

# Climate Risk & Food Insecurity: What Role for Insurance?

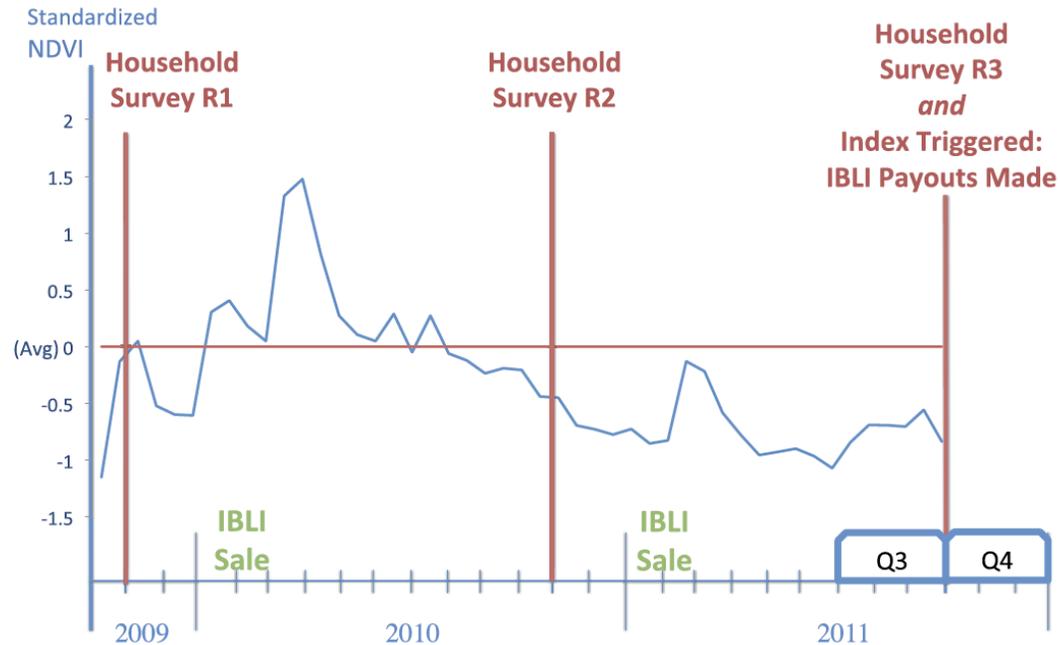
*Michael R. Carter*

*University of California-Davis,  
University of Cape Town & NBER*

*Director, BASIS Markets, Risk &  
Resilience Innovation Lab*



# Climate Shocks & Risk Make & Keep People Food Insecure



- Climate risk and food insecurity are deeply intertwined in rural areas of the developing world
- Shocks *directly* make households and communities food insecure by destroying incomes and assets
- Shocks *indirectly drive* long term food insecurity when limited coping strategies lead households to either
  - Sell remaining productive assets to meet consumption needs, or
  - Reduce current consumption to protect current assets (compromising the human capital of children and their future livelihoods.).
- In addition, the omnipresent risk of future shocks keeps people poor by discouraging investment in assets and activities that would—on average—improve their economic well-being
- Governments often react after the fact to such shocks with emergency food aid, regular cash transfers and other similar social protection programs
- *Can insurance be part of a more effective policy response to food insecurity?*

# Evidence that Insurance Can Change these Dynamics

## Impact of Insurance on Coping Strategies in Kenya (Janzen & Carter 2019)

### Meal Reduction (Asset Smoothing)

	Threshold Estimates		
	Average	< 9.3 TLU	> 9.3 TLU
Insurance Impacts	-12%	-49%**	0.4%
Control Means	71%		

### Livestock Sales (Consumption Smoothing)

	Threshold Estimates		
	Average	< 22.4 TLU	> 22.4 TLU
Insurance Impacts	-61%***	-54%***	-96%***
Control Means	32%		

## Impact of Cotton Insurance in Mali (Elabed & Carter, 2018)

	Cotton Production			Grain Crops
	Area (ha)	Inputs ('000 CFA)	Harvest (kg)	Area (ha)
Impact of Insurance (IV)	1.3**	98**	945	0.6
Mean of Control Group	2.5	223	2567	3.6

## Insurance Reduces Costly Coping Strategies:

- Kenya evidence from 2011 drought
- Karlan *et al.* report reduced meal reduction; Jensen *et al.* (2017) find insurance reduces livestock sales following a shock
- del Valle *et al.* (2016) find that insurance in Mexico helps the lights come back on in Mexico

