and ideally the relative cost of different policy/ programme responses.

(iii) a means of evaluating the outcome.

6.3 HEA meets these requirements with the limitations that:

(i) Populations must be rural (or in some cases peri-urban) (Annexe 1:2.12).

(ii) a shock or change must be expressed as changes in production, price or market access or some combination of these. For example, in the case of output from a macroeconomic model, the expected consequences of a policy change would have to be put in terms of changes in income, production, terms of trade etc; the impact of a change in input prices would require additional information on crop/input relationships.

(iii) the simplification of the data set does not allow discrimination between households within wealth groups. Where a proposed benefit e.g. a cash transfer, would be received by only some households additional information would be required on the proportion of households likely to receive this. Additionally, the data set does not allow simple direct comparisons of income and asset holding between different populations (Annexe 1:10).

Experience with HEA

6.4 HEA is currently used by government and other agencies in several food insecure countries in Africa, including Malawi, Swaziland, Lesotho, and Somalia.

6.5 Experience with HEA has been largely in the assessment of potential emergencies in Africa[24]. In practice the scope for income smoothing has been limited, chiefly because in recent years, crisis response has been virtually synonymous with the free distribution of food aid, in most cases well after people

[24] Recent work (eg Rwanda, Tanzania and Ethiopia) has extended HEA analysis to the impact of user fees on affordability of and access to health care. See, for example, France A and Grootenhuis F , 'The Cost of Chronic Illness' for a description of the use of HEA to assess the impact of chronic illness in Lindi District, Tanzania (SC UK 2004)

have disposed of their assets[25]. Further, the relationship between HEA and actual policy decisions is sometimes unclear [26].

6.6 With those provisos, HEA has been found to be practical and effective. A retrospective evaluation of a large number of HEA assessments carried out since 1998 has shown that the method leads to accurate and reliable predictions [27] and there is a large, if inevitably anecdotal, experience that it provides a basis of fact and a framework within which international and local organisations can make better operational decisions (Annexe 1: 1). For example, HEA has been used (i) to pre-empt the impact of drought and employment failure in Zimbabwe in (2001); (ii) to demonstrate the relationship between maize price and food access in northern Tanzania, following drought in 1999. This probably contributed to a successful GOT intervention to stabilise maize prices with demonstrated impact on household welfare [28]. In a single case in Rwanda steps were taken to reduce household non-food costs releasing more money to households to purchase food. [29] Situations when there are taxes and other charges that are effectively applied and can be reduced are rare.

6.7 The first clear test of the approach to income smoothing is likely to be in southern Africa where HEA is used by several national Vulnerability Analysis Committees.

7. Examples of the application of HEA

7.1 The examples have been selected to illustrate the large-scale application of HEA to the prediction of the impact of shocks and the effect of market stabilisation and asset preservation on this. The model used is the same as that in the worked example although an older national data set has been used.

[25] See Knox-Peebles, C, Assessment of Save the Children's Cash for Relief project, Wollo, Ethiopia (SC UK 2001); Mathys, E, Assessment of the Impact of Food Aid on Household Economies of N Wollo, S Wollo and Eastern Hararghey, Ethiopia (SC UK 2000)

[26] Although in most situations policy responsibility lies with Government, policy is often heavily influenced by donors and the basis of decisions may be unclear. In larger internationally recognised emergencies there is sometimes rivalry between information systems. HEA has certainly expedited the recognition of a problem and arguably the speed and quality of response in many cases e.g. Darfur, Sudan 1998 – 2003, Malawi and Zambezi Valley, Zimbabwe 2001/2002.

[27] See SC UK report to DfID, 2001-2 food security grant

[28] Household food security in Singida and Dodoma regions based on Household Food Economy baselines, SC UK, Dar Es Salaam, March 2000

[29] An assessment in 2000 in NW Rwanda found much of the population destitute, but still subject to health charges and payment for travel passes. Easing these both saved household expenditure and allowed some households to obtain higher paid migrant work.

7.2 Figure 6 shows the impact of a 40% fall in maize production in southern districts of Malawi:

(i) Without intervention. The impact on livestock holdings varies by area but poorer groups sell all their livestock to obtain food. Livestock prices collapse.
(ii) Where maize prices have been stabilised so that there is no change in maize price with increased demand. Livestock losses and the severity of the food deficit are sharply reduced.
(iii) Where maize prices have been stabilised and livestock (the major asset in this case) has been preserved i.e. households do not sell livestock to purchase food. This leads to a small increase in the food deficit relative to example (ii).

7.3 HEA also allows the relative cost of these interventions to be estimated. In the case example, the gross population food deficit would be: (i) approximately 320,000 tonnes of maize equivalent (at 1800kcals / person/ day), if no action is taken; (ii) 76,000 tonnes if the market is stabilised i.e. maize prices are held constant, although maize would also be required to stabilise the market; (iii) 101,000 tonnes if the maize market is stabilised and people are not allowed to sell assets to purchase food. It is possible to estimate the quantity of food needed to stabilise any named market (Annexe 5.14).

7.4 In practice output is usually expressed in terms of ranges, reflecting variation and/or uncertainty in input values (Annexe 1:3.5).

8. Using HEA to show the impact of cash transfers.

8.1 HEA can be used to estimate the impact of cash transfers to households. For instance, in the Malawi example (Figures 5.1,5.2,5.3) of the impact of a 20% fall in maize production and a doubling of maize price, a cash transfer of $45 per year to the poor wealth group would be sufficient to completely protect those households from the impact of the shock. This would protect both household food and non-food consumption and avoid the need for households to sell livestock or dispose of other assets. However this model assumes that prices will remain constant. If a shock were local, this might in some cases be a reasonable assumption; however, if cash transfers were made to a large population/area or where markets were poorly

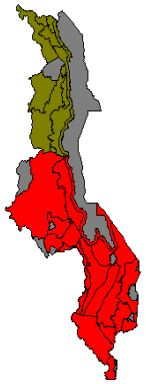
integrated [30] this might lead only to a price rise, and to be effective cash distribution might also require steps to stabilise prices.

8.2 Potential price changes are usually managed by making informed judgements about likely market behaviour. The impact of an expected price change can be calculated for a range of price estimates (e.g. see Figure 16). In some cases information on markets has been obtained from sample sites (the markets used for each traded commodity and where there is more than one, their relative importance). This can be used to map markets and to estimate of volumes of trade in the reference year, to inform judgement about possible price changes. Experimentally this has also been used to model market behaviour under changed conditions.

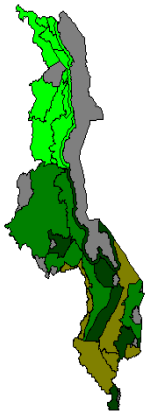
8.3 Deriving estimates of the demand for non-food commodities e.g. that might result from a cash transfer, requires information on the way in which a population would use additional disposable income. Observed patterns of expenditure in the HEA data set can be a guide to this.

This is discussed further in Annexe 1:5.7.

[30] For example in Darfur, Sudan in 1985. A Saudi cash distribution in El Fasher, where the grain market was not resupplied because of diesel shortages and demand had increased following crop failure, was followed by a sharp spike in grain prices lasting about a week.

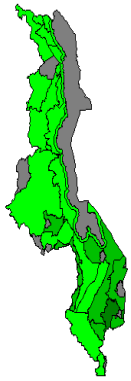


Maize production reduced by 50% in areas shown in red.



Simulation 1. Impact without intervention.

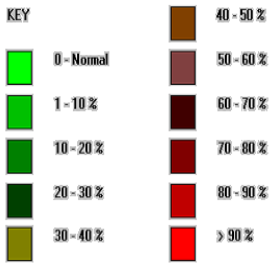
- Grain prices increase by about 4 fold.
- Very substantial livestock sales – the poorest groups lose most or all animals.

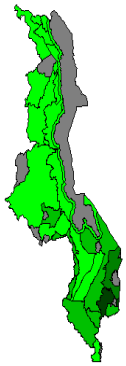


Simulation 2. Grain markets stabilised so that maize price held constant.

Much reduced deficit and loss of livestock.

Key: Mean (of all wealth groups) deficit, % annual food needs.





Simulation 2. Grain price held constant: no livestock sales allowed.

No loss livestock : small increase in food deficit.

Figure 6. Simulated effect on household food access of crop failure in Malawi on different assumptions.

9. The Individual Household Model (IHM)

9.1 The IHM was developed to overcome the limitations imposed by the simplification of the HEA data set and to extend household economy analysis to more developmental problems. The IHM is based on the same basic principle as HEA i.e. the use of a quantified 'real time' model to develop hypotheses about the relationship between a change or shock and the economy of the household. As with HEA, the IHM provides an estimate of the household's capacity to acquire goods and services, not a measure of the way in which any particular household will actually use the resources available to it. It is also designed as an operational method i.e. the basic data set and analytic approach are standardised (Annexe 1:2.16).

9.2 To date the method has been used only for studies of single villages, to investigate the household impact of changes in coffee prices and the impact of HIV/AIDS on household income and the standard of living[31]. IHM has not yet been applied to larger populations. There does not appear to be any fundamental reason why this should not be done, at reasonable cost, although attention would be required to maintaining data quality. (Annexe 1:2.19)

9.3 The chief differences between HEA and IHM are in the data set and the way in which this data is collected, and in the way in which data is presented during analysis. Data is obtained from individual households, not the 'typical households' of HEA. This extends the use of IHM to urban areas. Random samples of households can be taken which allows a more conventional statistical treatment of the results (Annexe 1:3.8).

10. Data requirements

10.1 The basic data set includes household demography by age and sex, income as food and cash (recorded by source for a defined period, usually an agricultural year), and assets held (including by type, land, cash, livestock and a variable range of other goods). Information on expenditure is obtained for a subset of households. Additional

[31] IHM studies carried out in Uganda, Ethiopia, Swaziland, Malawi and Mozambique are available on the Save the Children web site (www.savethechildren.org.uk)

information is obtained to deepen analysis on any specific topic e.g. during the HIV studies information was gathered on orphan status, school attendance, and on farm inputs/ crop returns as this was relevant to the case.

10.3 IHM data collection techniques build on HEA data collection methods This is discussed more fully in Annexe I: 2. Data collection follows the principles that: (i) sensible questions can be framed only on the basis of knowledge of all potential activities in that area, their seasonality, rates of return etc; (ii) direct questions about income are avoided as much as possible, the preferred approach being to ask about household occupations and the period worked or the asset exploited and the returns obtained. (iii) data sets are designed to permit a large degree of internal triangulation e.g. a given area of a defined type of land using known inputs for a crop should produce a return in a plausible range, or if not an explanation; the disposal of the return (retention for seed, payment of workers, consumption, waste) should be accounted for. (iv) interviews should be short to avoid interviewer/ interviewee fatigue. (Annexe 1:2)

10.4 Information is obtained in three stages. 1. An initial pre-survey, to obtain an overview of the economy (all agricultural and non-agricultural income sources exploited in that area, their labour requirements, seasonality, prices, local weights and measures etc.) 2. From this a short household questionnaire is developed. 3. Data is checked for consistency using purpose designed software (Annexe 1:4.7)

11. The IHM model

11.1 The IHM allows analysis at the level of the individual household and extends analysis to the impact of changes within a household e.g. to household demography, the effects of illness or disability.

11.2 Output from the model is expressed in terms of household disposable income, defined as the cash remaining to the household after it has met its minimum food needs. This reflects (i) the current uses of the method, where the interest has been to assess a household's capacity to meet its non-food needs and (ii) the technical reason that in most locations some food income e.g. wild foods, milk are not marketed and have no price. Household disposable income is standardised by expressing this per 'adult equivalent' in the household (defined as total household food energy requirement / (average adult male and female energy requirement)).

With the proviso that there will be some inequality in the quality of food produced and consumed by different households e.g. some may have access to milk or fruit, and others not, the disposable income of different households can be directly compared. (Annexe 1:6.1).

11.3 A standard of living threshold is calculated as the local cost of a basket of goods including the cost of housing, fuel, clothing, soap, utensils, matches and other household sundries, school costs, and an allocation for health at local prices. This is allocated to each household individually e.g. school costs only apply to households with school age children.

11.4 The model can be expressed on a spreadsheet, although dedicated software has advantages. (Annexe 1:4.8)

12. The potential application of IHM to social protection

12.1 IHM can be used, as with HEA, to simulate the impact on a household of a change or shock, although at a much finer level of discrimination between households.

12.2 HEA has application to 4 aspects of social protection:

(i) Estimating household vulnerability to changes resulting from macro economic policies e.g. to user charges, commodity prices and to other shocks and changes e.g. climatic, HIV/AIDS.
(ii) Establishing targeting criteria e.g. for income transfers to households.
(iii) Estimating the impact of proposed interventions/ policy changes intended to reduce vulnerability.
(iv) Monitoring the impact of defined policies and programmes.

12.3 IHM output provides (i) a detailed economic description e.g. the contribution of any food or other income source to each household; (ii) associations to be made between household or individual characteristics and household economy e.g. orphan status and household economy; (iii) estimates of the impact of shocks and changes on household economy. Shocks may be external e.g. crop production, price changes or internal to the household e.g. changed household costs from illness, imposition of

fees or combinations of these. The data can also be used for more conventional statistical analysis.

12.4 The modelling conducted to date has been limited to estimates of the direct impact of changes on household economy. This is done by recalculating household disposable income taking into account a specified change or changes to the household or its context. Secondary effects have not been incorporated in the model. However:

(i) As with HEA, the capacity of households to compensate for lost income e.g. by the sale of assets can be estimated.

