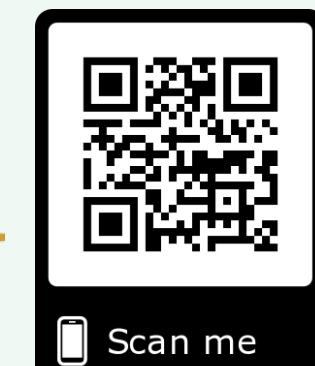


The role of social connections and community context in adaptive farming practices among Sri Lankan households

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Key Findings

- Climate-adaptive farming practices are under-utilized in Sri Lanka.
- Male head farmers have similar awareness of adaptive practices, regardless of level of social connection.
- There are clear disparities in access to information – female farmers are less aware of adaptive practices.
- Social connectedness measures are important individual- and village-level predictors of adoption of adaptive farming practices.
- Village-level context matters for adoption of drought-adaptive farming practices.

Background

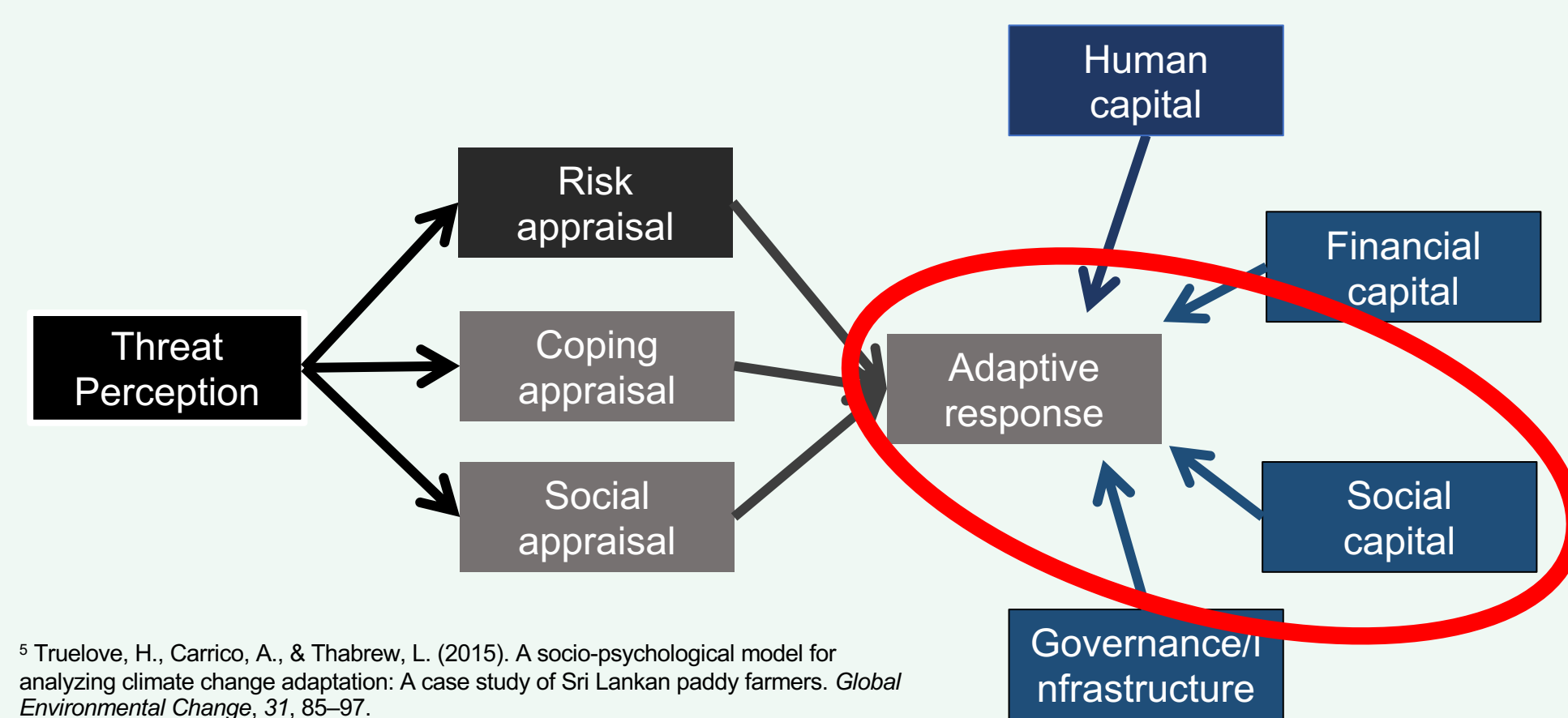
Droughts are one of the most costly natural disasters worldwide, both socially and economically¹. Changing climatic conditions are making droughts worse in many regions, increasing their prevalence, extent, intensity and duration². The effects of droughts are especially severe in agricultural and food systems where livelihood outcomes are tightly linked to meteorological conditions³.

