

Food Price Volatilities & Civilian Victimization in Africa

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Strategic Multilayer Assessment Presentation

Outline

- **Motivating questions**
- **Relevant background**
 - JP 3.0 Notional Joint Combat Operations Model
 - IPCC Fifth Assessment Concerns
 - Anecdotal Evidence
 - Relevant Academic Research
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 - What we did
- **Results**
 - What we found
- **Takeaways**

Motivating Questions

Broad question

What are the potential concerns for the US military due to the second-order effects of climate change?

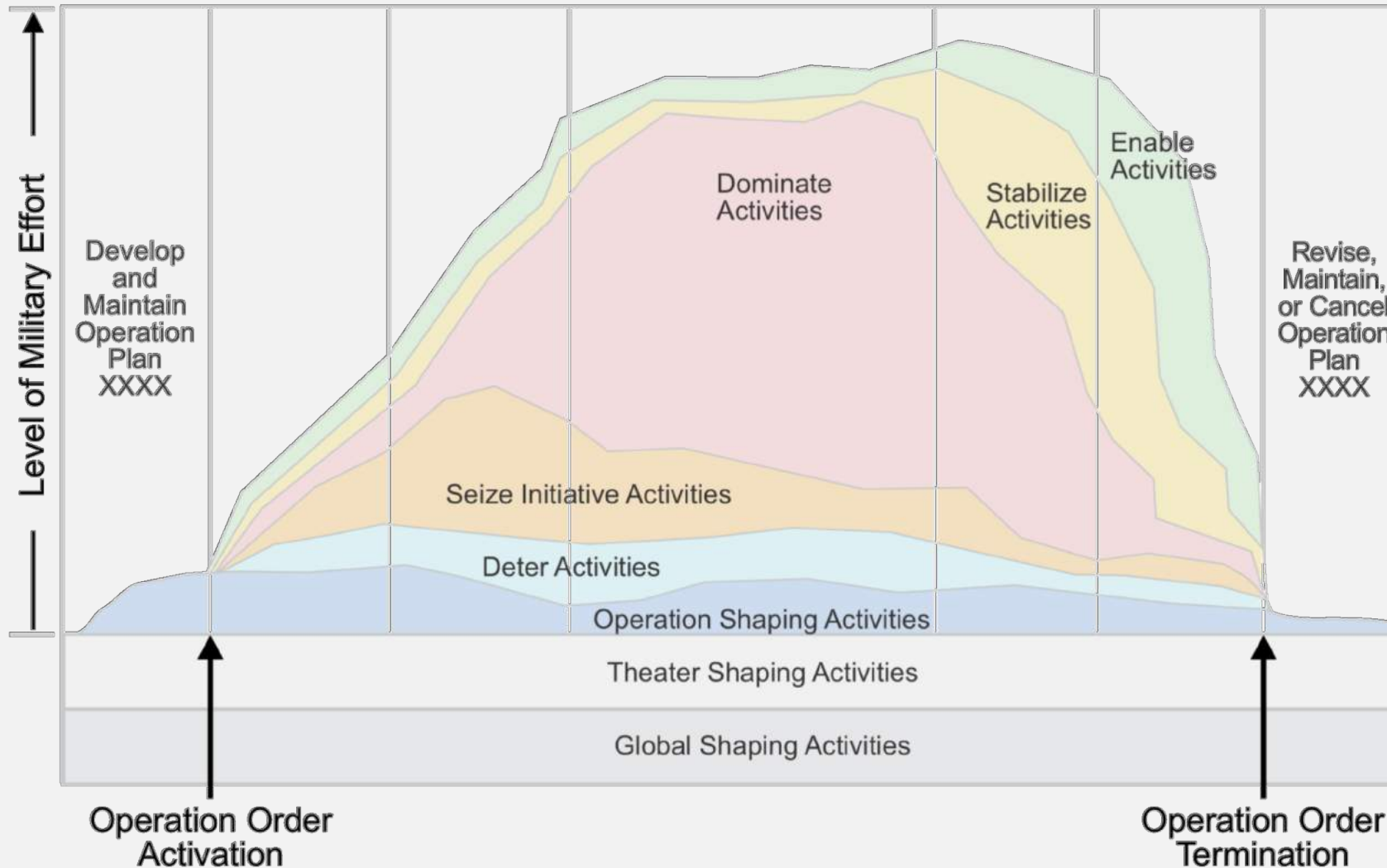
Specific question

How does food insecurity impact rebel group capabilities and patterns of violence in conflict zones?

