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Ultra Poverty and Vulnerability in Northern Highlands of Ethiopia: A Panel Data Evidence

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Introduction

Despite massive progress in reducing poverty in some parts of the world over the past couple of decades – notably in East Asia – there are still about 1.4 billion people living on less than US\$1.25 a day, and close to 1 billion people suffering from hunger. At least 70 per cent of the world's very poor people are rural, and a large proportion of the poor and hungry are children and young people. Neither of these facts is likely to change in the immediate future, despite widespread urbanization and demographic changes in all regions (IFAD, 2011). Levels of poverty vary considerably however, not just across regions and countries, but also within countries. In Ethiopia, more than eight out of ten Ethiopians depend on agriculture as their main livelihood. In 2005, according to World Bank figures, 38.9% of the populations of Ethiopia lived under national poverty line, which was a decline from 44.2% in 2000¹. However, this trend might be reversed for the last couple of years due to macroeconomic imbalances and inflationary pressures fanned by rising global commodity prices of food and fuel.

Policies targeting the poorest of the poor should be well-informed about the features as well as the factors triggering the outcome. As in most developing countries, poverty reduction strategies and policies are primarily informed by periodic cross-section household survey data that provide estimates of static poverty rates. Interestingly, however, the focus of these policies appears to be chronic or long-term poverty—poverty that is not necessarily reflected in cross-sectional survey data (S. Bhatta and S. Sharma, 2006). This paper uses panel data to unravel poverty dynamics and vulnerability in Northern Highlands of Ethiopia.

The rest of the paper is organized as follows. It starts with a brief description of the data used and the methodological approach applied. It then explores poverty dynamics and vulnerability to poverty followed by a study of determinants. Finally, conclusions and policy implications are drawn.

Material and Methods

This paper uses panel data of rural households in northern highlands of Ethiopia. The data set for this paper is mainly from Ethiopian Rural Household Survey (ERHS) for the years 1994, 1999 and 2004. In addition, primary data has been collected for 2010 tracing the panel households. The sample comprises a total of 209 households (61 from Yetmen and 148 from Shumsheha) for four panel years in five years interval except for the last survey. Methodology-wise, poverty dynamics

¹ <http://data.worldbank.org/country/ethiopia>

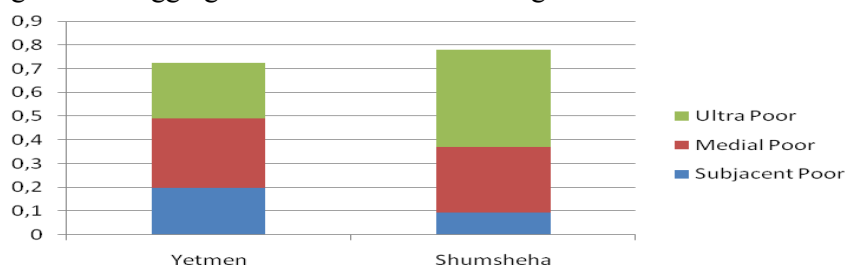
has been analyzed using Foster-Greer-Thorbecke (FGT) indices as well as disaggregating poor into ultra, medial and subjacent poor. The determining factors have been investigated using fixed effects after carrying out Hausman's specification test. Finally, vulnerability to poverty and its determinant factors are examined using three step Feasible Generalized Least Squares (FGLS) and Ordinary Least Squares models respectively.

Results and Discussion

I) Disaggregating the Pooors

Previous poverty studies have been most focused on the use of the standard classifications of poor and non-poor. However, closer analysis on the behavior of the poorest of the poor has become influential for policy analysis. Even though the MDGs characterize the extremely poor are those living on less than a dollar a day, a recent study by Akhter U. Ahmed et al (2007) disaggregated them into three groups according to their location below a dollar-a-day poverty line: subjacent poor (living on between 75 cents and a dollar a day), medial poor (living on between 50 cents and 75 cents a day), and ultra poor (living on less than 50 cents a day). We have classified the poverty status of households using real consumption expenditure per adult equivalent based on 2010 prices. Accordingly, the disaggregation of poor households under ultra, medial and subjacent poor below confirms the prevalence of ultra poverty in the region.