(ii) Some secondary effects could be incorporated if the necessary information were available e.g. knowledge of the way in which households are likely to use additional disposable income. For example, where a price change leads to gains for some households, the extent to which this would be redistributed through increased employment to households which did not gain directly from the change. Although it is beyond the remit of this paper, there is also scope for applying the model to some currently difficult or intractable measurement problems e.g. the economic impact of HIV/AIDS, and for 'speculative' modelling to gain insight into some quantitatively difficult problems (Annexe 1: 6.8).

On current experience IHM might be most usefully applied to social protection:

1. as an adjunct to HEA for local studies to deepen understanding in specific areas relevant to social policy e.g. income transfers, crop pricing, HIV/AIDS etc.

2. For more detailed monitoring of larger areas where there is a compelling reason to have detailed information. [32]

The following examples illustrate the application of IHM to social policy.

13. Targeting criteria for the distribution of food and cash to households

[32] For example monitoring coffee production in Uganda, where only some households in 6 districts grow this, there are a variety of improved coffee interventions/ substitute crop

13.1 Any social welfare programme faces the difficulty of finding targeting criteria which can identify a beneficiary group with acceptable accuracy i.e. minimise exclusion / inclusion errors, and be practically applied at useful scale at reasonable cost.

13.2 However, the poor are a heterogeneous group. In the IHM studies to date no practically applicable criterion has been found which reliably identifies the poor (e.g. defined as those below the standard of living threshold) in a location or common characteristics that apply between locations [33]. The presence of an orphan in a household (defined as a person under 18 who has lost 1 or both parents) has been widely used in southern Africa as a targeting criterion for food aid. However, in villages in Swaziland and Mozambique no relationship was found between this criterion and poverty. In Malawi the relationship was tenuous and no clear relationship was found between poverty and female headed, or grandparent headed households (Figure 7).

13.3 Further, a well-known problem is that the poor are a 'moving target' as relative poverty levels change with small changes in household income (e.g. as might be expected from year to year variation in crop production and other income sources). Figure 9 shows the impact of a 20% change in household income on relative poverty in a Malawi village.

13.4 Targeting cash to poorer households may create an income trap. This is demonstrated in Figure 8 which shows the impact on disposable income/ adult equivalent of distributing the equivalent of $US50/ household year to households below the standard of living threshold in a Malawi village. The effect varies, according to household demography. Of 20 households below the standard of living threshold which receive cash 12 move above it, 8 do not. However, the result is to create a 'poverty-trap [34]', as the additional income makes some welfare recipients better off than non-recipients.

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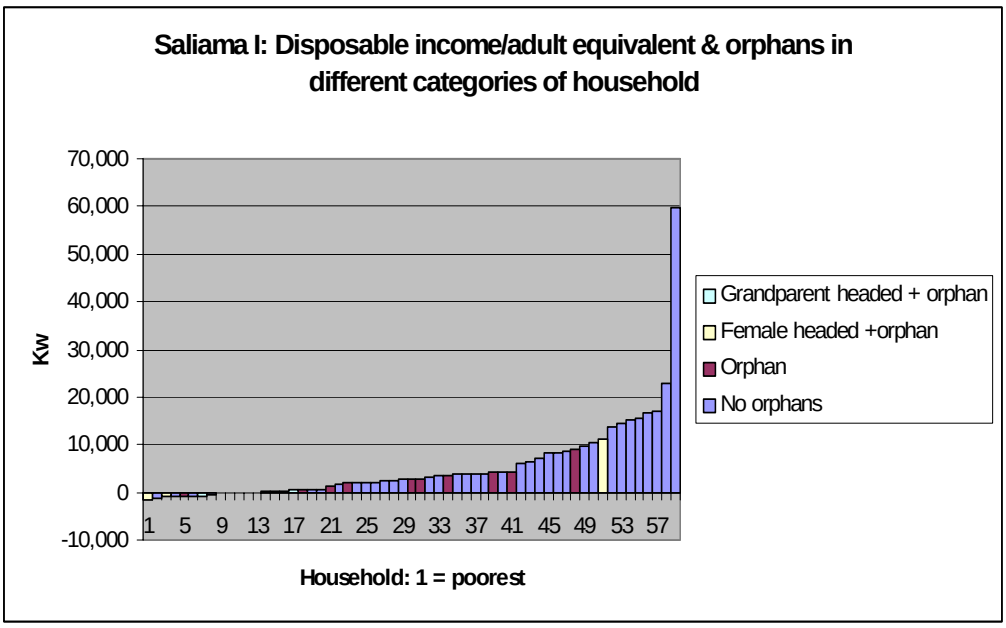
programmes, it is an important national export and there is evidence of falling investment in some districts.

[33] E.g. the importance of demographic characteristics to poverty depends on location e.g. in Malawi, where most households depend entirely on manual occupations, an absolute or relative lack of household labour can be critical. In much of Swaziland, where maize cultivation is mechanised, this matters less.

13.5 Our findings suggest that there are no obvious household characteristics that can be used to target welfare (e.g. female headed, orphan etc). However the shape of the income distributions suggests that a practical strategy might be to exclude the richest households. These are in general few in number and easier to identify and, assuming reasonably modest income transfers, the creation of a poverty trap would be avoided.

13.6 IHM can be used to show the impact on household economy of targeting by administrative category e.g. schoolchildren, orphans and other defined population can also be shown (For example Figure 8a).

[34] Also referred to as a 'welfare' or 'benefits' trap



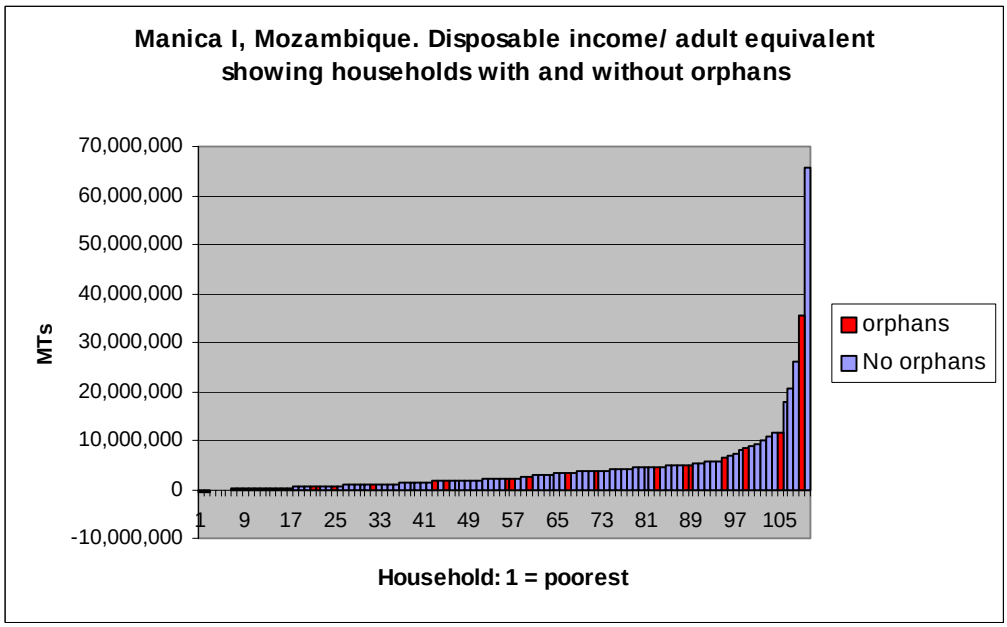


Figure 7. Disposable income/ adult equivalent 1) in village in Salima, Malawi showing female, grandparent headed and other households with orphans. 2. Village in Manica, Mozambique showing households with orphans.

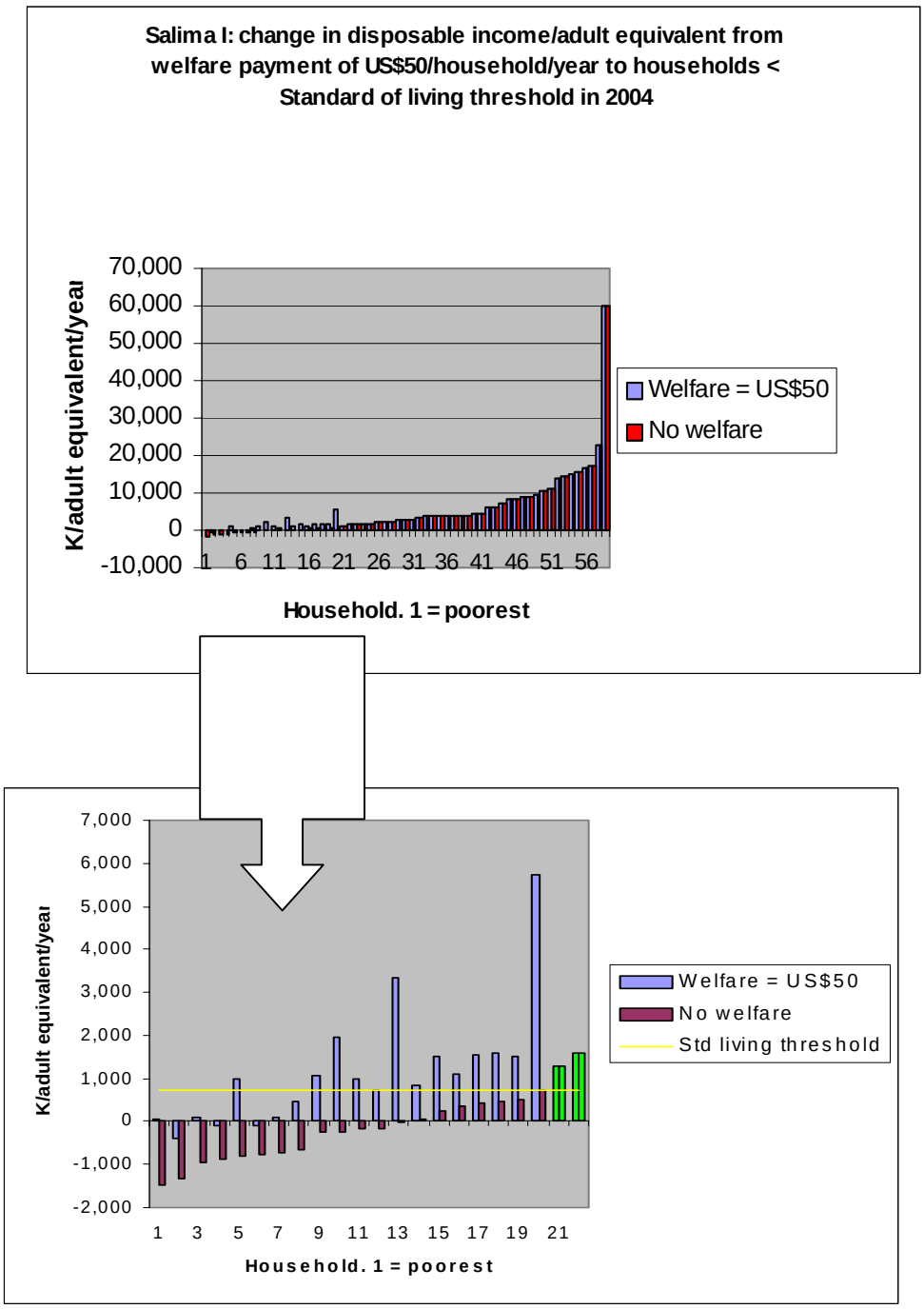


Figure 8. Salima I Malawi. Simulated effect of providing $US50/ household year to households below the standard of living threshold in 2004. Lower chart shows detail of upper chart: non-recipients of welfare in green. Impact on households receiving welfare varies (according to household demography). Of 20 households below the standard of living threshold 12 move above it, 8 do not. However, the effect is to create an 'income-trap' making some welfare recipients better off than many non-recipients.