Future question

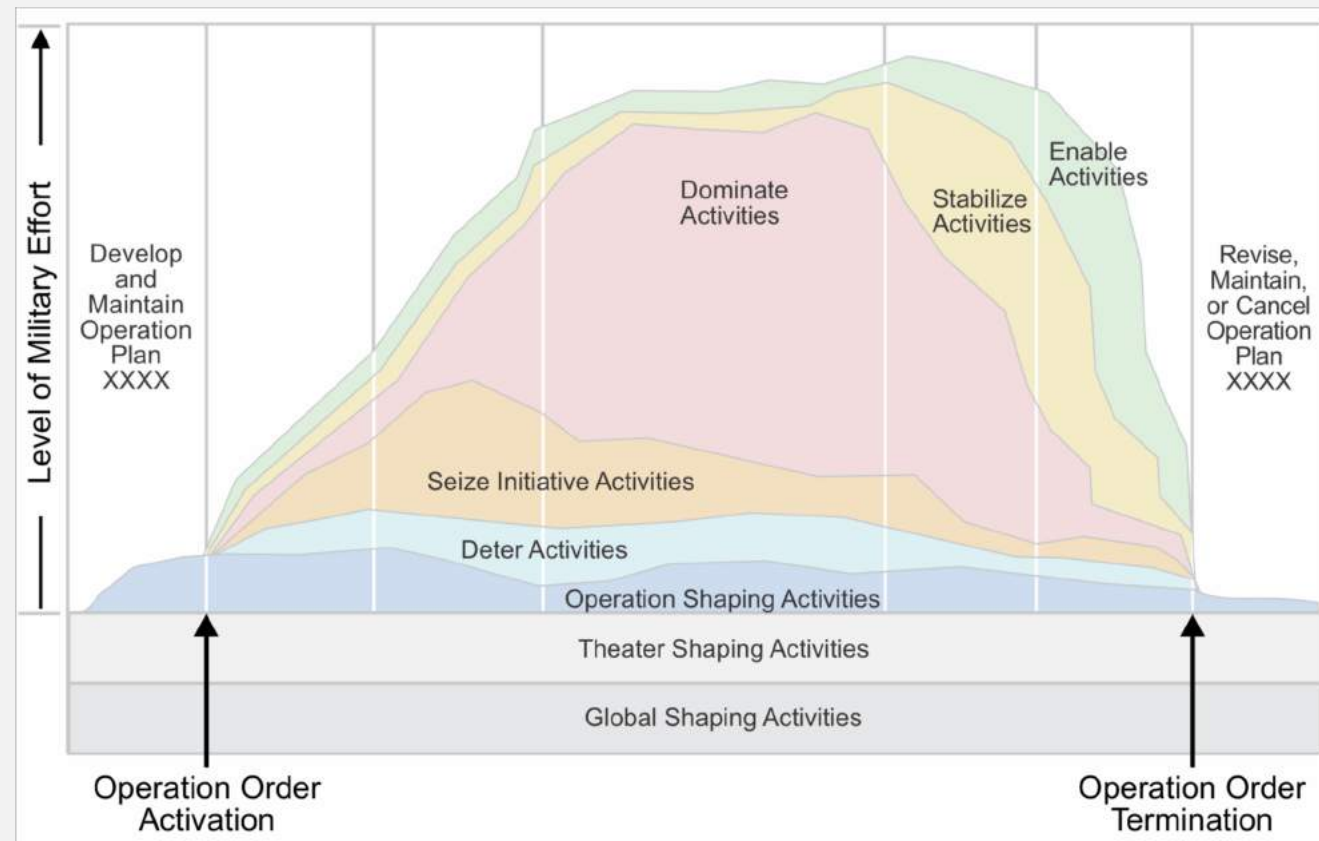
What happens in conflict zones if food insecurity becomes further exacerbated by climate change?

