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How Robust Are Measures of Poverty and Inequality? Explorations for Rwanda

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Even after household survey data have been collected, the measurement of poverty and inequality requires dozens of methodological decisions, such as the determination of the poverty line, the construction of a welfare measure, the choice of adult equivalents, the method employed to adjust for price variation, or the valuation of durable goods (Haughton and Khandker 2009).

Almost two decades ago, Deaton and Zaidi (2002) offered practical, and widely-followed, advice on the construction of consumption aggregates. Some of this advice has stood the test of time, but other recommendations may need to be updated.

In this paper we explore the impact of these choices on the measured poverty rate in Rwanda, using data from the Enquête Intégrale sur les Conditions de Vie des Ménages (EICV) of 2016/17. Our technique is straightforward: we simulate the effects of different choices on the poverty rate, and the Gini measure of inequality, one at a time, in order to identify which decisions matter the most.

Specifically, we examine the following:

- a. The choice of adult equivalent scale. Some countries use income per capita; others apply elaborate scales based on caloric needs; most use the same scales when measuring poverty and inequality. Our preliminary results indicate that the choice of scale is important in identifying who is poor, and the profile of poverty. We also make the case that different scales should be used for the measurement of poverty, and of inequality.
- b. The valuation of autoconsumption. The issue here is what price to use when valuing home consumption – the price reported by the household, or a price collected in the marketplace.

We find that the prices reported by households are fairly close to those reported by market surveys, but they have greater variance.

c. The use value of durable goods, including housing. The theory is clear enough, but the practical application varies widely. This matters more for the measurement of inequality than of poverty.

d. Adjusting for variation in prices over time and space. A wide variety of techniques are used, which largely differ in how prices are weighted. The best method is probably to use household-level weighting.

e. Setting the caloric requirements for a food poverty line (or the food component of a cost of basic needs poverty line). Practice varies widely: The Philippines sets a threshold of 2,000 kcal per adult equivalent per day, while Rwanda uses 2,500. This interacts with the choice of adult equivalence scale. The choice of a caloric threshold for poverty analysis is often inconsistent with the measures used by FAO (2004) to estimate food needs, and we seek to reconcile the two approaches.

Once decisions have been made on these methodological details, they are hard to change, given the need for consistency over time. But every now and then a thoroughgoing overhaul of poverty measurement may be called for, and at that point it would be helpful to have clear guidance as to what “best practice” might be. We review the options, measure their importance, and draw some conclusions about what the choices should be.

## References

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