Dynamics of multidimensional poverty and wellbeing 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). Multidimensional poverty (MDP) is one such nonmonetary measure of wellbeing and, according to estimates derived from DHS data in 2011, Ethiopia is the second poorest country in the world using this measure. Using two waves of panel data from the Ethiopia Socioeconomic Survey (ESS), we look at trends and dynamics of MDP in rural and small town Ethiopia between 2012 and 2014.

Background

The Oxford Poverty and Human Development Initiative's (OPHI) Multidimensional Poverty Index (MPI) is a widely used indicator of multidimensional poverty, along with the corresponding weighted deprivation index (k). K aggregates information on a series of deprivations from three dimensions of wellbeing, including health, education, and living standards. While the body of literature on poverty dynamics is extensive, the majority of studies draw conclusions only about the dynamics of income- or consumption-based poverty. However, recent literature documents that people who are identified as poor in the consumption space are often different from those who are multi-dimensionally poor.

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), during which 3,969 rural and small town households were surveyed. 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 k; because the ESS is an extensive survey, we were able to include nearly all OPHI-defined deprivations in our index. 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 the traditional OPHI cutoff of $k>=0.33$ in order to make results comparable with external estimates of MDP.

Results

MDP is a widespread burden in Ethiopia, though it has declined marginally from 92 percent in 2012 to 88 percent 2014.[1] This decline is the result of nearly twice as many households exiting than entering poverty

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[1] This decline is statistically significant.

during this period (see Table 1). However, 85 percent of households are MD-poor at both points in time, and chronic MDP is disproportionately high among rural households; 85 percent of households in rural areas are chronically poor compared to only 33 percent in small towns.

Table 1. MDP Dynamics, $k=>0.33$

Wave 1 Wave 2	Poor Poor	Not poor Poor	Poor Not poor	Not poor Not poor	Obs. (hholds.)
Total	85.2	3.4	7.0	4.5	3,197
Rural	85.6	3.4	6.9	4.1	2,799
Small Town	32.9	6.9	19.3	41.0	398

Observations are weighted to make results representative of all rural and small town individuals in Ethiopia. Balanced panel sample size includes 3,197 households in each wave.

Figure 1 depicts changes in the distribution of k between 2012 and 2014. We observe mild improvements across the distribution at the national level, with mass shifting to the left. We also find that more individuals experienced a decline (improvement) in k than did those that accumulated deprivations over the same period (47 vs. 33 percent), though most shifts were minute and 20 percent of the population experienced no change at all in k.

Figure 1. Distribution of k, 2012 and 2014
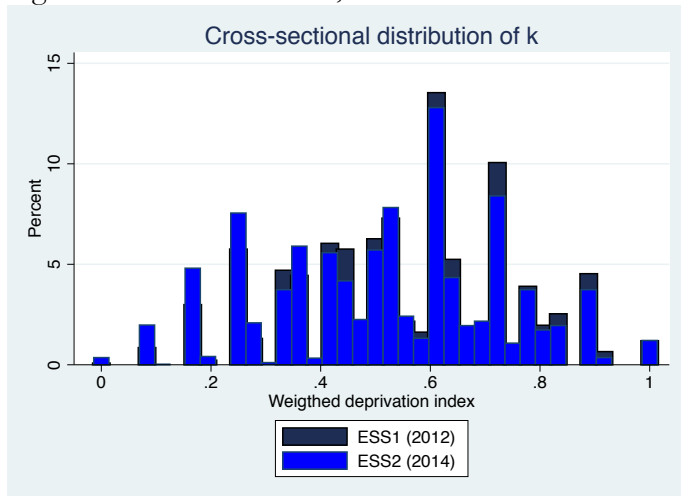
Among the individual deprivations comprising k, having no access to an improved source of drinking water saw the largest decline from 50.3 percent in 2012 to 38.8 percent in 2014. On average, households have also become more educated and have acquired more communication, transportation, and other assets of wellbeing. Positively, we do not observe statistically significant deterioration in any single deprivation (see Table 2).

Table 2. Trends in MPI deprivations

	2012 (SEs)	2014 (SEs)	2014-2012
1a. >=1 child age 7-15 not in school	0.282	0.288	0.006
1b. No one in household has >= 6 years of education	0.677	0.623	-0.054***
2a. A child age 6-59 months is stunted	0.253	0.222	-0.031**
2b. No improved drinking water access	0.503	0.388	-0.115***
2c. No improved sanitation access	0.410	0.424	0.014
3a. No household electricity	0.925	0.904	-0.021***
3b. Household does not use solid cooking fuel	0.973	0.988	0.015
3c. No finished floor in household	0.972	0.968	-0.004
3d. Missing community or mobility/livelihood asset	0.612	0.550	-0.062***

Note: Difference significant at *p<0.1; **p<0.05; ***p<0.01.
Observations are weighted to make results representative of all rural and small town individuals in Ethiopia. Balanced panel sample size includes 3,197 households in each wave.

Discussion & Policy Implications

More and more policymakers are looking to nonmonetary measures of poverty when assessing progress toward improvements in wellbeing. Understanding changes in MDP and the underlying measure of deprivation at the individual level is crucial for developing effective and targeted policies. We find that certain facets of wellbeing are more susceptible to changes over a two-year period than others, and thus warrant policy-makers' attention when attempting to raise rural and small town households out of multi-dimensional poverty.

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