

Evidence for Development

The Individual Household Model

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Introduction to the IHM (Individual Household Model)

Poverty reduction without accurate information is a random and inefficient exercise that can sometimes harm those it is meant to help. The IHM has been developed to target aid more effectively and to demonstrate to donors and governments how development investments can transform the lives of the poorest in a measurable way. It aims to improve the financial efficiency and value for money of development efforts and has applications at both community and macro policy levels. This briefing paper is concerned with micro level applications.

The IHM is a powerful tool that can be used at the planning stage of any project. It allows agencies to sharpen the design of their interventions so they are more likely to meet the desired outcomes and reach the target beneficiaries. It can also be used as a management tool: retrospective analysis will show if money has been spent effectively and has had the intended outcomes.

This paper illustrates, by extracting data from existing case studies, how users of the IHM can:

- Gain an accurate picture of the pattern of poverty, to improve the design and targeting of programmes before deciding on an intervention
- Analyse the changes that have taken place among beneficiaries when a development investment has been made. We look at how a fair-trade coffee initiative in Uganda affected the distribution of poverty in the community.
- Compare the impact on the poorest households of different policies or projects: We use simple modelling techniques to compare the impact of a food aid distribution, regular cash transfer and market manipulation as alternative strategies to reduce poverty in a community in Malawi.
- Evaluate how effectively food aid and other emergency relief inputs have been allocated at community level: Did the poorest get their fair share of assistance? What lessons can be learnt for future programmes?

The IHM software can be used to provide time series and hence track changes at an individual household level¹. It can also be customised to meet the specific needs and interests of users: for example, to include indicators of children's development and well being; to analyse the impact of fertilisers or irrigation on production; or to track health status, income and employment in anti-retroviral treatment (ART) programmes.

How does it work?

The IHM gives detailed, quantitative information about individual household economy and livelihoods across whole populations. It provides a measure of individual household disposable income—the amount of money available to a household once its basic food needs have been met. This calculation is made 'per adult equivalent' (not per household) and thus allows comparisons to be made between households of different sizes and in different locations.

The analytical software ranks households from the poorest to richest, so the distribution of wealth across a community can be clearly observed on an output chart (Chart I). Users can set a standard of living for any community. This is based on the local cost of buying the minimum set of goods and services (soap, utensils, clothes, primary education etc) required for participation in normal social activities. Chart I shows a rural Swazi community and is typical of other communities we have studied across sub-Saharan Africa. Households that fail to meet the basic standard of living threshold are marked in red. Households that fall below the minimum food requirement appear below the x-axis: they are subsisting below WHO recommended energy requirements.

¹ Projects in Rwanda and South Africa (implemented with Hope and Homes for Children (HHC)) will track individual project beneficiaries over time. A report on the first round of assessments in Rwanda should be available in early 2007.

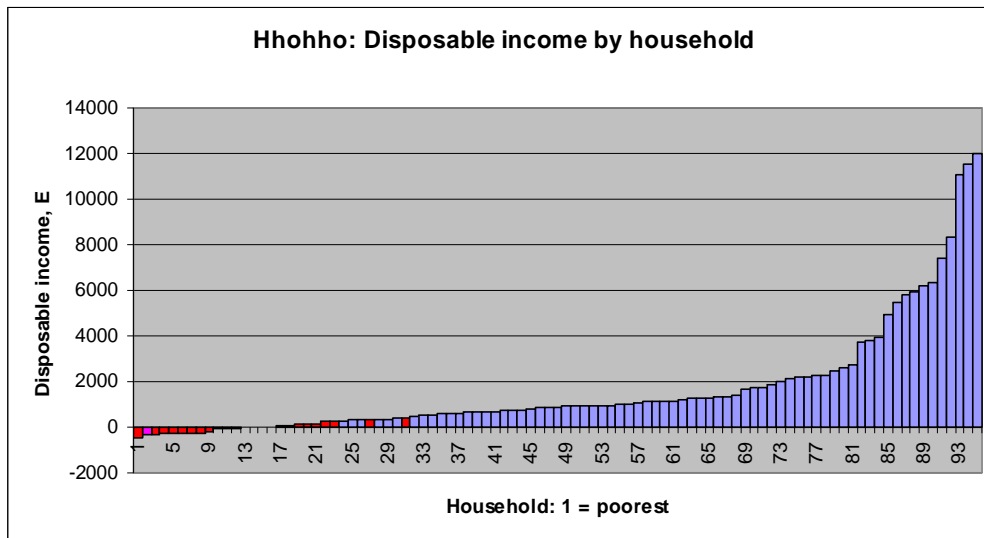


Chart I: Distribution of household disposable income in a Swazi community.

