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Effect Of Information On Farmers' Preferences For Disaster Risk Reduction Measures: A Discrete Choice Experiment In Western Uganda

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Fig 1. Examples of disaster risks: (a) Shallow landslide (b) Flash flood in Western Uganda

1. Introduction

Disaster Risk Reduction (DRR) measures are the most recommended but the least adopted (Maes et al., 2017).

❖ Several studies assess barriers to adoption ex-post, but ex-ante drivers of preference for DRR measures remain uninvestigated

2. Research questions

1. What characteristics of trees or diversion channels do farmers prefer as DRR measures?

2. What is the effect of information on farmers' preferences for the two DRR measures?

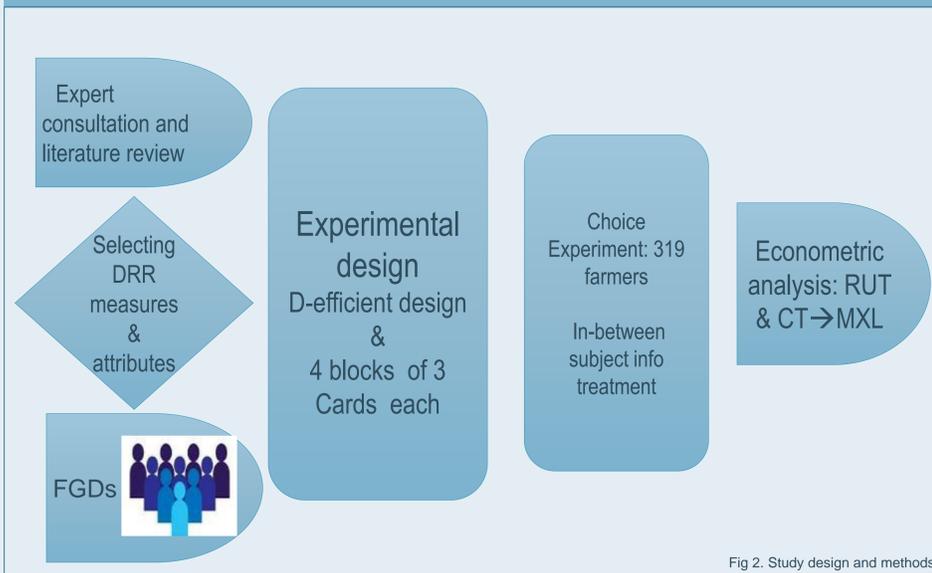3. Does the influence of information vary across plot characteristics?

3. Methodology

Expert consultation and literature review

Selecting DRR measures & attributes

Experimental design D-efficient design & 4 blocks of 3 Cards each

Choice Experiment: 319 farmers In-between subject info treatment

Econometric analysis: RUT & CT→MXL

FGDs

Fig 2. Study design and methods

4. Results

❖ From ASC, farmers prefer to apply both DRR measures (not opt-out).

❖ Tree planting: Without info, more preference for higher soil erosion reduction, cost per seedling, and do not prefer shallow roots. With info, more preference for trees, and those with deep roots and large canopy, fewer trees/acre that grow fast and reduce soil erosion.

❖ Div. channels: Without info, more preference for div channels, located at boundaries, those and with grass strips, which controls more erosion, WTP for digging. With info, only ASC is affected and farmers are indifferent to others.

❖ Info treatment effect was higher for plots at risk but had a mixed effect on whether on nor the plot has a DRR measure already.

Table 1. Mixed Logit results

Tree planting			Diversion channels/ ditches		
Attribute &Level	Without info	With info	Attribute &Level	Without info	With info
ASC (dummy-coded)	49.18***	6.348**	ASC (dummy-coded)	22.00***	24.83***
Cost per tree	0.058**	-0.035	Cost per channel	0.003**	-0.002
Erosion reduction	0.140***	0.635***	Erosion reduction	0.166***	0.014
Number of trees	-0.002	-0.060***	Number of channels	-0.003	-0.046
Maintenance days	0.004	0.573***	Maintenance days	0.006	0.001
Maturity period	-0.026	-0.315**	With low grass strips	0.709***	-0.020
Shallow root&large canopy	-0.346**	-1.858*	With mod grass strips	0.391*	0.494
Deep root&small canopy	0.360	2.876**	With High grass strips	0.909***	0.637
Deep root&large canopy	0.448	8.169***	Location: Systematic	0.173	-0.157
			Location: Boundaries	0.675***	-0.577
# choices	5,571	5,571	# choices	5,571	5,571

*** p<0.01, ** p<0.05, * p<0.1 ; [a]ASC takes 1 if a DRR measure is chosen (A or B), 0 if status quo is chosen; S.D and SE not shown

5. Conclusions

❖ A sig effect of info on preferences for more risk-reducing attribute levels of tree planting compared to diversion channels.

❖ Farmers demand regular info on trees specific to DRR ex-ante to shape the farmers' choices and avoid wasteful expenditure.

Key reference

Maes, J., Kervyn, M., de Hontheim, A., Dewitte, O., Jacobs, L., Mertens, K., Vanmaercke, M., Vranken, L. and, & Poesen, J. (2017). Landslide risk reduction measures: A review of practices and challenges for the tropics. *Progress in Physical Geography, 41*(2), 191–221. https://doi.org/10.1177/0309133316689344

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