JP 3.0 Notional Joint Combat Operations Model



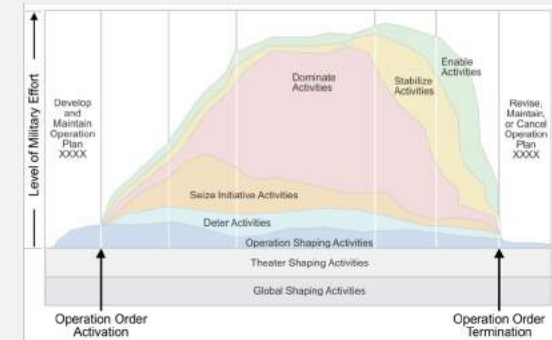
JP 3.0 Notional Joint Combat Operations Model

We should consider revisiting the approach to shaping activities—specifically operational



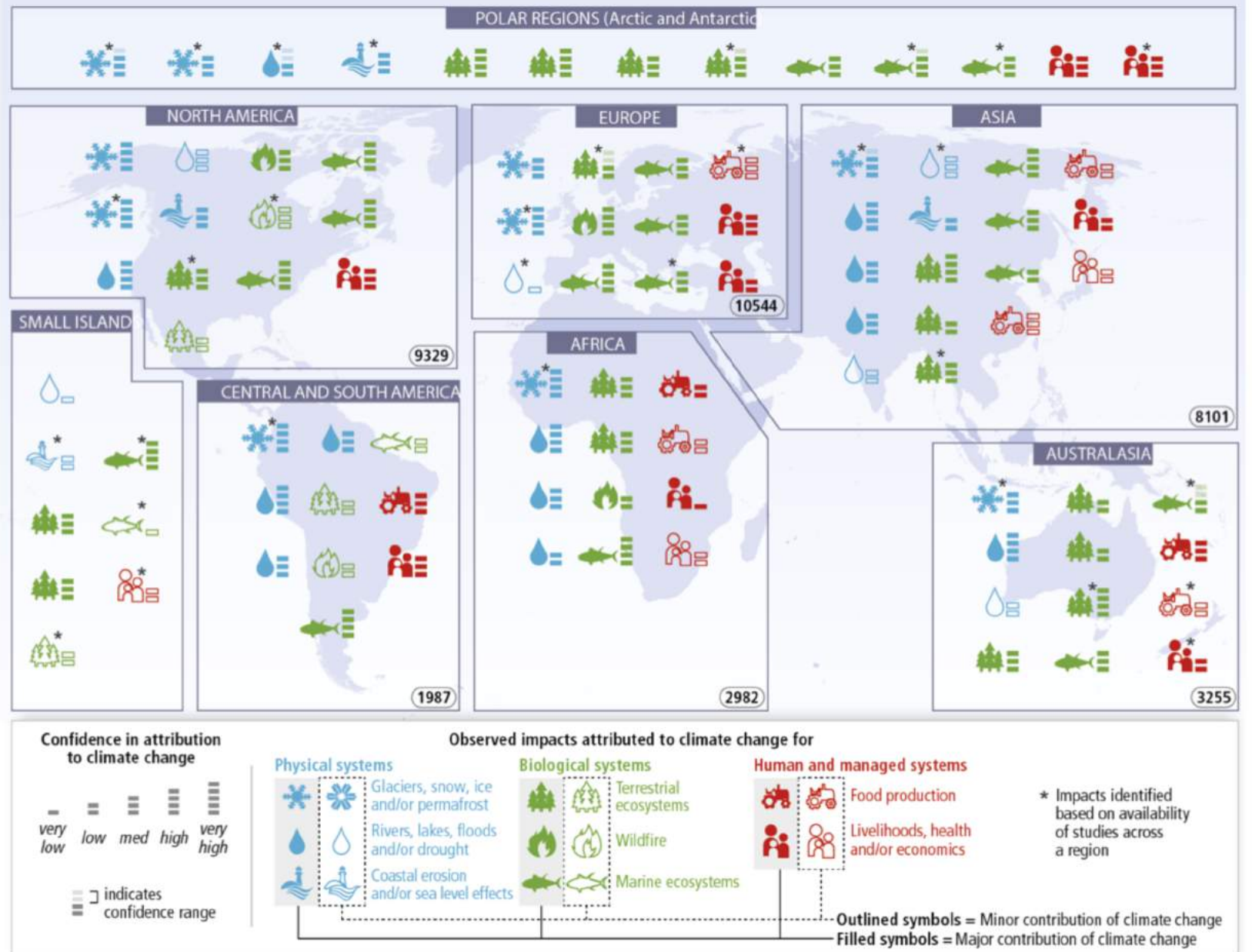
We need to consider the non-obvious linkages to conflict

