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# Simulating the Impacts of Rural Social Cash Transfers and Farmer's Subsidies in Malawi and Ghana

by Mateusz Filipiński and J. Edward Taylor, UC Davis

**A considerable body of experimental** economics research examines the impacts of cash transfer programmes. In many developing countries, though, cash transfers are relatively minor compared to other transfer mechanisms in terms of their claim on public resources. In Malawi, fertilizer subsidies dwarf cash transfers, while next door in Zambia, the government pays farmers prices well above market levels for their maize. Yet no study to our knowledge has attempted to compare the full impact of social cash transfers and other kinds of transfers on rural incomes and welfare in low-income countries.

Filipiński and Taylor (2012) employ a simulation model of heterogeneous, interacting agents to compare the impacts of direct payments and other transfer mechanisms on production, incomes and welfare in rural Malawi and Ghana. They calibrate their simulations to existing fertilizer subsidy schemes in both countries. Then they compare the input subsidy to two other transfer schemes in each country: a market price support for staples, similar to what historically has been implemented in both countries, and cash transfers: in Malawi the Social Cash Transfer (SCT) scheme, and in Ghana, Livelihood Empowerment Against Poverty (LEAP).

## Modelling the impacts of transfers

The simulation models for Malawi and Ghana were designed to evaluate the impacts of alternative income transfer schemes on the welfare of heterogeneous rural households. The models nest a set of farm household 'sub-models' linked together in a general equilibrium framework. Each household model is representative of a group of rural households defined according to the specific eligibility criteria of each transfer programme.

The basic structure of each household sub-model is that of a Computable General Equilibrium (CGE) model representing a very small economy. The household CGEs are nested within a CGE of the rural economy by imposing rural economy-wide market clearing and trade balance constraints. The disaggregated general-equilibrium modelling approach makes it possible to capture the heterogeneity of households in the rural economy, with household-specific asset endowments as well as production and consumption decisions. In addition, it highlights households' dual nature as producers and consumers of food. Linking heterogeneous households into an economy-wide general equilibrium framework also reveals the spillover effects of transfer schemes from beneficiary households to non-beneficiaries, and from targeted markets to non-targeted ones.

## Policy simulations

The Malawi model evaluates the impacts of three transfer instruments: (a) a targeted input subsidy; (b) market price support on maize; and (c) a cash transfer targeted to SCT-eligible households. Simulations were calibrated so that they impose government spending of US\$51.4 million, the cost of the 2005/2006 input subsidy.

The Ghana model evaluates the impacts of four transfer instruments: (a) an input subsidy with no effect on input prices; (b) an input subsidy as actually implemented (with a large effect on input prices); (c) market price support on tubers; and (d) a cash transfer targeted to LEAP-eligible households. Simulations were calibrated so that they impose government spending of US\$15 million, the cost of the 2008 input subsidy.

In each country, the following simulations were carried out for each transfer instrument: the base model, which assumes perfect markets, and several scenarios of market imperfections (constrained input use, unemployment, and a combination of unemployment and constrained input use). The Malawi simulations also included inelastic input supply.

Impacts are measured in terms of household welfare, household and total transfer efficiency, and production. Total transfer efficiency captures the welfare impacts not only on households receiving the transfer but also on those impacted indirectly. The total transfer efficiency is low for a mechanism design that lets many benefits leak outside the rural sector or that has large negative welfare impacts on some rural actors. Both efficiency measures can be greater than 1 if the transfer generates multipliers.

## Results

The comparison of simulations from Malawi and Ghana highlights the importance of economic structure and implementation in determining outcomes of alternative transfer schemes. The simulations reveal that no transfer mechanism is unequivocally superior to others. In both Malawi and Ghana, a market price support can create substantial multipliers if unemployment exists in the rural sector, because fewer resource constraints permit more elastic production responses. Market price support can be the most efficient instrument to raise rural incomes when labour is cheap and farmers tend to be net sellers with large surpluses (Ghana). Similarly, input subsidies can be the most welfare-efficient transfer scheme when input and factor supplies are elastic but input demands are constrained by limited liquidity prior to the harvest. An input subsidy reduces costs and stimulates output without increasing consumption costs for agricultural households, and this matters in a country where many farmers are net purchasers of staples (Malawi).

While the cash transfer is not designed to support agricultural production, the presence of liquidity constraints leads to significant production effects of cash transfers, and overall a large multiplier effect. However, the extent to which this is true depends on the spending patterns of the recipient households. Unlike a market price support or input subsidy, boosting agricultural production may not be a direct objective of a cash transfer scheme. The possibility of targeting cash transfers and input subsidies confers those instruments with a considerable distributional advantage.

## Reference:

Filipiński, M. and Taylor, J.E. (2012). A Simulation Impact Evaluation of Rural Income Transfers in Malawi and Ghana, *Journal of Development Effectiveness*, Vol. 4(1): pp.109-129.