Individual household data is recorded on all sources of income, including food produced, wild food collected and employment undertaken by every member of the household. Data is also collected on production costs, yields per acre, and market and farm gate prices. This allows users to model, across the whole population, the impact on individual household income of shocks and other changes (e.g. a fall in commodity prices, a drop in demand for labour from a defined sector, changes in input costs etc).

Why is this Important?

Measuring food entitlement in this way allows us reach two key objectives that are notoriously difficult to achieve otherwise.

- Firstly we can **measure** before and after a program has been applied and get empirical evidence of its effectiveness.
We can also measure 'side by side' two similar communities: one with and one without the intervention.
- Secondly we can **model** alternative potential interventions based on a baseline study.

Two case studies illustrate this:

Measuring the effect of an Intervention

The price of coffee collapsed on the world market between 1999 and 2003. In a number of countries, including Uganda, speciality coffee was introduced during this period, with the hope and intention that this would protect the most vulnerable from the dramatic fall in price of an important cash crop. In Uganda, quality coffee production has been a central plank in government and donor poverty reduction strategies. The following charts show how this initiative has impacted on the poor.

Chart II shows the percentage of total village income from all sources including employment, food crop sales, livestock produce etc in four coffee growing villages. Two of these villages, (Mpigi I and Mpigi II) are situated in the central region close to Kampala and grow low value Robusta coffee. The others (Mbale I and Mbale II) are situated in the eastern highlands, an area that has an international reputation for high quality coffee production. The Mbale villages have been involved in a speciality fair trade coffee project since 1999.

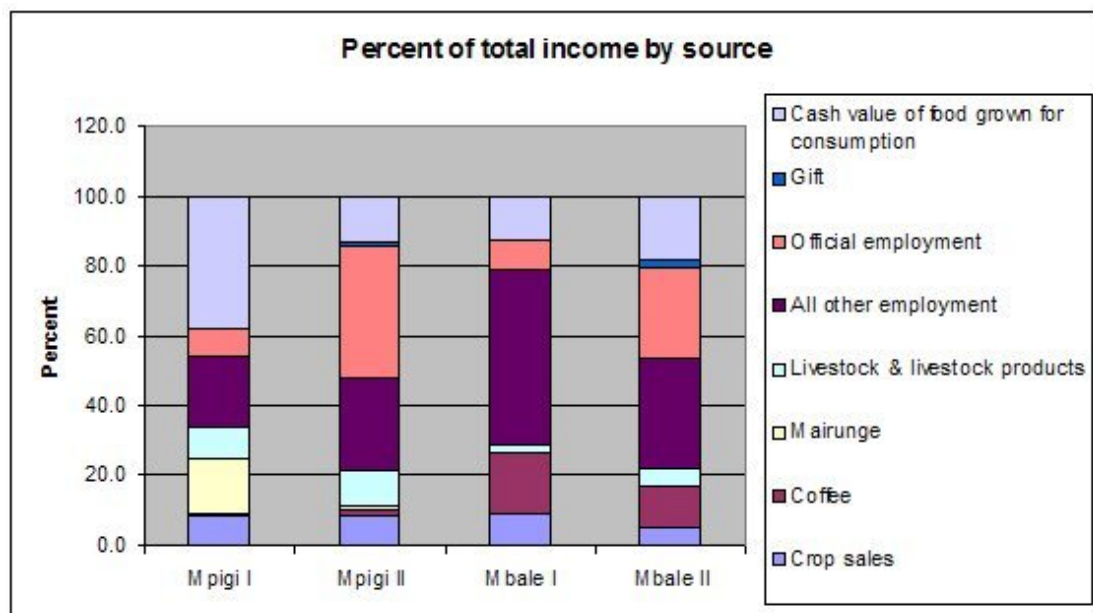


Chart II: Percent of total village income by source. Mpigi I and Mpigi II grow low value coffee; Mbale I and Mbale II grow high value coffee

Coffee production is more important in the two Mbale villages than it is in the two Mpigi villages. However, its contribution to overall village income is still small. Drilling down further, Chart III shows the proportion of individual household income gained from coffee production alone in Mbale II, which produces high value coffee.