- Specifically the impact on the typical dynamics of conflict zones, such as:
 - Enemy capabilities and motivations
 - Civilian welfare and engagement
 - US personnel exposure and mission goals

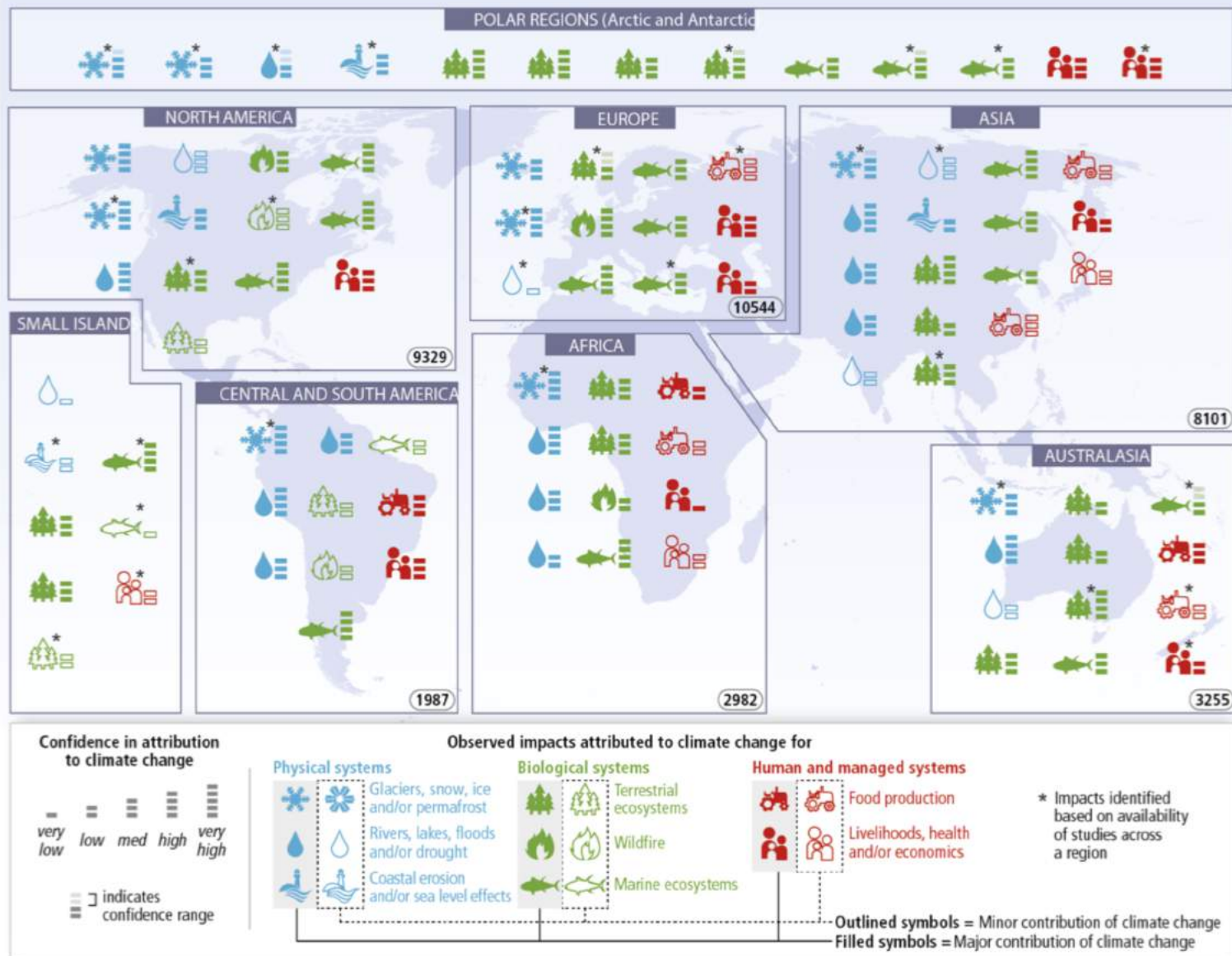


IPCC Fifth Assessment Report: Figure SPM.4

Widespread impacts attributed to climate change based on the available scientific literature since the AR4



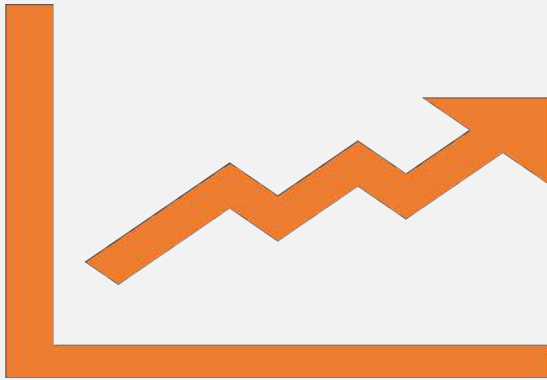
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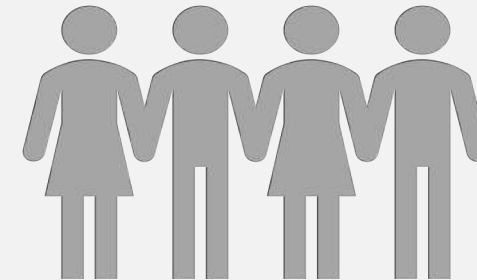
IPCC Fifth Assessment Report: Figure SPM.4

- Researchers are looking at:
 - Physical systems
 - Biological systems
 - Human and managed systems
 - Food production*
 - Livelihoods

Relevant Background: Anecdotal evidence



“Since 2007, world markets have seen a series of dramatic swings in commodity prices...Food prices today remain high, and are expected to remain volatile.” (FAO, 2019)



Arab Spring, Tunisia

Syrian Civil War

Boko Haram Insurgency, Nigeria