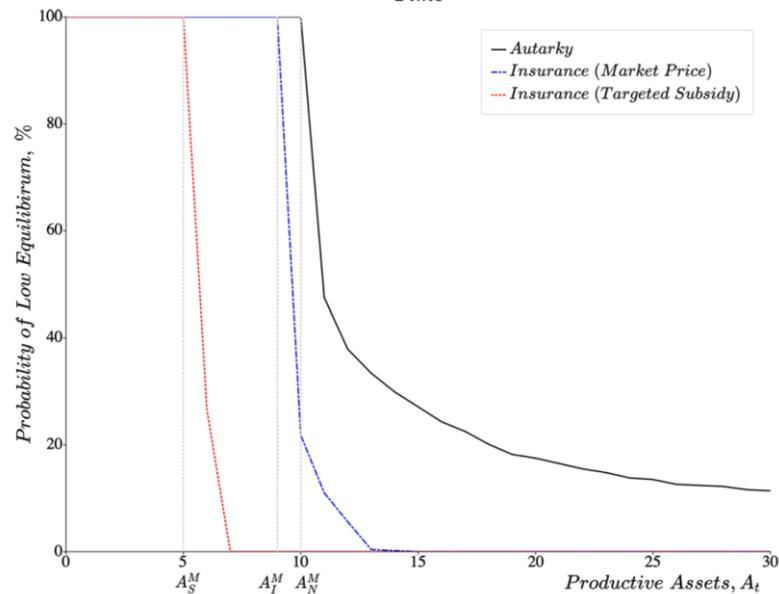
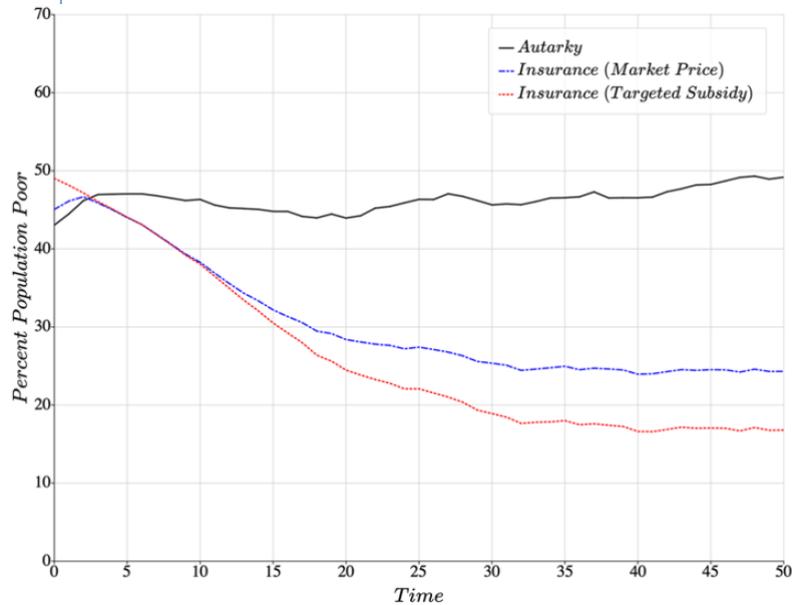
## Insurance Crowds in Investment (Resilience-plus):

- Karlan *et al.* (2015) find insurance intensifies ag production by 20% in Ghana
- Similar results from Hill (2019) for Ethiopia; Mobarak & Rosenzweig (2012) for India; Cai. (2015) for China; Cole *et al.* (2017) for India; and Jensen *et al.* (2017) for Kenya;
- Mali cotton producer give buoyant response

These behavioral responses raise the intriguing possibility that the public sector may be able to save social protection money by spending some public funds on index insurance that triggers payments in the event of a climatic shock.

Indeed, this argument was part of the initial motivation for the Index-based Livestock Insurance in Kenya

