The Individual Household Method (IHM)

A note on the collection of quantitative household economy information

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Introduction

Much development, social, relief and research work in poor countries is directly or indirectly concerned with poverty reduction and in many cases quantitative information on the economy of the targeted households is required for policy development, programme planning and evaluation. For example it is only possible to estimate the size of cash or food transfer which would increase the income of poor households to a set standard of living, if the income of the targeted households is known (Figure 1). An estimate of the affordability of health, education or other services, the potential or actual impact on household welfare of a change in crop production or price, the contribution made to household welfare by child labour or the cost of adopting an orphan all require more or less detailed information on household assets, the way in which the household gets its income, household expenditure and the economic context to which the household relates.

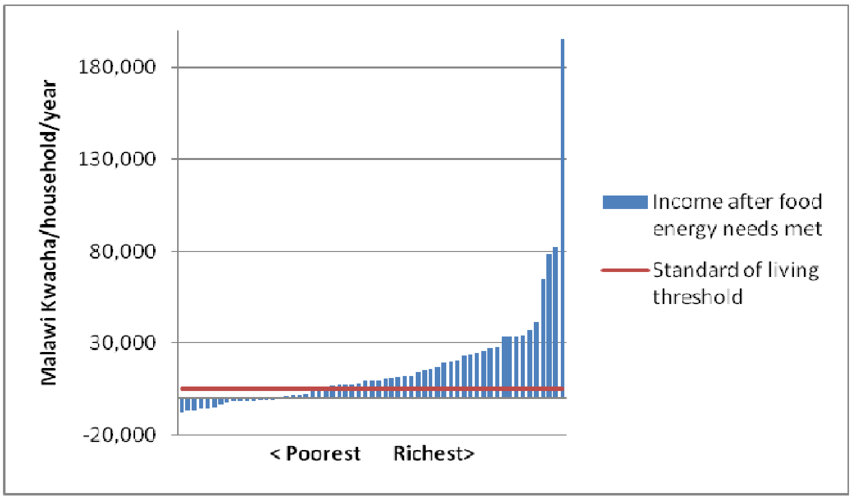

Figure 1. The amount of money available to each household in a Malawi village after it has met its food energy needs, and the threshold at which households can afford goods (clothing, soap, fuel, school fees etc) sufficient to achieve a minimum standard of living. Households with negative income have insufficient income even to meet their minimum food energy needs.

Quantitative information on household economy is rarely used by operational agencies. One reason for this is the perception that this, and specifically information on household income, is difficult to collect. [1] Particularly in rural agricultural locations households may have large numbers of income sources, some of which are seasonal or intermittent; income may be obtained in the form of food or other kind rather than cash; it may be difficult to establish the price of some items and local measures e.g. sacks, rather than metric measures may be used. Income may also be underreported because the person interviewed does not know about all sources of household income, has forgotten these or deliberately conceals their income.

From an operational perspective there are only so many ways around this difficulty. Participative approaches - to use the word in the sense of development interventions which start from the assumption that people are best placed to know their own economy and to make their own investment decisions – can effectively bypass the difficulty in some situations but do not offer a general solution. Community based methods are sometimes used e.g. to identify households which should receive some benefit, although in the absence of direct measures of wealth it is unclear how accurate this is.[2] Asset based measures are widely used in research to estimate relative household wealth and although these correlate with measures of household consumption questions remain about the accuracy of the estimates. [3] A variety of *ad hoc* methods are also used.[4]

Most quantitative information on household economy is collected by national and panel surveys e.g. the LSMS surveys of the World Bank. These provide poverty measures for national and international use and have given insight into broad poverty relationships. However this data is of limited day to day operational use because it is not always available, is sometimes dated and lacks spatial and other detail. [5]

This note outlines an approach to the collection of quantitative information on household economy. The approach– for shorthand named the 'Individual Household Method' (IHM) - builds on a method of data collection developed for a system of 'famine prediction' i.e. to estimate the vulnerability of household income and food access to price and/or production shocks. That method (the 'Household

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[1]Angus Deaton, 1997. Analysis of household surveys: a microeconomic approach to development policy. pp 26 – 31. World Bank. http://www-wds.worldbank.org/external/default/main?pagePK=64193027&piPK=64187937&theSitePK=523679&menuPK=64187510&searchMenuPK=64187283&theSitePK=523679&entityID=000009265_3980420172958&searchMenuPK=64187283&theSitePK=523679