Relevant Background: Academic Research 1/2

Broadly:

Rising food prices are correlated with an increase in political violence (Bellemare, 2015; Hendrix and Haggard, 2015; Hendrix 2013; Raleigh et al. 2015; Smith 2014; Weinburg and Baker 2015).

Narrowly:

Process is different in democratic countries vs. autocratic ones (Hendrix and Haggard 2015; Smith 2014).

Process is different in rich vs. poor (Hendrix 2013).

Process is different historically (Arzeki and Bruckner, 2011; Hufton, 1983; Tilly 1971).

Process is different if caused natural disasters (Koren and Bagozzi 2016).

Relevant Background: Academic Research 2/2

Broadly:

Resource availability affects rebel group strategies of violence (Kalyvas, 2006; Wood, 2010, 2014a, 2014b; Wood and Sullivan, 2015).

Forcible appropriation of agricultural goods is one method insurgents shore up limited capabilities when prices increase (Hoffman, 2004; Wood, 2010).

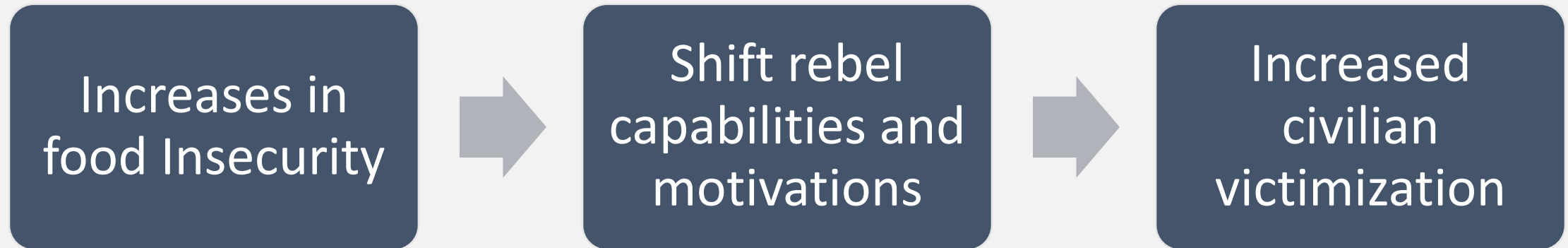
Narrowly:

Used as a recruitment tool (Fjelde, 2015; Weinstein, 2007).

