

How do rural women cope with risk?

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Targeting index-based insurance to protect women's assets

What are the main sources of risk for rural women?

Covariate



- Weather shocks, exacerbated by climate change
- Direct impact as farmers; indirect via household

Idiosyncratic



- Illness – indirect impacts stronger for women as caregivers to sick family members
- Death of spouse – especially risky when wife relies on husband for access to productive resources

Ex ante risk management varies by gender

Are women more risk averse than men?



Impact on adoption of
new technologies



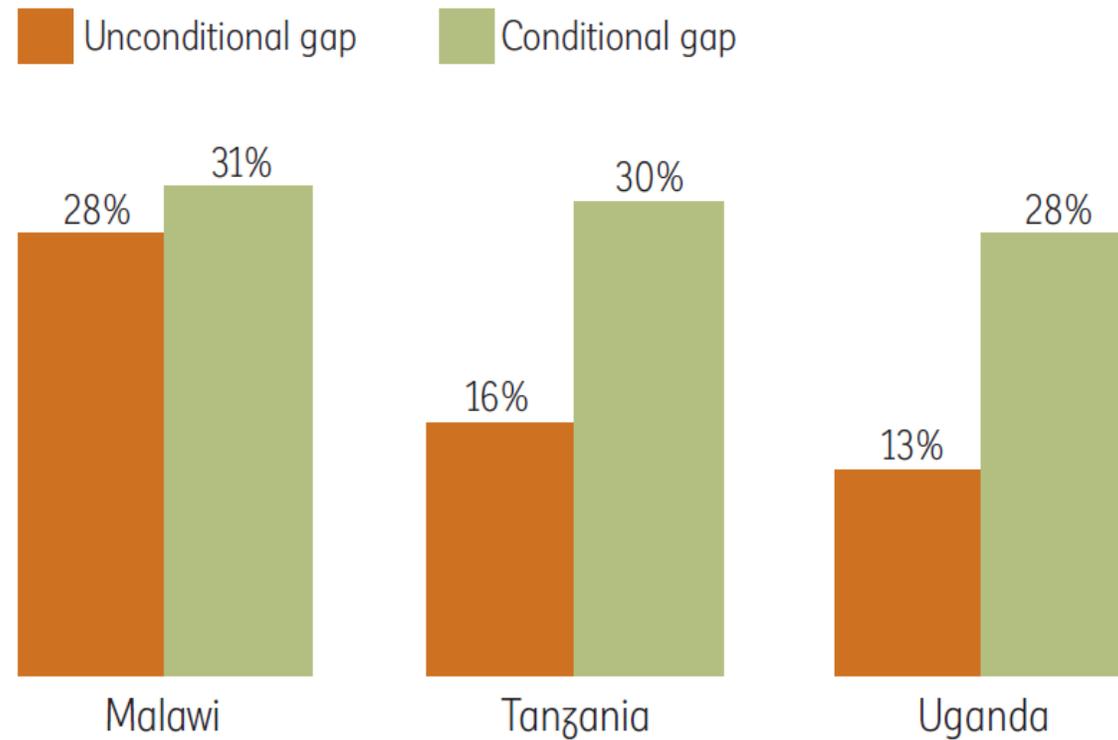
Gender differences in
climate adaptation
strategies



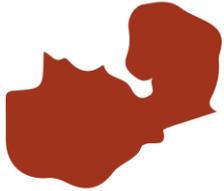
Incentive to have more sons

- Differences in input use by women and men farmers is a leading proximate explanation for the gender gap in agricultural productivity
- Women's risk aversion negatively correlated with HH adoption of improved and hybrid maize varieties in Tanzania (Magnan et al 2020)
- Farm investment is lower where women don't inherit on husband's death

Unconditional and conditional gender gap in agricultural productivity in percentages



Women's reliance on male relatives for access to productive resources affects investment and fertility behaviors



In Zambia, the threat of land expropriation upon widowhood deters households from fallowing, applying fertilizer, and employing labor-intensive tillage techniques.

- Couples in non-widow-inheritance villages apply 13–18% less fertilizer, fallow 4–5% less land area, and use intensive tillage techniques on 3–5% fewer hectares, relative to the averages among households with positive levels of each activity. (Those figures are 37–50% for fertilizer, 12–16% for fallowing, 7–11% for intensive tillage if we include households with zeroes).
- Concern over the prospective loss of land by the wives reduces investment in land quality even while the husband is alive.

Source: Dillon, Brian & Voena, Alessandra, 2018. "Widows' land rights and agricultural investment," *Journal of Development Economics*, vol. 135, pages 449-460



In Senegal, women most at risk in case of widowhood (those with inheritance rivals from other wives' sons and with no sons of their own) intensify their fertility, shortening birth spacing, until they get a son.

- Islamic and customary patrilineal law govern inheritance practices in which wives are excluded from a bequest after the death of the husband; the inheritance is shared among the husband's children, sons inheriting more, and more frequently, than daughters
- Insurance through sons might entail substantial health costs since short birth spacing raises maternal and infant mortality rates.
- This suggests that the lack of formal widowhood insurance hampers birth control efforts and imposes a potentially heavy health cost on both women and children, whether widowhood occurs or not.