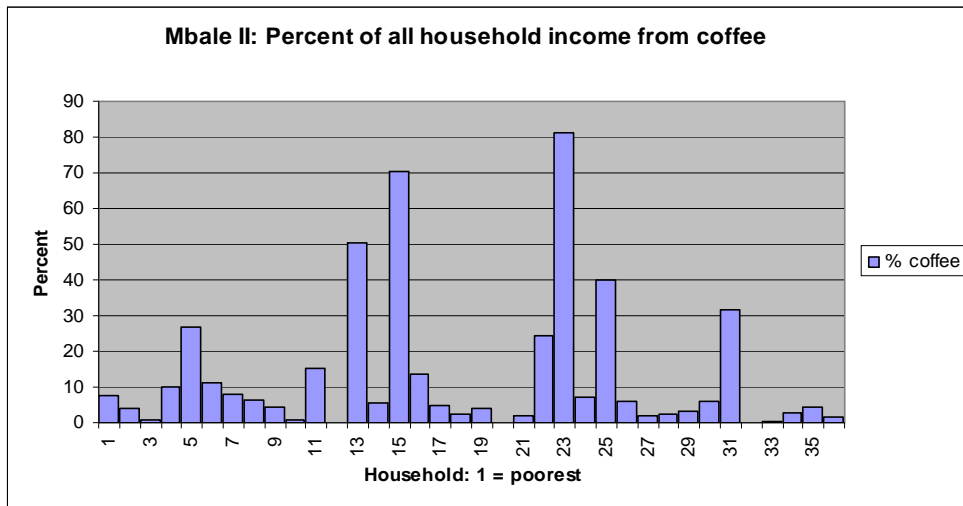


Chart III: The proportion of household income gained from coffee (Mbale II)

Coffee sales only account for a small proportion of household income (around 14% across the whole community) and in the poorest households coffee sales are low to negligible. This is perhaps surprising in a prime coffee producing area.

Taking the analysis a step further we see how retrospective analysis shows more clearly the impact of a 'quality' coffee project that was introduced to raise incomes in line with government and major donor policy, after the coffee price fell. Chart IV shows, for Mbale I, where speciality coffee was introduced:

- (i) what the poverty profile looks like in 2003, with speciality coffee
- (ii) what it looked like in 1998 with no speciality coffee
- (iii) what it *would* look like in 2003 if speciality coffee had not been introduced.

(i) and (ii) are as measured ; (iii) is a simulation achieved by manipulating the coffee related income to represent the coffee output and prices in 2003 for undifferentiated coffee production.

The interesting point here is that very little changes for the poorest. The main impact has been in the upper half of the distribution

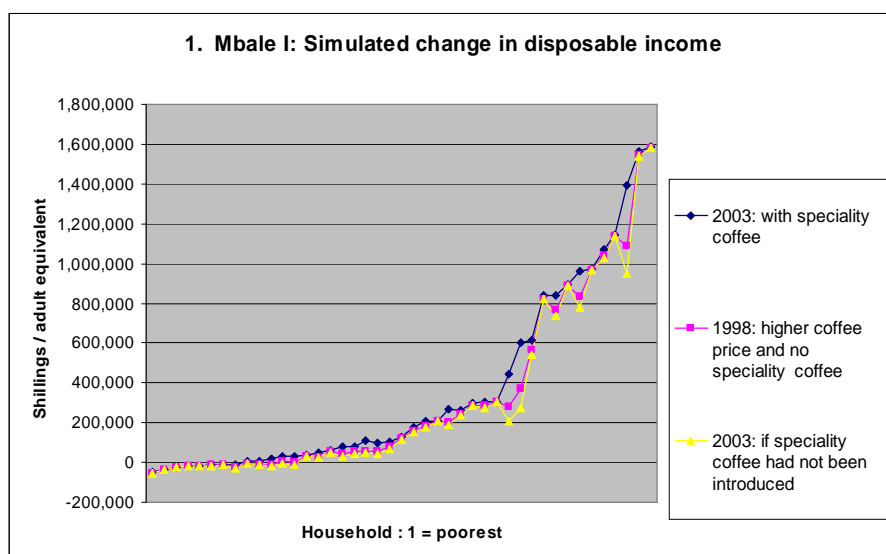


Chart IV: Simulation of change in disposable income (Mbale I)

The failure of the speciality initiative to impact on the poorest is illustrated in Chart IV, which shows the simulated change in disposable income between 1998 and 2003

- With speciality coffee and the actual fall in non-speciality coffee price
- Assuming speciality coffee had not been introduced.