Needed for practical reasons—maintain the insurgency (Hoffman, 2004).

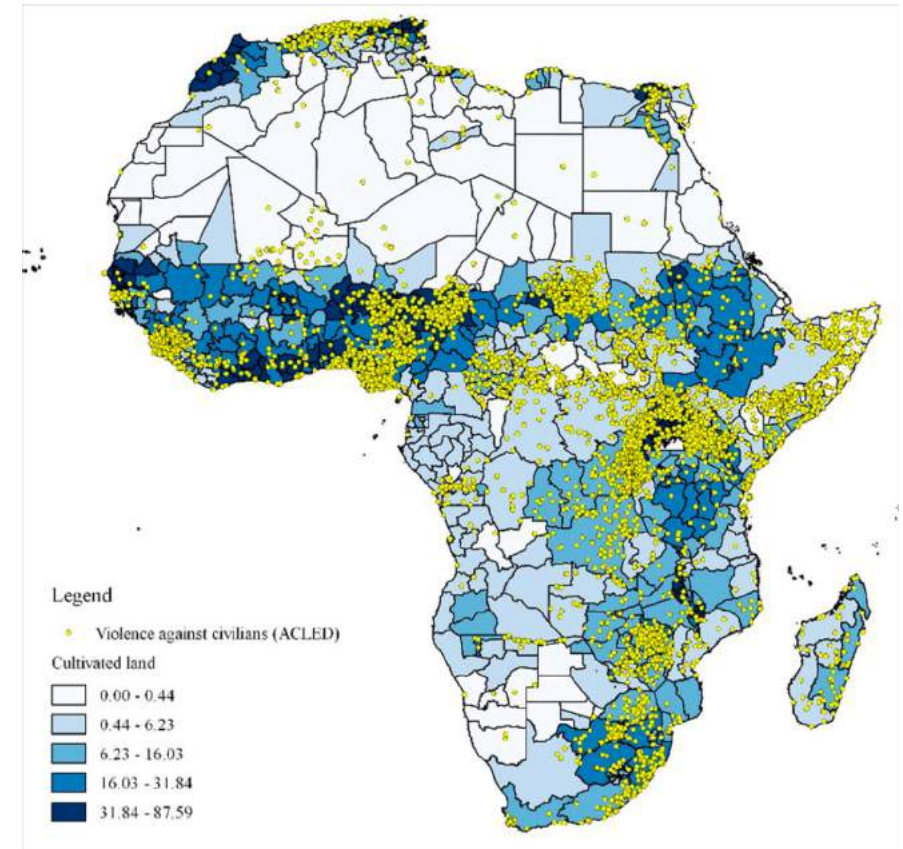
Tied to territorial control (Kalyvas, 2006).

The Logic



Armed Conflict Location Events Database (ACLED)

Figure (left) shows geographic overlap of civilian victimization by “non-state actors” in areas w/ cultivated agriculture.

