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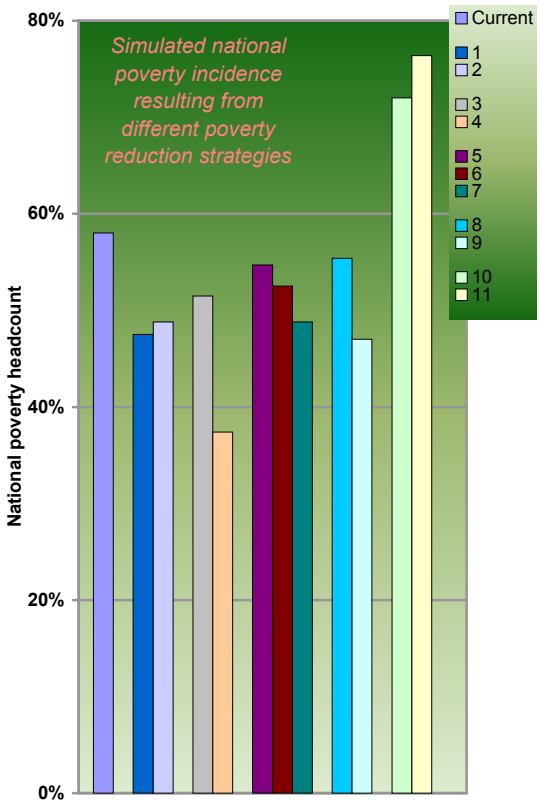
The determinants of poverty in Malawi

Which efforts will reduce poverty in Malawi the most?

Most poverty reduction efforts aim at changing those characteristics of households which are judged to be important determinants of household poverty status — educational levels, agricultural productivity, type of employment, access to services, household size, and others. The model of the determinants of poverty for Malawi allows us to simulate the likely effect of a number of policy interventions aimed at reducing poverty.

The graphic at right presents simulated national poverty incidence rates following several widespread changes in individual household characteristics, such as might result from government efforts at reducing poverty. The lower the bars, the more effective such a change is in reducing poverty.



The legend is explained here:

Current—simulated current poverty incidence. This is the standard against which simulated changes in poverty should be compared.

Educational attainment

1—Effect of increasing by one the number of <u>women</u> with an MSCE in all households with women without MSCE.

2—Similarly, increase by one the number of <u>men</u> with an MSCE.

Occupational shifts

3—One worker in rural HHs moves from an agricultural to a manufacturing occupation.

4—One worker in rural HHs moves from an agricultural to a sales & services occupation.

Agricultural changes

5—Increase of 0.25 acres in the land cultivated per capita by rural HHs.

6—Rural HHs cultivate at least two crops in addition to maize or tobacco, diversifying their farming.

7—All rural HHs cultivate tobacco.

Community issues

8—Reduce time to essential services by one hour for those HHs now more than two hours from such services.

9—Provide access to public works programmes, e.g., MASAF.

Adverse demographic changes

10—Add another child to all households with children (effect of lack of family planning services).

11—Add another child to all households, even if now without children (effect of increase in orphans).

Educational and occupational interventions appear to provide the most important avenues for reducing poverty. Based on the simulations here, agricultural interventions are shown to be less effective.

However, as far more households in Malawi have access to land than to opportunities for secondary education, agricultural interventions are appropriate for alleviating poverty in the shorter term. However, at the same time, sustained, larger reductions in poverty should be sought through education and, thereafter, through the changes in the structure of the labor force made possible by the better educated population.

Special points of interest:

- The most effective and sustainable ways of reducing poverty in Malawi are shown to be:
  - Higher levels of educational attainment, especially for girls and women.
  - Reallocation of household labour away from agriculture to manufacturing or sales and services.
- The simulations using the model of the determinants of poverty allow policy makers to make quantitative judgments of the likely effect on poverty of a range of potential poverty reduction efforts.
- The full model and simulations are described in the publication, *The determinants of poverty in Malawi, 1998*, available from the PMS.

PMS Poverty Monitoring System

The Poverty Monitoring system is an activity under the Poverty Alleviation Programme of the Government of Malawi. The core research activities of the PMS involve four institutions:

- *National Economic Council,*
- *National Statistical Office,*
- *Centre for Social Research of the University of Malawi,*
- *International Food Policy Research Institute.*

The poverty monitoring research program has been designed to gain a comprehensive understanding of poverty in Malawi. The findings presented here are part of a series of briefs designed to inform policy makers about the current state of poverty and the methodologies used to measure poverty.

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Assumptions

The simulations using the model of the determinants of poverty allow policy makers and planners to make a quantitative judgment of the likely effect on poverty of a range of potential poverty reduction efforts. Moreover, cross-sectoral assessments can be made of the likely impact on poverty which government will achieve. For example, a comparison of the effect of putting similar financial and human resources into an **agricultural** strategy as against an **educational** strategy can be made. It is a powerful tool for planning how Malawi will reduce poverty effectively and efficiently.