Farmers facing intensifying drought conditions will need to adapt their behaviors to continue farming.

Addressing food insecurity and malnutrition in Sri Lanka remains a major challenge⁴.



Agriculture accounts for nearly 45% of land use in Sri Lanka. Farmers there are facing increasing drought conditions in many regions⁵. Given the limited land resources, agricultural land expansion is problematic. To address food insecurity and malnutrition concerns, farmers there will need to intensify their agricultural production. Previous work there suggests social capital is an important driver of adaptive responses.



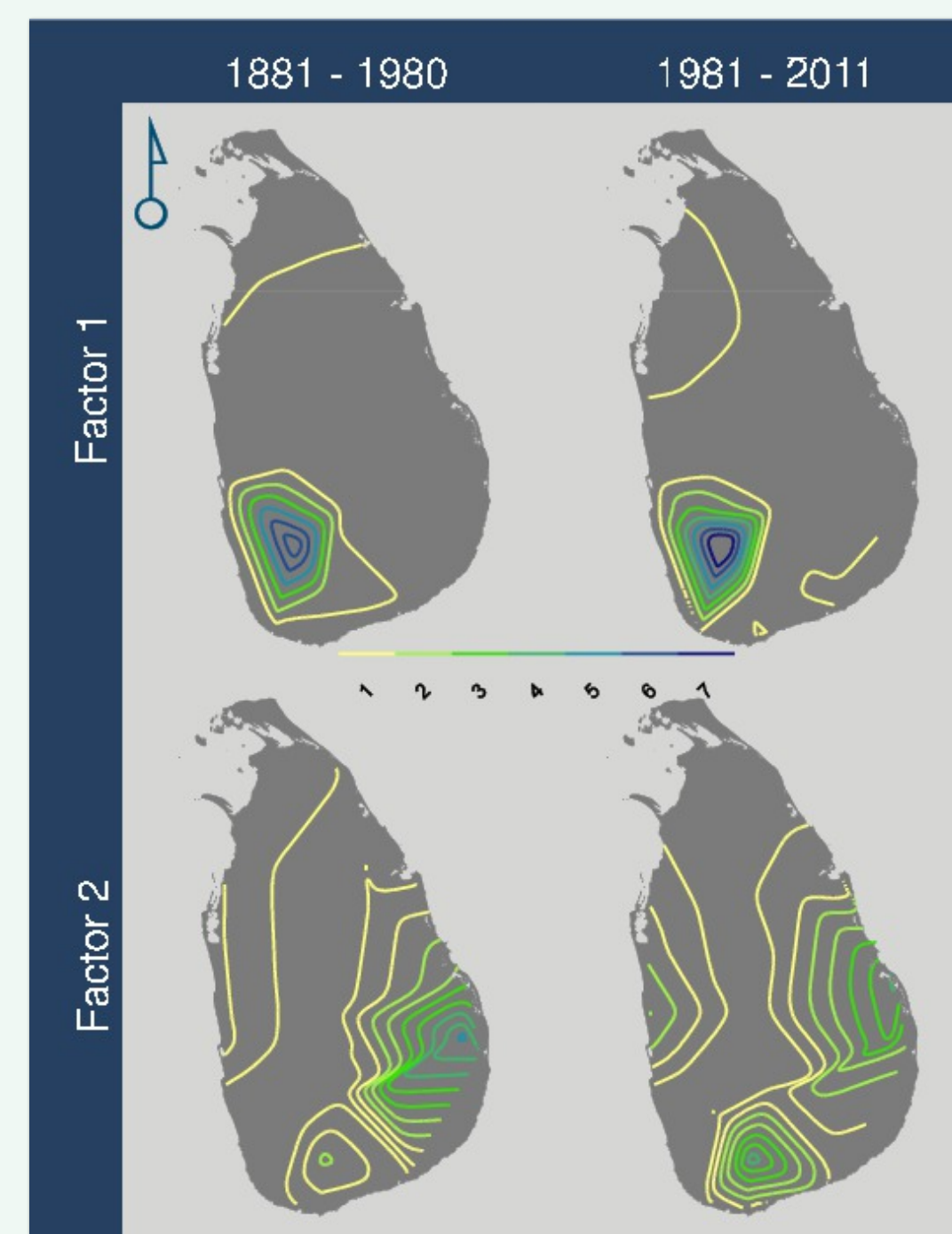
⁵ Truelove, H., Carrico, A., & Thabrew, L. (2015). A socio-psychological model for analyzing climate change adaptation: A case study of Sri Lankan paddy farmers. *Global Environmental Change*, 31, 88–97.