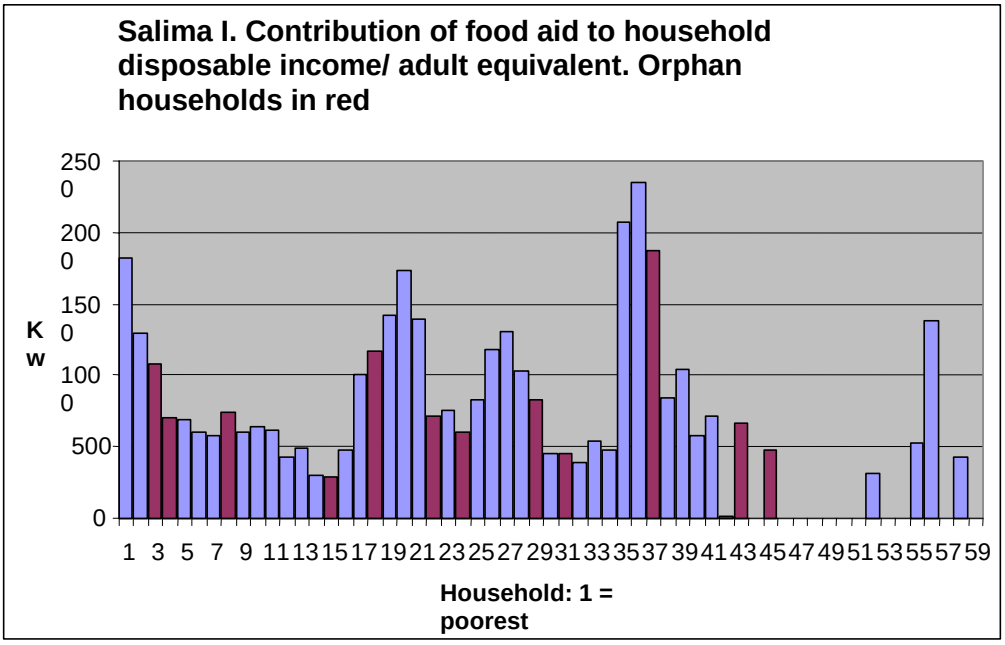
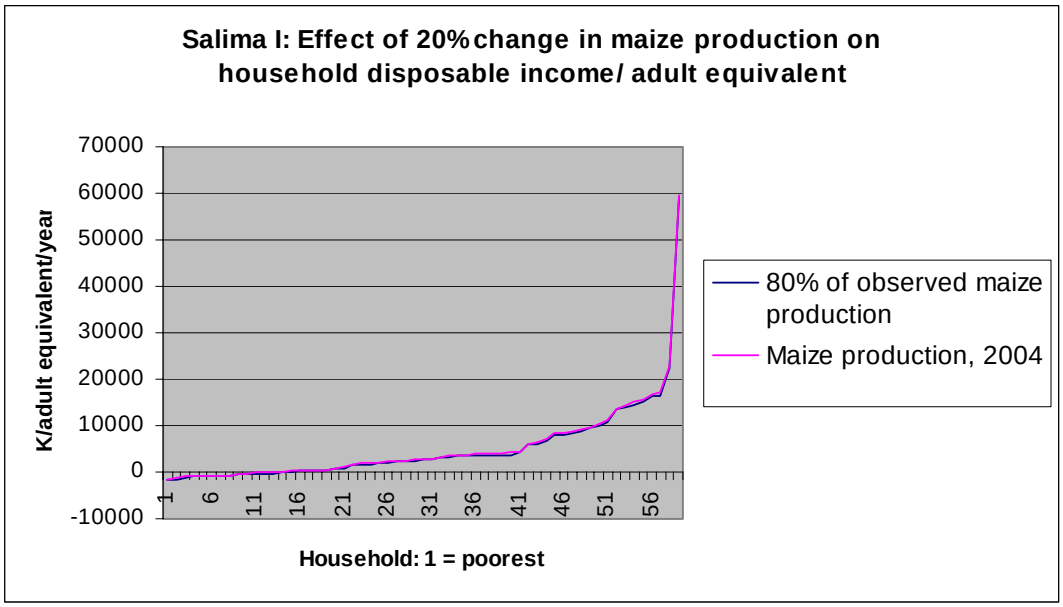


Figure 8a Contribution (Kwatcha) to household disposable income/adult equivalent of food aid, in order of disposable income i.e. household 1 = poorest. Orphan households in red. Households shown in ascending order of disposable income without food aid.



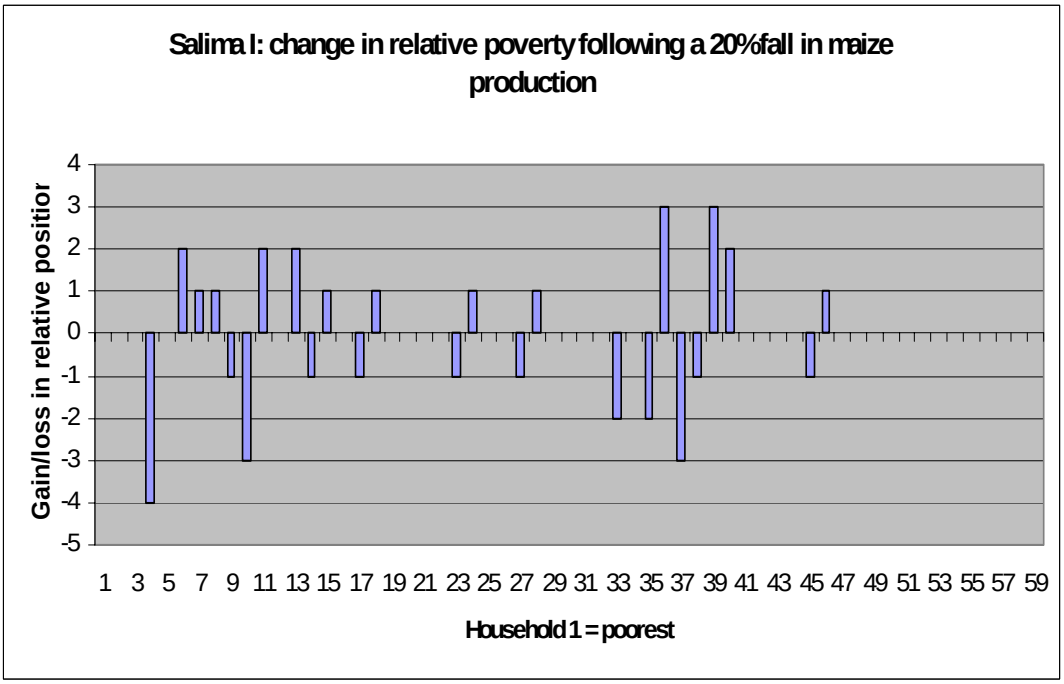


Figure 9. Graph 1. Effect on relative poverty of a 20% fall in maize production from 2004 levels in a village in Salima, Malawi. Graph 1. Shows disposable income/ adult equivalent at the two production levels, both series shown in ascending order of income.

Graph 2 shows the relative change in the rank of households resulting from the production change. For example, the household at rank 4 (the 4th poorest) has a value of –4. Under the 2004 production conditions this household would have been 8th poorest.

14. Estimating vulnerability to macro economic policies and estimating interventions/ policy changes which would protect 'vulnerable groups'

14.1 Service charges

Figure 10 shows the impact on disposable income of withdrawing water fees on poorer households in a Malawi village.

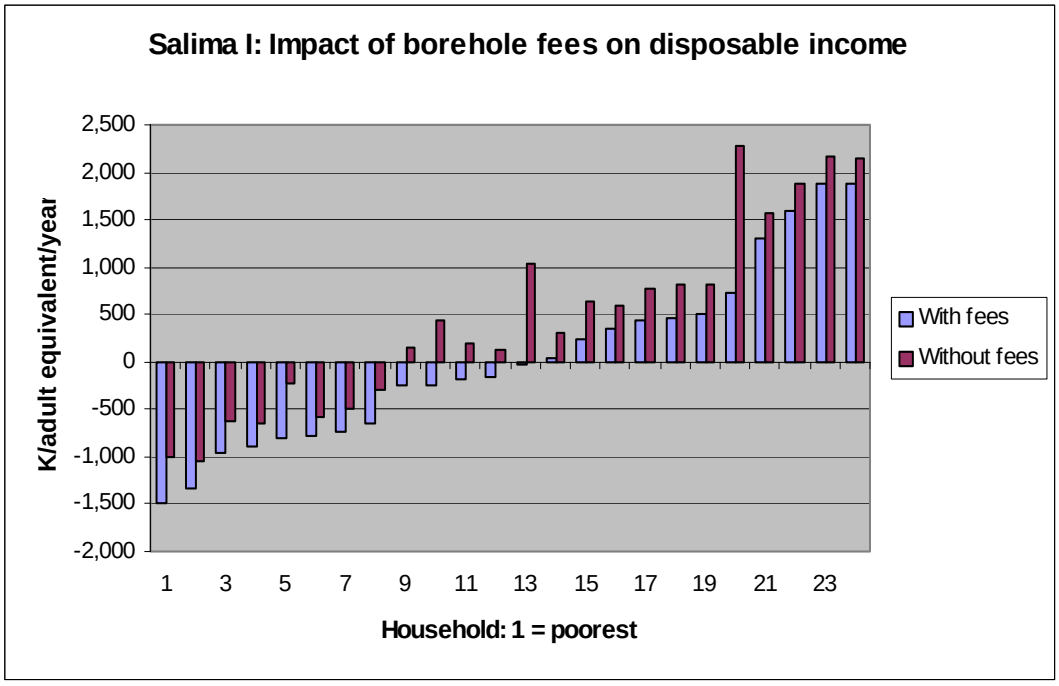


Figure 10. Salima I, Malawi. Impact of withdrawal of borehole fees on household disposable income/adult equivalent. Example assumes that all households pay the fee, which is not always the case. Only the poorest 25 households are shown.

14.2 Changes in commodity prices

IHM also provides a powerful means of assessing the possibilities of economic growth among the poor. This is illustrated in a simulation of the poverty impact of changing commodity prices. The examples include a rise in cotton prices (Malawi) and a fall in rice prices (Bangladesh) and illustrate the applications of the IHM as a means of assessing both economic growth opportunities among poor households and (Section 15) the poverty and social impact of special initiatives focusing on internationally traded commodities.

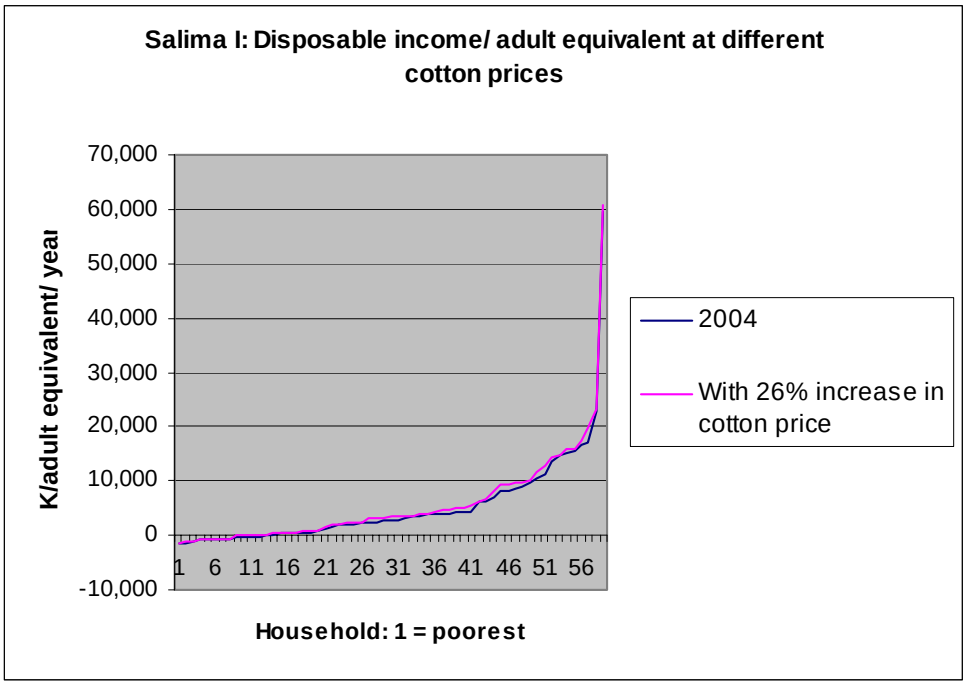


Figure 11. Salima I, Malawi. Estimated Change in disposable income of a 26% increase in cotton price

14.3 Figure 11 illustrates the impact that an increase in cotton prices would have on household disposable income in a Malawi village. The impact depends on whether or not a household grows cotton. This is based on an 26% increase in cotton price, (i.e.

the assumed price level in the absence of US subsidies)[35]. The increase in gross village disposable income would be 8.5%, most of which would accrue to richer households.

14.4 In this case we can be reasonably sure that the secondary impact on non-cotton growing households would be small. Cotton producers in this village enjoyed a minor cotton price surge in 2003. The profits were invested almost entirely in improved brick houses, which the better-off build over a period of years as their income permits. This led to a small increase in labour opportunities for the poor in water carrying and other building work outside the agricultural season.

14.5 Figure 12 shows the impact on disposable income of a fall in rice price in a village in Bangladesh. The households that gain are those that purchase rice (mostly at the lower end of the distribution). The losers are chiefly those selling a surplus although there are some significant losses among poor households.

[35] Oxfam (2002) 'Cultivating Poverty', Briefing Paper No. 30. Clearly it is unlikely that the whole price rise would all be passed on to producers and it would be expected that higher prices would lead to larger cotton production elsewhere and a price fall

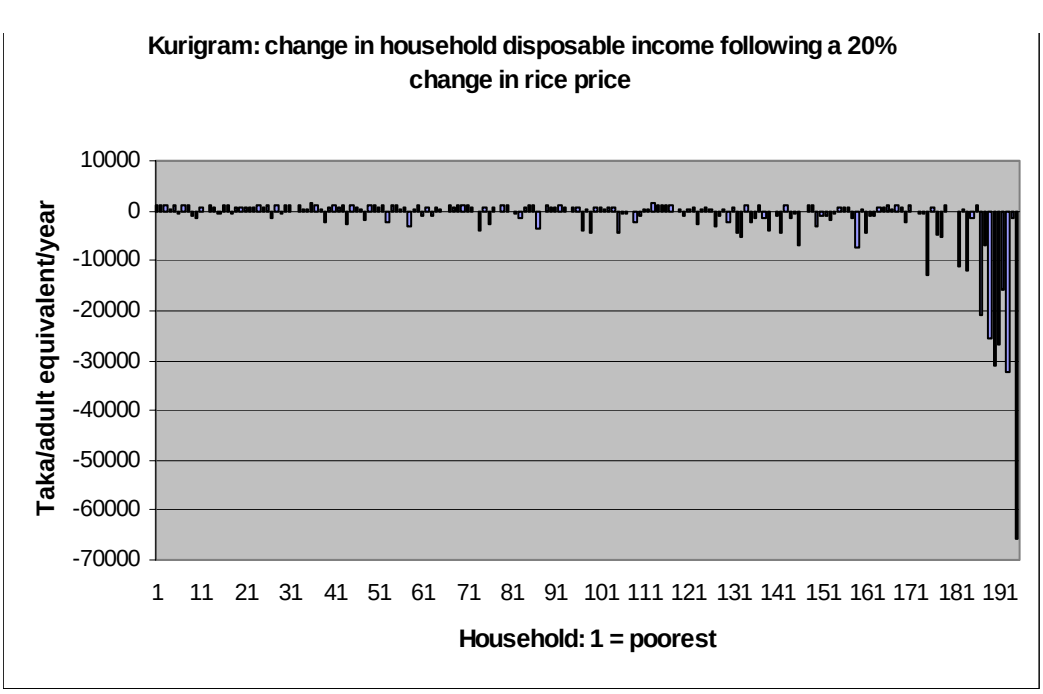


Figure 12. Simulated impact of a 20% fall in rice price, village in Kurigram, Bangladesh.

