Farmer adaptation and coping of climate variability-induced shocks in Ethiopia: Disentangling household-specific determinants of ex-ante and ex-post strategy choices

Background

• Climate variability-induced shocks, mainly drought, pests, crop disease and hailstorm, have been posing formidable policy challenges in Ethiopia for several decades.

• Shocks do not only cause hunger and income deprivation in the moment they occur, but also lead to a loss of farm assets that hamper productivity and income opportunities of the farmer in the long run.

• Smallholder welfare, both in short and long run, depends on their choice of strategies to deal with these shocks before (ex ante) and after (ex post) their occurrence.

• These choices are farmer-specific due to a strong heterogeneity of farmers’ socioeconomic settings (Berhanu and Beyene 2015; Wossen 2018; Caeyers and Dercon 2012; Berger et al. 2017).

Objectives

• To disentangle household-specific determinants of farmers’ choice of ex-ante adaptation and ex-post coping strategies to climate induced shocks &

• To identify complementary and competitive strategies.

Study area & data

• Baseline data from CIMMYT’s SIMLESA project in Ethiopia collected in 2011

• 898 farm households from the major maize growing hotspots

Methodology

Farmer risk management choices

Method: Logistic principal component analysis (LPCA)

Which strategies are complementary/competitive?

Method: LPCA and Multivariate probit (MVP)

Method: MVP of interdependent adoption decisions

What are farmer-specific drivers of strategy choices?

Results

What are dominant ex ante and ex post strategies?

Table 1. Dominant strategies

<table>
<thead>
<tr>
<th>Ex-ante strategies</th>
<th>Ex-post strategies</th>
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<tbody>
<tr>
<td>Drought tolerant crops, drought tolerant varieties, early planting, soil and water conservation</td>
<td>Selling livestock, replanting, reducing consumption, selling other assets</td>
</tr>
<tr>
<td>Crop diversification, increase seed rate, more non-farm work</td>
<td>Replanting, reducing consumption, selling livestock, borrowing</td>
</tr>
<tr>
<td>Post tolerant varieties, crop diversification</td>
<td>Sell other assets, reduce consumption, sell livestock, replanting</td>
</tr>
</tbody>
</table>

Table 2. MVP result: Correlation between strategies

• Farmers’ resource endowments are more important in determining their ex-post strategy choices than ex-ante strategies

• Farmers with frequent drought experience and high expectations of future droughts tend to reserve their productive assets to save their future and try to live by other less destructive means to escape the short run effect of drought on their livelihood.

References


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