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Drought and Farming Practices in Sri Lanka

- Droughts increasing in Sri Lanka, early work indicated farmers were aware of some drought-adaptive practices...but were not utilizing them. Why?

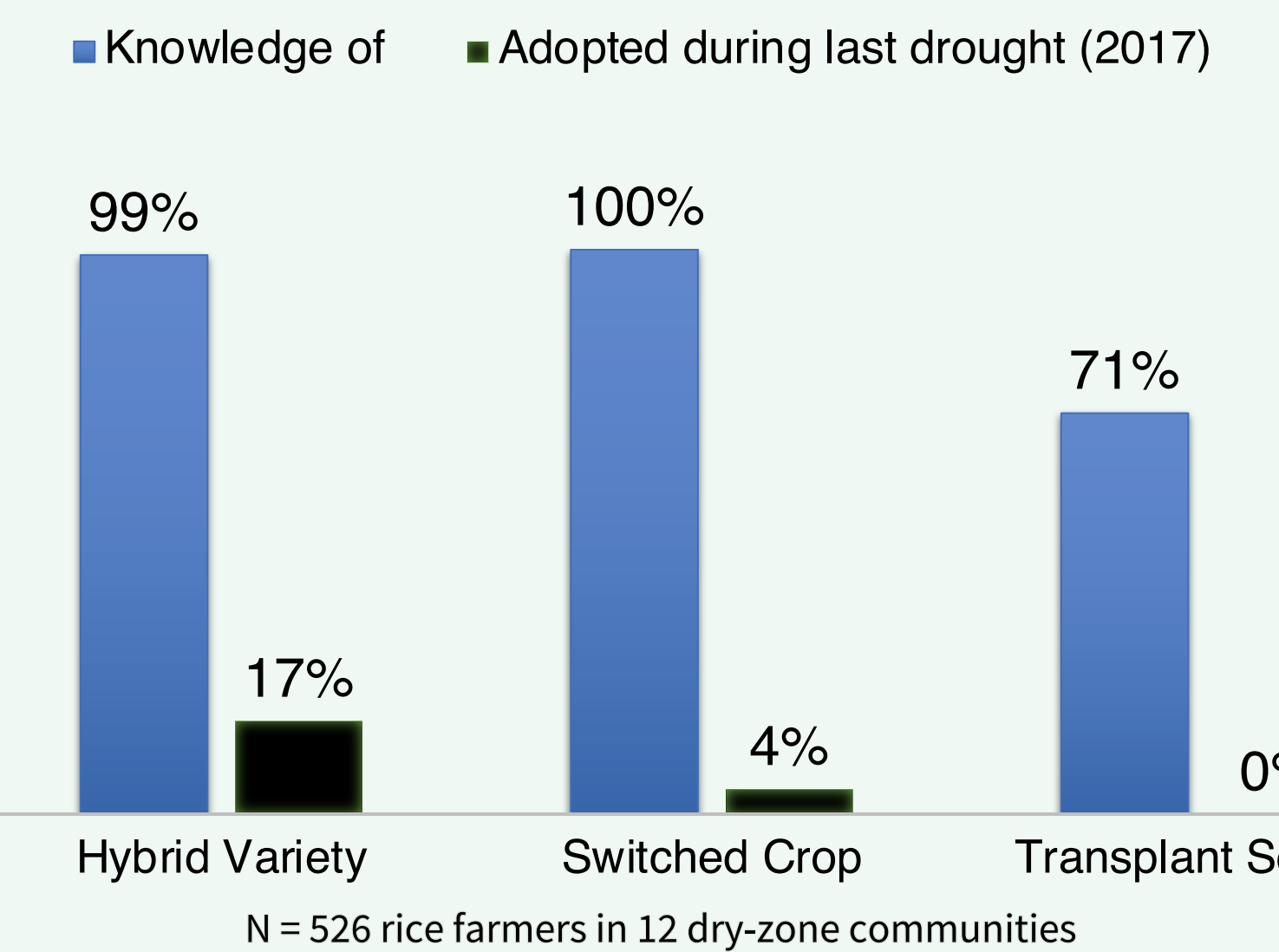


⁶ Gunda, T., Hornberger, G. M., & Gilligan, J. M. (2016). Spatiotemporal patterns of agricultural drought in Sri Lanka: 1881–2010. *International Journal of Climatology*, 36(2), 563–575.



Photograph: Manoj Deka. <http://www.theguardian.com/sustainable-business/water-technology-impact-drought>

*Previous survey work, data collected in January 2017



Research Questions

- To what extent does social connectedness correlate with awareness of adaptive farming practices?
- To what extent does social connectedness correlate with adoption of adaptive farming practices?