15. Monitoring the poverty and social impact of policies and programmes

15.1 Figure 13 (below) shows a simulation of the impact of a speciality coffee programme on household disposable income in Mbale, Uganda. The same technique can be used to estimate the potential welfare gains from the introduction of alternative crops.

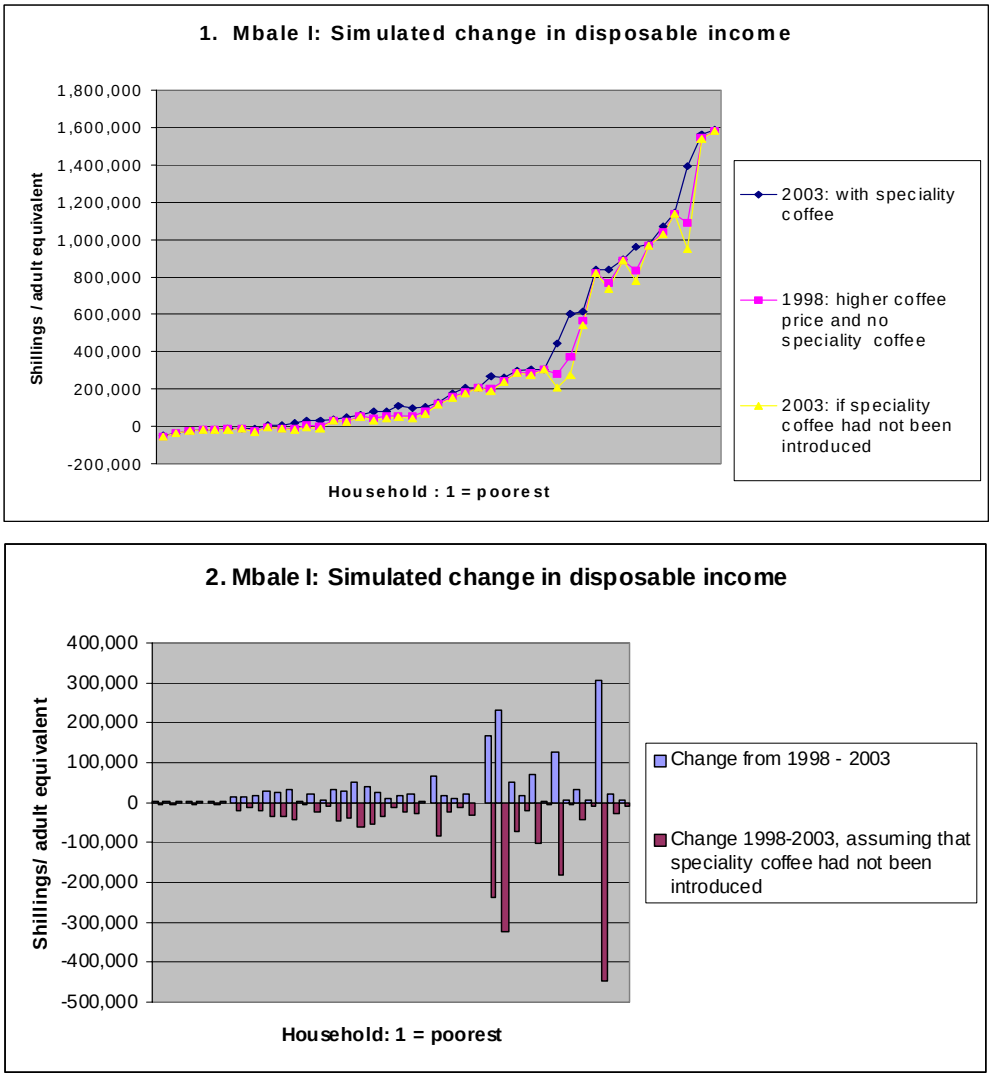


Figure 13. Mbale I, Uganda. Estimated change in household disposable income with changes in household coffee income. Graph 1, shows (blue) disposable income/ adult equivalent from survey in 2003. Some producers were growing higher value speciality coffee. Yellow, if speciality coffee had not been introduced and all growers had continued with older varieties. Pink, if speciality coffee had not been introduced but 1998 coffee prices, which were % higher than in 2003, had continued. The difference between the blue and yellow lines is a measure of the overall contribution of the speciality coffee programme to village disposable income. All households are shown in the same order as the 2003 speciality coffee (blue) line. Graph 2. Shows (blue) the change in disposable income/ household in Uganda shillings between 1998 and 2003, taking into account the fall in coffee price and the introduction of speciality coffee. The greatest gains go to better-off households. Red, the change in income which would have occurred if speciality coffee had not been introduced. This example takes no account of the loss of older bushes to coffee wilt (about 10% year) although this could be included.

15.2 Figure 8a shows the impact on disposable income of a food distribution programme. This food aid was targeted at households with ‘orphans and vulnerable children’.

16. Seasonal analysis

16.1 Seasonal analysis may also be useful in identifying periods in which households cannot meet their food and non-food needs (Figure 15, Annexe1: 10)

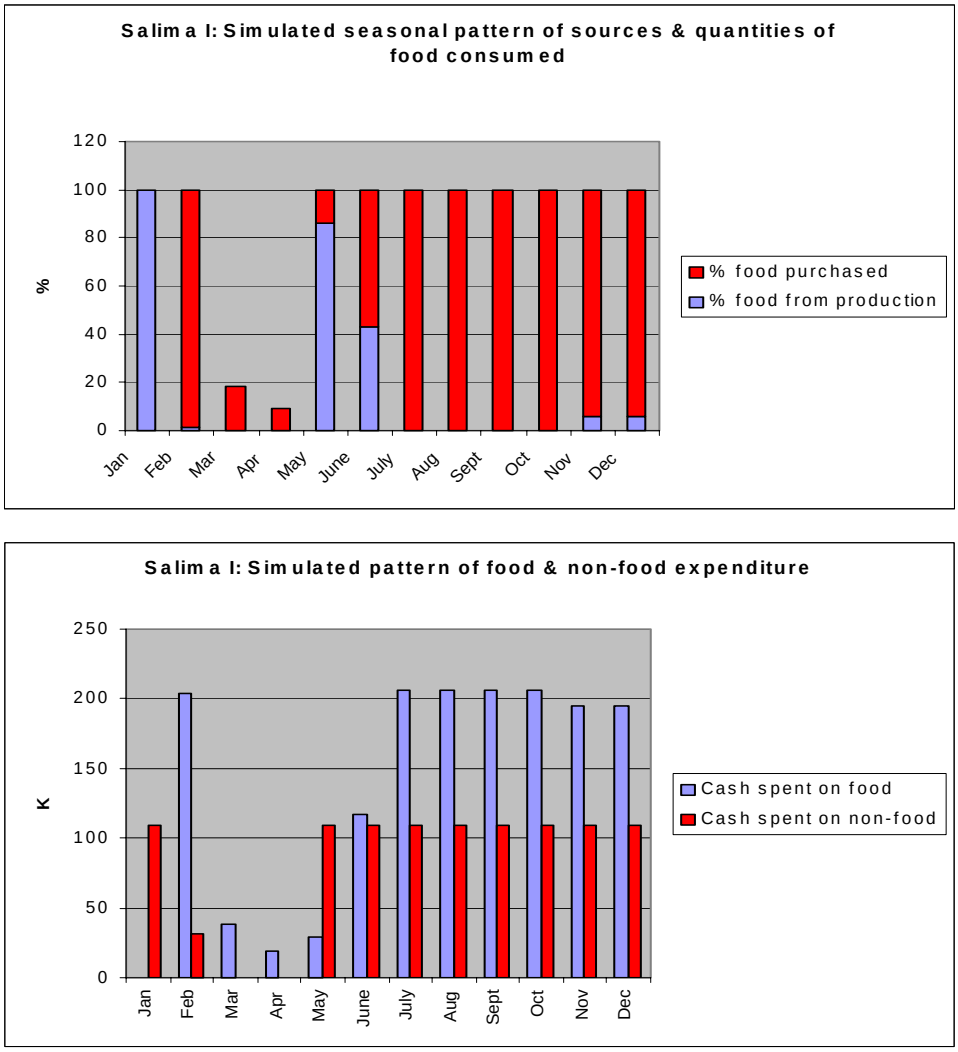


Figure 15. Simulation for a single household of: Graph 1: the percentage of household food requirement met from own production and purchase. Graph 2: the amount of money spent on food and on non-food goods. Data from a single household in a village in Salima, Malawi. Household disposable income just insufficient to meet food requirement. Assumes that (i) in months when available money insufficient to meet food and non-food needs food purchase is given priority. (ii) equal food requirement and non-food expenditure in each month.

ANNEXE 1

1. Effectiveness of HEA

1.1 HEA was designed to:

(i) provide reliable estimates of vulnerability, at a large scale, while accommodating the intrinsic uncertainties in prediction and the often low-quality of contextual information available

(ii) provide estimates in the form of an explanatory argument, which would be accessible and useful to 'decision makers'.

1.2 On both objectives, according to the best measures available, the method is technically effective. A recent review of all 39 assessments carried out between 1998 and 2001 in which HEA was used to make a clear prediction, found that in all 14 cases where relevant outcome information was available, the prediction was consistent with the outcome[36]. In 2001/2 HEA accurately predicted that famine would occur in southern Malawi.

1.3 On the wider explanatory objectives of HEA, only a subjective judgement is possible. It is clear to the authors that HEA has been effective in providing a framework within which international and local organisations are now able to view the dynamics of economy, and that this has contributed to a change in operational views of food security, from 'aggregate food supply' to 'food access' criteria. For example (i) in operation lifeline Sudan where HEA was used as the chief information system for several years, many unspecialised staff gained a deep understanding of the economy and the impact of the war on this; (ii) in Zimbabwe, where HEA was used as a basis of training district staff (in Binga/Nyaminyami in 1997) there was subsequent evidence, in the form of submissions for World Bank district funds, of a large improvement in District planning capacity; and there are many other similar examples.

[36] SC UK report to DfID on food security grant, 2002-03 Note the general provisos that (i) in most crises very little useful data is gathered on the impact of any crisis and we often have

1.4 It has been observed that HEA approaches provide a novel way of conceptualising livelihoods – based on a narrative relational story that is told by the poor and then turned into useful quantitative predictions, rather than a set of statistics that are manipulated by a modeller. Because the data collection techniques are based on a dialogue and have in-built checks (on plausibility/balance, discussed below), this avoids many of the technical problems associated with conventional multi-page questionnaire techniques.

2. Data collection methods: data quality

2.1 The difficulty of gathering accurate household budget data is the subject of a large literature[37]. In some cases, attempts at collecting household income data has been dropped in favour of data on household expenditure which it is felt is easier to gather and can be used as a reliable proxy for income.

2.2 Our own experience contrasts with this. Both the HEA and IHM are based on household budget data and in gathering household data we follow four general principles:

(i) Household data is collected only after a detailed overview of the local economy has been obtained from 'key informants'. This includes an account of all sources of food and non-food income exploited in that location (i.e. all crops, wild foods, gifts, paid and informal occupations), the seasonality of these, prices for all traded commodities, input use, the conditions in preceding years and other relevant contextual information. This establishes the range of possible options and responses at household level, ensures that questions are framed in a way that is relevant to the respondent's knowledge, and identifies topics that may need more detailed enquiry. It also puts the interview on a more equal footing as the respondent is aware that the interviewer is knowledgeable, at least about the basic structure of the economy; this in turn makes open discussion of production and employment easier.

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only a very broad idea of what actually happened; (ii) testing would ideally be organised as a 'blind' prospective trial.

[37] See Deaton A and Grosh M, 2000 'Consumption', in M Grosh et al eds 'Designing Household Survey Questionnaires for Developing countries: lessons from 15 years of living standards measurement study'. Washington DC: World Bank

(ii) Direct questions about people's income and expenditure are avoided (i) because this is often discourteous; (ii) because respondents cannot always accurately answer such questions. In many cases the poor get their income from a patchwork of small income sources in cash and kind, often with marked seasonal variation. As households do not keep summary accounts, direct questions e.g. about income obtained during the last year, may yield a response, but this may have little relationship to reality. A complete account can be obtained only by working through the period in question, month by month, recording each item of income. This may have to be done separately for men, women and sometimes children, as patterns of work and levels of pay vary by age and sex.

Income questions are better approached by enquiring about the person's occupation, and the number of days they have worked. Labour markets are usually saturated and rates of pay for most unskilled tasks are highly standardised by age, sex, and season. Rates of pay can be confirmed with the respondent, and income calculated. The same principles can be applied to any occupation although in some cases the range of occupations may be wide and it is helpful to use software for data management.

