



## The policy bias of treating food security shocks as identical and independent

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#### Motivation: Calls to rethink food crisis evidence and responses

- 2023 Global report on food crises: Joint analysis for better decisions.
  - Dimension 1 | Understanding food crises: The work within this dimension aims to build greater consensus and promote evidencebased food security and nutrition analyses and reporting in order to strengthen the collection, quality and coverage of the food security and nutrition data and analysis, and inform decision-making and action.



The growing number of crises, their increasing impact, and rising numbers of hungry and displaced people have galvanized calls to rethink responses to food crises, creating a real opportunity for change



#### **Motivation: More and frequent shocks**



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- The main drivers of food crises in Africa are conflict, weather shocks (droughts and floods), poverty and disease outbreaks (Benin et al., 2023)
- Between 2008 to 2018, about \$30 billion was lost in Africa in crop and livestock (FAO, 2018)
- 1.8 to 4% price surge in agricultural commodities (Okou et al. 2022)
- COVID-19 pandemic, Ebola outbreak and the war between in Ukraine have driven millions in Africa into severe hunger.

**Motivation: Are research questions to blame?** 

# Did your household experience any shock in the past 6 months?

Did your household experience any shock in the past 6 months? If so select up to 3 from the proposed list.



#### **Treating food security shocks as**

Identical [all shocks are the same and therefore can be addressed with a one-size-fits-all approach]

Independent [one shock does not affect the occurrence or magnitude of another]



Can lead to ineffective interventions and exacerbate the vulnerability of populations already at risk.



#### Data

- South Sudan Food Security and Nutrition Monitoring System (FSNMS);
- A nationally representative survey.
- The survey involves primary data collection conducted in all 78 counties.
- 2020 round over more than 8,000 households.



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#### **Empirical approach**

|                        | Probit | Multivariate<br>probit | Ordered<br>probit   |
|------------------------|--------|------------------------|---------------------|
| Shocks                 |        | x (Independent)        |                     |
| Outcomes               |        |                        | x (3 levels of FCS) |
| Cropping<br>strategies | X      |                        |                     |



#### Controls

- Age
- Gender
- Humanitarian assistance
- Type of residence
- Access to land
- Ownership of livestock
- Source of livelihood
- # Males
- # Females



#### A shocks-prone country

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- At least 1% of the population has been affected by 15 events in the last 6 months.
- At least10% affected by high food price or decrease in income or high fuel price
- Mix of idiosyncratic and systemic shocks.
- Mix of climate, economic, conflict, health, and social shocks.

#### Food security (FCS)



- Poor FCS: below 28
- Borderline FCS: 28 42
- Acceptable FCS: above 42
- 41 % in poor food security state
- Slightly higher food insecurity among female headed households



#### **Does the number of shocks matter?**



- The higher the number of shocks, the higher the probability of being in poor food security state
- The higher the number of shocks, the lower the probability of being in acceptable food security state
- Significant for both female and male headed households
- More so for female than male headed households



### Is there a compounding effect?



- Incremental shocks have incremental effects on the state of food security;
- However, no significant effect beyond 5 shocks.



#### Are shocks identical?

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- Different shocks have different effect on food security;
- In this community, insecurity has the highest marginal effect on food security followed by prices (fuel and food).
- Climate related shocks (Drought and flood) have the least impact.

### Are shocks independent?

#### **Correlation coefficients from MVPROBIT**

|                  | Food<br>price | Fuel<br>price | Drought | Insecurity | Floode<br>d crop | Too much<br>rain |
|------------------|---------------|---------------|---------|------------|------------------|------------------|
| Food price       |               |               |         |            |                  |                  |
| Fuel price       | 0.504         |               |         |            |                  |                  |
| Drought          | 0.366         | 0.225         |         |            |                  |                  |
| Insecurity       | 0.254         | 0.198         | 0.349   |            |                  |                  |
| Flooded<br>crop  | 0.164         |               | 0.108   | 0.223      |                  |                  |
| Too much<br>rain | 0.212         | 0.051         | 0.126   | 0.208      | 0.631            |                  |
| Crop pest        | 0.378         | 0.311         | 0.335   | 0.306      | 0.208            | 0.287            |

 Except for "Flooded crop" and "Fuel price", all pairwise correlations are positive and significant;

 "Too much rain" and "Flooded crop", "Fuel price" and "Food price", "Crop pest" and "Food price", and "Drought" and "Food price" have the highest correlation



#### Do shocks affect HHs choice of coping strategies?

- Stress Coping Strategies: These strategies are used to manage more regular, predictable, or less severe hardships, such as seasonal food shortages or minor economic downturns. These could include diversifying income (e.g., taking on a second job), borrowing money, or selling non-essential assets (Maxwell, 1996).
- Crisis Coping Strategies: When stressors become more severe, or stress coping strategies are insufficient, households may resort to crisis coping strategies. These can involve reducing food consumption, taking children out of school to save on expenses or contribute to income, migrating for work, or selling more productive assets (Corbett, 1988).
- Emergency Coping Strategies: These strategies are used when households face severe shocks that threaten their immediate survival, such as during famine or conflict. Emergency coping strategies can include consuming seed stock intended for planting, begging, or even migration or displacement (Borton & Shoham, 1991).



#### Do shocks affect HHs choice of coping strategies?



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- HHs coping strategies vary with shocks;
- Only "Insecurity", "Crop flooded" and "Crop pest" drive up the probability of using all 3 strategies;
- Increase in Food price trigger only Stress and Crisis strategies;
- No significant of Fuel price was found;
- Drought increases the probability of Stress and Emergency while reducing that of Crisis.

#### Key messages

- Shocks are neither identical, nor independent; therefore, one-size-fits-all approaches are doomed to fail;
- Researchers and policymakers alike need to consider the complexities and nuances of different shocks and their interactions in order to design more effective interventions.
- Adopt holistic approach that involves multiple inherently interconnected strategies such as.
  - $\ensuremath{\circ}$  Improving agricultural practices,
  - ${\scriptstyle \odot}$  Promoting products diversification and sophistication
  - o Developing sustainable supply chains,
  - $\circ$  Enhancing governance structures,
  - $\circ$  Investing in research and development
  - $\odot$  Social protection.





#### **Thanks much**



