Evaluating the Impact of Humanitarian Aid on Food Security

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Motivation

Situation in Somalia:

“A total of 65 million people face acute food insecurity amid the driest conditions in 40 years (...) A total of 1.84 million children under 5 face acute malnutrition (...) over 1.5 million drought-driven displacements since the start of the climate crisis.”

- World Food Programme, Jan 2023

Main Goal

• Quantify the effect of cash interventions on food insecurity.
• We need causal inference to answer this question.
• We rely on observational data.

Potential Outcomes Framework:
○ Average Treatment Effect (ATE)

Data and Methods

We focus on Somalia

• Monthly data (2016 - 2022) at a district level.
• Available data for 57 districts.
• Data aggregated per district per year.

ATE Estimation Methods:
○ Linear Regression
○ Distance Matching
○ Inverse Propensity Score Weighting
○ T-Learner
○ X-Learner

• Treatment binarization:

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Open Questions

• Expert knowledge is needed. Can we define a better causal graph?
• Data quantity is very limited. Are there additional data sources available?
• Is there an alternative way to define the treatment?

Next Steps

• Identifying more suitable treatment variables.
• Refining the causal graph with domain experts.
• Conditional Average Treatment Effect (CATE): Insights on the spatio-temporal heterogeneity of impact of interventions.

References