Similar difficulties arise with recalled expenditure, as this tends to vary seasonally, particularly for the poor, according to what can be afforded. Unless expenditure is discussed by month (ideally after the interviewer has discussed income and knows the seasonal income pattern for that household and periods when expenditure is likely to be least) seasonal falls in expenditure will be missed and expenditure overestimated. This effect may be accentuated by the tendency for the poor to give an idealised expenditure, as people may be reluctant to admit that in fact there are periods of the year when they are unable to afford to meet even the most basic social needs and standards. For example, a repeated experience is that when asked to identify their needs, poor people tend to identify soap and clothing before food. If the respondent is aware that the interviewer knows this, and is sympathetic to the case, no problem arises.

(iii) Interviews should be kept as short as possible and to the greatest extent possible timed to be convenient to respondents e.g. interviews may

sometimes be conducted in the evening. Our experience is that it is unrealistic to expect either an interviewer or interviewee to maintain the quality of an interview for extended periods of time. For group interviews, the aim is to keep these down to 2 hours (although these can sometimes become social occasions, stray well off the subject, and go on for longer). Individual household interviews should ideally take no longer than 30 minutes and the amount of information collected in a single household interview is therefore deliberately restricted.

(iv) Where additional information is required, beyond the standard HEA / IHM data sets, it is generally better to conduct a series of shorter parallel enquiries than to load these on to one interview. For example, in a recent Bangladesh study of the relationship between economy and nutritional status, a household enumeration and census, a household income survey, and an anthropometric survey were conducted separately. This technique also allows for some more easily answered questions to be duplicated and checked e.g. demography.

(v) Local measures e.g. bags, pails, are used during the interview to avoid conversion errors.

2.3 Data is reconciled in the field, ideally in the course of the interview and on the day of collection. This allows household budgets to be (i) balanced, to see if these are consistent with biological needs and the observed standard of living; (ii) checked for internal consistency e.g. that demand for local agricultural employment balances supply, income claimed is consistent with known returns from particular occupations/ days. Where anomalies are found, the interviewer may be able to explain these or if necessary the household is revisited.

2.4 In some cases only approximations can be obtained:

1. Income from wild foods, hunting and trees. It can be difficult to identify some wild fruits and plants and an approximation of the energy value and quantity consumed may be necessary. This is rarely significant, as food energy from these sources usually very small. Returns from mango, avocado and other cultivated trees is usually approximated from the size of the tree (e.g. small, medium) and an estimate of production from specific trees is made for the household.

2. It is often impossible or impractical to be sure that the income and expenditure of very well to do (i.e. not just the 'better-off') is completely recorded as: (i) the person being interviewed may not know e.g. a prosperous man may have only a vague idea of household expenditure and there may be a very wide range of purchases; (ii) a very rich person may not declare some income e.g. from property outside the area, although this can often be discovered from third-parties if necessary. Minor errors at the better-off end of the income distribution generally have little or no influence on the analysis.

3. Theft and other illegal sources of income are not always concealed as professionals generally take pride in their work and may be happy to discuss this (e.g. smuggling in northern Bangladesh). Potentially more difficult situations include urban environments (e.g. a Nairobi slum which is used as a base for gangs conducting robberies in the city). In the latter case, where an estimate of approximate gross robbery income to the slum was required, and direct enquiry was inappropriate, a resident NGO worker obtained a good account of the number of gangs, the frequency of their work and level of income obtained. In general there is little difficulty as long as people are confident that the information will not be disseminated. These cases are rare; more important instances are:

   (i) income sources that a respondent may suppress for fear of criticism e.g. in a recent survey in Bangladesh child income from factory work was not recorded on a household survey. The probable omission of income for some households was picked up from anomalies in the household data and it was found that 6 children were engaged in this work. This has long been a problem in investigating infant feeding practices as from education programmes women often know what they 'should' be doing. Household economy approaches have internal checks built into them, which showed up the anomalies in the case cited above.

   (ii) Child income may be missed either because adults are unaware of this, or do not regard it as being of note e.g. hunting for lizards, birds and other 'self-provisioning', doing odd jobs for snacks etc. This can be recorded where it is thought to be relevant to household income but this requires additional interviews with children and can add considerably to the amount of work involved.

(iii) Remittance from prostitution and other socially difficult sources, where the respondent does not know, or will not admit, the source of the income. A record of the remittance may be obtained, but not its source or the fact that there are other sources of income will show up in an 'unbalanced' budget.

HEA data collection

2.5 Interviews are conducted with groups of respondents, not with individual households.

2.6 An interview is conducted at community level, with a group that usually includes the village head and other adults. Information is obtained on definitions of wealth in that place, the recognised wealth groups (there are usually vernacular names for gradations of wealth), the asset holdings and other characteristics of these and the proportion of people falling into each group. Wealth is usually defined in terms of income/asset holding, a better-off person being one who has greater access to land, livestock or labour or in many cases some combination of these. Information is also obtained on variation in crops and other income sources for a run of preceding years (often 5), and where there have been recent income shocks, on people's responses to these.

2.7 For each wealth group (or where there are a large number a minimum of three including the modal group) a interview is done with a group drawn from the wealth group i.e. they are all in a category of poverty defined by a level of livestock or land holding or other characteristics. Two groups are formally excluded 1. The destitute poor i.e. those, usually few, households which are sometimes found to be failing. 2. The 'super rich', often a single individual, sometimes resident outside the area (e.g. in Rwanda where in one case an army officer owned the larger part of a whole valley). Groups are typically of 6-10 people of mixed age and where appropriate, sex (or separate groups for men and women may be held). During the interview information is collected with respect to a defined hypothetical household representative of that group (i.e. a household of X adults, Y children, and with known assets). The experience is that in general people have no difficulty with this concept and, as people are not discussing their own income, this leads to openness and interaction.

2.8 The aim of the HEA interview is to produce a balanced household budget.

2.9 HEA data collection techniques, recording forms etc are standardised[38]

2.10 The household data set is organised in categories and subcategories. This classification (Table 1) is easily learned, and

- allows the interviewer to conduct the discussion in a semi-structured way.

- ensures that all possible income sources are raised in discussion.

- allows an interviewer to keep a running tally of responses to ensure that these are consistent (e.g. land holding, the crop return and the quantity of crops sold/ consumed); responses recorded at different points in the interview, must agree; claimed food consumption must be biologically plausible i.e. the quantity of food consumed from production and purchase must be within reasonable limits, and must be consistent with cash income and non-food expenditure. Balancing a budget during an interview does require some practice, but is made easier by the use of local rules of thumb e.g. that a household of X members requires approximately Y bags of maize/ year.

Table 1: The HEA income data set
Information on household income is obtained in two main categories, each of which is subdivided using the subcategories shown below. Subcategories may be further divided e.g. wild plant foods and hunting, and are flexible (e.g. cultivated mangoes that are more or less common property might be classified as wild or cultivated; fishing would usually be included with hunting, farmed fish with livestock etc). Theft is categorised under 'gifts'. Non-food income is generally in cash, but occasionally in food or other kind.
1. Income obtained as food.

[38] Seaman J et al 'The Household Economy Approach' (SCF UK 2000)

Food crops
Livestock products (milk/meat/ blood)
Wild foods /hunting/fishing
Gifts of food.
Payment in kind
Food purchase
2. Income obtained as cash
Crop sales
Livestock sales (including milk/meat)
Wild food sales
Labour sales (including remittance income)
Gifts of cash
Sale of gifts

2.11 The experience is that in general household budgets either balance or there is some gross discrepancy. In the latter case, which is comparatively rare, the explanation is often found to be an income source which people do not wish to discuss openly in a group but will raise privately e.g. in Rwanda, young men travelling without official passes to find higher paid work in rural areas close to Kigali. Fraudulent responses are rarely encountered, and are easily discovered; it is difficult to invent a detailed balanced household budget, and impossible to do so during a group discussion. Occasionally e.g. cases in Huambo, Angola, it is clear that the household is in fact starving.

Use of HEA in Urban areas

2.12 HEA group data collection techniques cannot usually be used in urban areas because (i) it is difficult to find respondents who have a sufficient overview of a defined economy e.g. a slum, to estimate the wealth distribution; (ii) within wealth groups people at the same income/wealth level may obtain their income from a large number of different sources and may have little in common with each other. As these households are sometimes vulnerable to quite different shocks, forcing groupings on households is unsatisfactory; (iii) it is usually impossible to assemble groups from wealth groups, as people are usually otherwise occupied.

Updating and maintaining HEA data sets.

2.13 A baseline data set will become outdated with time although there is much variation in the rate at which this occurs. In places where social and economic changes are rapid (an extreme case would be the exodus which followed the genocide in Rwanda) baselines can be rendered obsolete. Typically changes are more gradual and baselines need to be updated about every 2-3 years. Change in the economic context e.g. prices, resulting from market reform may of course be more rapid.

2.14 Even when events render the quantitative baseline is useless for modelling purposes it may still be of value e.g. data collected before the 2000 Mozambique floods was useful in providing a baseline against which flood effects could be judged i.e. it was found that in some areas where extreme poverty was assumed to result from the flood, it could be shown that this actually predated this.

2.15 Updating an HEA data set is in general a much quicker, less expensive task than collecting a baseline data set, as the enquiry begins with a substantial knowledge of the economy, and only adjustments are needed.

IHM data collection

2.16 A ‘pre-survey’ is conducted with ‘key informants’ i.e. farmers, extension agents and other people with a specialised knowledge of particular subjects and areas of the economy to establish the range of occupations, crop yields, rates of pay, seasonality, local weights and measures etc.

2.17 From the information obtained in the pre-survey a household questionnaire is developed. As many more interviews must be done, the basic data set is limited to household demography, assets and income (food and non-food) for a defined period (usually an agricultural year) and additional information is added only when this can be easily, quickly and reliably obtained e.g. identifying orphans. Expenditure is not included and therefore there is no attempt is made to balance the budget during the interview. Patterns of expenditure are obtained from a subset of households and key informants.

2.18 Data is entered to a computer as soon as possible after the interview. Purpose designed software allows this to be reconciled and checked for consistency.

Scaling up IHM data collection

2.19 IHM has been applied only to single villages and we do not know if same data collection techniques could be applied to samples from large areas. The most obvious difficulty would be in maintaining quality control, although with adequate training and organisation this does not seem to be an insuperable problem.

Measures of data quality

2.20 Regardless of how much care is taken in data collection, and how consistent and plausible the findings it is still not known if recorded income is true. The only additional test available is that of reproducibility. Formal tests of this are difficult to organise as repeated interviews of the same household within a survey are an imposition (and householders might give wrong information on both visits). However the HEA techniques have been applied to the same populations and areas at different periods and have been found to produce entirely consistent findings. For example a national data set for Malawi developed in 1997/1998 was revised in 2001, by rapid visits made to all areas. The only changes noted e.g. a fall in livestock holdings in parts of the north were entirely explained by economic changes that had occurred in the intervening years.

Rapid data collection using HEA

2.21 HEA was originally designed to be used with data rapidly acquired under emergency conditions e.g. where access is difficult because of insecurity. Under these conditions, the same framework is used (Table 1) the only difference being that data is obtained entirely from ‘key informants’ rather than group household interviews. Multiple interviews are conducted to triangulate the data. Large data sets can be built up very rapidly (e.g. where access is not constrained, a whole country in a few weeks).

2.22 Our experience suggests that for early warning purposes the quality of rapidly obtained data is not obviously inferior to that obtained by the more formal methods described. The chief limitations are:

(i) that rapid data collection does require a higher level of experience in data collection than more formalised methods.

(ii) that end users e.g. the UN, sometimes doubt the reliability of data obtained in this way.

2.23 In extreme cases such techniques can be used to build a useful picture of the economy without visiting an area at all. For example, in 1998 during the Taliban siege of the Hezarajat in Afghanistan there was concern that people might starve. A picture of the economy was built up by speaking to recent migrants form the area. This indicated the crucial role of trade to the survival of poorer households (of potatoes and livestock from the Hezarajat for wheat from lower altitude areas). This was sufficient to make a preliminary case about probable conditions in the area. Subsequent more detailed work in the area added detail but did not change the basic conclusions [39].

3. Sampling and sampling error, HEA and IHM

HEA

3.1 Sampling is deliberately non-random. Where circumstances permit, sites are deliberately selected on information from secondary and local sources, to maximise recorded variation in economy. For example, within an economy there may be areas which have more or less precipitation, or where more or less of a particular crop is grown. In these circumstances, the aim would be made to make observations at both sites. This variation is expressed as ranges e.g. that sorghum income in the reference year for a 'poor' wealth group fell in the range 200-250kg. These ranges can be used in the model with output expressed as a range (Annexe 1: 3.5).

3.2 Under conditions where access is straightforward, resources sufficient, and the defined economy comparatively large, a typical level of sampling would be 10-15 sites, with 2-3 interviews being conducted for each wealth group at each site.

3.3 Purposive sampling has the advantage of allowing the approach to be used in insecure areas and of minimising the costs and skills required in acquiring data.

[39] Personal communication Paul Clarke.

3.4 In cases where there are discrete ‘sub economies’ within a larger defined economy (e.g. people able to irrigate crops from a river) these smaller economies may sometimes be omitted, if this does not conflict with the intended use of the information. For instance, where HEA is used at a national level to obtain a first estimate of areas likely to suffer from a particular change or shock (e.g. the map in Figure 2), and the aim is to conduct further more detailed investigation in those areas, the collection of information on small, specialised economies may be unnecessary.

Ranges

3.5 A measure of within wealth group variation and an estimated ‘confidence range’ can be obtained by using ranges from the original data. Where several estimates of household income are available for a wealth group in an economy, ranges are set as the highest and lowest observations for each. For example, if within a defined economy, it is found that a ‘poor’ (or some other wealth group) household at location 1 has a maize production in the reference year of 100Kg, a poor household at location 2, 120Kg and a poor household at location 3, 150Kg, the range is 100 – 150kg.