METHODOLOGY

Survey Interviews

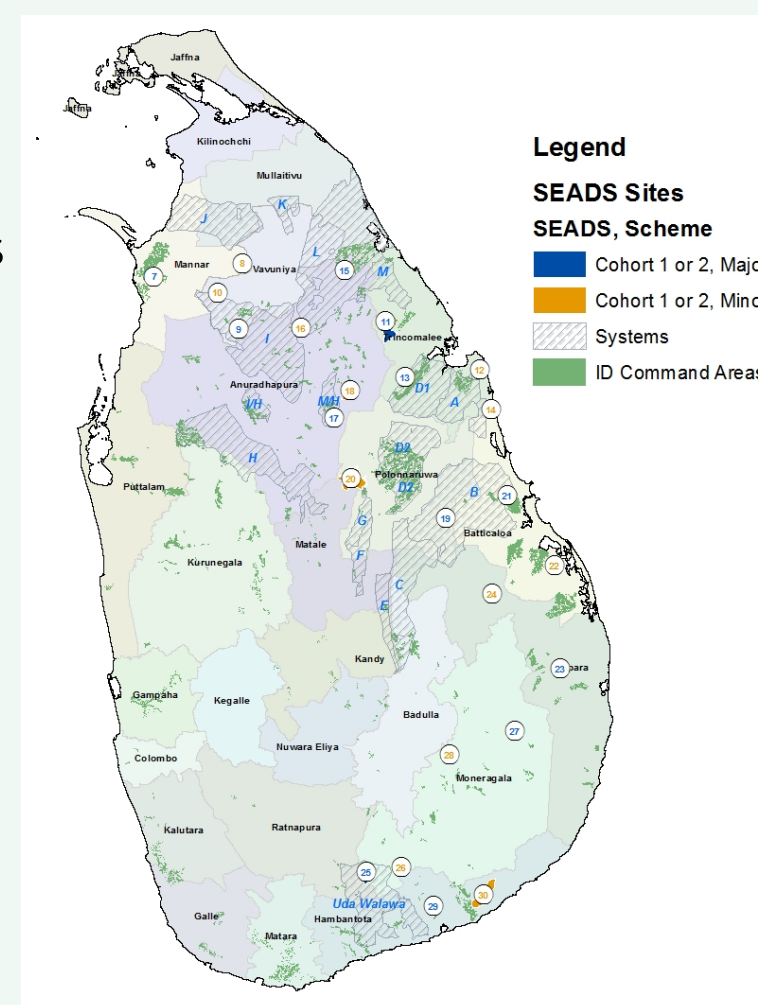


Sample

Randomly selected dry zone villages (24)
 Compiled from voting records and farmer orgs
 Rice farming households randomly selected
 Fully random probability sampling frame

	Mean (SD)/%
Male	81%
Age	50.9 (11.9)
Paddy land (acres)	3.55 (3.32)
Tamil (vs. Sinhalese)	27.6%
Off farm income	53.0%