While a small number of households have made substantial gains these are at the higher end of the income distribution. The effect on the poorest is negligible; because poor households produce very little coffee, they have not benefited from the introduction of the speciality, fair trade initiative. Household labour is mainly used in these villages, so there is very little knock on employment effect for the poor. Chart V shows this more clearly by just showing the difference in income by household.

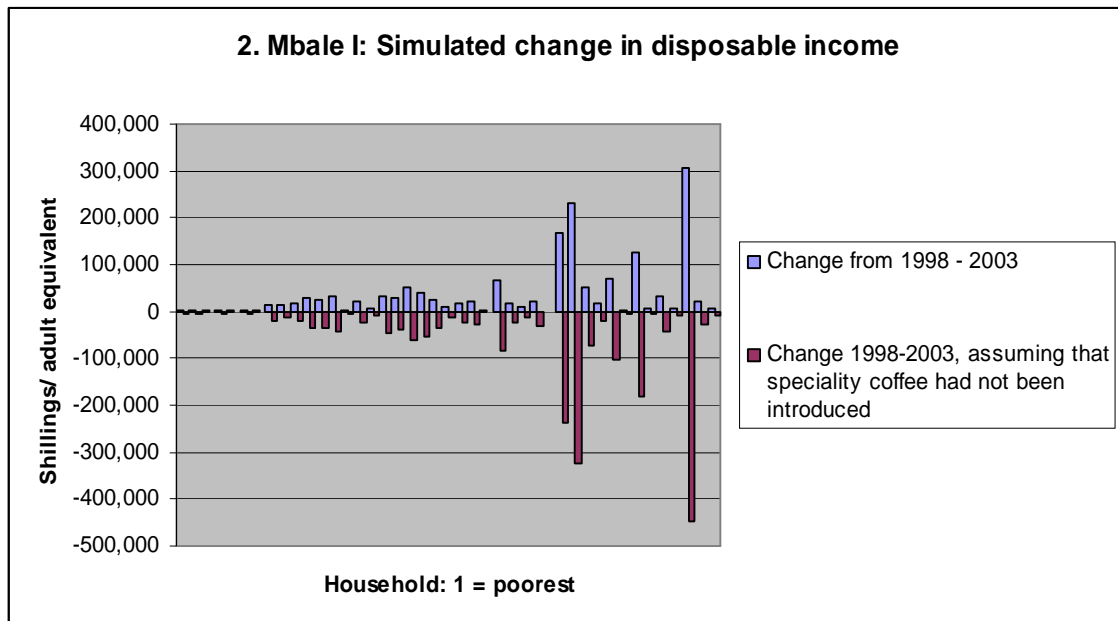


Chart V: Simulated change in disposable income between 1998 and 2003 (Mbale I)

Modeling Alternative Interventions

The IHM is not only a powerful management information tool, allowing users to measure the effectiveness of their interventions. It can also be used to plan interventions and maximise the effectiveness of policy choices. The next set of charts is taken from a study of a village in Malawi. They compare three possible options for reducing poverty in the locality: cash payments to individual households, food aid and a market intervention.

An IHM assessment was first made of the village and then the effect of each of the three possible interventions was modelled on this assessment in the IHM software, to simulate the three interventions.

Calculations were made on the basis of non-targeted interventions across the whole community. However, for clarity of illustration the charts only show the impact of potential interventions on the poorest 20 households. These include (i) an annual cash transfer equivalent to 24,000 kwacha (approx \$14 / £8 per month), shown in Chart VI; (ii) a food aid distribution of 200kg per household, shown in Chart VII and (iii) a 20% increase in the value of the cotton crop, shown in Chart VIII.