# Ex Ante Policy Analysis: Can Insurance Reduce the Cost of Social Protection?

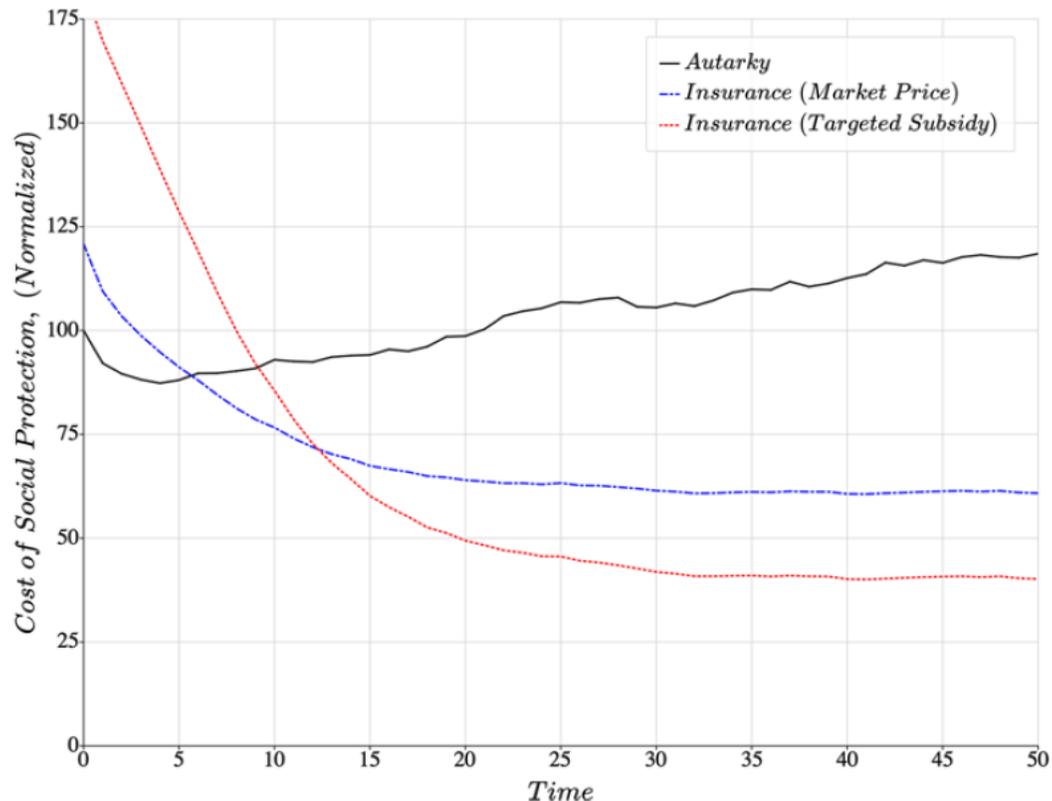


So why might insurance outperform reactive government assistance on its own?

- *Vulnerability reduction effect*: By offering protection to vulnerable but not quite poor households, insurance can protect the assets and maintain their economic viability at relatively low cost, avoiding the chance that they slip into the ranks of the poor.
- *Investment incentive effect*: By securing newly made investments, insurance enhances the incentive for already and vulnerable households to shift their portfolio strategies, prudentially investing more in productive assets and making it less likely that they will require social protection assistance in the future.

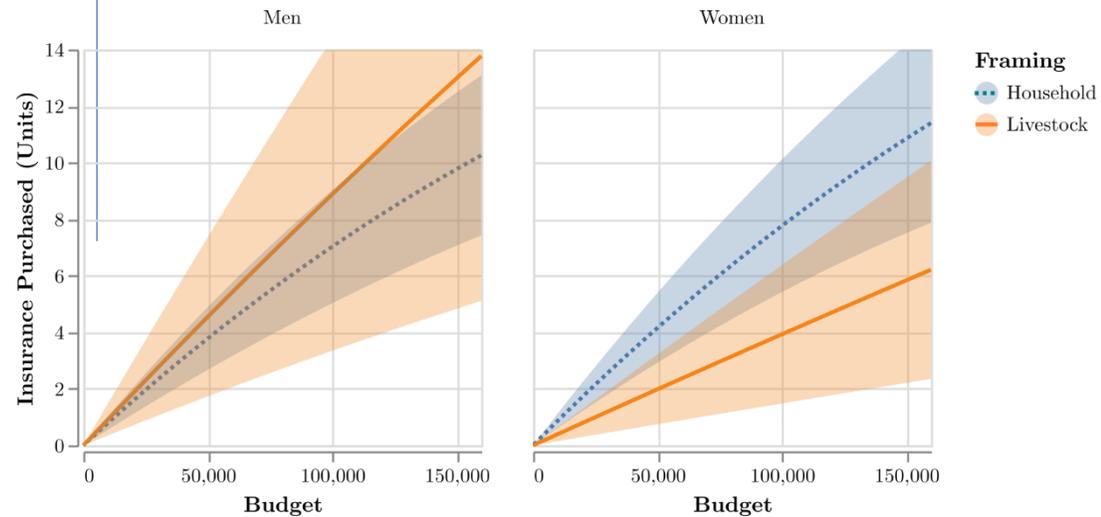
A dynamic programming analysis of a stylized risk-exposed pastoral economy allows us to explore the efficacy of insurance as a supplement to standard social protection approaches

