

BASIS AMA Research Program

University of California, Davis

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Feed the Future Food Security Innovation Labs: Collaborative Research Programs Meeting

“Examining Opportunities for Linkages in Collaborative Research, Technology Dissemination,
and Human and Institutional Capacity Development”

5 March 2013



I *Index Insurance*
4 *Innovation Initiative*



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Key Project Areas in Eastern and Southern Africa

- Sustainable Adoption of profitable agricultural technology and crops
 - The Impact of Voucher Coupons on the Uptake of Fertilizer and Improved Seeds (Mozambique)
 - Interlinking Weather Insurance with Credit (Ethiopia)
 - Developing a Satellite Based Index to Predict Crop Yields in Smallholder Agriculture (Tanzania)
- Resilience in the face of climate change and shocks
 - Index Based Livestock Insurance (IBLI) - Kenya
 - IBLI - Ethiopia



Sustainable Adoption of Profitable Agricultural Technology and Crops

There are three primary socioeconomic constraints to successful and sustainable adoption of profitable agricultural technology and crops

- Knowledge/Information
- Liquidity
- Risk



Sustaining adoption requires holding liquidity/
creditworthiness

Impact of Voucher Coupons on Adoption of Profitable Agricultural Technology and Seeds

- Government of Mozambique piloted a limited, two year fertilizer subsidy program for maize and rice producers
- Voucher coupons intended to boost input use in both the short and long term
 - “Learning subsidy”
 - Liquidity
- RCT showed that for those who used the voucher, there was increased use of fertilizer and improved seeds
- Also included a matched savings program to encourage profit savings for future liquidity and risk management
- Impact evaluation is ongoing; survey conducted in late 2012 is still being analyzed

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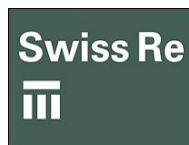
Banco Oportunidade de Moçambique



Interlinking Weather Insurance with Credit in Rural Ethiopia

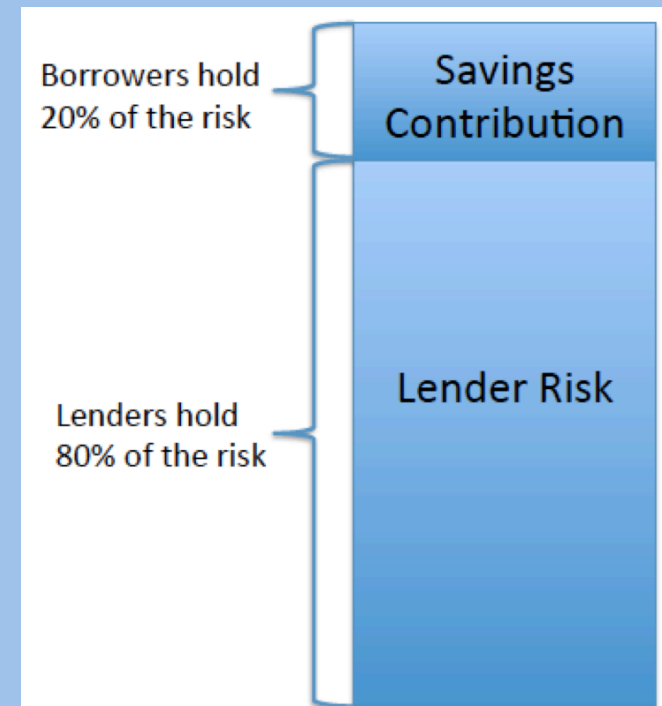
- Interlinked credit and insurance contract
 - Addresses credit availability constraints for borrowers and lenders
 - Keeping people credit worthy for long-term sustainability
- Vulnerable famers are unwilling to take on additional risk of loans
- High uptake of insurance with small subsidy (25-37 percent)
- Other impacts to be determined

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Developing a Satellite Based Index to Predict Crop Yields in Smallholder Agriculture

- Plan to partner with World Vision in Tanzania to apply this index to a credit-linked insurance contract
- Creating an innovative satellite based index which can reliably predict local crop yields for design of an index insurance contract
- Better and more accurate predictions, lower costs for data

