Gordon Anderson (University of Toronto), Ana Monero (University of Western Australia)

Multilateral and Multidimensional Comparison Techniques for Gleaning New Insights into Differences in the Distributional Structure of Impoverishment Across Many Populations

New methods for multilateral comparison of multidimensional distributions (Anderson, Linton and Whang 2019, Anderson, Post and Whang 2018) have opened up the possibility of comparing the distributional anatomy of inequality and deprivation over collections of populations. Developed as multidimensional extensions of Dominance Criteria, Gini's Relative Mean Difference (Gini) and Transvariation coefficients, they can offer new insights into differences in the structure of the depth and intensity of impoverishment across many populations. The latter techniques have already found application in a study of Sub Saharan East African Households where differences in access to irrigated land is an issue.

While irrigation scheme development has offered opportunities for greater economic growth and food security in Sub Saharan East African households, they have become increasingly dependent on off-farm activities in seeking livelihood improvement through a diversified portfolio of farm and off-farm income sources and inequality has been an issue (Manero 2016). Often men are absent from the farm, working away and sending remittances, leaving women as the principal farmer and de-facto head of household, which has changed the dynamics of the household decision-making structure. Noticeable differences in household incomes by gender of head of household has given rise to questions about whether gender of the head of household has been a circumstance limiting farm based contributions to household incomes (Bjornlund et. al. 2017, 2019). This is in essence an equality of opportunity issue concerning whether or not there are substantive differences in the distribution of incomes derived from farm crops for female as opposed to male households. Using data from 2014 and 2017 for Zimbabwe, Tanzania and Mozambique, Anderson and Manero (2019) employ these new methods for assessing distributional differences across gender and locational divides. Preliminary results suggest that, while access to land differs substantially by the gender of household head (a difference that has increased over the period) distributions of crop based income contributions to the households are not so differentiated and have not changed much over the period.

The proposed paper would outline further developments of these techniques with some illustrative applications in other spheres relating to the measurement and understanding of extreme poverty.

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