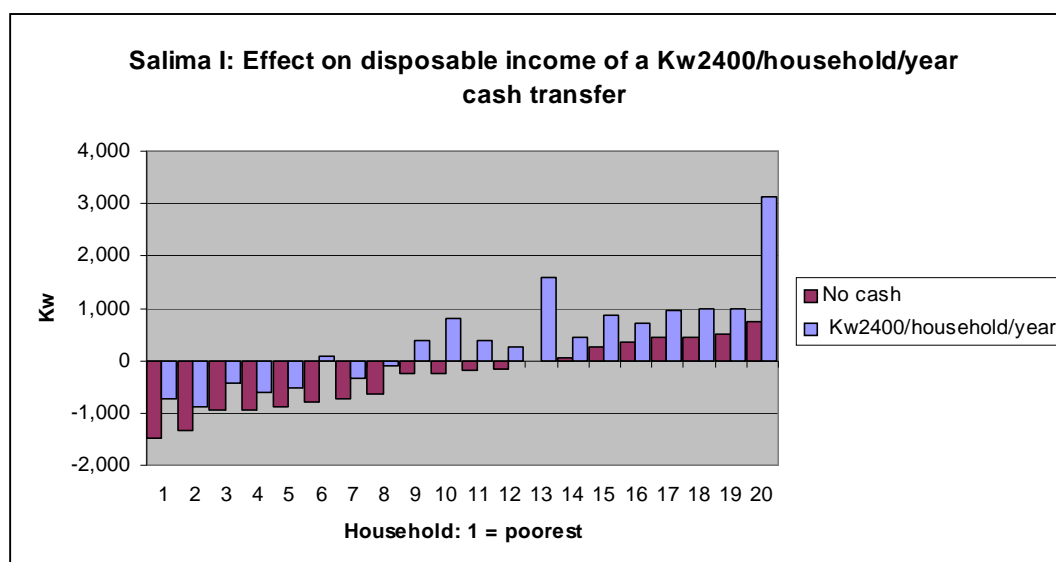


Chart VI: The simulated effect of a cash transfer

By 'what if' modeling, we ascertained that it would be necessary to give every household 200kg maize per year to achieve the same impact as the modelled universal cash transfer. Salima I has around 120 household so it would require 24 tons food aid to achieve this result in a single village. This represents a huge logistical task that would cost as much as the value of the food to implement. Chart VII illustrates the broadly similar effect that would be achieved by such an intervention.

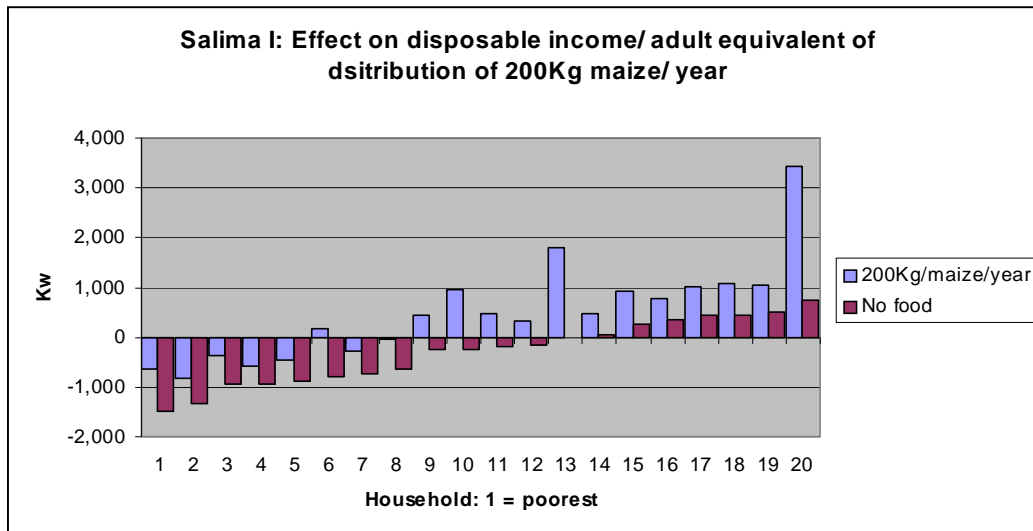


Chart VII: The simulated effect of food aid

Finally, cotton is one of Salima's main cash crops so the third potential intervention we modelled was manipulating the market price of cotton locally. Chart VIII shows the effect on the poorest households of a 20% increase in the value of the cotton crop². There is virtually no impact on the poorest households as very few of these households grow cotton.

