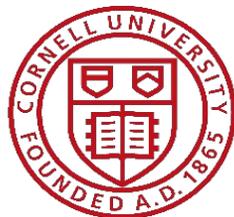




# Monthly Interval Resilience Analysis (MIRA)

*Update on food security & shocks in the Great South*

*April 2022*



Catholic Relief Services - Madagascar  
with Joanna Upton, Cornell University

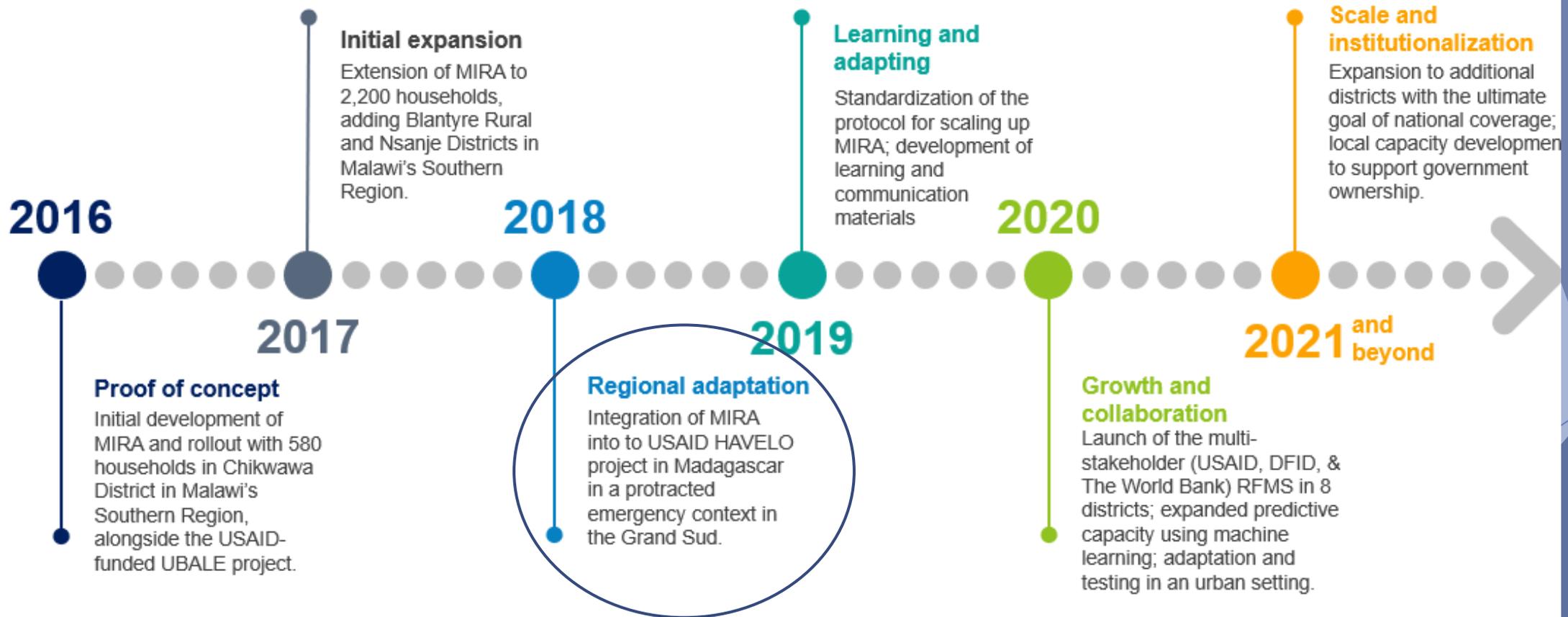
# Presentation Outline

- ▶ Overview of MIRA
- ▶ Case of MIRA in Southern Madagascar (2017-2022)
- ▶ Current food security & inter-annual comparisons
  - ▶ Focus on lean season (Oct - March and Jan - March)
- ▶ Latest trends in drought and price shocks
  - ▶ Self-reports of shocks
  - ▶ Water prices (!)
- ▶ Summary / Next Steps

# MIRA Overview

- ▶ MIRA first launched in 2016, in partnership with Cornell University
- ▶ Inspired by recognition of the need for *higher frequency* information on shocks and food insecurity to better understand resilience
- ▶ Monthly data with enumerators embedded in communities (in Malawi) or based locally, to simultaneously be *responsive to shocks* and build local expertise
- ▶ Serves multiple purposes....
  - ▶ Monitoring context (to inform CRS and diverse partners)
  - ▶ Informing targeting of program participants
  - ▶ Program adaptation
  - ▶ Research on food security trends, resilience, and diverse topics in development
  - ▶ Feedback to communities

# MIRA Overview



- ▶ 2022: Expansion to a *representative* sample in three districts in Southern Madagascar as part of MAHARO (RFSA - USAID)
- ▶ Currently launching also in Ethiopia (RFSA - USAID) and Zimbabwe (CRS)

# MIRA Overview

- ▶ Panel data with case management system to track households (and specific household members), and minimize errors
- ▶ MONTHLY monitoring of shocks, food insecurity, and migration
- ▶ LESS FREQUENT background on household demographics, infrastructures, livelihoods
- ▶ Extra information triggered by shocks (e.g., COVID-19 module added within weeks of the shut-down in 2020) - or added when needed
  - ▶ Computer-assisted (CommCare) platform makes data available rapidly and facilitates responsive updates

*With each phase: updates and refinements to data collection tools, analysis, and partnerships in response to learning from best practices*

# MIRA Overview: Food Security indicators

## Core (Monthly) Food Security Indicators Collected

Indicator	Description	Source
Household Dietary Diversity Score (HDDS)	Sum across 11 food groups (unweighted, 24-heures)	Swindale & Bilinsky (2006), USAID/FANTA
Food Consumption Score (FCS)	Sum across 8 food groups, weighted for quality and frequency (7 day)	Weisman et al. (2009), WFP/VAM
Household Hunger Scale (HHS)	Weighted sum of three extreme strategies, over the last month (no food at all available, days without eating, ...)	Ballard et al. (2011), USAID/FANTA - III
Reduced Coping Strategies Index (rCSI)	Weighted sum of 5 less severe strategies, over the last week (loan, reduction, less-preferred foods ...)	Maxwell & Caldwell (2008), USAID

