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A Methodology for **Local Economy-wide Impact Evaluation** (LEWIE) of Cash Transfers

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There are a number of cash transfer (CT) programmes in sub-Saharan Africa intended to aid the most vulnerable households. Because targeting strategies limit eligibility to resource-constrained and labour-poor households, the design of these programmes would seem to work against the creation of positive production spillovers. CTs may have significant productive impacts, but impact evaluation research which focuses on beneficiary households may be looking for these impacts in the wrong places.

From a local economy-wide perspective, beneficiary households are a conduit through which new cash enters the rural economy. As they spend their cash, the beneficiary households unleash general equilibrium (GE) effects that transmit programme impacts to others in the economy, including non-beneficiaries. Most households that do not receive CTs are ineligible because they fail to meet the poverty-related criteria and are not labour-constrained; they may be better positioned to expand production when demand is stimulated by CTs.

The local economy-wide impact evaluation (LEWIE) methodology is designed to understand the full impact of cash transfers on local economies, including on the productive activities of both beneficiary and non-beneficiary groups; how these effects change when programmes are scaled up to larger regions; and why these effects happen. All of these aspects are important for designing projects and explaining their likely impacts to governments and other sponsoring agencies.

The traditional starting point for constructing GE simulation models for project impact evaluation is to build social accounting matrices (SAMs). The LEWIE method bypasses this step; the simulation model is built directly from the data. An advantage of LEWIE over traditional GE models is that by using data to directly parameterise the model, it also allows for the construction of confidence bands based on the distribution of the econometrically estimated parameters.

LEWIE: the model: A LEWIE for a CT programme begins by nesting household-farm models for eligible and ineligible households within a region of interest. The household models describe each group's productive activities, income sources and expenditure patterns. In a typical model, households participate in activities such as crop and livestock production, retail, service and other production activities, as well as in the labour market.

Productive activities use different factors (e.g. hired labour, family labour, land, capital), as well as intermediate inputs; the production functions for each activity are estimated econometrically. Household groups can purchase goods and services locally or outside the region; these preferences can also be estimated econometrically.

Household groups in a given village are linked by local trade, and villages are linked by regional trade. The whole region also interacts with the rest of the country, importing and exporting goods and selling labour. Weaker interactions with outside markets mean fewer leakages, making it more likely to detect impacts within the local economy.

Survey data have two main purposes in the construction of LEWIE models: they provide initial values for all variables in the model as well as the data to econometrically estimate model parameters for each household group and sector, together with standard errors. The initial values and parameter estimates are organised into a data input spreadsheet designed to interface with GAMS, where the LEWIE model resides.

LEWIE: markets and assumptions: Validation is always a concern in GE modelling. Econometrics provides us with a way to validate the model's parameters: significance tests provide a means to establish confidence in the estimated parameters and functions used in our simulation model. If the structural relationships in the simulation model are properly specified and precisely estimated, this should lend credence to simulation results.

Econometric estimation of model parameters opens up a new and interesting possibility in regard to validation: the estimated standard errors for all parameters in the model can be used together with Monte Carlo methods to perform significance tests and construct confidence intervals around project impact simulation results.

The LEWIE also takes into account non-linearities and local price effects in the region of interest. Simulations require making assumptions about where and how prices are determined (i.e. market closure, which is usually not known). Sensitivity analysis, combined with the Monte Carlo method described above, allows us to test the robustness of simulated impacts to market-closure assumptions.

LEWIE and experiments: Evaluating project impacts with an experiment may be difficult if GE effects are present, because these effects can transmit impacts from treated to control households. Effects of programmes on control groups frequently confound experimental research in the social sciences.

If GE linkages are strong and positive, and if they extend to control households, it may be difficult to identify the income impact of the programme, because income will rise in both the treated and non-treated households. This is a form of control-group contamination.

Well-designed experiments can capture some of the spillover impacts of programmes (i.e. on the ineligible households at the programme sites). However, they generally do not tell us why these spillovers occur (e.g. through local price effects), how we might be able to influence them, or how GE effects may alter impacts once a programme is scaled up. Experimental economists often ignore the effects of programmes on ineligible groups, instead focusing on the average effects of treatments on treated households. Ignoring GE effects can give an incomplete and often biased picture of how CTs affect local economies, including productive activities.

Reference:

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