3.6 Ranges can be incorporated in the HEA model. In a quantitative analysis this can be done by running two simulations, using the lower and upper range. This can also be done with data expressed in percentages, although this requires a more complex algorithm, as the lower and upper ranges do not sum to 100%.

3.7 By retaining the ranges in the model, output is also expressed as a range e.g. that the estimated food deficit is X tonnes - Y tonnes.

IHM

3.9 To date, IHM has been used only in single villages. In two studies a complete enumeration of all households was carried out to avoid the need to calculate sampling errors. These are (i) Bangladesh, where the study was to investigate the relationship between household economy and nutritional status, and it was important to include all households in the better-off group to maximise the number of children under 5 years of age included. (ii) An survey to model the economic impact of

HIV/AIDS in Swaziland, where it was important to have a complete record of all households, their mortality and inter relationships. In the other cases large (around 50%) samples have been taken, the sample size being determined by time and other practical constraints.

3.10 Confidence limits on income distributions from village sample surveys have been calculated using a bootstrapping technique [40]. As might be expected from the shape of the distributions of disposable income (e.g. Figure 7), the confidence limits tend to be very small at the poorer end of the distribution, where there are many households, and become larger as income increases and the number of households falls, to the extent that the confidence limits on the very richest households render the income estimates effectively meaningless. For use on an individual village, where the richest households are all known (there may be only 2 or 3) and these can easily be identified, we can be sure that the distribution is a fair representation of reality, and confidence limits have not been calculated. The use of IHM on larger areas will require the use of appropriately large samples.

3.11 It appears that bootstrapping techniques can be applied to 2 stage samples [41].

4. Software

HEA

4.1 A variety of software has been used for the HEA model.

4.2 The approach was developed with FAO as a large area approach to famine prediction. As HEA required a system which could be easily used to manipulate large data sets to quickly produce 'scenarios' analytic software was written ('RiskMap I'). This provides mapped output (e.g. the maps in Figure 16). As an experiment various features were built into RiskMap I e.g. a market model, output in the form of a written report for each economy, the ability to map data output, and a simple self-teaching module.

[40] Heinrich.G.A. 1998 Changing times, testing times: A bootstrap analysis of poverty and inequality using the PACO database. Centre for Economic Reform and Transformation. Herriot-Watt University, Edinburgh

[41] Sitter, R.R. (1992) 'Comparing three bootstrap methods for survey data', Canadian Journal of Statistics, Vol.20. No2. pp135-154 , Heinrich *Op cit*

4.3 Following the end of the FAO collaboration in 1998, HEA has chiefly been used at sub national level and analysis has chiefly been carried out using a spreadsheet, in many cases after reducing the primary quantitative data to proportions i.e. expressing income as x% from food crops, y% from livestock etc.

4.4. Following the 2001/2002 southern Africa crisis and the use of HEA by USAID/Famine Early Warning System/Food Economy Group and national Vulnerability Analysis Committees (VAC) in Malawi, Swaziland and Lesotho new 'large area' software has been developed:

(i) By SC UK, with DFID support. This comprises a database (the 'HEA database') and separate analytic software (RiskMap II) which reads the database. The database was developed in order to retain the original quantitative data, not least because much data collected over the past few years has been lost. The database (which is shortly to be used in Malawi) has been designed to be as flexible as possible e.g. it allows any number of wealth groups, pattern of income, the use of local units etc. The analytic software is designed primarily for large area use based on household data read from the HEA database, and with 'shock' information supplied from national crop monitoring and other sources. It does not include the features of RiskMap 1, although it is hoped to add some of these in due course.

(ii) USAID/FEWS/Food Economy Group have developed an 'integrated spreadsheet', which allows multi-area modelling of proportional data. With a small amount of additional work this could read data from the HEA database.

4.5 RiskMap I and II were developed in Visual Basic 3 and 6 respectively. The HEA Database and RiskMap II draw on a Microsoft Access database.

4.6 It is intended to transfer a limited copyright (currently held by SC UK) and the source code of the HEA database and RiskMap II to national users and to require them to develop appropriate software support, which is now a practical possibility in many poorer countries. This should avoid the problem of user dependence on the

copyright holder, be cheaper and allow the software to be developed to meet local requirements. This step has already been taken in Malawi.

IHM

4.7 IHM Analysis can be done on a spreadsheet although (i) this requires that a spreadsheet is set up for each survey, as each data set is different. (ii) the detail and sometimes the large size of data sets can make these difficult to manage.

4.8 Analytic software (in MS Access/ VB6) has therefore been written. The database accepts data in the form in which it is gathered i.e. household demography by age and sex, income by source, assets by type and quantity, sale and purchase prices, the construction type of homesteads, and characteristics of individuals (e.g. school attendance, employment, orphan status). The database allows assets to be related to particular income sources and input use (e.g. that for a household with X area of upland, Y percent of this is used for maize, where the inputs used input costs returns are known). All categories e.g. 'Cow milk sales', 'orphan', are user defined.

4.9 The analytic functions allow: (i) a basket of goods to be selected to define a standard of living. (ii) A diet to be defined to make up household energy needs. (iii) the calculation of household disposable income/adult equivalent. (iv) Seasonal analysis of income flow/ disposable income. (iv) Data items to be associated e.g. to relate orphan status, standard of living, to household disposable income.

4.10 Output is graphically displayed and can be exported to a spreadsheet for further analysis.

4.11 It is hoped to complete a distribution version of the software within 2005.

5. The HEA model, some other considerations

5.1 *Missing wealth group data*

In cases where there are many wealth groups it is not always practical to gather household information from all of these groups. In these cases a complete wealth distribution, which is required for calculating quantitative output, can be derived by interpolation.

5.2 Managing price changes in the HEA model.

1. Price changes as a primary shock or change can be introduced directly into the model. Large price changes as a primary cause of food insecurity are comparatively rare but do occur. [42]

2. Price changes arising as a secondary effect of a production or other shock (as food demand and asset disposal increase). This is often observed in areas where markets are poorly integrated and in many cases has a large impact on the predicted outcome e.g. Figure 4. Livestock markets are often highly unstable.

5.5 Secondary price changes can be incorporated into the model by:

(i) Making an informed judgement about the likely impact of a given change on prices. In an analysis relating to a smaller area/ shock this may be informed by prior recent experience of market behaviour in that locality, and/or from an analysis of the wider market. This may include the degree of market integration, the likelihood of re-supply given the level of national reserves/ surpluses/ transport, the possibility of financing imports, people's ability to use alternative markets at a distance etc. Several scenarios may be developed representing different possible price changes (Figure 16).

(ii) Using market information combined with HEA households data to inform judgement about markets or (experimentally) to model price change.

[42] For example the 4-5 fold increase in maize prices in Malawi from mid-2001 – early 2002, arising from a small crop failure (estimated at 20-30% in much of southern Malawi), a reduction in the national food reserve, probably a failure in the market itself (who 'owns' the market is unclear but there are suggestions that at least in the late 1990s it was operated as a cartel), and more general management failures.

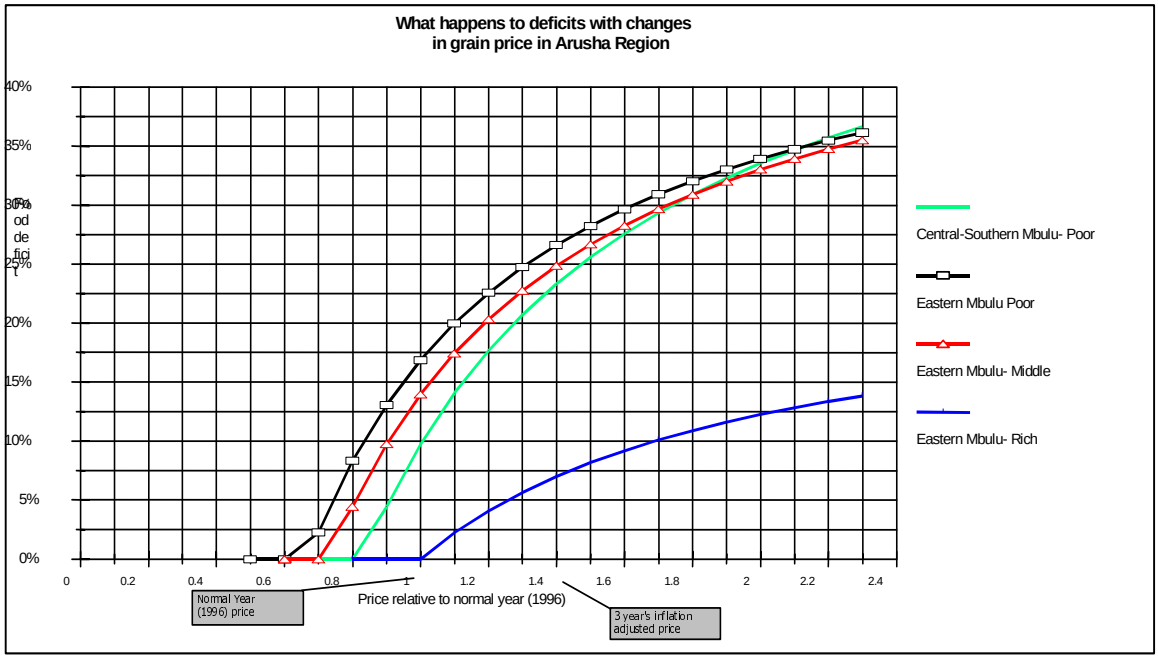

Figure 16. Graph showing estimated change in food deficit with different estimated changes in grain price Arusha Region Tanzania 1999. Household food economy assessments in Dodoma, Singida and Arusha regions. Save the Children UK / Prime Ministers Office Tanzania / UN World Food Programme. October 1999

Market data and the market model

5.6 Market data has not been gathered in recent surveys but is easy to obtain from primary sources and could be added to existing data sets. Market data was obtained and a facility for analysing this was included in RiskMap 1, with a view to (i) obtaining more information on markets, which in most countries seemed to be lacking from other sources. (ii) as an experiment to see if it was possible to predict price patterns and relative prices at different markets. It seemed unlikely that it would be possible to

estimate actual prices with any accuracy. This is not described further here. (iii) to estimate the amount of food required to stabilise a market or markets.

5.8 For each population, data is obtained on the location of markets used at each sample point for each traded commodity i.e. livestock, crops, employment, etc. A market is defined as the place where exchange occurred. In most cases this is a formal named market, although it is sometimes within a general area (e.g. migrant coffee work in Ethiopia). Employment markets are subdivided into local markets (where the employee would live at home); markets within the country; in neighbouring countries and in distant countries to capture high value remittance (e.g. from the Middle East, Europe). Where a place uses more than one market for a commodity these are ranked (1,2,3…) by relative importance. Food markets are not formally identified and it is assumed that food, if purchased, would be from a local market.

Use of the market data

5.9 The market data can be used to:

1. Map market locations, by commodity (Section 7, Figure 17 below).

2. Derive estimates of volumes of trade, for each market location either for the reference year or following a shock or change for any traded commodity.

(i) The quantity of each commodity traded by an economy e.g. the number of livestock sold in the reference year is known from the household income data, or is derived from the HEA model (i.e. reference sales + additional sales by the household to compensate for an income deficit). The location of the market used is known from the market data.

(ii) In practice an economy may use more than one market for a commodity and these markets will also be used by other economies The quantity of a commodity sold by an economy at a specific market is calculated in proportion to the market rank i.e. Given that an economy uses three markets for a commodity, ranked 1, 2, 3 the proportion for market rank 3 would be 1/6 of all trade, rank 1, 3/6 (Figure 16a).

5.10 This estimate is valid only when large i.e. national or other multi-economy data sets are available and it is clear that all market supply/ demand is included for each market. In RiskMap 1 this is unlikely to hold in some national border areas as the software used operates only at national levels and inward cross-border trade is not captured. RiskMap II allows maps of any scale to be built up and will remove this limitation. The assumptions are made that (i) the method used to partition trade between markets is a reasonable representation of reality. (iii) that patterns of market use after a shock will be the same as in the reference year, or that any change is known and incorporated.

We would argue that:

(i) this technique provides a better description of market locations and estimates of volumes of trade in a reference year than can be obtained in most poor countries from any existing source, or for some markets using any existing method of direct measurement, at a much lower cost. [43]

(ii) Subject to further development (i.e. verifying the use of market ranking, or using a better technique, obtaining better estimates of likely changes in expenditure patterns) this approach could be used to estimate the effective demand for different commodities and give much greater operational insight into the likely effects of social protection interventions on price.

[43] This is a subject in its own right and beyond the scope of this discussion, but our own experience of market assessment is that although plausibly accurate direct measurement is sometimes possible (e.g. by enumerating trucks/ people entering or leaving, obtaining direct estimates from traders where these are few) in many instances 1. This is impractical e.g. where there are large numbers of small trades and many traders. 2. It cannot capture trade which occurs within communities (much, sometimes most trade in staples) or which occurs in general areas rather than at named markets.