# MIRA Overview: The Madagascar pilot study population

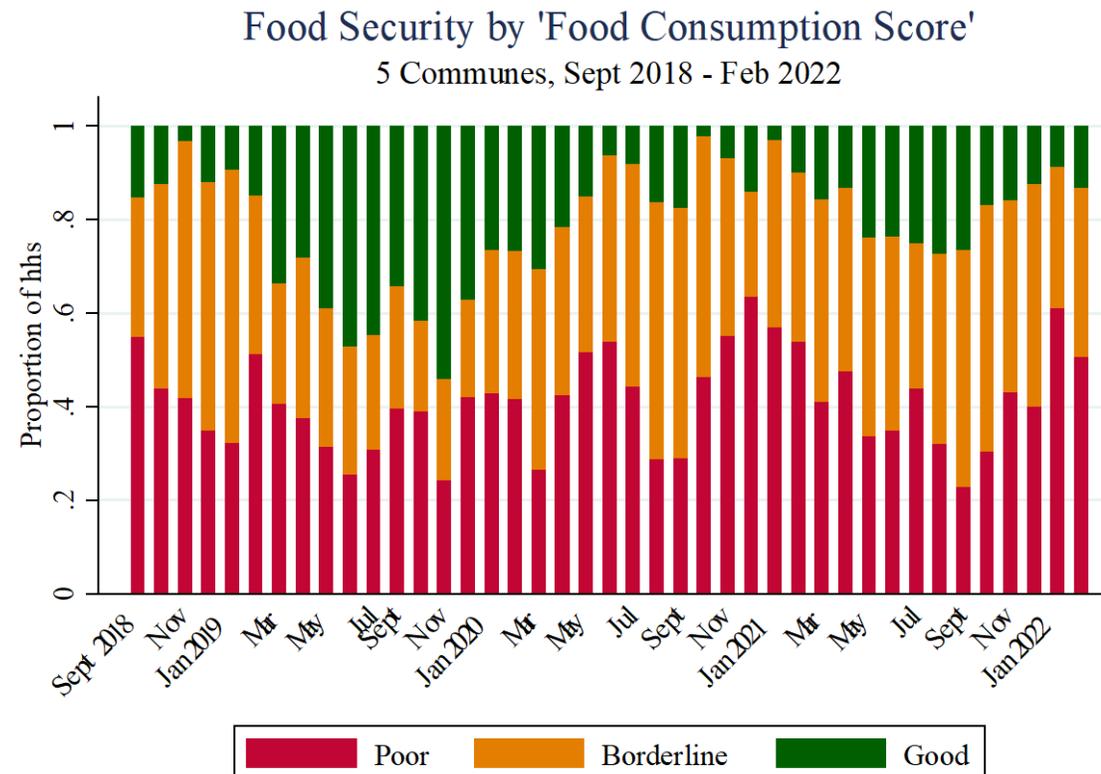
- ▶ Sampling over 5 communes in the South, with stratification by livelihood zone:

	BELOHA		TSIHOMBE		
	Marolinta	Tranovaho	Anjampaly	Anteriktariika	Marovato
Total	167	70	130	148	86
Maritime	89	60	23	0	86
Riverine	27	0	40	0	0
Agricultural	51	10	67	148	0

- ▶ N.B. Households chosen from a limited census of those considered vulnerable, according the criteria provided by CRS; hence, the sample is not representative by district / commune
- ▶ *Tendencies* within households are all the same highly pertinent
- ▶ Relatively low attrition: on average 540 households interviewed each month, with 92% of households present for over half of all interviews

# Food Security Trends over time

## - Dietary Diversity

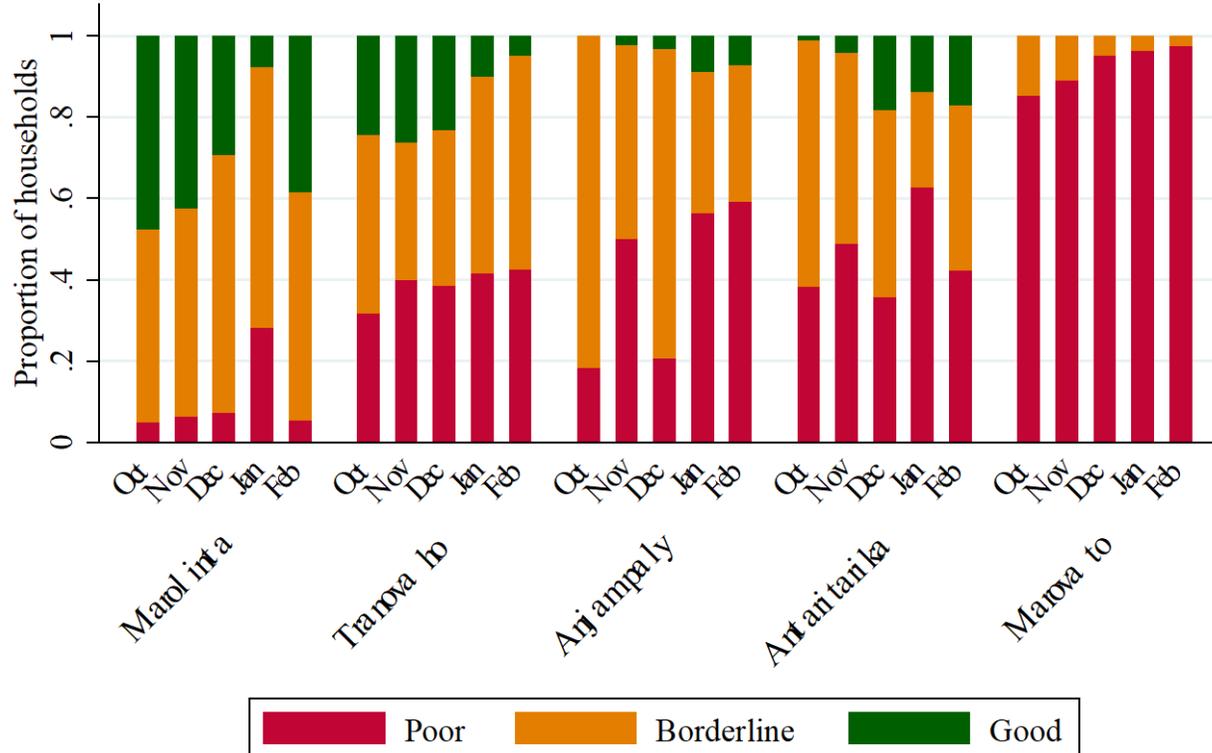


- ▶ Note: situation improved in general from late 2018 onward, until the first quarter of 2020; moderate improvement again in 2021, but still at high levels of food insecurity

# Food Security Trends over time

## - Dietary Diversity

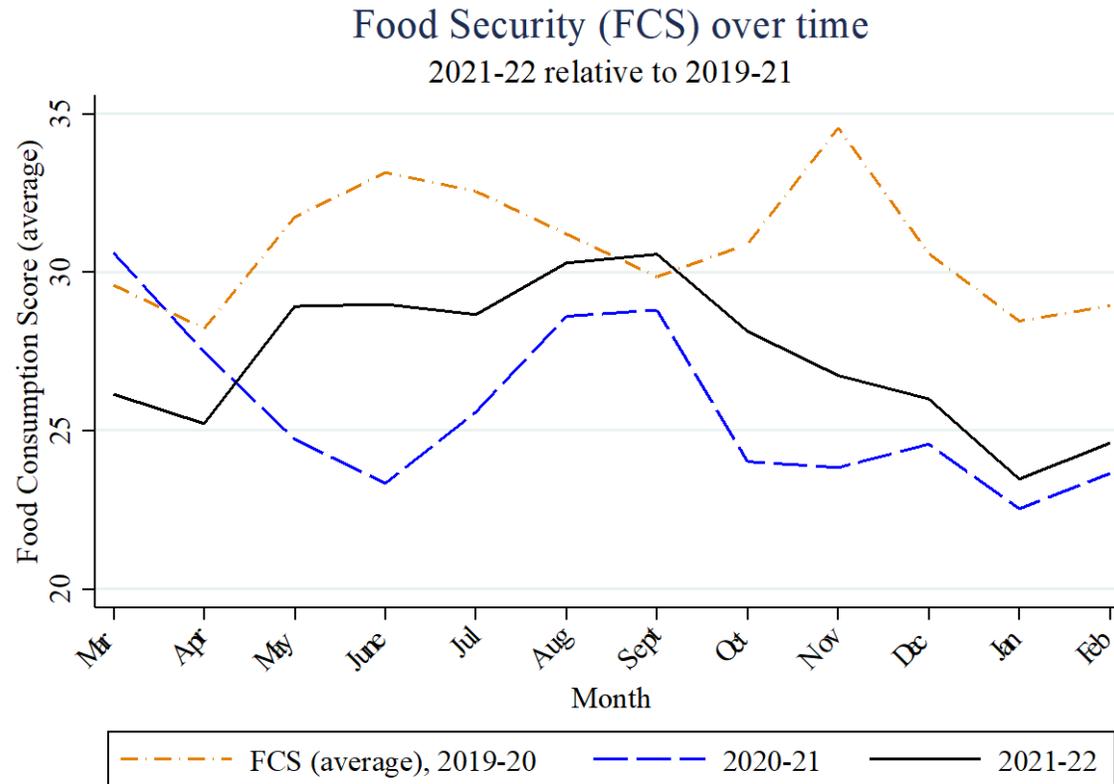
Food Security by 'Food Consumption Score'  
5 Communes, Oct 2021 - Feb 2022



