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

• Research design
  • The logic
  • 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
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
Widespread impacts attributed to climate change based on the available scientific literature since the AR4

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

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).

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).
Relevant Background: Academic Research 2/2

Broadly:


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

- Increases in food Insecurity
- Shift rebel capabilities and motivations
- Increased civilian victimization
Armed Conflict Location Events Database (ACLED)

Figure (left) shows geographic overlap of civilian victimization by “non-state actors” in areas with 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 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.
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 agriculture.
  • 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.
References


• Hendrix CS (2013) Climate change, global food markets, and urban unrest. CCAPS Research Brief, 7 February.


References