[2] John Seaman, Celia Petty, Patrick Kambewa. *The impact on household income and welfare of the pilot social cash transfer and agricultural input subsidy programmes in Mlomba TA, Machinga District, Malawi, June 2008.* http://evidencefordevelopment.com/files/Rept2008CashTransferAndFertiliserSubsMlomba.pdf

[3]Jane Chuma and Catherine Molyneux. Estimating inequalities in ownership of insecticide treated nets: does the choice of socio-economic status measure matter? *Health Policy and Planning 2009;24:83–93*

[4] For example the use of orphan residence to target food aid (in Malawi in 2003) on the logic that these households had lost one or more economically active adults and/ or would have greater household costs and would therefore would be expected to be poorer.

[5] In many cases poverty estimates are now based on consumption rather than income measures, in part because as noted income measures tend to underestimate income relative to consumption e.g. *Poverty Manual, All, JH Revision of August 8, 2005 Page 27* http://siteresources.worldbank.org/PGLP/Resources/PMch2.pdf, , and in part because it can be argued that consumption is a better poverty measure e.g. Chapter1. Box 1.2 page 17. World Development Report 2000/2001http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/0,,contentMDK:20195989~pagePK:148956~piPK:216618~theSitePK:336992,00.html . Some national data sets are available on the World bank PovertyNet http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/0,,menuPK:336998~pagePK:149018~piPK:149093~theSitePK:336992,00.html

Economy Approach') required reasonably current data on household income by income source at national scale. A short cut approach to data collection was developed where income and expenditure data are obtained by 'wealth group'.[6] This solved some of the technical problems of getting complete and reliable income data and suggested that it might be possible to develop a standardised operational method of collecting and analysing data from individual households.

The IHM has two parts. First is a method of data collection which aims to systematically minimise known sources of error and specifically those errors which arise from the more usual questionnaire based approach.[7] The second, of which only a summary description is given here, is specialised software designed for data checking and analysis.

The IHM has been piloted in several countries mostly in single villages and latterly at a larger scale in Malawi. The method is now at a stage where it is largely standardised and, in collaboration with the University of Malawi, is being brought into the teaching curriculum and into wider operational use. An open source project has been started to redevelop the software.[8]

For clarity the following section is presented from the perspective of gathering data on a cross sectional survey. The same general approach can be used for longitudinal and other survey designs and has also been used for the operational assessment of individual households.[9]

The approach to data collection

Potential sources of error in data collection

Errors in the collection of quantitative information on household income mainly arise in the following ways.

1. Income sources may be overlooked. The number of potential income sources in an area may be large. For instance in a recent study in Malawi 50 types of crop (including green crops) and 89 types of employment (including several types of agricultural labour) were recorded.
2. Income is under recorded because:
   i. the person interviewed may not know how much income was obtained by other household members.
   ii. the interviewee may be unable to recall some income. Income from day paid work is a particular difficulty as although this is often concentrated in one season occasional days of work may found at other periods. Some crops are harvested in small quantities when they are needed and some wild foods may be collected and consumed in small amounts.
3. Errors may also be introduced because:

[6] See for example http://www.wahenga.net/node/1188

[7] Ingeborg Astrid Kleppe, Kjell Gronhaug (1998), "Living standard measurement surveys in developing countries: some sources of error", in Asia Pacific Advances in Consumer Research Volume 3, eds. Kineta Hung and Kent B. Monroe, Provo, UT : Association for Consumer Research, Pages: 229-235. http://www.acrwebsite.org/volumes/display.asp?id=11311

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[9] The NGO 'Hope and Homes for Children' is currently using the IHM to assess the economic circumstances of households entering its 'Active Family Support' programme. Based on a practical review of their assets and capacities, appropriate types of intervention are selected with participants (which are all households affected by HIV/AIDS) to help them achieve economic independence.

i. The interviewer and interviewee are not using the same recall period.
ii. The person interviewed may have forgotten some sources of income or is deliberately concealing their income.
iii. Interviews are too long – some questionnaires run to over 100 pages - and the quality of the interview deteriorates.
iv. Information may be incorrectly recorded by the interviewer.