- ▶ A general trend DECLINE in recent months, in most locations
- ▶ Highest rates of food insecurity appear to be in Marovato (~86 hhs measured), better situation in Marolinta (~167 hhs measured)

# Food Security Trends over time

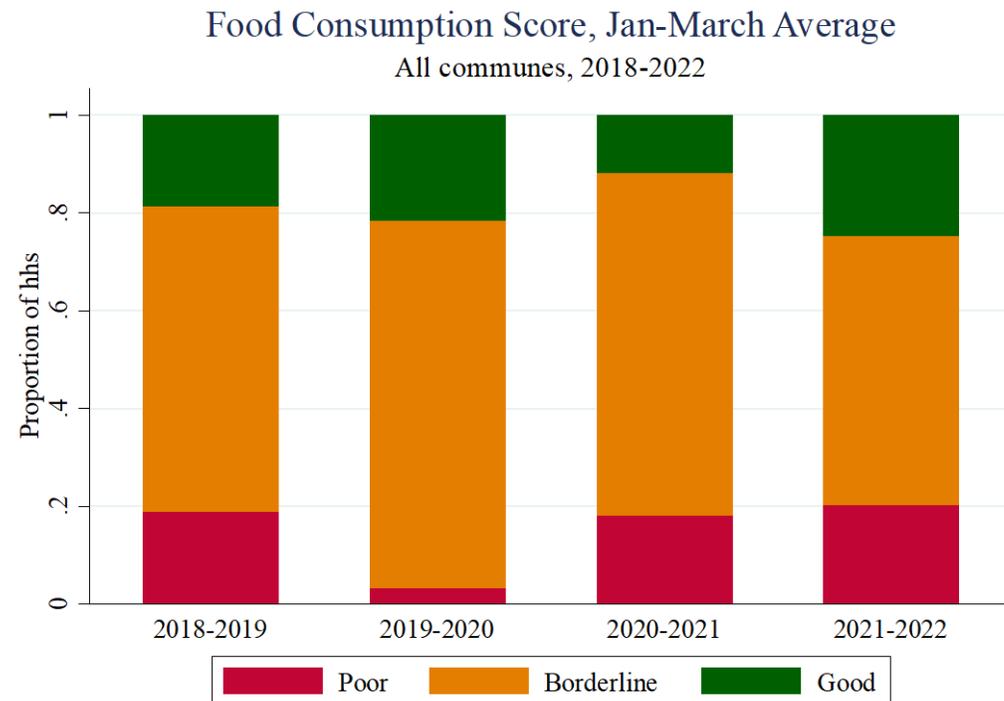
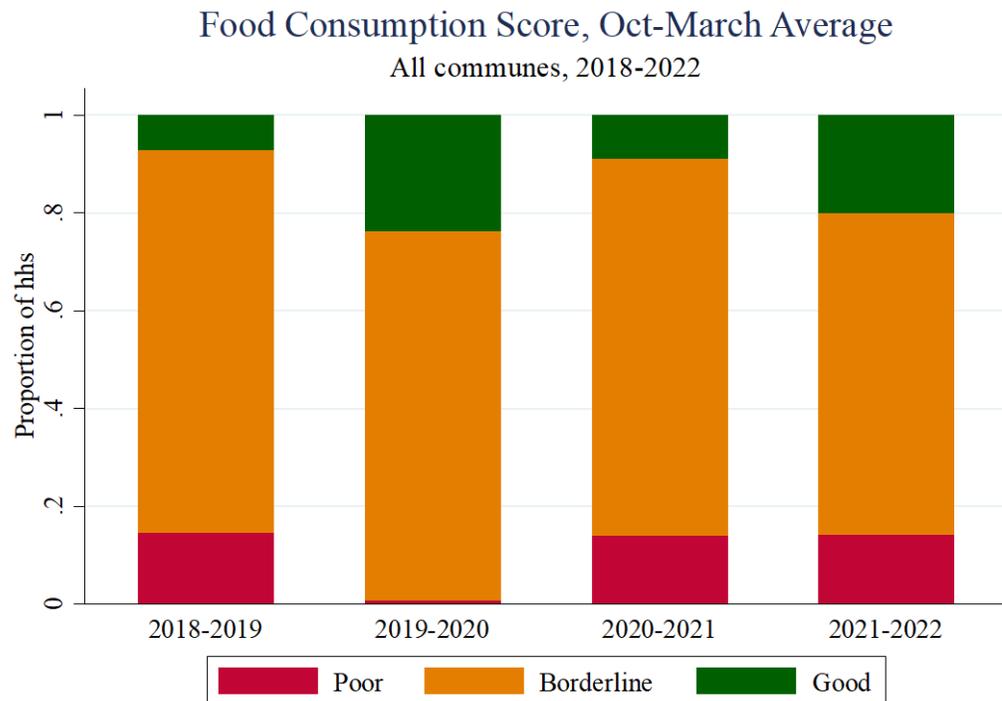
## - Dietary Diversity



- ▶ Note: situation progressively better in 2019 than 2018; but challenges increasing again in 2020 (coincident with the shutdown); and 2021-22 remains similarly poor since ~October