Source: Lambert, Sylvie & Pauline Rossi (2016). Sons as widowhood insurance: Evidence from Senegal. *Journal of Development Economics*, Volume 120, Pages 113-127

Climate-smart practices in crop and livestock management that are implemented by husbands and wives.

Source: authors' computations centered on 2012 intra-household dataset.

Climate-smart strategies	Wives (% yes)	Husbands (% yes)	Difference in % point	Significance χ^2 (P-value)
Intensity of adaptation (count)	2.44	2.28	0.16	
Adaptation in agriculture	84.62	76.28	8.34	0.063
Livestock adaptation				
Livestock adaptation (overall)	51.92	53.85	− 1.93	0.734
Change in animal breeds	10.90	12.8	− 1.90	0.599
De-stocking	18.58	23.72	− 5.14	0.267
Diversify livestock feeds	18.59	22.43	− 3.84	0.400
Supplementary feeds	5.77	3.85	1.92	0.427
Change in animal portfolio	9.61	6.41	3.20	0.297
Crop adaptation				
Crop adaptation (overall)	82.05	71.78	10.27	0.032*
Change in crop variety	40.48	36.54	3.94	0.485
Change in crop type	19.23	14.74	4.49	0.291
Increase in land for production	6.40	1.28	5.12	0.019*
Crop rotation	14.74	11.53	3.21	0.402
Water harvesting	1.28	3.85	− 2.57	0.152
Diversion ditch	5.78	5.78	0.00	1.000
More irrigation of fields	7.05	2.56	4.49	0.064*
Soil conservation and management	17.31	10.90	6.41	0.104*
Agroforestry	8.33	16.03	− 7.70	0.038*
N	156	156		

Notes: superscript * presents significance at the 10% level.

Source: Ngigi et al. (2017), "Gender Differences in Climate Change Adaptation Strategies and Participation in Group-based Approaches: An Intra-household Analysis From Rural Kenya"

Ex-post responses to risk vary by gender



Marriage-related migration



Intrahousehold redistribution of food



Transactional sex



Asset disposal



Withdrawal of (especially girl) children from school

The construction of a flood protection embankment in rural Bangladesh allowed women to:

- Command larger dowries
- Marry into wealthier households
- Become less likely to marry biological relatives

Financial liquidity-constrained households appear to use within-family marriage (in which one can promise ex-post payments) as a form of credit to meet up-front dowry demands, but the resultant wealth shock for households protected by the embankment relaxed this need to marry consanguineously.

Source: Mobarak, A. M., Kuhn, R., & Peters, C. (2013). Consanguinity and other marriage market effects of a wealth shock in Bangladesh. *Demography*, 50(5), 1845–1871



TABLE 5 Major Shocks Experienced by Households Between 2007 and 2009, Uganda

Fraction of Households Affected By...	Mean	Standard Deviation
Covariate shocks		
Drought	0.89	0.31
Flood	0.47	0.50
Output market access/price shock	0.30	0.46
Food price increase	0.67	0.47
Fuel price increase	0.63	0.48
Idiosyncratic shocks		
Crop loss	0.51	0.50
Livestock loss	0.40	0.49
Asset loss	0.09	0.29
Death in extended family	0.65	0.48
Death in household	0.13	0.33
Illness in household	0.38	0.49
Job shock	0.05	0.23
Overall negative shocks		
No. of shocks experienced 2007–2009	5.42	2.20
No. of shocks experienced 2009	2.42	1.54

How does risk coping affect women's ability to protect and accumulate assets?



Evidence from **Bangladesh** and **Uganda** suggests that gender differences in asset disposal may be related to:

- The importance of the asset in household livelihoods
- Differences in bargaining power between husbands and wives
- Gender norms regarding the type of assets men and women can own
- The relative ease with which such assets can be bought or sold



In Bangladesh

- Illness shocks reduce wife's landholdings
- Death shocks deplete husbands' non-land asset portfolio and both spouses' stocks of consumer durables and jewelry



In Uganda

- Drought decreases wife's non-land asset holdings
- Floods induce disposal of jointly owned and wives' exclusively held non-land assets
- Husbands' assets in aggregate are better protected than wives' assets against both covariate and idiosyncratic shocks.

Transactional sex as a gender-specific risk coping strategy

Rainfall and biomarker data from 200,000 individuals across 19 African countries demonstrates that **drought shocks increase the probability of risky sexual activity and HIV infection** by 0.9 ppt for women and 0.6 ppt for men (=11% for both)



In Tanzania, negative shocks measured by food insecurity lead to a 36% increase in STIs and increases in self-reported risky sexual behavior for women only

- Even for women who were beneficiaries of a conditional cash transfer program, the CCT did not appear to mitigate the behavioral response to shocks.
 - This finding can be explained by binding credit constraints and the relatively infrequent timing of the CCTs.
 - When women experience a negative shock, cash needs are immediate, while transfers linked to a CCT are paid out in a specific point in time.