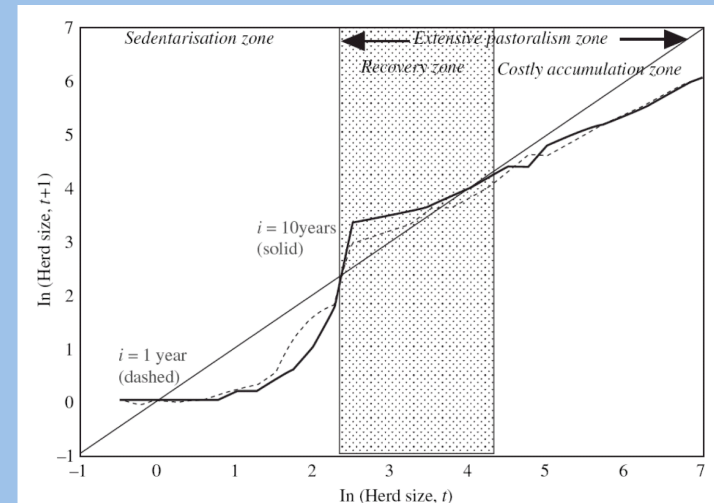


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Resilience in the Face of Climate Change and Shocks

- Poverty Traps
 - Shocks could push households into a “poverty trap”
 - Research has identified a minimum herd size, or tipping point, below which households tend to collapse into poverty
 - The consequences appear to be long term, if not irreversible
 - It may be possible to place a safety net at the tipping point to catch people before they fall into a poverty trap
- Barriers to Growth
 - Farmers are reluctant to adopt more profitable investments due to risk exposure
 - Risk mitigation should stimulate investment and growth



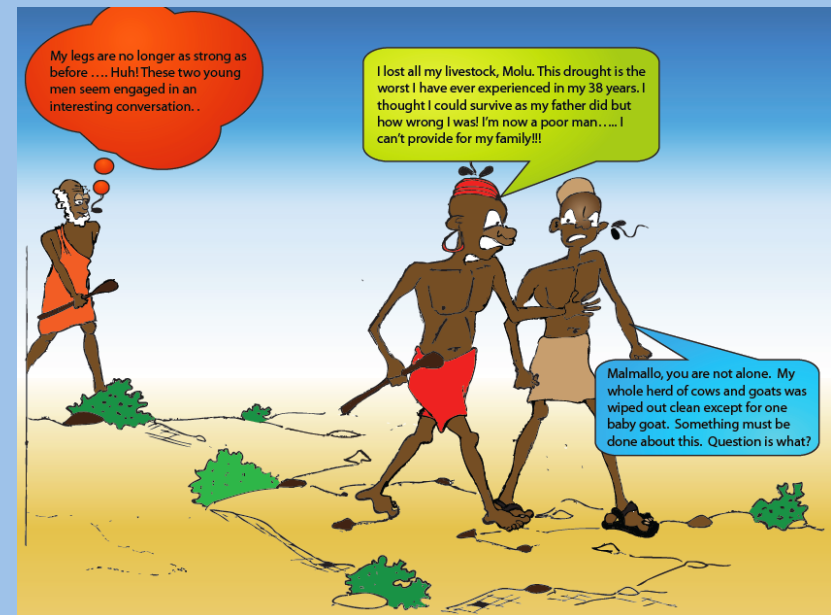
Nadaraya-Watson estimates using Epanechnikov kernel with bandwidth ($h = 1.5$)

Fig. 4. Nonparametric Estimates of Expected Herd Size Transition Functions

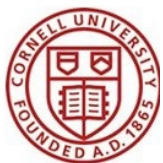


Index Based Livestock Insurance (IBLI)

- Uses satellite spectrometer data to correlate vegetation groundcover with predicted livestock mortality
- Insurance payouts are based on that prediction, rather than on verification of individual losses
- Avoid costly coping strategies that often lead to poverty traps and the intergenerational transfer of poverty
- Enable farmers to increase investment in potentially higher-return activities