# Food Security Trends over time

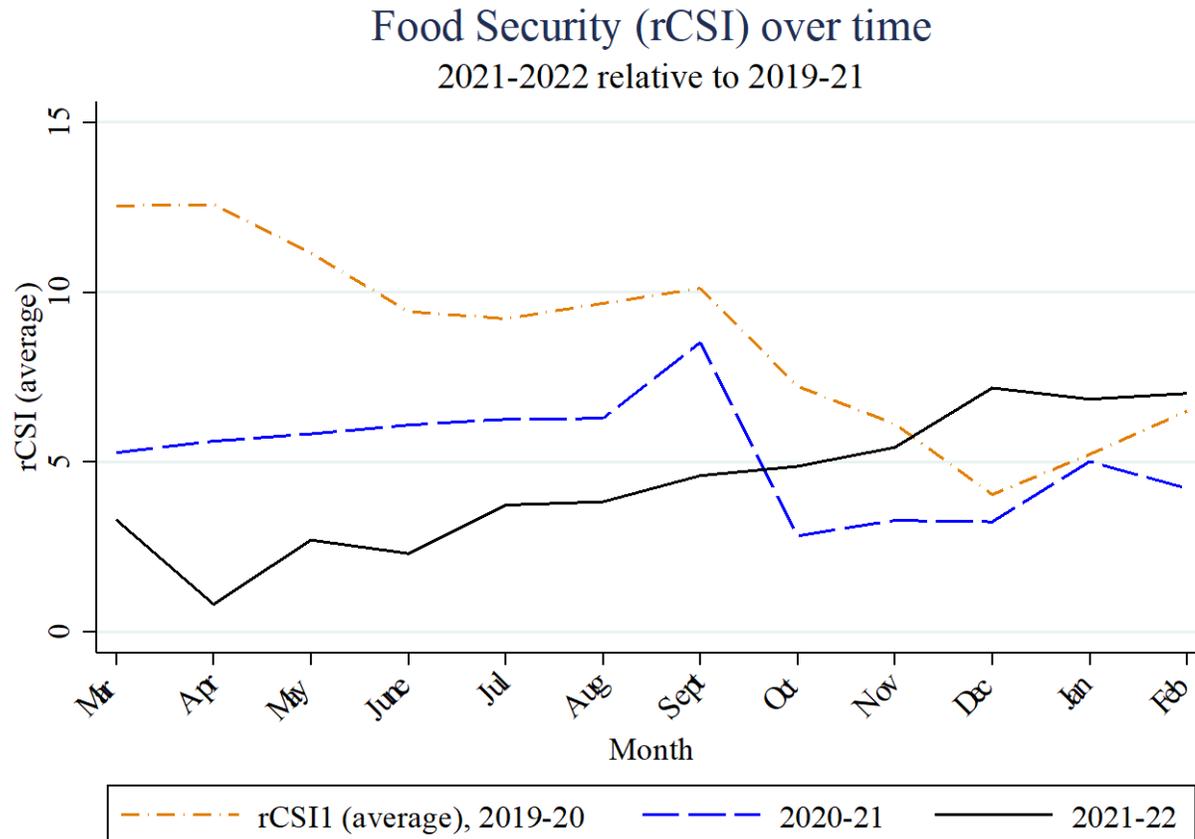
## - Dietary Diversity, comparing lean seasons



- ▶ Dietary diversity typically typically poor through the lean season, and relatively consistent across years (slightly better in early 2020, before the pandemic and failed harvest)

# Food Security Trends over time

## - Coping Strategies, rCSI

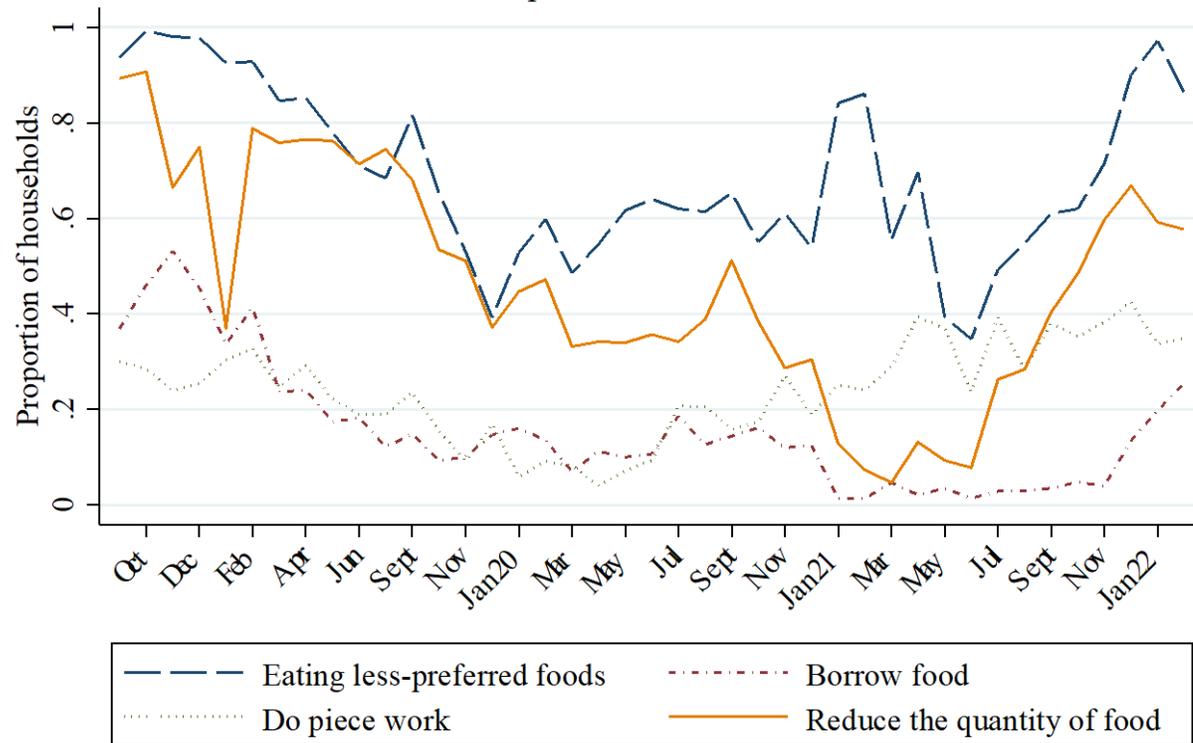


- ▶ Notable again that the pattern for coping strategies is NOT the same as dietary diversity;
- ▶ Levels have generally been lower (better) since ~2018-19
- ▶ Change in end of 2021 until present (worse than previous years)
- ▶ Note that some of these strategies are “relative to prior month”; hence, if nothing is changing (e.g., households have already reduced number of meals) this result may understate the degree of food insecurity

# Food Security Trends over time

## - Coping Strategies, rCSI by strategy

Coping Strategies over time (rCSI)  
Sept 2018 to Feb 2022



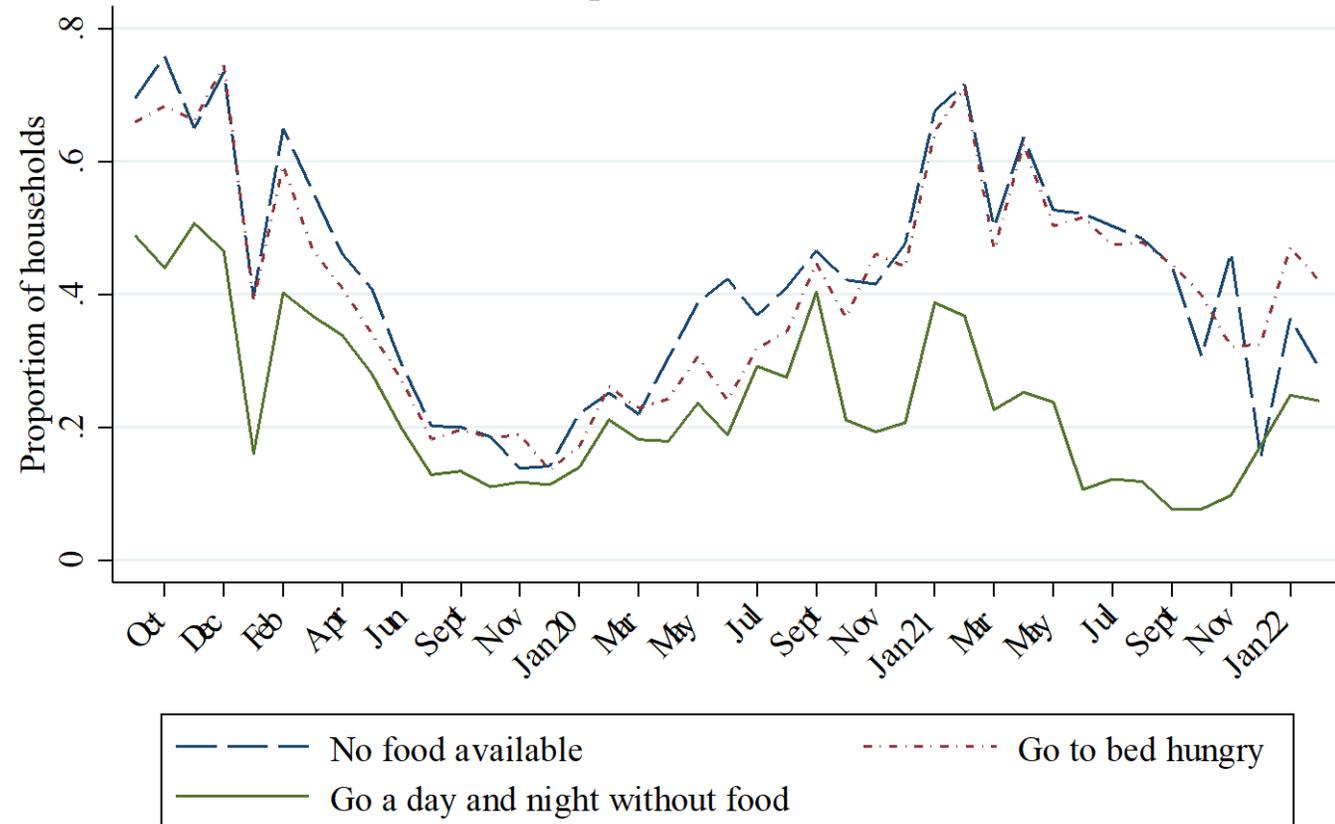
- ▶ Long term trend in coping strategies shows a less strong seasonal trend than dietary diversity
- ▶ Worsening in since the middle of 2021; in particular eating less preferred foods and reducing quantities