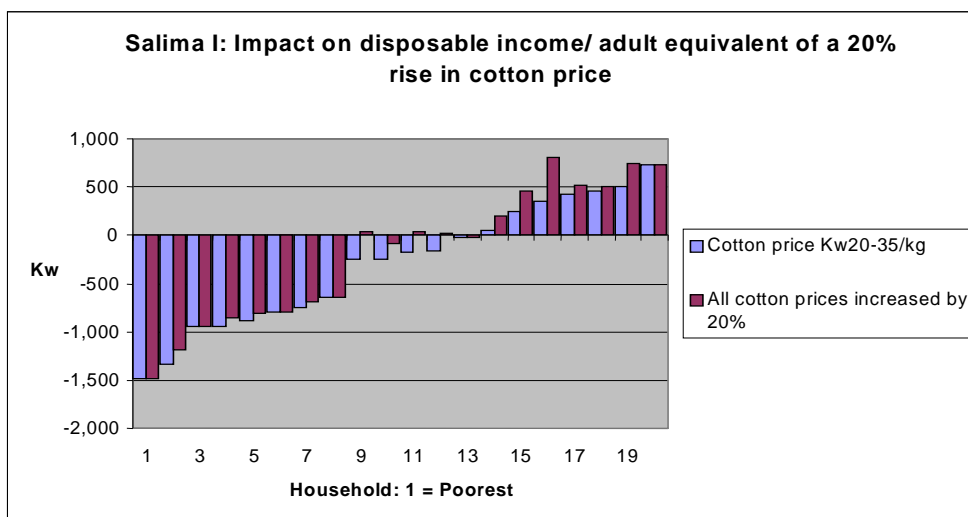


Chart VIII: The simulated effect of a increased cotton price

The result of this modelling exercise was to establish that, of the alternatives considered, cash transfer would have the greatest chance of making the greatest impact for the money and effort expended.

² According to Oxfam a 20% rise in the commodity price is the estimated upward adjustment required to offset the effects of US protection of its cotton producers

Other Studies

The IHM is currently the only practical tool that allows programmes to handle large and complex data sets relating to individual household economy. To date, pilot studies have shown the impact of HIV/AIDS on households in Swaziland, ([link](#)) Mozambique ([link](#)) and Malawi ([link](#)). In Malawi, the method was used to model the effectiveness of different social protection interventions, including food aid, cash transfers, production subsidies ([link to DfID / social protection](#)). Results give a clear indication of a) how severely impoverished communities can be lifted out of extreme poverty and b) how much this would cost.

The method also adds new insights into fair trade and trade justice debates. Studies in Uganda and Ethiopia have looked at links between household poverty, coffee price changes and niche market/fair trade initiatives ([link Uganda and Ethiopia coffee studies](#)).

Finally, teams of social workers in Rwanda and South Africa are using customised EvD software to monitor the effectiveness of their work with children affected by HIV/AIDS. These programmes are funded by Hope and Homes for Children (www.hopeandhomes.org.uk) and the Elton John AIDS Foundation (www.ejaf.com). The results of the first pilot in Rwanda are due for publication early next year. However, there are already positive results including a new sense of collaboration between beneficiaries and project teams, and a sharing of information to reach sustainable economic solutions.

Evidence for Development is committed to devolving research skills and analytical capacity to local organisations and institutions, including universities and government departments. We are currently developing software designed specifically for training and capacity building purposes. We work in partnership with donors, academic institutions, and international and local NGOs to take forward this objective.

Summary

The IHM was developed by the founders of Evidence for Development. It is both theoretically sound and pragmatically proven. It is now moving from the development stage into a form where it can be made widely available through training classes, packaged software and a body of skilled practitioners.

As this happens we hope and believe that the impact of the IHM on development policy and practice throughout the world will result in huge benefits to the poor and the needy.

Further Reading

For more details of the Uganda and Malawi studies extracted from in this paper, together with other such studies:

<http://www.evidencefordevelopment.com/how/work-we-have-done.html>

and particularly actual outcomes in Malawi:

http://www.evidencefordevelopment.com/files/studies/Malawi_HIV&HHEconomy_Final_May05.pdf

For a detailed, more theoretical, discussion of the IHM:

<http://www.evidencefordevelopment.com/files/studies/SocialProtectionDraft%5B1%5D.pdf>

For macro-applications of the IHM for example in national Poverty Reduction Strategies (PRSPs) and Millennium Development Goals (MDGs):

<http://www.evidencefordevelopment.com/files/studies/SocialProtectionDraft%5B1%5D.pdf>

Sources of Data & Charts

Published materials

Coffee and Household Poverty: a study of coffee and household economy in two districts of Uganda (Seaman J and Petty C with Acidri J SC UK/ SC in Uganda 2003)

http://www.evidencefordevelopment.com/files/studies/Uganda_HHEconomy&Coffee_Final_Mar04.pdf

Household Economy and HIV/AIDS in a Highland Swaziland Community (Seaman J, Petty C with Narangui H SC UK/ SC Swaziland 2003)

http://www.evidencefordevelopment.com/files/studies/Swaziland_HHEconomy&HIV_Final_Mar04.pdf

Household Economy and HIV/AIDS: Malawi case study (Seaman J, Petty C with Acidri J SC UK 2004).

http://www.evidencefordevelopment.com/files/studies/Malawi_HIV&HHEconomy_Final_May05.pdf

Acknowledgements

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The study in Malawi was funded by SC UK.