# Public Finance Implications of Insurance-augmented SP



- Assume that the government has a social compact that it will close the poverty gap for all poor households
- Total social protection expenditures are these costs plus the cost of any money spent on insurance
- Find that incorporation of an index insurance element into the government's social protection strategy saves public funds and results in a lower rate and depth of poverty in the long-term.
- Judicious use of smart public subsidies (which recognizes the differential ability of poor and vulnerable households to optimally contribute toward the cost of insurance premiums) can further increase public savings
- But can also see that additional action needed to address the food insecurity of the deeply chronically poor for whom the investment incentives of insurance are inadequate to break a structural poverty trap

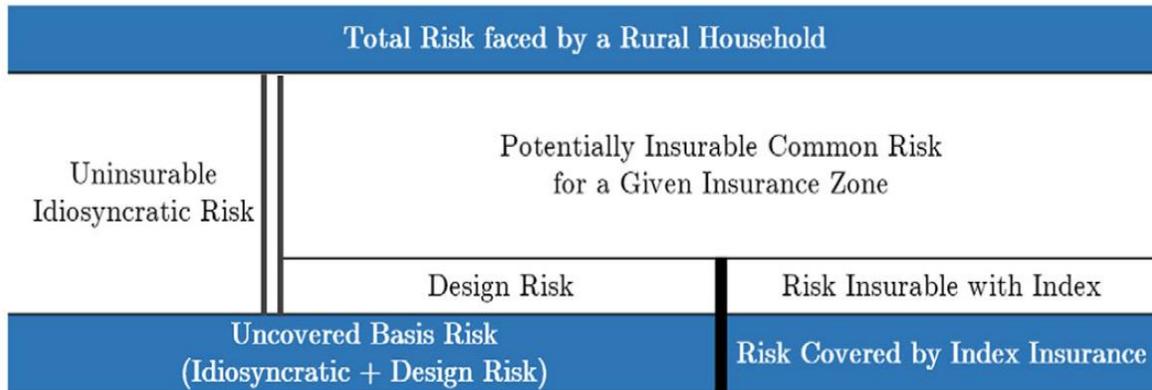
# Integrating Asset Protection with Asset Building to Eliminate Food Insecurity



- Graduation programs that build up the physical and psychological assets of chronically poor women have proven average effectiveness
- However, a closer statistical look reveals that these impacts are quite heterogeneous, with 30-40% of program beneficiaries gaining nothing
- Risk and shocks underlie at least a part of this heterogeneity, suggesting complementarity between asset building and insurance-based asset protection
- Test of this complementarity is underway, but challenges are many, including making index insurance speak to women's risks and responsibilities
- In the midst of testing a new approach to insurance to solve this problem



# A Final Cautionary Note



- While there is justifiable excitement about the potential for index insurance to enhance social protection & reduce food insecurity, index insurance remains a work in progress
- Its greatest strength (the fact that losses do not have to be verified for each individual) is also its greatest weakness (the index fails to accurately measure individual losses)
- At the Innovation Lab, we have developed index insurance quality standards that can be applied to both individual insurance and insurance purchased by governments
- Initial certification efforts now underway through the QUIIC (Quality Index Insurance Certification) program
- Cautiously optimistic that insurance can reach its potential to promote food security



Thank You!



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# Further Reading



Benami, E. and M.R. Carter (forthcoming). “Can Digital Technologies Reshape Rural Microfinance? Implications for Savings, Credit & Insurance,” *Applied Economics Perspectives and Policy*.

Carter, M.R. and Sarah Janzen (2017). “Social Protection in the Face of Climate Change: Targeting Principles and Financing Mechanisms,” *Environment and Development Economics*.

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Hobbs, Andrew (2020). “Insuring what matters most: Intrahousehold risk sharing and the benefits of insurance for women,” working paper, University of San Francisco.

Janzen SA, Carter MR, Ikegami M. Can insurance alter poverty dynamics and reduce the cost of social protection in developing countries? *Journal Risk and Insurance*. 2020;1–32.

Janzen, S. and M.R. Carter (2019). “After the Drought: The Impact of Microinsurance on Consumption Smoothing and Asset Protection,” *American Journal of Agricultural Economics*.