# Food Security Trends over time

## - Coping Strategies, HHS

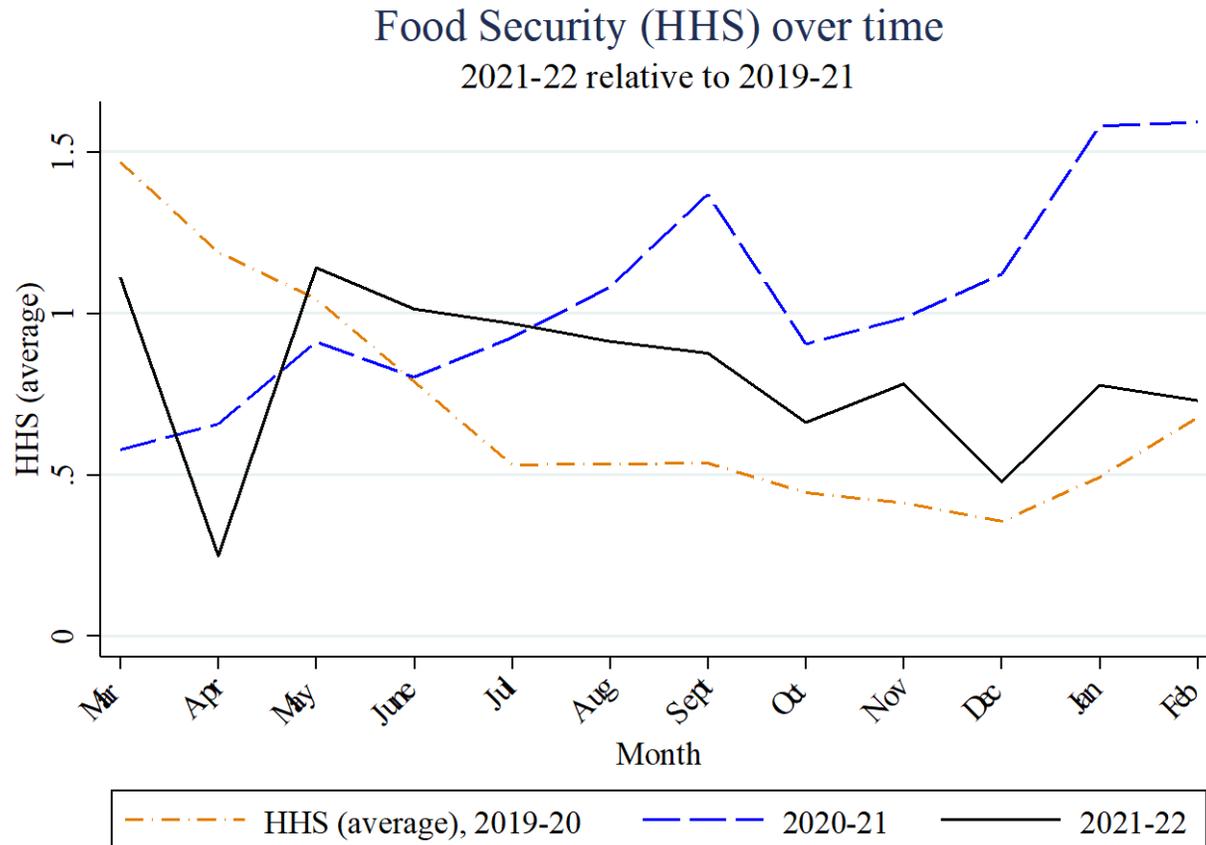
- ▶ As with rCSI, ong term trend in coping strategies shows a less strong seasonal trend than dietary diversity
- ▶ In this respect, January 2021 worse than present

Coping Strategies over time (HHS)  
Sept 2018 to Feb 2022



# Food Security Trends over time

## - Coping Strategies, HHS

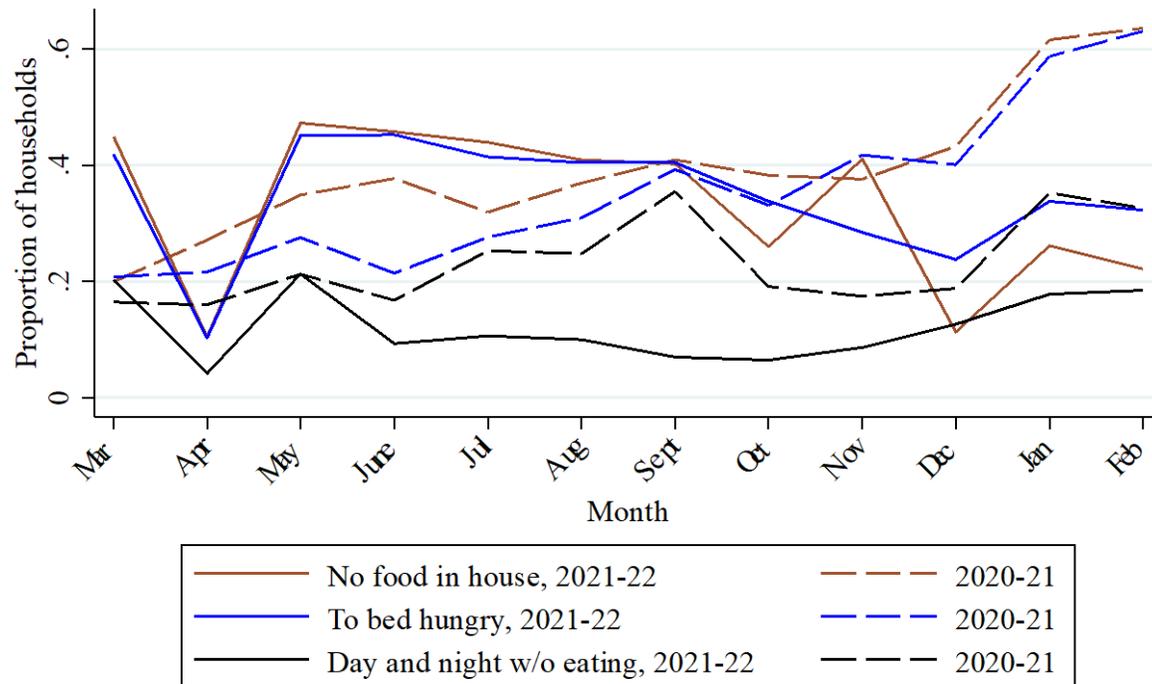


- ▶ Starting in June, 2020, HHS has been on average higher than over the same period in 2018-2019
- ▶ In terms of these *extreme strategies*, 2021-22 still slightly better than 2020-21