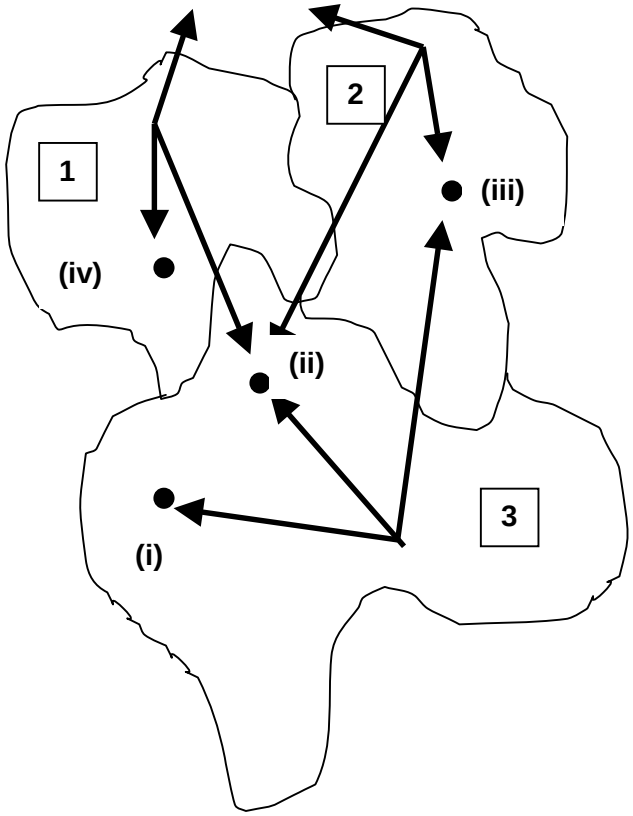

Figure 16a . 3 Economies (1,2,3) and 4 markets (i, ii, iii, iv). Economy 3 trades with markets i, ii and iii, where iii is located in, and is also used by economy 2. If the relative importance of markets i, ii and iii to economy 2 were ranked 1, 1, 2 respectively, any trade would be partitioned proportionally at each market i.e. 3/8, 3/8, ¼.

The order of inclusion of compensation strategies ('Coping')

5.11 Given an income deficit from a shock, the model estimates the ability of each household to compensate for the deficit by: using cash savings, selling assets, using wild foods etc. The outcome will depend to some extent on the order in which these steps are taken. This is managed in the model in one of two ways:

(i) Where people have experience of similar prior shocks, information on the ways in which people actually behaved can be obtained during the survey.

(ii) As people will generally tend to compensate for deficits in such a way as to preserve livestock and other productive assets, a default order can be set to replicate this e.g. people will tend to fall back on wild food and food stocks, before disposing of livestock.

5.12 In practice, people may partially exploit different strategies e.g. selling one animal and reducing consumption. This level of detail does not add greatly to the analysis as we already know the size of the deficit and the level of response required. Moreover, from the point of view of the user it creates so many choices as to become unmanageable.

Multi-year modelling

5.13 Several successive years prior to the year of interest can be incorporated in the model as in some cases this has a significant effect on the outcome. Projection of the model into the future runs into the obvious problem of the assumptions required e.g. estimating rates of asset replenishment e.g. herd replacement, although it can be useful for speculation (e.g. “What if crops failed again next year”).

Food energy requirements and estimates of aggregate deficit.

5.14 HEA output is expressed in terms of the food deficit that will be experienced by each household type in the wealth distribution (e.g. poor, middle).

5.15 The aggregate food deficit is calculated by weighting the proportion of households in each wealth group, and multiplying by the number of people in the defined economy. This may be expressed as a range e.g. that the deficit is estimated for area X as 50,000 – 60,000 tons. This estimate is not the amount of food actually required as this will depend on other factors e.g. with food aid allowance must be made for targeting failure and other ‘slippage’.

5.16 The size of the calculated deficit depends upon the household requirement used.

(i) The UN and some donors use a normative value for food energy requirement. This has fluctuated over the years but is currently set at an average value of 2100kcals/person/ day, in situations where the demographic structure is reasonably normal.

(ii) Observed estimates of actual average household food energy consumption for poor households in 'normal' i.e. not good or bad, reference years tend to be lower than this. A typical level for a poor household is 1800kcals/ person/ day, averaged over a year.

The difference in the estimated aggregate food deficit derived from these two estimates can be very large.

Estimating the importance of income deficits

5.17 The interpretation of the importance of a calculated deficit e.g. that the food access of a 'poor' group, with average household food energy consumption of 1800kcals/day will, following some event, fall to 1700kcals currently depends on (i) an analysis of the way in which a crisis is likely to evolve. In many cases the deficit is concentrated into a short period at the end of an agricultural year. That is, the interpretation required will be of the importance of a more severe deficit for a shorter period e.g. 1,000 kcal/person/day for 3 months. (ii) judgement, taking into account the practical possibilities for intervention.

6. The IHM model

Disposable income

6.1 Output from the model is expressed in terms of household disposable income, defined as the cash remaining to the household after it has met its minimum food needs. This reflects chiefly the current use of the method, where the interest has been to assess a household's capacity to meet its non-food needs. With the provisos below (6.2) the output can be expressed as gross money income.

6.2 Comparison between the income of different households runs into the difficulty that households obtain income as both cash and food and there are no common units that allow these to be combined. Some foods, (in different cases including milk,

meat, fruit, wild foods) are consumed or given away, but are not sold and have no price. Although these items are usually only a small proportion of all income, they are often make up a significant part of the income of poorer households.

6.3 This is managed by:

1. Standardising household food needs between households. Household food energy needs are calculated according to the membership of the household, by age and sex, using international reference values [44].

2. To the extent that the household has food income, this is used (in the model) to meet household food requirements: any balance needed to meet household requirement is 'purchased' using household cash income. The foods purchased are those representative of the foods purchased by poorer households and local prices for the location are used. Any cash remaining to the household is defined as 'disposable' income.

3. Household disposable income is divided by the number of 'adult equivalents' in the household (defined as total household food energy requirement / (average adult male and female energy requirement).

6.4 The calculated disposable income of different households can therefore be directly compared, with the proviso that there will be some inequality in the quality of food produced and consumed by different households e.g. some may have access to milk or fruit, and others not. In locations studied to date most poorer households eat a cereal based diet supplemented by small amounts of pulses, financed partly by selling livestock and other high value production, and the actual distortion is small. There is no assumption that better-off households do in fact consume this minimum diet. In most instances it may be assumed that better-off households use some of their disposable income to purchase additional food items.

6.5 In due course it is intended to address this by including a range of nutrients e.g. vitamin A, in the calculation of household food requirement, and this will be added to the IHM software. This will also be useful for studies of household dietary adequacy.

6.6. A standard of living threshold is calculated as the cost of a basket of goods including the cost of housing, fuel, clothing, soap, utensils, matches and other household sundries, school costs, an allocation for health at local prices and in cases where these are universally used, stimulants (e.g. betel/ cigarettes in Bangladesh), to a level commensurate with a minimum level of dignity in the location concerned. The level and cost of this is obtained from local enquiry. These costs are allocated to each household individually e.g. school costs only apply to households with school age children; fuel costs are calculated per household, soap costs are calculated per individual.

6.7 To date the model has been used only to estimate the direct impact of a change on household income i.e. a recalculation of income under changed conditions. Although more complex models can be expressed on a spreadsheet this is time-consuming and error-prone. Currently three additions to the IHM software are planned:

(i) the incorporation of the second stage of the HEA model i.e. household responses to a fall in income; (ii) to allow speculative modelling of some situations e.g. a capacity to extrapolate the potential impact of HIV/ AIDS mortality on economy and demographic structure and to relate this to, and to estimate the relative costs and benefits of policy options eg ARVs and investment in education; (iii) additional model inputs e.g. veterinary and other input costs as this would make it much easier to estimate returns on some types of programme/project investment. Further elaboration of the model e.g. to capture changes in employment patterns with income gains are technically straightforward, but will require more information on the way in which additional income is used.

6.8 There have been many attempts to estimate the economic impact of HIV/AIDS. The chief technically difficulty is to isolate the impact of HIV/AIDS from other incidental shocks and changes. Conventional controlled studies face difficulties in (i) establishing adequate control groups; (ii) the cost and technical difficulties of running longitudinal studies. Incidental to a study in Swaziland[45] IHM was used to estimate the economic impact of HIV/AIDS on individual households and at population level. This was done by obtaining information on deaths in the preceding 5-year period

[44] WHO/FAO values for a representative population in a developing country. WHO 1985
[45] Seaman J and Petty C, HIV/AIDS and household economy in an Highvelt Swaziland community (SC UK, 2004)

(almost all young adults) and the occupation and income of the deceased, and recalculating household income having replaced lost income i.e. it estimated the change due only to lost income and factored out other changes (retrenchment from south Africa, lost income from the privatisation of the forestry income, drought). No attempt was made to estimate additional costs from illness or funeral costs or assets lost after bereavement. Technically, this experiment was not entirely satisfactory, as (i) it was retrospective; (ii) because of the omissions noted. However it does indicate that the same technique applied prospectively and with two or more observations e.g. separated by a year or more, would be a cheap, effective way of estimating the economic impact of HIV/AIDS and monitoring the social and economic adaptation which had occurred.

6.9 The IHM model has applications beyond those discussed here. For example, we are currently using this as a basis for trying to gain a better insight into the relationship between nutritional status and household economy in Bangladesh; it can be used to estimate the cost to individual households of child labour; the potential value of credit and loans etc.

7. Descriptive and derived information from HEA data

7.1 Modelling applications aside, HEA, particularly when used with appropriate software, provides a source of descriptive information, and a way of deriving some information that is difficult to obtain from other sources.

1. For larger multi-economy data sets any data item can be mapped e.g. to show where particular crops are grown or the extent to which households depend on particular income sources or hold particular assets (Figure 17.2).

2. Market locations can be mapped (Figure 17.1). By combining the income data and market data, estimates of the volume of trade of each commodity at each market can be derived, although the estimates are to some extent distorted by the crude ranking of markets. However, this data, which is systematically derived form primary sources is arguably more complete and reliable than that available from conventional sources.

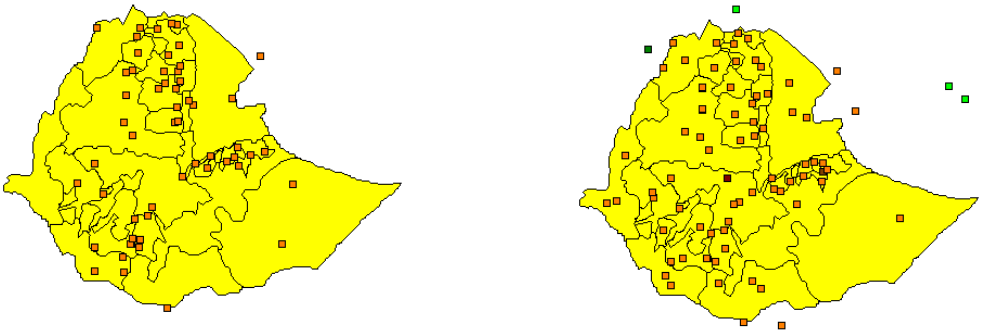

Figure 17.1 Markets in Ethiopia reported used. 1. Livestock markets. 2. Employment markets. From RiskMap 1. Data from 1996-1997

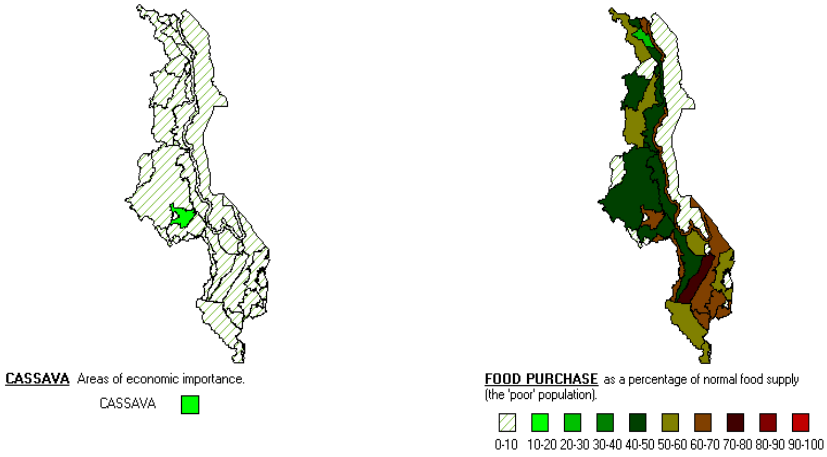

Figure 17.2 Example of mapped data for Malawi 1. Areas of significant cassava production. 2. Contribution of food purchase (%) to household food consumption. From RiskMap 1. Data from 1997/98

8. Skills required to use HEA/IHM: training and institutionalising skills

8.1 HEA has been in use for a decade and there is substantial experience of teaching this to people, expatriate and national, from a wide range of educational backgrounds. Training materials are available for HEA. We have less experience of training for IHM, although we do now have sufficient experience to lay out a standardised approach. In summary, the experience form HEA training is that:

1. A major distinction should be made between acquiring:

(i) a useful knowledge of economy that can inform the trainee's usual work. Many candidates from other disciplines appear to gain from acquiring a basic knowledge of household/village economy even if they do not intend to continue to do assessments. HEA does provide an excellent basis for teaching the elements of rural economy to non-specialists.

(ii) the skills necessary for data collection. This requires a sufficient educational background to grasp the basic principles of food energy requirement, energy values of foods etc and functional numeracy. People from a wide range of backgrounds have acquired this skill, sometimes to a high level. It is necessary to ensure that candidates have the opportunity to put the skills into practice.

(iii) an ability to confidently conduct an analysis. In practice this requires a higher level of conceptual skill and ideally some familiarity with quantitative modelling and in practice has tended to involve people with relevant science or other higher qualifications.

