The impact of idiosyncratic and covariate shocks on changes in risk preferences between the lean and harvest seasons for smallholder farmers in Vietnam

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Selected Poster prepared for presentation at the Agricultural & Applied Economics Association's 2013 AAEA & CAES Joint Annual Meeting, Washington, DC, August 4-6, 2013.

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Introduction

- Shocks can cause households to fall into and remain in poverty traps because of a low asset base and high risk aversion.*
- Despite this well-known connection between poverty traps with shocks and risk aversion, no study has examined if shocks cause risk preferences to change over time in a developing country:
  - If shocks increase risk aversion, this could increase the likelihood that people remain mired in poverty from pursuing more extreme low-risk, low-return strategies.
  - If specific shocks increase risk aversion more over time, policy can be tailored to address these shocks.

*e.g., Dercon, 1996; Lybbert and McPeak, 2012; Morduch, 1994; Rosenzweig and Binswanger, 1993.

Objectives

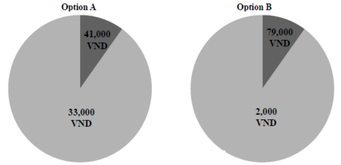
- To examine risk preference changes from the lean season to the harvest season.
- To determine whether shocks increase risk aversion over time.
- To analze whether the above vary by elicitation technique.

Left (right) photo taken in lean (harvest) season in 2011.

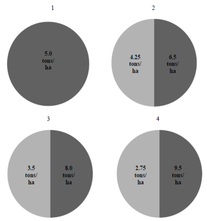
Seven methods to elicit risk preferences

- Lottery game using the multiple price list technique with payouts (Holt & Laury, 2002): respondents make 10 choices between 2 options
  - Ex. of the first choice:

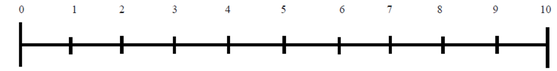
Option A	Option B
10% chance of receiving 41,000 VND, 90% chance of receiving of 33,000 VND	10% chance of receiving of 79,000 VND, 90% chance of receiving of 2,000 VND



- Yield and price gambles of maize and rice, adapted from Hill (2009): respondents make 1 choice between 4 options
  - Ex. of the rice yield gamble:



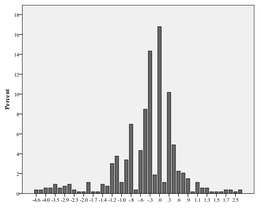
- U.S. Federal Reserve Board's financial risk tolerance question
- Self-assessment scale:



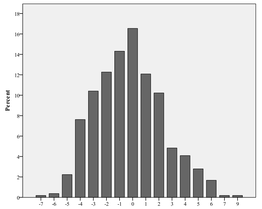
Results and discussion

- Risk preferences are not stable across seasons
- Risk preferences changes vary by the elicitation technique:

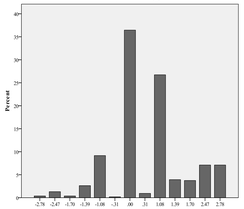
Risk preference changes via the lottery game



Risk preference changes via the self-assessment scale



Risk preference changes via the maize yield gamble



Notes: < 0 indicates a decrease in risk aversion, 0 = no change, > 0 increase in risk aversion over time.

- The influence of shock impacts on risk preference changes:
  - Animal deaths are not significant in any elicitation method
  - Drought is significant in one method only with a very small effect
  - Other covariate shocks have a significant and large impact
  - Idiosyncratic shocks have a significant impact but smaller impact
  - The significance of shocks impacts vary by elicitation method
- Results highlight the importance of the elicitation method when examining risk preference changes and their determinants.

Study area

- Northwestern Vietnam in a marginal upland area
- Rice: main food crop and grown in paddy fields
- Maize: main cash crop grown on degraded upland fields
- Cluster sampling procedure → representative of district:
  - 20 villages randomly selected in district via proportionate-to-size
  - 15 households randomly selected within each village
  - 538 household heads and spouses (if applicable) interviewed in the lean season (April/May) and harvest season (Nov./Dec.)

Methods to analyze shock impacts

- First-difference regression analyses:
  - Dependent variable = risk preference changes across seasons
  - Independent variables = first-difference of shock impacts (losses from shock ÷ annual per capita expenditures) and time-invariant factors (gender, education, social capital, etc.)
- Shocks are examined by type and characteristic:
  - Idiosyncratic vs. covariate
  - Drought, animal death, other covariate, other idiosyncratic

Conclusions

- We find that government support to households affected by widespread drought and buffalo deaths may have been effective in preventing further increases in risk aversion from these shocks, while other non-supported shocks increase risk aversion.
- Thus, mechanisms to help households cope with shocks that are not supported by the government should be explored.
- Future research on risk preference changes over time should rely on several elicitation techniques and examine shocks by type.

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We thank the Deutsche Forschungsgemeinschaft (Dfg) for funding this research through the collaborative research center SFB 564, "The Uplands Program".