# Food Security Trends over time

## - Coping Strategies, HHS by strategy

Household Hunger Scale - Strategies over time  
2021-22 relative to 2020-21



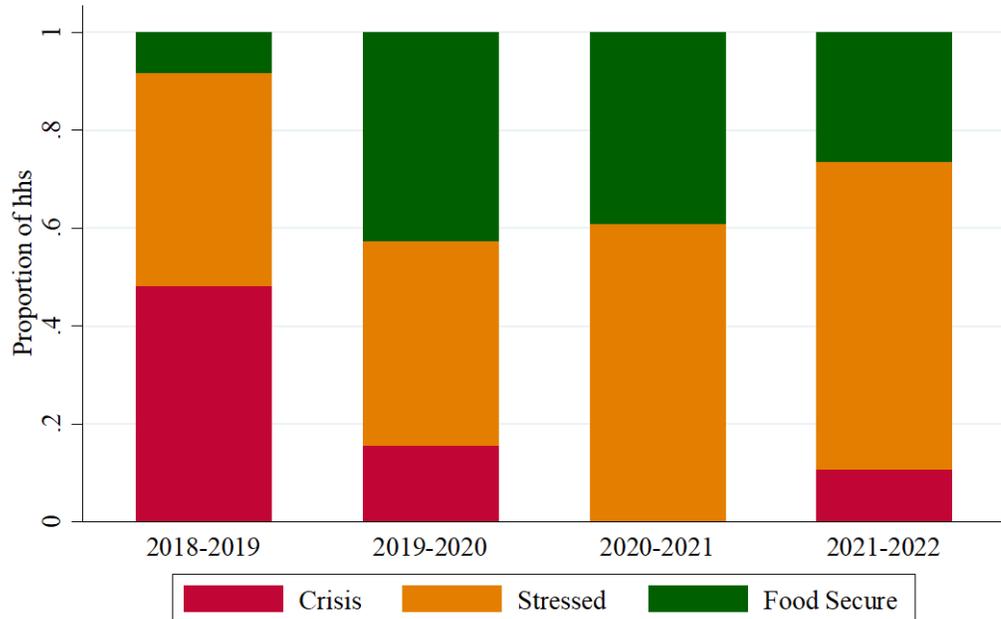
The first refers to having no food of any kind available; the second two apply to any household member

- ▶ Confirming the above; an increasing proportion of households suffered from these more extreme in 2020 relative to previous, but this trend reversed since October of 2021

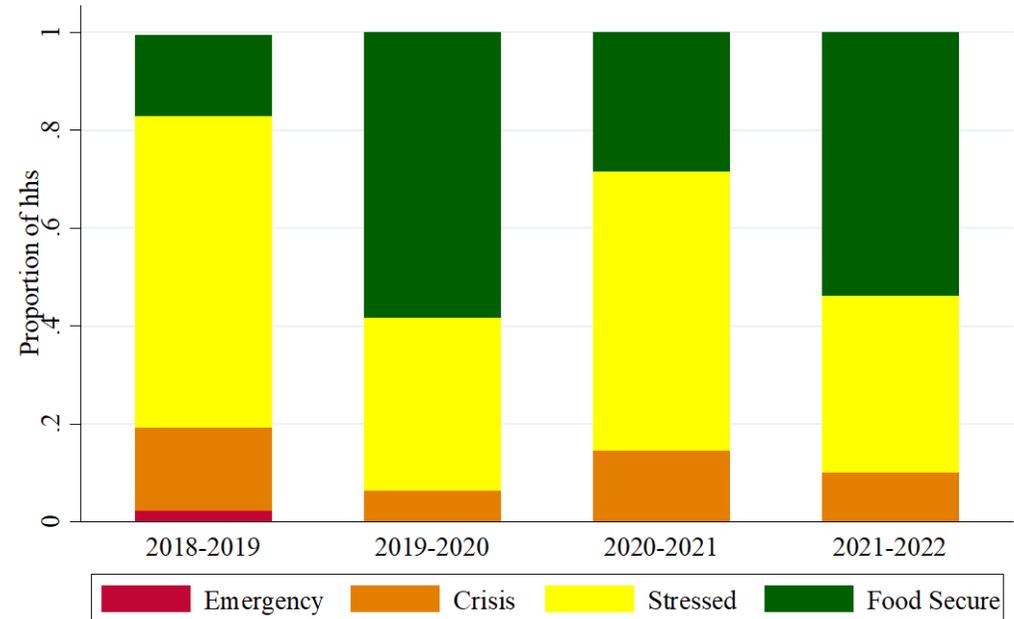
# Food Security Trends over time

## - Coping Strategies, comparing lean seasons

Reduced Coping Strategies Index, Jan-March Average  
All communes, 2018-2022



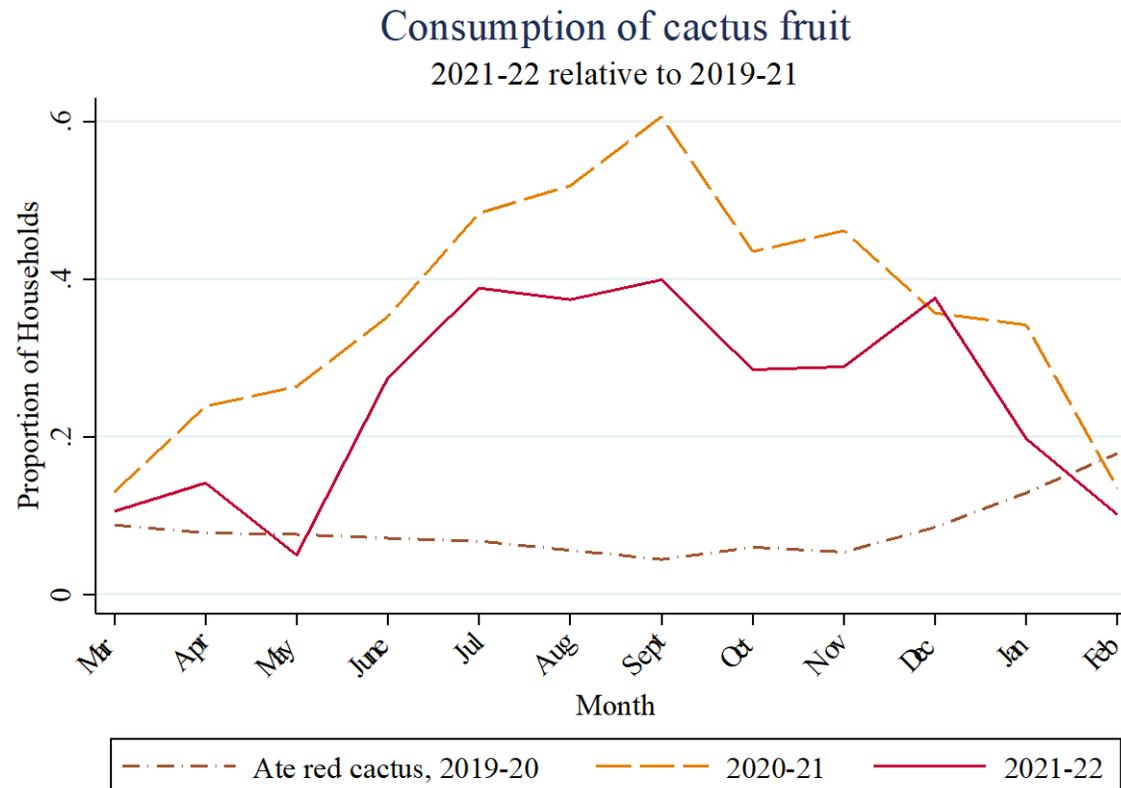
Household Hunger Scale, Jan-March Average  
All communes, 2018-2022