Figure1: Disaggregation of Pooors in the Villages



On the other, using transition matrices, the trend has been similar for the two villages over the panel period (1994-2010). About half of the households moved to lower consumption groups (from non-poor to subjacent, medial and ultra poor) while a quarter of them moved to higher income groups in each village except that both figures have been higher for Shumsheha.

II) The Foster-Greer-Thorbecke Indices

The Foster-Greer-Thorbecke (FGT) indices are the most widely used poverty indices that comprise of three measures: the incidence of poverty, also called the headcount index; the aggregate poverty gap; and the poverty severity (squared poverty gap). This paper uses the international poverty line of 1 USD per adult equivalent using the 2010 village-average constant prices. Using this poverty line and the data on real per adult equivalent consumption, the three FGT poverty indices have been computed for both villages and all panel years.

Table 1: Foster-Greer-Thorbecke (FGT) Index

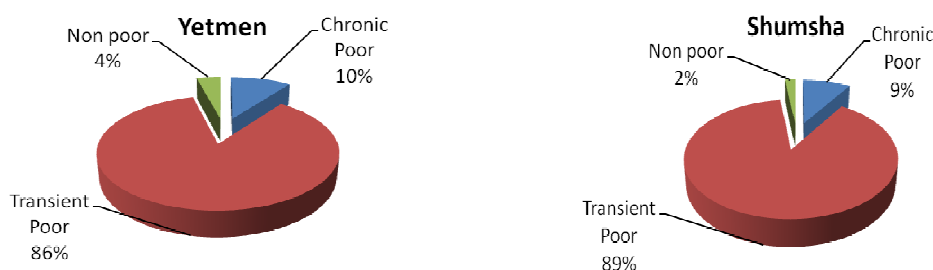
	1994	1999	2004	2010
Head Count Index (HCI)				
Yetmen	49.18	63.93	31.48	68.00
Shumsheha	61.49	54.17	38.79	73.50
Poverty Gap				
Yetmen	21.30	27.96	11.14	24.86
Shumsheha	25.35	12.97	10.97	31.08
Squared Poverty Gap				
Yetmen	11.96	14.61	5.17	11.35
Shumsheha	13.18	5.37	4.69	16.87

The results indicate higher incidence of poverty in both villages with comparable figures in the average. Over the panel, Shumsheha has shown a consistent decline in HCI until 2004 but increased dramatically in 2010. The trend for Yetmen has been fluctuating throughout. The other two indices had a similar trend with the performance of HCI except that they were relatively lower for Shumsheha than Yetmen in 2004 as opposed the figures observed in HCI for the same year suggesting that we need lesser resources to uplift more households out of poverty in the former than the latter.

III) Decomposition of poverty

In empirical work, decomposing inter-temporal poverty has been recognized as an important input for policies targeting on poverty. The respective policy responses for chronically poor sections of the society should differ from that of the transient ones. Following the spells approach, we found that most households in both villages are under transient poverty while chronically poor and non-poor households are marginal.

Figure 2: Poverty Decomposition using Spells Approach (1994-2010)



IV) Determinants of Poverty

A thorough analysis of poverty requires a satisfactory study on the causes of poverty beyond a routine description of poverty profiles if we are able to tackle the roots of poverty. Hence, this part of the paper attempts to address the question of what causes poverty. The fixed effects model has been carried out using the log of real annual consumption expenditure per adult equivalent as a dependent variable and covering all the panel years. The Hausman's specification test rejected the null-hypothesis that coefficients of the regressors are not statistically different and hence ruling out the use of random effects model. The time dummy relevancy test showed that the time dummies are jointly different from zero necessitating their use.

