LSMS-ISA
Integrated Surveys on Agriculture

Comparing dynamics of multidimensional and consumption-based poverty in Ethiopia

Poverty can be viewed as taking many different forms, ranging widely over a set of monetary (consumption or income) and nonmonetary dimensions (health and education). Recent literature documents that people who are identified as poor in the consumption space are often different from those who are multi-dimensionally poor (MDP). However, less is known about whether the dynamics of MDP are similar to the dynamics of a relative consumption-based measure of poverty. Using two waves of panel data from the Ethiopia Socioeconomic Survey (ESS), we explore the correlation between monetary and nonmonetary measures of poverty and wellbeing in the cross-section and dynamically in rural and small town Ethiopia between 2012 and 2014.

Background

While the body of literature on poverty dynamics is extensive, the majority of studies draw conclusions about the dynamics of income- or consumption-based poverty only; there is a growing, but still relatively young, literature base on the dynamics of MDP. Even more elusive is the correlation between the dynamics of MDP and consumption-based poverty; is there signal between changes in multidimensional wellbeing and changes in consumption?

Data

We analyze panel data from two waves of the ESS, a collaboration between the Central Statistics Agency of Ethiopia (CSA) and the World Bank's Living Standards Measurement Study- Integrated Surveys of Agriculture (LSMS-ISA) project that collects multi-topic panel data at the household level. The ESS began in 2011 (ESS1), with 3,969 rural and small town households. In 2013, a second wave (ESS2) was administered, revisiting the ESS1 households and an additional 1,500 urban households; the panel sample includes rural and small town households only.

The ESS uses a stratified, two-stage sampling scheme. Enumeration areas (EAs) were randomly selected in proportion to population size; 290 and 43 EAs were selected from rural and small town areas, respectively, and twelve households were chosen from each EA. Tracking between waves was done at the household level-- with a low attrition rate of 4.9%-- leading to a panel sample of 3,776 households. We further restrict the final analytical sample to exclude households that are missing information on any of the nine deprivations or real consumption per adult equivalent, for a final balanced sample of 3,197 households.

Methods

We used the OPHI methodology as a guide when constructing the underlying weighted deprivation index (k) used to define MDP. We incorporate three dimensions of wellbeing-- education, health, and living standards-- with each dimension weighted to represent one-third of the deprivation index, and each individual indicator weighted equally within a given dimension. K takes some value between 0 and 1, with 0 indicating no deprivations and 1 signifying deprivation in every indicator.

In order to classify a household as poor or non-poor, a minimum number of weighted dimensions are established and only those who are deprived in dimensions exceeding this value are considered poor. In this brief we use a value of k in each wave such that the proportion of individuals experiencing MDP matches the proportion of individuals facing relative consumption-based poverty (approximately 30% among rural and small town areas). By allowing k to change each year, this estimate (hereafter referred to as MDEP) can similarly be thought of as a relative non-monetary estimate of poverty.

Results

Despite defining both measures of poverty to capture the bottom 30% of their underlying distributions, we find that only 27% of individuals that are poor in either

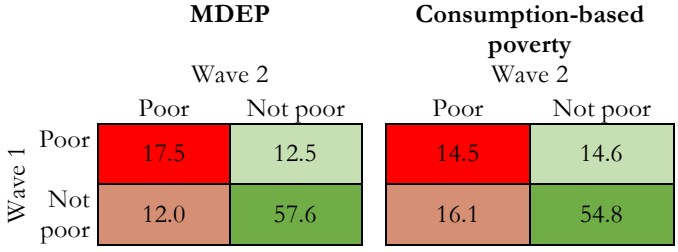
dimension, are poor in both dimensions. We also find little overlap between quintiles of annual consumption per adult equivalent and *k* in 2014 (see Table 1). Only 25% of the rural and small town population fall in the same quintile of both distributions, 35% of individuals are one quintile apart when comparing the two indicators, and 40% are two or more quintiles apart. This shows that whether we use a monetary or non-monetary measure of poverty has a meaningful impact on *who* will be identified as poor at a given point in time. In fact, 75% of individuals would be placed in a different quintile depending on whether or not we viewed wellbeing as being defined by consumption or deprivations in non-monetary dimensions.

Table 1. Crosstab of consumption and k quintiles, 2014

Consumption quintiles	Quintiles of k				
	Poorest	2nd	3rd	4th	Top
Poorest	5.68	3.96	5.59	3.31	2.36
2nd	4.91	3.28	4.44	3.63	3.73
3rd	3.65	3.27	5.33	4.49	3.96
4th	2.12	3.45	4.57	4.00	5.35
Top	1.24	2.33	4.90	3.92	6.56

When comparing the dynamics of the two poverty indicators, separately, we observe similar levels of movement in and out of poverty. Eighteen percent of rural and small town Ethiopians face chronic MDEP, which is only slightly higher than the 15% identified as chronically poor using traditional consumption-based estimates (see Figure 1). There is slightly elevated movement in and out of consumption-based poverty, with nearly 31% changing status between 2012 and 2014; only 25% of individuals transitioned between multi-dimensionally poor and non-poor states.

Figure 1. Dynamics of MDEP and consumption-based poverty



However, even though the dynamics of MDEP and relative consumption-based poverty seem to tell similar stories, we find evidence suggesting that changes in the two underlying values of *k* and consumption are in fact not linked; i.e., knowing what happens to an individual's *k* between waves does not help us know what happens to that individual's consumption over the same period, and vice versa. Approximately 58% of individuals whose *k* worsened between waves also experienced a decline in consumption; the other 42% saw an improvement in their consumption (see Table 2). Similarly, nearly 53% of individuals who improved in *k* actually experienced a worsening in consumption. In fact, using Pearson's chi-squared test of independence, we fail to reject the null hypothesis that the two distributions are independent (p=0.234).

Table 2. Contrasting changes in *k* and consumption

Real consumption per adult equiv.	*k*			
	Worsened	Stayed the same	Improved	*Total*
Worsened	0.193	0.108	0.247	*0.547*
Improved	0.140	0.094	0.219	*0.453*
Total	*0.333*	*0.202*	*0.466*	*1.000*

Note: In a Pearson's chi-squared test of independence, we fail to reject the null hypothesis that the two variables are independent of each other, at p=0.234. Observations are weighted to make results representative of all rural and small town individuals in Ethiopia. Balanced panel sample size includes 3,197 households.

Discussion & Policy Implications

Our finding that *k* and consumption are not necessarily co-moving, has important implications for how we assess individuals' progress in improving wellbeing over time. Until more is learned about precisely what each of these measures is picking up, our analysis indicates that a policymaker could be missing important changes in wellbeing by focusing only on monetary or non-monetary measures of wellbeing or poverty. Until further evidence provides more understanding of what each of these indicators is capturing, both should be tracked.

Generous funding assistance for this research came from the UK Department for International Development Ethiopia.

The findings outlined in this brief are drawn from: Seff, I. & Jolliffe, D. (forthcoming) "Multidimensional poverty dynamics in Ethiopia: How do they differ from consumption-based poverty dynamics?"

To access the ESS data: hhtp://go.wordlbank.org/ZK2ZDZYDD0