8.2 With those caveats, the skills are entirely transferable.

Developing and maintaining local capacity to conduct household economy based assessments

8.3 A larger and long-standing problem, not confined to these methods, is that of institutionalising skills within African countries. Few people can be expected to devote a career to data collection. Government staff have been involved in several HEA training programmes and assessments but they are not organised in a way that these skills can be maintained. On current experience the best location for institutionalising these techniques would be African Universities/ Colleges as (i) the subject is relevant to many undergraduate courses e.g. agricultural economics, development. (ii) institutions are often under-resourced and the subject work is within their means. (iii) there would be a regular supply of new entrants. Approaches have been made to several academic institutions in Africa and there is interest.[46]

9. Where HEA has been used

9.1 In the original project with FAO data sets were developed for the whole of Lesotho, Swaziland, Zimbabwe, and Malawi and for parts of Kenya, Uganda, Ghana, Sudan, Mali. Mozambique was mapped by the GOM (Figure 1) in slightly different terms and a Portuguese version of RiskMap I was developed.

9.2 HEA has subsequently applied to southern Sudan (providing much of the information used by Operation Lifeline Sudan), Rwanda, Burundi and to a very large number of area assessments in different countries. Use outside Africa has been limited but the techniques have been used in Ingushetia for crisis assessment, in Bangladesh and following the recent Tsunami disaster.

10. HEA poverty measures and poverty comparisons between economies/ populations.

10.1 HEA uses a local definition of poverty, which may be in terms of livestock, land labour or different combinations of these, reflecting local economic opportunities, and it therefore varies from place to place. This and the grouping of households does not allow simple direct comparison between the relative level of wealth in different economies e.g. a 'poor' group in one area may be richer than a poor group in another. Average income can be calculated (with the provisos already mentioned concerning the pricing some items), although given the variation in the pattern of

[46] Institutions include the University of Dar es Salaam, Tanzania; University of Wittwaterstrand and University of the Western Cape South Africa; Department of Home

wealth distributions between economies, the gross inequality of many, and variation in absolute and relative income between years, this is of no obvious practical value. HEA does allow:

1. Direct comparisons between quantitative estimates of the capacity of households to acquire a given level of goods and services under defined conditions e.g. that in a reference year approximately 30% of population A could meet an imposed water charge and 15% of population B and the vulnerability of these estimates to shocks and changes e.g. in a defined 'bad' year these estimates might change to 20% and 0%.
2. General comparisons between populations, taking some qualitative aspects of the economy into account e.g. rural Turkana where the 'poor' and the 'rich' have virtually identical levels of consumption and are distinguished only by relatively minor differences in asset holding, are very vulnerable to local hazards but enjoy a relatively high quality diet, and Swaziland where the rich are very rich e.g. owning motor vehicles, and the poor live in near destitution.

11. Seasonal analysis

11.1 Seasonal household income and expenditure flows can be derived from both HEA and IHM data sets by combining (i) Household income data; (ii) Information on the seasonality of income; (iii) Information on the seasonality of expenditure e.g. school fees, taxes may have to be paid at fixed times (Figure 15). This is useful for prediction, as it allows the way in which events will evolve to be estimated and may well have useful application to social protection. It has long been recognised that poor households suffer reduced consumption during a 'hungry season': the model allows this to be quantified and possible remedies to be identified.

Economics, Swaziland. Graduates in agricultural economics from Bundu College, University of Malawi have also been trained (IHM study)

Annexe II

How practical are household economy approaches? Costs, time from field work to final report and expertise required to implement a study

HEA is now a well-established methodology, which has been widely used across eastern and southern Africa for food security assessment and early warning purposes[47].

Over the past decade, a large number of assessments have been carried out, ranging from small scale (district and sub district level) to national level (eg Tanzania, 1999; Malawi 2004-check). Clearly, the cost and time needed for an assessment varies according to the geographical area to be covered, its accessibility and the resources available[48],[49]. Since larger scale work is more relevant to this report, we include details of work carried out in 2004 in Malawi and Swaziland under the auspices of National Vulnerability Assessment Committees (NVACs) .

Background: Following the southern Africa food security crisis of 2001/2, efforts were made by donors and national governments in the SADC region to improve national early warning and food security assessment capacity, including the use of household economy methods, working through NVACs. This report draws on the VAC experience as a recent source of information relating to the costs of implementing a large area based HEA study.

Training: Field staff are normally introduced to household economy work through 'training assessments' which involve a combination of classroom and practical work. These generally take place over a period of 3-4 weeks. A range of detailed training

[47] see www.savethechildren.org.uk/foodsecurity to download reports
[48] As a general guide, a 'smaller' study (e.g. two sub districts) could be completed by a team of 4 within a time frame of 4-5 weeks, including field work and report writing
[49] A study in NW Rwanda, led out by John Seaman and Ellen Mathys in 1999 is a good example of this smaller scale of work.

materials have been produced, most of which are available on the Save the Children UK website. [50]

The costs of training vary according to the level of expertise available in country. However, in most cases at least one external consultant is needed to direct the training, supported by local technical staff. Using figures from the recent Malawi VAC assessments, a 4 week HEA training for 14 local staff would require a budge of around $30,500 (approximately £17,000)

Item	*$US*
Consultant (x1)	12,000
Local Staff salaries (x14)	13,486
Logistics/fuel	5,000
Training venue and sundries	1,000
Total	**31486**

The following tables set out the costs of recent HEA assessment work carried out in Swaziland and Malawi.

Malawi VAC: Budget for setting up a monitoring system and updating the current year Food Security Assessment (March-July 2004)

Detail	Rate/day	No. of days	No of officers	Total MK	Total US$ (1.)
Current Situation Update: Harvest Monitoring Analysis					
MVAC Field Researchers (3.)	3,500	10	10	350,000	3,211
Drivers	2,500	10	4	100,000	917
Fuel	K94.30/litre	1 car=2,500 km	7km/lit.; 4 cars	134,714	1,236
Impress (4.)	1,000	10	4	40,000	367

[50] See www.savethechildren.org.uk/foodsecurity.The following materials are available electronically Household Economy Analysis for Practitioners; Training of Trainers;Policy and Decision Makers; the field manual, the Household Economy Approach (Seaman J et al, 2000) can also be downloaded from the SC website, www.savethechildren.org.uk/foodsecurity

Stationary				17,500	161
Vehicle Hire				30,000	275
Vehicle Maintenance (8.)		2 GoM Vehicles		35,000	321
Training Venue		3	12	39,270	360
				Sub-Total	**6,848**
Re-zoning and Baseline Assessment					
Consultant (5.) –SUBJRCT TO FUNDS AVAILABLE FROM FEWS-Net	43,600	30	1	1,308,000	12,000
Consultant (6.)	49,595	20	1	991,900	9,100
Consultant Flights		1	2		2,400
F.E.G./FEWS-Net Consultant In-Country Cost		30	1	210,000	1,927
SC UK Consultant In-Country Cost		20	1	140,000	1,284
MVAC Field Researchers (7.)	3,500	30	14	1,470,000	13,486
Drivers	2,500	30	4	300,000	2,752
Fuel	K94.30/litre	1 car=5140 km	7km/lit.; 4 cars	276,973	2,541
Impress (4.)	1,000	30	4	120,000	1,101
Stationary				52,500	482
Vehicle Hire				90,000	826
Vehicle Maintenance (8.)		2 GoM Vehicles		105,000	963
Training Venue		10	12	130,900	1,201
Training Materials				35,000	321
				Sub-Total	**50,384**
Contingency: 5% of the total cost					2,862
Total					**60,094**

Swaziland VAC. Examples of Livelihood monitoring and baselines, 2004

Livelihood Monitoring (May-June)	**Unit**	**Budgeted Cost USD**

Consultant Time	15 days@USD450 per day	6,750
Consultant Accommodation, Breakfast, Dinner (Mbabane)	500R per day 15 days	1,071
Consultant Flight	Lot	1,200
National Technical Support	Lot	714
Vehicle Fuel etc.	Lot	1,286
Per Diems	16 pers x 400 x 12 days	10,971
Stationary	Lot	714
Analysis	2 days	343
Presentation	30 people - 30 Lunches	357
Sub-Total		23,407
Contingency (8%)		1,873
Total		**25,280**
Lowveld HEA Baselines (UNFUNDED)	**Unit**	**Budgeted Cost USD**
Consultant Time	30 days@USD450 per day	13,500
Consultant Accommodation, Breakfast, Dinner (Mbabane)	500R per day 30 days	2,143
Consultant Flight	Lot	1,200
National Technical Support	Lot	714
Vehicle Fuel etc.	Lot	1,429
Per Diems	16 pers x 400 x 18 days	16,457
Stationary	Lot	714
Analysis	5 days	1,071
Presentation	30 people - 30 Lunches	357
Sub-Total		37,586
Contingency (8%)		3,007

Total		**40,593**

Timeframe for assessments: Typically, an assessment in one of Swaziland's main agro-ecological zones involves around 3 weeks field work with 16 local staff (4 teams). Assessments are led by an HEA expert (currently, in the case of Malawi and Swaziland, an external consultant), who has responsibility for initial orientation, supervision of field work and analysis, and drafting a report. A report will generally be made available within 2 weeks of finishing field work.
It is evident from both these budgets, that external consultants are the largest single item of expenditure.

IHM

The IHM pilot studies in Uganda, Ethiopia, Mozambique and Swaziland and Malawi show a similar pattern of expenditure, with external consultancy making up the main cost item. However, IHM training needs are slightly different and do not involve 3-4 week courses.

IHM training The minimum requirement is that interviewers should speak the local language and have prior experience of household level interviewing/field work. Where field workers do not have good local knowledge, a degree in some branch of agricultural economics or social science in normally required. A minimum one day's induction is provided, with further training in the field. The purpose of the assessment is explained, and output from the individual household model demonstrated. Field staff are taken through the basic interview format. A field site is visited and trainees observe experienced practitioners conducting an interview. They are subsequently observed carrying out a complete interview and their data is checked before they can work independently.

Household interview data is recorded on an interview sheet and data input is carried out on a daily basis. This means that irregularities in forms can be picked up in the field and where necessary, households can be re visited. Team leaders provide regular supervision and support, and teams are given daily feedback.

An example of the budget for IHM work is given below. This is taken from a study carried out in Malawi, in September 2004. Note: as this was a pilot study, input from two external consultants was needed (computer programming and field assessment work).

HIV/AIDS and household economy study, Salima, Malawi	**Expenditure**
Consultants x 2 (20 days each)	£12,800
Local staff x 6 (15 days)	£1, 350
Accommodation (guest house, 1 month's rent)	£ 640
Vehicle hire/fuel/driver	£1000
International Flights x2	£1,200
Subsistence	£ 300
TOTAL:	**£17,290**

Field work covered two villages (approx 200 households interviewed). As the field teams had no prior experience of household economy based work, a high level of supervision was needed in this study.[51]

Timeframe: Allowing for training, local introductions and protocol, collection of contextual information, village mapping, and normal hold ups, a team of 5 experienced field workers can cover a sample of around 200 households in 10-12 days. As data input is completed in the field, it is possible to a study and produce preliminary results almost simultaneously. A final report can normally be written up within 2-3 weeks.

Costs: High consultancy costs are unavoidable during the piloting/developmental phase of an initiative such as this. However, it is worth noting that without external consultants and international flights, the cost of the Malawi assessment would drop from around £17,300 to around £3,330. Allowing for more senior local staff salaries,

[51] Our most recent study, carried out in Bangladesh (Jan 2005) also involved 5 field workers and 200 households. However, the field workers were more experienced and had in depth local knowledge. In this case, household interviews were completed in 10 days. The two

15 days' field work and data analysis (using computer software) should not exceed £5,000 when capacity to implement a study such as this has been devolved.

Working across wider geographical areas

IHM studies have only been conducted, to date, at village level. The economics of district level work, based on random sampling techniques, are slightly different as transport and fuel costs are likely to be higher. The following indicative budget was drawn up to illustrate the costs of covering all six coffee-producing districts of Uganda. This was prompted by our study of coffee and household poverty in Uganda[52]. Findings suggested that, even in prime arabica producing areas, coffee production contributed only a small proportion of household income in middle and richer households, and a negligible proportion of household income among the poorest. This challenges widely held assumptions about the importance of falling coffee prices in explaining Uganda's continuing high levels of poverty[53] It would also fill in major gaps in understanding of the poverty reduction impact of the Stratex initiative (which targeted coffee and fish exports), which was brought to light in the 2003 DfID Poverty and Social Impact Assessment [54].

Indicative budget: To establish a monitoring system, to establish the impact of changing coffee prices on household poverty. (Initial studies in 6 districts, total 15-18 sites. Time frame: 9 months)

Item		£
Expert input	60 days	21,000
National staff	1 full time project coordinator	9,000
	1 full time deputy	6,000
	4 full time field workers	18,000
Logistics	Transport and	8,500

cases are not entirely comparable as accounting for employment in Bangladesh was less intricate than in Malawi, but this does illustrate the economies that can be achieved.

[52] Seaman J and Petty C 'Coffee and Household Poverty: as study of coffee and household economy in two districts of Uganda.' (Save the Children UK, 2004)

[53] see, for example Deninger K and Okidi J (2003) 'Growth and poverty reduction in Ugabda,1992-2000: Panel Data evidence. Development and Policy review 21(4):481-509.).

[54] David Booth et al Uganda PSIA pilot study, 2003. This paper highlights the shortcomings of widely used methodologies in assessing the household poverty impact of sectoral policy changes

	accommodation	
International Flights x4		2,500
TOTAL:		**65,000**

Note: A monitoring system using IHM methods could probably be maintained locally for around £22,000 to £25,000, assuming one full time co-ordinator, a part time deputy and 4 part time field workers.