The determinants model must be used cautiously, as several confounding factors may operate in relating model results to the real world.

First, when interpreting the simulation results, note that the magnitude of the changes in poverty for each simulation will depend essentially upon three factors:

1. the magnitude and sign of the coefficients,
2. the proportion of the population affected, and
3. the size of the change.

Additionally, the effects on poverty are not instantaneous. For example, the effects on welfare realized from a change in an agricultural variable will be observed considerably sooner – possibly the following season – than would those realized from a change in the educational attainment of a girl, for whom the welfare effects will only be realized when that girl is an adult within a household, perhaps fifteen years later.

Furthermore, the simulations assume that changes in one variable do not affect other variables in the model, when in reality feedback mechanisms between variables do operate, possibly enhancing or reducing the overall effect of changes on welfare.

Finally, **only those variables that appear in the model** are candidates for simulations. Thus, variables that may be important determinants of welfare in Malawi, but which were not part of the analysis, cannot be simulated.

Modelling the determinants of poverty

The 1997-98 Integrated Household Survey was used to model the determinants of poverty for Malawian households. A regression procedure was used to derive the model.

The **dependent variable** in the regression was the natural log of the ***household welfare indicator*** calculated in the earlier poverty analysis of the IHS. This is the daily total per capita consumption and expenditure reported by the household, valued in April 1998 Malawi Kwacha.

The **independent variables, or *determinants*,** used were select household and community characteristics which economic theory has judged to be potential determinants of household welfare. As determinants, these household characteristics must be *exogenous*.

Exogenous characteristics are those whose levels are determined outside the current economic system of the household. For example, education of the head of household is an exogenous variable, whereas roofing material for the household is not. The head's education in part determines the welfare level of the household, but is not, in turn, affected by that level. However, the type of roof under which a household lives is largely determined by the welfare level of the household. Consequently, roof type is not exogenous.

The fact that the model must only use exogenous variables necessarily limits the number of poverty policy scenarios to which the model can be applied. Additionally, limitations in the data collected in the IHS also restrict the number of simulations that can be run with the model.

Most household characteristics are made conditional on the place of residence of an IHS sample household: **Northern rural, Central rural, Southern rural, and Urban**. This was done on the assumption, which was tested and proven, that the determinants of poverty differ from area to area in Malawi. In the model, this resulted in different coefficients for a characteristic for each area.

The table presents the coefficients for variables from a portion of the model. Since the dependent variable is the log of the welfare indicator, the coefficients of each variable in the model indicate the percentage change in the household welfare indicator with a unit change in the variable in question. For example, in Central rural the addition to the household of a child under age 9 years, all else being equal, should *reduce* the level of welfare in that household by 15.7 percent.

Variable	Variable description	Urban	South rural	Cent. rural	North rural
age_head	age of HH head (yrs.)	0.002	-0.005	-0.004	-0.004
sex_head	sex HH head (male=1)	-0.026	-0.054	0.041	0.082
pi00_09	no. ≤ 9 yrs	-0.313	-0.206	-0.157	-0.210
pi10_17	no. 10 to 17 yrs	-0.144	-0.124	-0.130	-0.167
fi18_59	no. females 18-59 yrs	-0.136	-0.032	-0.076	-0.174
mi18_59	no. males 18 -59 yrs	-0.006	-0.071	-0.003	-0.121
pi60_99	no. ≥ 60 yrs	-0.197	0.039	0.052	-0.080
maxed	max adult education level	0.172	0.224	0.193	0.115
primind	no. members in primary industry occupation	-	0.074	-0.153	0.023
secind	second. industry occup.	0.127	0.007	0.035	0.083
tertind	tertiary industry occup.	0.128	0.261	0.090	0.119
pcland	per capita land (acres)	-	0.135	0.166	0.134
tob_dum	HH cultivates tobacco	-	0.156	0.141	-0.079
divcrops	No. crops not tob., maize	-	0.024	0.050	0.061
constant	Model intercept term	2.313			
R^2 = 0.328	*Number of households:*	*846*	*2,423*	*2,378*	*810*

Simulating the effects of poverty reduction efforts

Having estimated the model, simulations are run to predict the changes in poverty levels that result from unit changes in selected aggregate household or community characteristics.

This is done simply by **altering the levels of the variable of interest** (a HH or community characteristic) by the amount to be simulated for those sample households to which the simulation applies. The **modified IHS data is then used with the model** to predict the resultant change in aggregate welfare for all households that would result from this change. The poverty incidence following this change is then computed.

Other policy briefs

- *Activities of the Poverty Monitoring System*
- *The state of Malawi's poor: The incidence, depth, and severity of poverty*
- *The state of Malawi's poor: Who they are*
- *The state of Malawi's poor: Their education*
- *The state of Malawi's poor: Their health*
- *The state of Malawi's poor: Their economic characteristics*
- *The state of Malawi's poor: Agriculture and making a living from the land*