4. Errors may also be introduced in establishing the sale and purchase prices for crops and other goods as these vary seasonally. Rates of pay are also often seasonal, vary from job to job and may be different for men, women and children and errors may arise in converting local to metric measures.

The approach

These errors are minimised in the following way.

1. A preliminary survey is done to get a detailed overview of the economy. This ensures that: (i) the household survey is tailored to the specific conditions in the survey area. (ii) interviewers have a good working understanding of the economy before they start the household interviews. The preliminary survey also provides contextual information which is required for the analysis.

2. Household interviews are conducted in a way that: (i) is likely to include all potential sources of income. (ii) avoids leading questions. (iii) makes accurate recall easy for the interviewee. (iv) avoids recording errors: local units are used and interviewer/ interviewee fatigue is avoided by keeping interviews short. When additional information is required a second interview is done. Additional contextual information is also obtained during the household interviews.

3. Household data is checked on the day of collection, for consistency with biological needs, the observed household conditions and internal consistency within the data. The aim is to explain the findings e.g. the reasons why a household obtained a low return on a crop. If anomalies are found which cannot be explained or there is some other problem e.g. the absence of a person with necessary information, the household is revisited.

1. The preliminary survey

Information is obtained from ‘key informants’. The same information is usually collected from several informants and is confirmed and elaborated by information obtained during the household interviews. Information is obtained on:

- The main types of productive asset, typically including types of land (upland, irrigated etc), livestock types, productive trees etc and an account of the way these are used e.g. cropping patterns on particular types of land, land tenure systems, farm inputs and if relevant an approximate price, rental value etc.
- The income sources potentially available to the survey population i.e. types of crop, livestock, self and paid employment, food aid and other external sources of income, wild foods, hunting

and fishing, and the characteristics of each of these e.g. harvest times, sale prices and for employment the seasonal availability of work, who does particular types of work (men, women, children, families) and rates of pay. Details of external assistance are gathered and in some cases this may be verified by reference to the donor. Sources of credit, access to these and interest rates etc are recorded. In some places children have significant independent income and this is identified to decide if children should also be interviewed. When this is a very minor income source it may be ignored e.g. small amounts of seasonal wild foods collected and directly consumed by children.

Additional information may be gathered according to the purpose of the survey e.g. on markets, the details of a particular crop, inheritance.

A recall period, usually a year, is chosen. The year is usually the complete year prior to the survey, the year being defined in local terms e.g. from the start of one green maize crop to the start of the next.

Conversion factors between local and metric units are established for each significant crop during the preliminary work and refined during the course of the survey. Conversions are established from key informants e.g. the number of sacks of a particular crop on a standard oxcart, by weighing and volumetric measurement e.g. plates to pails.

To establish a standard of living threshold a list of basic goods is identified and the prices of these recorded. This list is defined in terms of a standard of living sufficient to ensure 'social inclusion' and is refined during the household interviews in discussion with poor households.

2. Household data collection.

Surveys are conducted at a season when people are free to participate and household interviews are arranged in advance to ensure that the time is convenient to the householder.

To avoid interviewer / interviewee fatigue and to maintain the quality of the interview:

(i) interviews are short - typically 1 hour or less.

- Only a basic data set is collected on the first interview. This includes household membership by age and sex, absentees from the household and the period and reason for absence, household asset holding, income for the defined period and any additional information which is not time consuming to collect e.g. the education status of household members.
- a separate interview is organised if a substantial amount of additional information is required e.g. if information on household expenditure is required a separate interview would be conducted.
- Interviews are conducted in the local language not through a translator.

(ii) interviewers are required to conduct no more than 3 interviews during a day.

The household interview

Households are defined as 'a group of people, usually but not necessarily related, who contribute to and consume from a common pot'. In most situations households are easily defined but ambiguous cases are found e.g. an elderly person with income living in their own accommodation, apparently as a separate household but receiving support from a married son resident in the same place. A judgement is made as to whether to treat this as one household or to combine them.