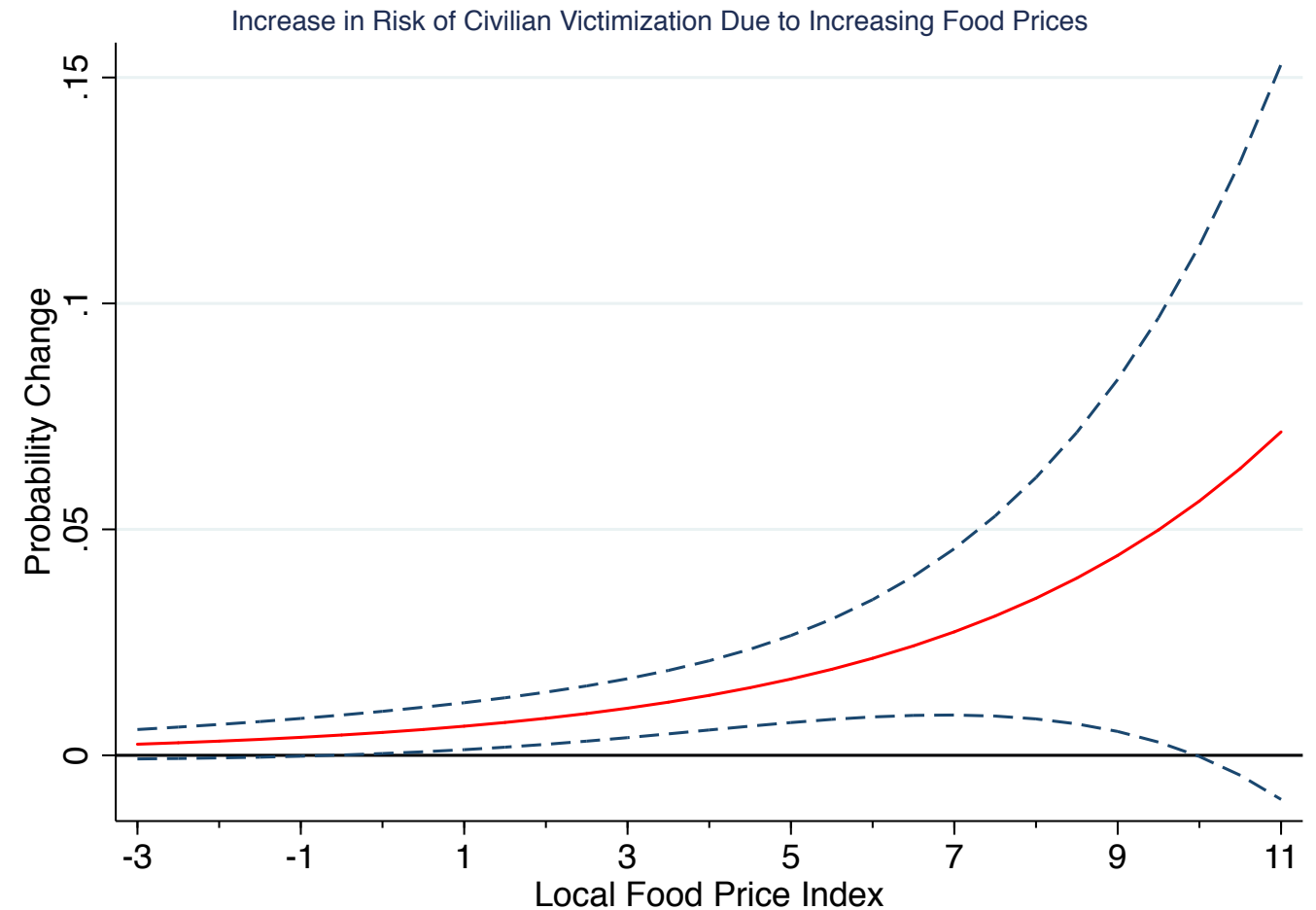


Research Design: What we did

1. Construct a localized, aka geo-located, index of food prices throughout sub-Saharan Africa.
2. Overlay these measures with geo-located, documented cases of civilian victimization by rebel groups, political and/or ethnic militias via ACLED.
3. Two-step estimation strategy
 1. Estimate aggregate effects of changes in localized food price on the likelihood of civilian victimization.
 2. Estimate aggregate effects of changes in localized food price on the likelihood of civilian civilian victimization contingent on being in geographic areas with cultivated agricultural production.
4. Attempt to rule out known, alternative explanations for what we found.