- ▶ Resort to *extreme* strategies (HHS, left) is higher this year than last, but still not as prevalent as 2018-19 (post-drought)

# Food Security Trends over time

## - cactus consumption



- ▶ Noted and progressive increase in proportion of households relying on red cactus fruit (confirmed by team reports); similar to 2018, seasonal pattern of increase from May-Sept

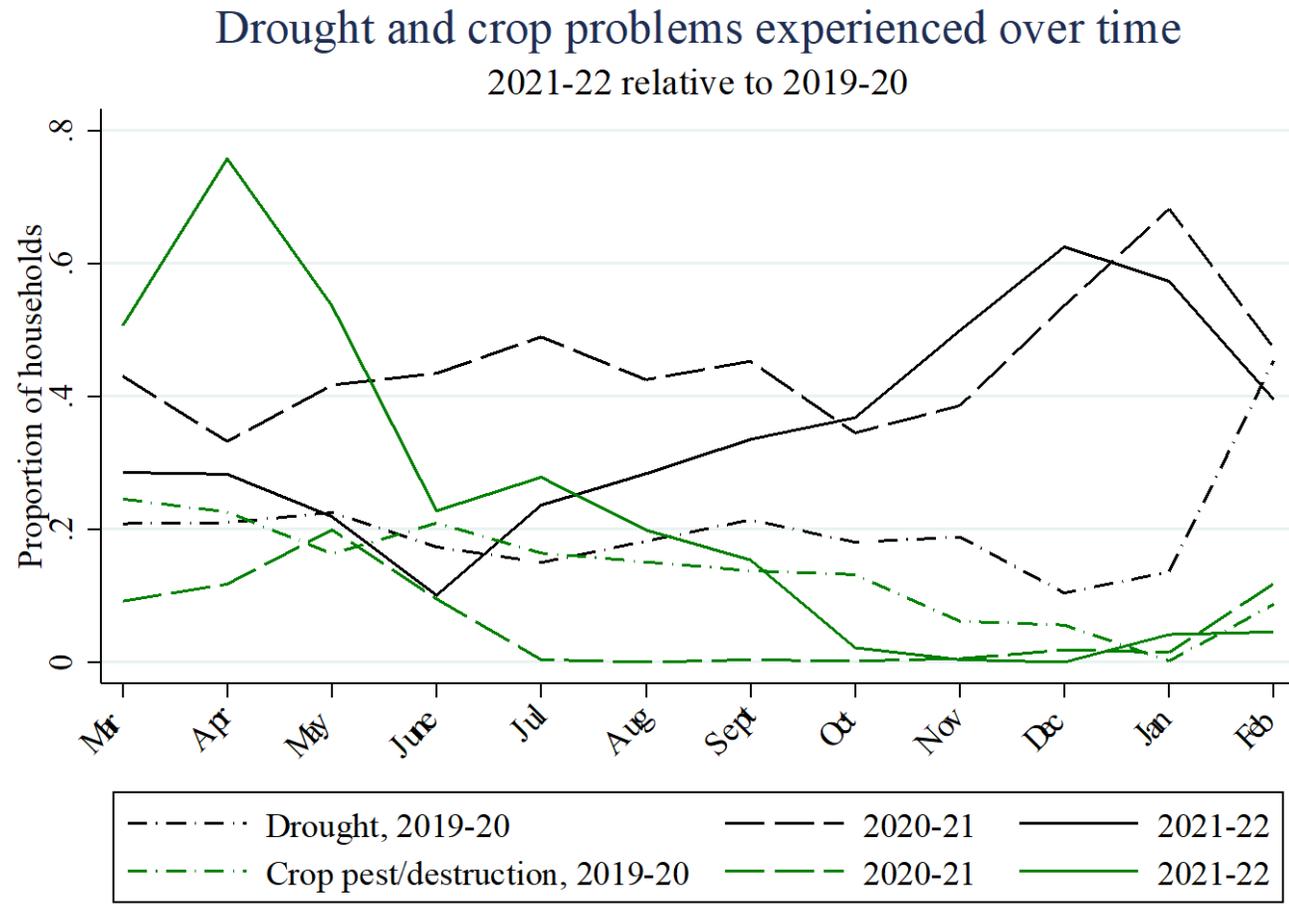
# Food security trends over time: consistency

- ▶ Consistency of food security is a problem for *all* households; none are always food secure, and few are always food insecure, with variation across indicators [Note: indicators vary in severity and measure different dimensions of food insecurity]

Indicator	Always food secure	Food secure at least half of the time	Never food secure	Percentage of periods observed as food secure
Food Consumption Score (FCS)	0%	3%	3%	22%
Household Dietary Diversity Score (HDDS)	0%	0%	57%	2%
Household Hunger Scale (HHS)	0%	58%	1%	53%
Reduced Coping Strategies Index (rCSI)	0%	24%	4%	35%