Interviews are 'semi structured', the structure being provided by an income classification (Table 1). This divides income into 5 main categories (Crops, livestock, employment, wild foods, and gifts) each of which is subdivided into: (i) income as food consumed by the household. (ii) income obtained by exchange, either on market or non-market terms. [10]

Table 1

Income as food consumed by the household. This includes only food income which is eaten. Food which is put to other use e.g. grain which is kept by the household for seed, put into store, given away or used to pay workers is not included as income	**Income as cash obtained by exchange**
Food crops	Sale of food and other crops
Livestock and livestock products	Sale of livestock and livestock products
Food obtained from employment e.g. payment in meals, gleaning	Employment paid in cash
Wild foods	Sale of wild foods
Gifts of food	Gifts of cash
The classification can incorporate all potential sources of household income e.g. 'gifts' would include gifts of food and money between related households, sale of food relief and theft which is occasionally encountered.	

The order of questioning would typically be:

i. To establish the household's membership by age and sex and the household's other productive assets

[10] Barter is managed in terms of the respective cash values of the items exchanged.

ii. to approach income questions from each identified productive asset i.e. the use to which the asset was put during the recall period, the returns obtained and the use to which the return was put. For example for an indentified piece of land: (i) the crops grown during the recall period (where several crops were grown using a sketch map of the land); for each identified crop the inputs used and the return obtained on each; the use to which the return was put (consumed, sold, or other use e.g. stored for seed) and if sold the price/ unit obtained. This avoids leading the interviewee and because the interviewer has, from the preliminary survey, a good working knowledge of the local economy e.g. would know the approximate return expected on a crop, an atypical response can be questioned and an explanation sought.

For income sources which are obtained intermittently during the year the questions are put in a way which is likely to facilitate recall. For example people employed in day labour have no reason to know their annual income from employment. Therefore this would be explored for each employed individual in the household in turn by working through the year month by month establishing the work done and the return obtained. A similar approach is taken for other irregular income e.g. the quantity of a green crop harvested or wild food collected is estimated by establishing the period in which the crop was taken, and the approximate amount taken /day.

This approach also yields a great deal of incidental information about the social circumstances of the household.

When crops or other goods were sold a price is recorded for each transaction.

To avoid conversion errors local units are used throughout. No conversion of units is done during the interview.

The living conditions of the household are observed and recorded.

Specific points

Recall errors. Our impression on current experience is that people do not appear to have difficulty in recalling even minor sources of income when questions are put in the way described. Income recall is typically of a relatively small number of events e.g. a poor household in Malawi might have 2-3 larger seasonal agricultural jobs where individuals or the whole family were employed, and a scattering of distinct smaller jobs in periods where work is less available. It is clearly possible that some minor sources of income are missed e.g. a day of work carrying water. Expenditure recall (see below) is more problematic.

Deliberate deception. Households are occasionally encountered which actively seek to deceive the interviewer. With the proviso that successful misrepresentation would of course be missed, the way in which the data set is collected and checked and the incidental explanatory information which is obtained requires misrepresentation has to be very subtle if it is to succeed: gross anomalies are easily picked up and the data excluded. It may be evident from the interview that there are difficulties e.g. delayed and obviously odd responses.

Information on illegal sources of income, commercially confidential information. Illegal income sources are sometimes encountered. These range from domestic brewing which although widespread and in many countries technically illegal is rarely prosecuted, to cases of more serious organised crime e.g. smuggling, violent crime and drug dealing.

To date the experience is that (i) there is little difficulty in identifying the existence of these income sources. Obviously there is the risk that some of these are entirely concealed (although if they were of any size this would emerge when the data was checked), but these activities are usually so widely known that they will come up in discussion – indeed people who are not involved may go out of their way to mention them and involved households are easily identified. (ii) in general it has been found that people are very willing to discuss illegal occupations. In the occasional cases where they are not the household can be excluded. Clearly however, there are cases where it would be difficult if not impossible to relate income to specific households.[11]

The very rich 'Very rich' households are occasionally encountered. The category lacks a precise definition but are in general households with income very substantially above that of the rest of the population, income which is usually obtained by exploiting opportunities which are not even in principle available to other households. For example in recent experience the category includes larger landowners, businessmen, politicians and NGO workers. Obtaining complete income estimates can be difficult as this would require intrusive questioning which anyway might not be expected to yield complete information e.g. a wealthy politician and landowner who was informally known have property interests and rental income in the capital city might not be expected to divulge this.

Collecting additional information: household expenditure

According to the purpose of the survey a wide variety of additional information may be required. This may be straightforward e.g. the amount of fertiliser used, or more complicated e.g. the origin of resident orphans. In each case a protocol is developed to ensure that, as with income data, questions are open ended and will yield the information required for the analysis.