Accordingly, household size was found to have a negative impact with 1 per cent significance. Previous empirical works on the association between household size and poverty has been mixed. Ramakrishina and Demeke (2002) and Nyariki et al. (2002) reported a negative association while Toulmin (1986) and Demeke et al (2011) found a positive association. However, the rationale behind these two opposing results lies on the demographic composition of households. In a household having more dependents, large household size would mean more pressure on the income generating members of the household and hence impacting on the household's food security prospect. Area of cultivated land (+) and days not in work due to illness (-) were important for households in Yetmen whereas remittance (+) and extension (+) for Shumsheha. Moreover, for Shumsheha, time dummies 2004 (+) and 2010 (-) were significant reflecting the trend of poverty incidence in the village. Finally, off-farm income has also a positive and significant impact on household's expenditure for both villages consistent to earlier empirical evidences. All the rest variables were not important in explaining the model.

V) Vulnerability to Poverty

Vulnerability has long been ignored as valuable and necessary component to poverty in poverty literatures. It has gained momentum in recent times as a result of its crucial contribution to policy making. Poverty assessment studies have been immensely used for policy purposes. However, such kind of studies provide only an-expost measure of household's wellbeing (or lack thereof) as an input for poverty reduction strategies. However, they do not provide us a tool for a priori prevention of poverty incidences as a result of unforeseen risks. Hence, vulnerability studies complement poverty studies by providing an exante measure of wellbeing.

Previous studies attach closely related but different definitions to vulnerability to poverty. For this paper the working definition of Vulnerability is the risk of an individual or a household to fall below the poverty line or, for those already below the poverty line, to remain in or to fall further into Poverty.²And, the vulnerability threshold is 0.5. The results are reported below.

Table 3: Vulnerability to Poverty for both villages- (1 USD line)

Measures	1994	1999	2004	2010
Vulnerability to Poverty				
Yetmen	56.86	92.86	26.09	71.43
Shumsheha	57.66	26.92	17.65	92.92
Poverty Rate (Head Count Index)				
Yetmen	49.02	67.86	31.82	67.35
Shumsheha	58.56	43.85	34.15	72.32
Proportion of households common to both measures				
Yetmen	37.25	67.86	15.91	51.02
Shumsheha	41.44	20.00	12.19	71.43

Poverty and vulnerability to poverty followed similar trend over the panel years. However, the comparison has been different at each period. Households in Shumsheha had enjoyed a consistent decline in both head count and vulnerability to poverty measures except for a sharp rise in 2010. However, the trend has been greatly fluctuating for Yetmen in both measures. In average, the proportion of households observed to be poor had less in common with those predicted to be vulnerable for both villages thereby strengthening our result of poverty decomposition that transient poverty is indeed a dominant feature in the area.

The causes for vulnerability of households to poverty has been assessed and compared across time and village using OLS. The result showed that the causes of poverty have indeed been different across time and village.

Conclusions and Outlook

In general, ultra poverty is predominant in the area. Similarly, many of the households in both villages have been poor and were vulnerable to poverty using 1 USD and 0.5 as poverty and vulnerability threshold respectively. However, both measures have shown consistent decline for Shumsha until 2004 but increased dramatically in 2010 while the trend has been fluctuating for Yetmen over the entire panel years.

On the other hand, as shown by the poverty decomposition using spells approach, transient poverty is dominant while chronic poverty is marginal in both villages. Households that have

² Adopted from R. Jha, T. Dang and K.L. Sharma (2009)

been consistently non-poor are even more marginal. An implication of this is that programs targeting on poverty should focus on risk factors that swing households in and out of poverty (such as drought, conflict, price fluctuation and the like) than those causing persistence deprivation. This essentially requires supporting households to invest more on saving and insurance mechanisms.

Comparable to the figures on observed poverty, vulnerability to poverty is paramount in the area despite the differences in the trends over the panel years in each village. Similarly, the trends of vulnerability to poverty have been similar to observed poverty in both villages. We also found that the fraction of households vulnerable to poverty has fewer households in common with the fraction that is observed to be poor on the average. Moreover, most of the important determining factors of observed poverty and vulnerability to poverty have been dissimilar. Therefore, programs that aim to reduce vulnerability to poverty in the region should be targeted differently from those aimed at poverty alleviations.

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