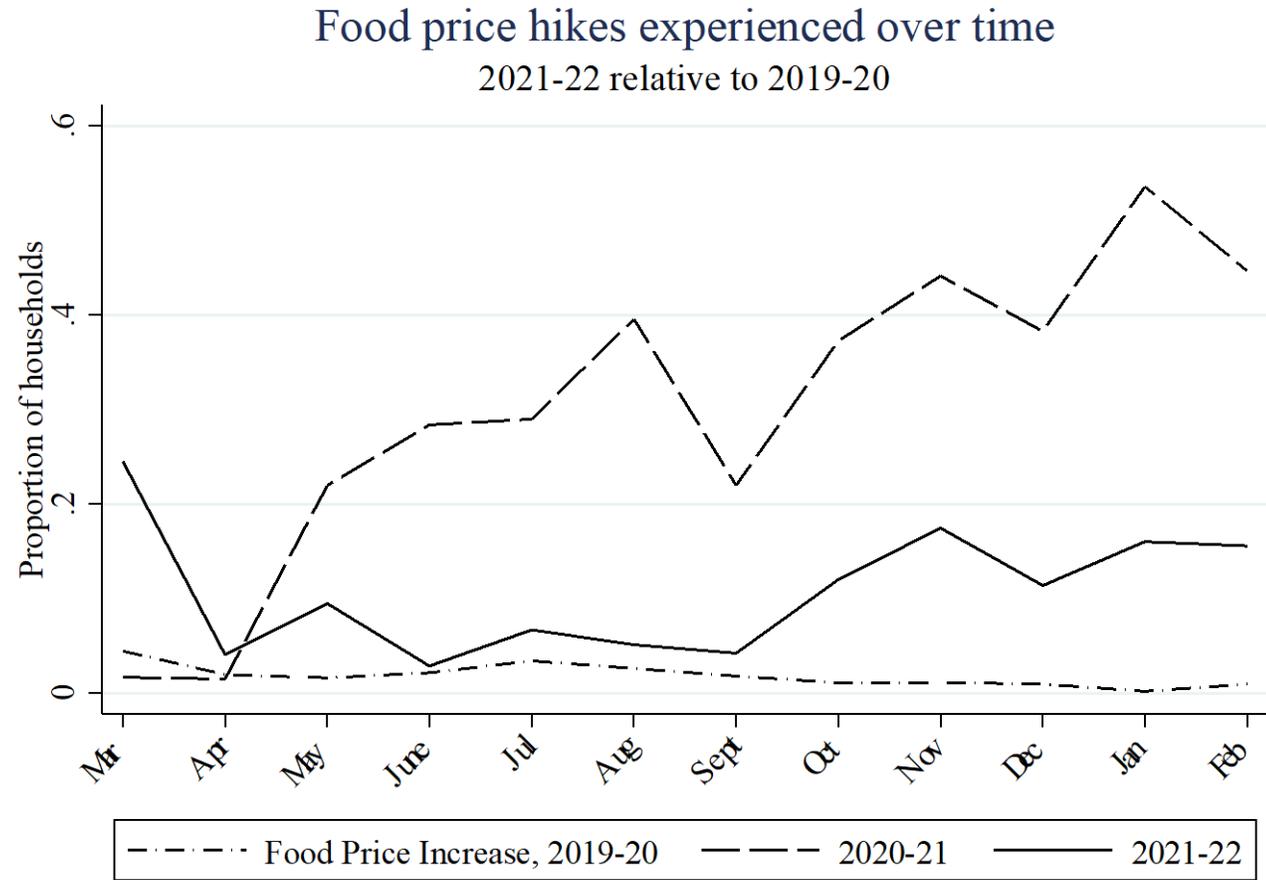
# Shock Experience over time

- ▶ Households face diverse shocks at different times of the year
- ▶ In October - February, 2020-21 and 2021-22 are similarly challenging (much worse than 2019-20 in this respect)
- ▶ [NOTE FOCUS ON PRICES]



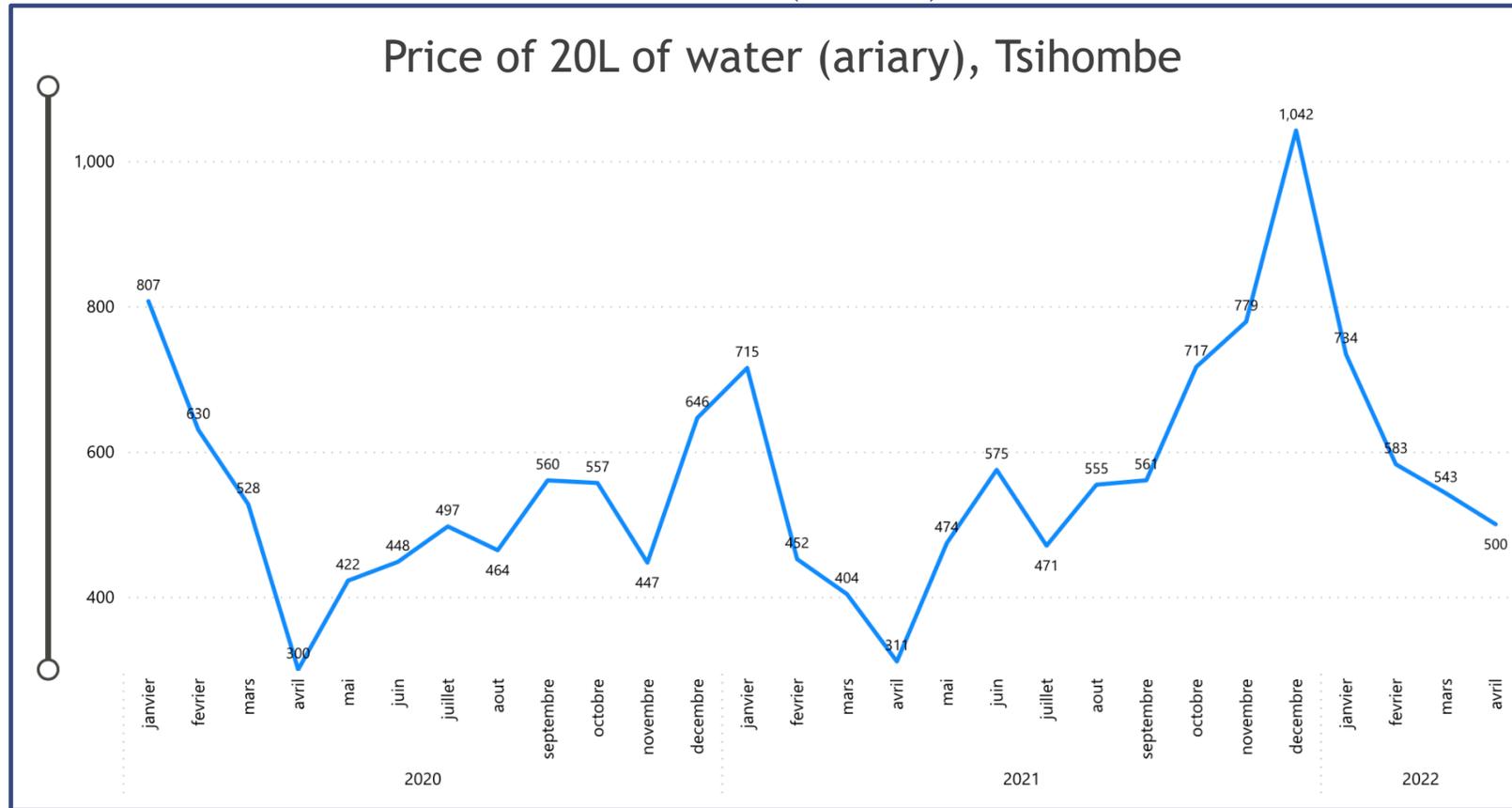
# Shock Experience over time

- ▶ Experience of food price increases rising recently, but still not as reported as the post-COVID period in 2020-2021



# The Great South & Covid-19:

## Water Prices (20L) - Markets



- ▶ Greatest problem currently reported is *increase in water prices*, particularly in Tsihombe; likely related both to water scarcity and global trends (fuel prices)

# The Great South & MIRA:

## Summary / Next Steps

- ▶ Over-all, very challenging years in the Great South
  - ▶ Evidence that conditions have been made worse by international shocks (the COVID-19 lockdown, recent hikes in food and fuel prices)
  - ▶ DROUGHT conditions dominate the food security situation
- ▶ MIRA data collection effort currently expanding to a larger and representative sample of households in Beloha, Tsihombe, and Ampanihy
  - ▶ Will facilitate more extensive, and widely applicable, analysis of the situation going forward
  - ▶ Working to build connections with climate data for better potential targeting and/or prediction

*Thank you*

Questions or comments?

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