Household expenditure is of particular interest as this allows an estimate of actual consumption. The collection of information on household expenditure presents some of the same difficulties as collecting information on income i.e. the wide range of potential purchases and the seasonal and intermittent purchase of goods by poorer households. However there are the additional difficulties that it might be anticipated that there would be greater difficulties with the accuracy of recall – a

[11] Practitioners of some illegal occupations may be very proud of their skill and success and happy to provide detailed information e.g. smuggling between India and Bangladesh requires fluency in languages, the organisation to transport large items across an armed frontier. The income of armed gangs resident in a Nairobi slum, who conduct raids on wealthy houses in the city, was easily obtained through intermediaries in terms of the number of gangs, frequency of raids and the approximate proceeds of each. To relate this income to households would probably be impossible. To date only a single village has been systematically uncooperative (there had been theft of food aid over a long period and villagers were intimidated); a neighbouring village was completely open about the way in which they arranged their affairs e.g. by sharing children between households, to ensure that they met food aid targeting criteria.

poor household might purchase small variable quantities of food of different types on most days in some seasons and it seems unlikely that these could be remembered precisely. [12]

Our experience of gathering expenditure data is very limited. The technique used has been:

(i) to collect information on a defined set of food and non-food goods, sufficient to establish the output required e.g. a complete description of the foods and a set of basic goods and services which are purchased by all or most households e.g. clothes, fuel, matches, school costs etc.

(ii) to ensure that the person(s) interviewed include those who actually made the purchase.

(iii) as with income questions to go through the recall period month by month to minimise recall errors.

3. Data entry, checking the data, criteria for excluding household interviews

On the day of the interview survey results are entered into the database. As many interviews may need to be checked software has been written to allow multi user entry to a common database.[13]

The software: (i) tabulates the data so that this can be checked for errors in data entry. (ii) reconciles the data into a household budget i.e. total cash and food income (as Kilocalories), the adequacy of food income relative to the estimated household food energy requirement, the amount of food which must be purchased (at the prevailing price) to make up the requirement and the cash remaining to the household after its food energy needs have been met. The food requirement of absentees e.g. migrant workers, are excluded from the budget for the period of absence. [14]

With the interviewer the results are examined to ensure that:

- the amount of food energy which the household could obtain is plausible.
- income is compatible with observed standard of living.
- the data set is internally consistent.

Or where they are not the reasons for this can be satisfactorily explained.

For example a household with a recorded total income of 1,300 kcal/ person /day over an extended period might have underreported income, or (as has been recorded in several cases) be starving. A household which consumes milk should have milk animals or the means by which the milk was obtained should be known. The combination of a large house and low income might be simply explained by the fact that the household had fallen on hard times.

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[12] Deaton op cit (footnote 1) pp.27

[13] The software generates an Excel spreadsheet which is used on multiple machines for data entry. The data is then read into the database.

[14] Household food energy requirement is calculated by age and sex of household members from World Health Organisation 'Energy and protein requirements' (WHO technical report series 724, Geneva 1985) for the population of a typical developing country. Averaged over the entire population this approximates to 2,100 kcal/ person/ day. Food values are calculated from standard tables and sources supplemented by values calculated by weighing e.g. the energy value of a small/ medium/ large mango or green maize cob. Where wild foods cannot be identified, a sample or a description is obtained and the food energy value estimated from similar foods.

Data is excluded only if there are anomalies which cannot be confidently explained. 'Data cleaning' as the term is usually used is not done. To date it has been found that exclusions are typically 5% of interviewed households and that most of these are accounted for by the absence, usually despite repeated revisits, of a person with critical information e.g. a trader.

How good is the data?

An assessment of the quality of household data rests on:

- The method used to collect it.
- Comparison of the results obtained from the same population using a different method in which confidence can be placed.

To date only a single comparison has been made, between income estimated using the household economy approach and the method described here. Close agreement was found between the two methods. [15]

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[15] John Seaman, James Acidri, Masozi Kachale, Mary Khozombah, Lineo Mathule and Celia Petty. Extending the Household Economy Approach to support the design of cash transfer programmes in Zambia http://www.wahenga.net/sites/default/files/reports/HEA_in_Zambia_Nov_07.pdf