Results 1: Visualizing Food Insecurity and Civilian Victimization

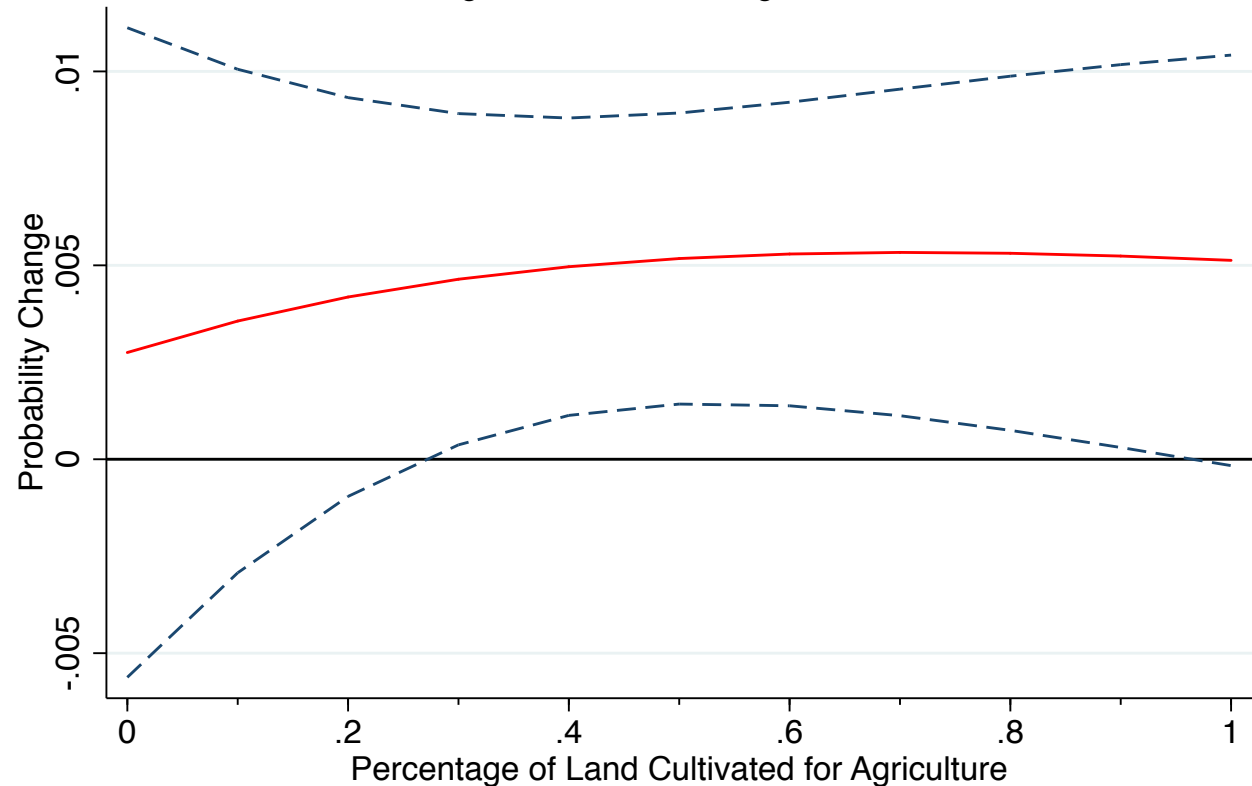
Figure shows an approximately 10% increase in the risk of observing an incident of violence against civilians perpetrated by rebel groups, political, or ethnic militias based on rising local food prices.



Results 2: Visualizing Food Insecurity and Civilian Victimization, Contingent on Cultivated Agriculture

Figure shows the risk of civilian victimization is smaller and constrained to a certain subset of land cultivated for agriculture—roughly in the zone of 30-85% of total land area.

Increase in Risk of Civilian Victimization Due to Increasing Food Prices
Contingent on Cultivated Agriculture Zones



Takeaways

- Narrowly:
 - Increasing food insecurity incentivizes the use of violence against civilians by insurgent groups.
 - This process is worse in areas where locals are dependent on cultivated agricultural.
 - Findings are congruent with anecdotal accounts of civilian testimony in sub-Saharan African conflict zones.
- Broadly:
 - Need to consider how to shore up civilian exposure in areas prone to food insecurity, but located in zones of cultivated agriculture where insurgent groups operate.
 - Extend “what-ifs” into the future to consider what might happen if this process is exacerbated by climate change for both humanitarian concerns and for operational shaping activities prior to, and during, combat.

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