Note. N=1,011 paddy farmers in 24 villages



Analytic Approach – multi-level regression modeling, numerous control variables in “simple” models, key predictor variables added to “complex models”

RESULTS: Drought-Adaptive Farming Practices

Survey Questions:

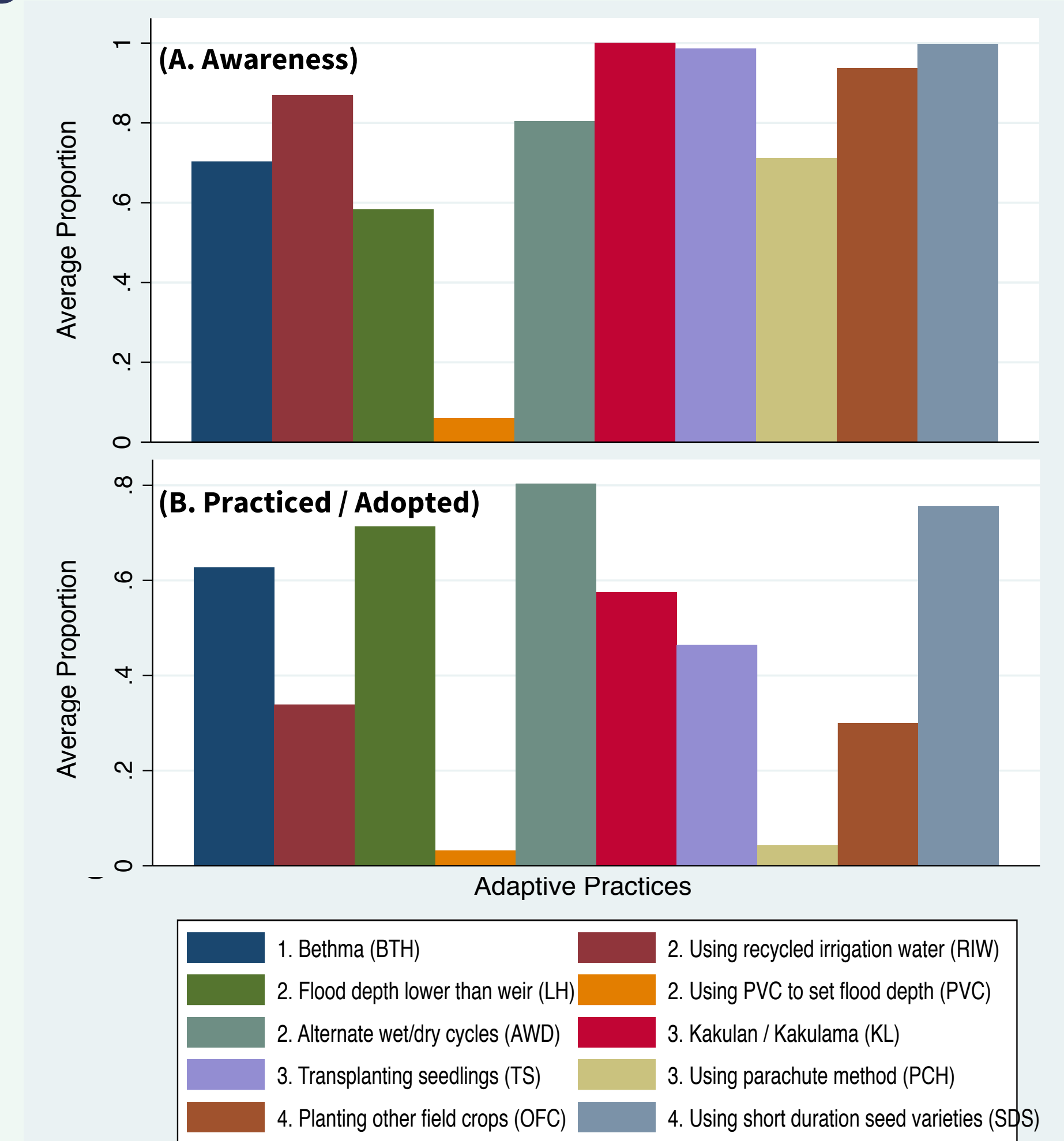
- Have you heard about...[insert adaptive practice]?
- Have you practiced...[insert adaptive practice]?