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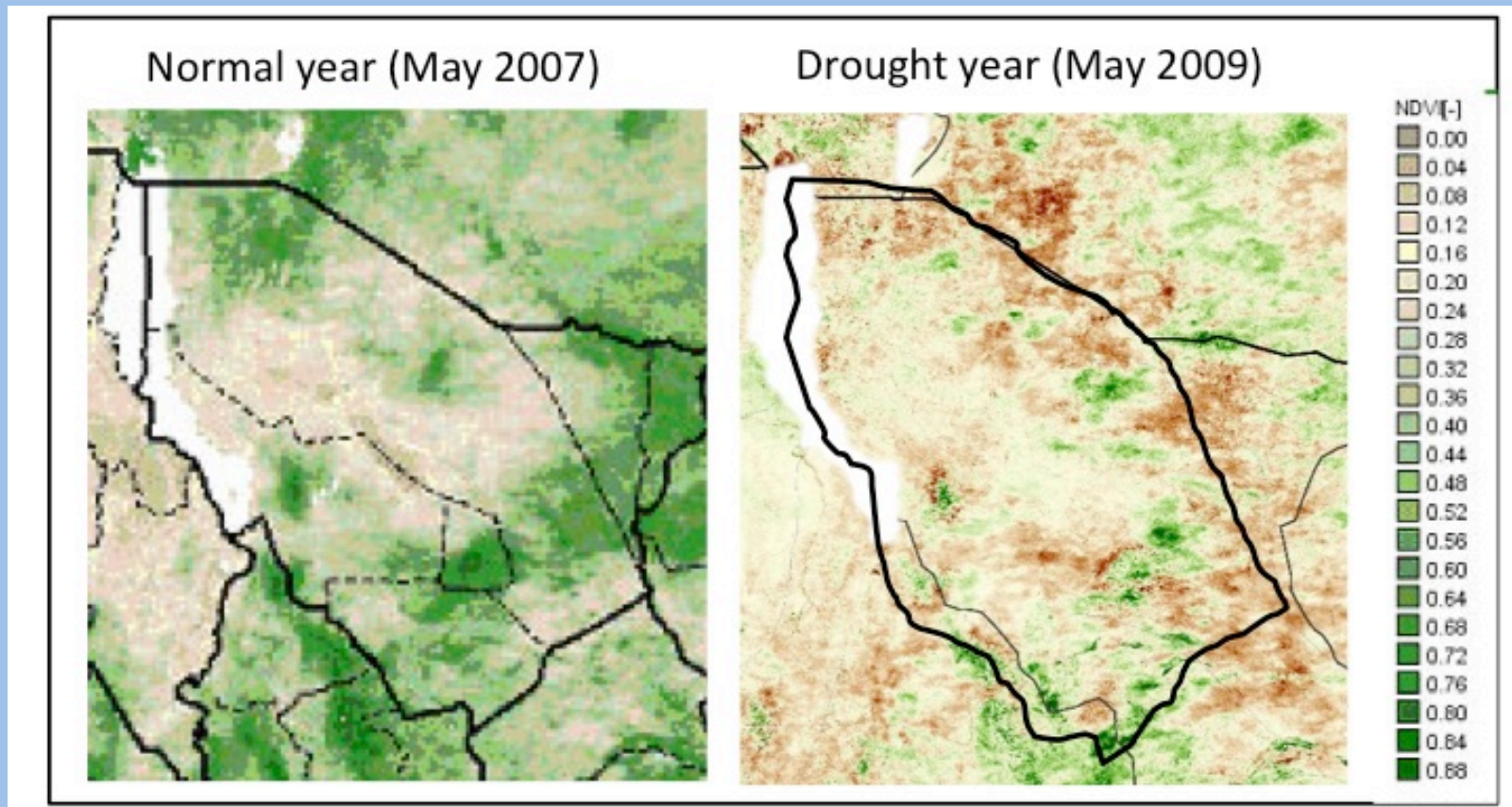


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INSTITUTE



Marsabit District, Northern Kenya



IBLI Kenya: Impacts

The first payment of indemnities took place in October 2011. A survey conducted at that time asked households to predict how the insurance payments would change their coping strategies. Compared to uninsured households, insured households were:

- 22-36 percentage points less likely to draw down assets
- 27-36 percentage points less likely to reduce meals
- 42-50 percentage points less dependent on food aid
- 0-26 percentage points less reliant on other forms of assistance



IBLI Ethiopia

- Partners: Oromia Insurance Company, Africa Re
- 1st year of the project; still working out some logistical on-the-ground challenges to sales implementation
- Link insurance with climate change adaptation
 - First, by dealing with climate change projections
 - Second, by motivating adaptations to climate change



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Future Challenges

- How to scale-up these kinds of programs while preserving the fundamental efficacy of the contract
- Analyze, disseminate and follow-up on results of impact evaluations to assess impact and efficacy

Thank you.

For questions or comments, please contact basis@ucdavis.edu, or visit basis.ucdavis.edu.

