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Nazaire Houssou “Operational Poverty Targeting by Proxy Means Tests - Models and Policy Simulations for Malawi”, University of Hohenheim, 2012

Summary

There is a long standing belief that accurate targeting of public policy can play a major role in alleviating poverty and fostering pro-poor economic growth. Many development programs fail to reach the poor in that a sizable amount of program benefits leak to higher-income groups and a substantial proportion of poor are excluded. This is also the case in Malawi, one of the poorest countries in Sub-Saharan Africa. In response to widespread poverty and endemic food insecurity, the country decision makers enacted various programs, including free food, food-for-work, cash-for-work, subsidized agricultural inputs, etc. To target these programs at the poor and smallholder farmers in the country, policy makers rely mainly on community-based targeting systems in which local authorities, village development committees, and other community representatives identify program beneficiaries based on their assessment of the household living conditions. However, most of these programs have been characterized by poor targeting and significant leakage of benefits to the non-poor due to a number of factors, including various local perceptions, favoritism, abuse, lack of understanding of targeting criteria, political interests, etc. Almost all interventions are poorly targeted in the country.

Therefore, this research explores potential methods and models that might improve the targeting efficiency of agricultural and development policies in the country. Using the Malawi Second Integrated Household (IHS2) survey data and a variety of estimation methods along with stepwise selection of variables, we propose empirical models for improving the poverty outreach of agricultural and development policies in rural and urban Malawi. Moreover, the research analyzes the out-of-sample performances of different estimation methods in identifying the poor and smallholder farmers. In addition, the model robustness was assessed by estimating the prediction intervals out-of-sample using bootstrapped simulation methods.

Furthermore, we estimate the cost-effectiveness and impacts of targeting the poor and smallholder farmers. It is often argued that targeting is cost-ineffective and once all targeting costs have been considered, a finely targeted program may not be any more cost-efficient and may not have any more impact on poverty than a universal program. We assess whether this is the case using household-level data from Malawi. More importantly, we evaluate whether administering development programs using the newly developed models is more target- and cost-efficient than past agricultural subsidy programs namely the 2000/2001 Starter Pack and the 2006/2007 Agricultural Input Support Program (AISP).

Estimation results suggest that under the newly designed system, mis-targeting is considerably reduced and the targeting efficiency of development policies improves compared to the currently used mechanisms in the country. Findings also indicate that the estimation methods applied achieve the same level of targeting performance. The rural model achieves an average

poverty accuracy of about 72% and a leakage of 27% when calibrated to the national poverty line of 44.29 Malawi Kwacha (MK). On the other hand, the urban model yields on average a poverty accuracy of about 62% and a leakage of 39% when calibrated to the same poverty line. The results are also confirmed by the Receiver Operating Characteristic (ROC) curves of the models which show that there is no sizable difference in aggregate predictive accuracy between the estimation methods. The ROC curve is a powerful tool that can be used by policy makers and project managers to decide on the number of poor a program or development policy should reach and ponder on the number of non-poor that would also be wrongly targeted.

Calibrating the models to a higher poverty line improves their targeting performances, while calibrating the models to a lower line does the opposite. For example, under the international poverty line of US\$1.25 (i.e. MK59.175 in Purchasing Power Parity), the rural model covers about 82% of the poor and wrongly targets only 16% of the non-poor, whereas the urban model covers about 74% of the poor and wrongly identifies 26% of the non-poor. On the other hand, using an extreme poverty line of MK29.81 disappointingly reduces the model's poverty accuracy and leakage: the rural model yields a poverty accuracy of 51 % and a leakage of 39% while the urban model yields a poverty accuracy of about 48% and a leakage of 68%. Furthermore, a breakdown of targeting errors by poverty deciles indicates that the models perform well in terms of those who are mistargeted; covering most of the poorest deciles and excluding most of the richest ones. These results have obvious desirable welfare implications for the poor and smallholder farmers. It is all important to mention that the models selected cannot explain but predict poverty. A causal relationship should not be inferred from the results.

Further research results suggest that the new system is considerably more accurate and more target-efficient than the currently used mechanisms for targeting agricultural inputs in the country. Likewise, simulation results indicate that targeting the poor and smallholder farmers is more cost-and impact-effective than universal coverage of the population. Better targeting not only reduces the Malawian Government's direct costs for providing benefits, but also reduces the total costs of a targeted program. Though administrative costs increase with finer targeting, the results indicate that the overall benefits outweigh the costs of targeting. Likewise, finer targeting reduces the costs of leakage by a sizable margin and produces the highest impacts on poverty compared to universal regimes. However, the finest redistribution does not consistently yield the best transfer efficiency, nor does it consistently improve post-transfer poverty.

Furthermore, the newly designed system appears to be more cost-efficient than the 2000/2001 Starter Pack and the 2006/2007 Agricultural Input Support Program (AISP). While the Starter Pack and the AISP transferred about 50% of total transfer, under the new system about 73% of transfer is delivered to the poor and smallholder farmers. Likewise, under the new proxy system the costs of leakage are cut down by 55% and 57% for the Starter Pack and AISP, respectively. Thus, under the new system it is possible to reduce leakage and undercoverage rates and improve the cost and transfer efficiency of development programs in the country.

The proxy indicators selected reflect the local communities' understandings of poverty and include variables from different dimensions, such as demography, education, housing, and asset ownership. These indicators are objective and fairly easy to verify. However, the collection of information on those indicators might entail an effective verification process.

Likewise, the system developed can be combined with other methods in a multi-stage targeting process.

The models developed can be used in a wide range of applications, such as identifying the poor and small holder farmers, improving the existing targeting mechanisms of agricultural input subsidies, assessing household eligibility to welfare programs and safety net benefits, producing estimates of poverty rates and monitoring changes in poverty over time as the country and donors cannot afford the costs of frequent household expenditure surveys, estimating the impacts of development policies targeted to those living below the poverty line, and assessing the poverty outreach of microfinance institutions operating in the country. This broad range of applications makes the models potentially interesting policy tools for the country. However, the models developed are not sufficient. They must also be coupled with investments in education, rural infrastructure, economic growth related sectors, and strong political will to impact on the welfare of Malawians.

The research also provides a framework for developing and evaluating a simple and reasonably accurate system for reaching the poor and smallholder farmers in Malawi, but the methodology can be useful in other areas of applied research and replicated in other developing countries with similar targeting problems.

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