Dependent Variables (from survey questions):

- RQ1: Awareness of the adaptive practices.
- RQ2: Adoption of the adaptive practices.

List of Adaptive Practices:

- Traditional – Bethma (BTH)
- Water-Conserving Irrigation – using recycled irrigation water (RIW), setting water height lower than the weir (LH), using PVC to set flood depth (PVC), alternate wetting-drying irrigation (AWD)
- Planting – Kakula / Kakulama (KL), transplanting seedlings (TS), parachute method (PCH)
- Crop Selection – alternate lowland field crops (OFC), using short-duration seed varieties (SDS)



(A) The proportion of Sri Lankan head farmers who have heard about (awareness) the drought-adapted farming practices. Farmer responses come from the Sri Lankan Environmental and Agricultural Decision-Making Survey (2015–2017). Responses were coded as No/Yes (0/1). (B) The proportion of Sri Lankan head farmers who practiced (adoption or uptake) the drought-adapted farming practices in the last growing season.

RESULTS: Multi-level Modeling - Awareness and Adopted/Practiced

Model	Model A (simple)	Model B (complex)
Awareness Models		
Gender (ref = male)		
Age (ref = 40)		
Education (ref = Grade 5-11)		
Off farm income		
Socioeconomic		
Ethnicity (ref = Sinhalese)		
Farming Occupation		
Agroecological		
Paddyland		
Irrigation		
KEY PREDICTORS		
Social Connectedness		
RANDOM EFFECTS		

AWARENESS MODELS

- Two model runs, one with control variables only (simple), one with key predictor variables added (complex)
- Models include individual- (indiv.) and village-level (vill.) variables
- Significant variables: male (indiv.), SES (indiv.)
- Social Connectedness variables non-significant

PRACTICED / ADOPTED MODELS

- Two model runs, one with control variables only (simple), one with key predictor variables added (complex)
- Models include individual- (indiv.) and village-level (vill.) variables
- Significant variables: male (vill.), ages over 40(indiv.), off-farm income (vill.), paddyland acres (vill.), awareness about the practices (vill.)
- Some signif. Social Connectedness variables

Model	Model C (simple)	Model D (complex)
Awareness Models		
Gender (ref = male)		
Age (ref = 40)		
Education (ref = Grade 5-11)		
Off farm income		
Socioeconomic		
Ethnicity (ref = Sinhalese)		
Farming Occupation		
Agroecological		
Paddyland		
Irrigation		
KEY PREDICTORS		
Social Connectedness		
RANDOM EFFECTS		

CONCLUSIONS

- RQ1: Sri Lankan farmers are largely aware of and utilizing some of these drought—adapted farming practices, regardless of level of social connection...
- BUT...there are clear disparities in who has access to this information as women farmers are not as aware of and not adopting as many of the practices as males.
- RQ2: Some measures of social connectedness are important predictors of utilizing drought-adapted practices but the effect is variable (indiv. vs. vill.)