

# Hot Under the Collar: a Latent Measure of Interstate Hostility

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## Goal

- The goal of this project is to create a latent measure of interstate hostility that could be used to study interstate conflict dynamics

## Overview

- This project presents a latent measure of international hostility created using a Bayesian Item Response Theory model and data on international interactions
- The measurement model solves the problem of temporal variation in events data coverage through a model structure in which human-coded data is used as a benchmark to correct for biases in machine-coded data
- By providing a granular, conceptually precise, and validated measure of hostility, the presented model will enhance the ability of researchers to understand factors affecting conflict escalation and de-escalation

## Research Design

- Unit of Analysis: interstate dyads (pairs of countries)
- Time period: 1946-2015

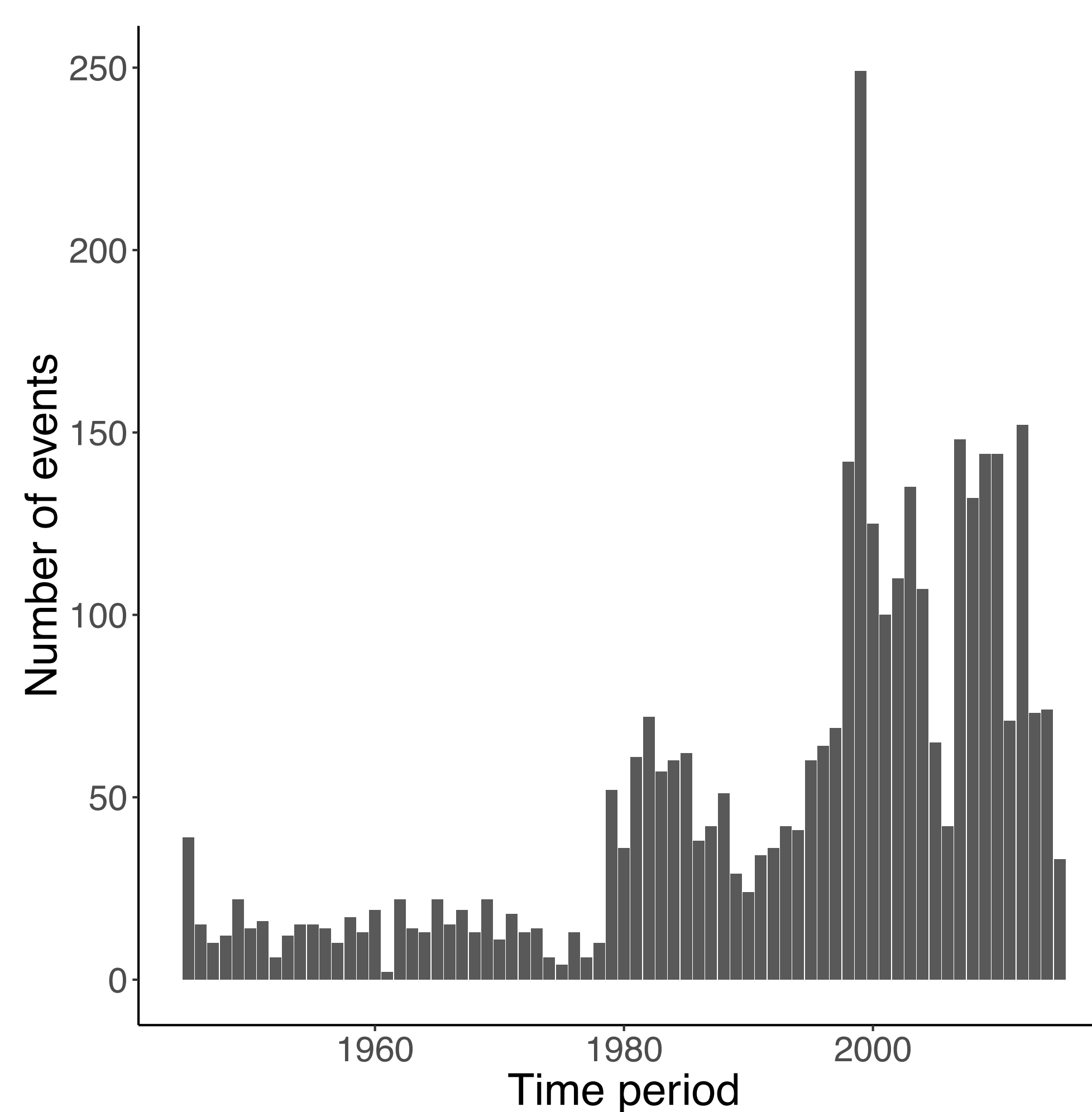
## Data

- Militarized Interstate Disputes (MID) dataset (Palmer et al 2015)
  - Information about conflicts in which one or more states threaten, display, or use force against one or more other states
  - Accurate, but temporally aggregated
- The Cline Center Historical Phoenix Event Data (Althaus, Bajjalieh, Carter, Peyton, and Shalmon 2017)
  - Machine coded political event data
  - Noisy, but temporally disaggregated

## Methodological approach

- One of the problems with using machine-coded event data is reporting bias caused by an increase in the availability of news documents starting in the 1980s.
- Ignoring temporal variation in the events data may lead to the incorrect inferences. E.g., Increasing number of conflicts over time

The Phoenix Data Indicate that Hostility is Increasing



- This model solves this problem by adjusting for reporting bias through the application of a varying difficulty parameter (intercept) to the Phoenix material conflict data
- This method allows researchers to more accurately compare hostile events over time, while maintaining the precision offered by the Phoenix Event Data

## Model

$$P[y_{ij} = 1] = F(\alpha_{jt1} - \beta_j\theta_{it})$$

$$\vdots$$

$$P[y_{ij} = k] = F(\alpha_{jtk} - \beta_j\theta_{it}) - F(\alpha_{jtk-1} - \beta_j\theta_{it})$$

$$\vdots$$

$$P[y_{ij} = K_j] = 1 - F(\alpha_{jtk-1} - \beta_j\theta_{it})$$

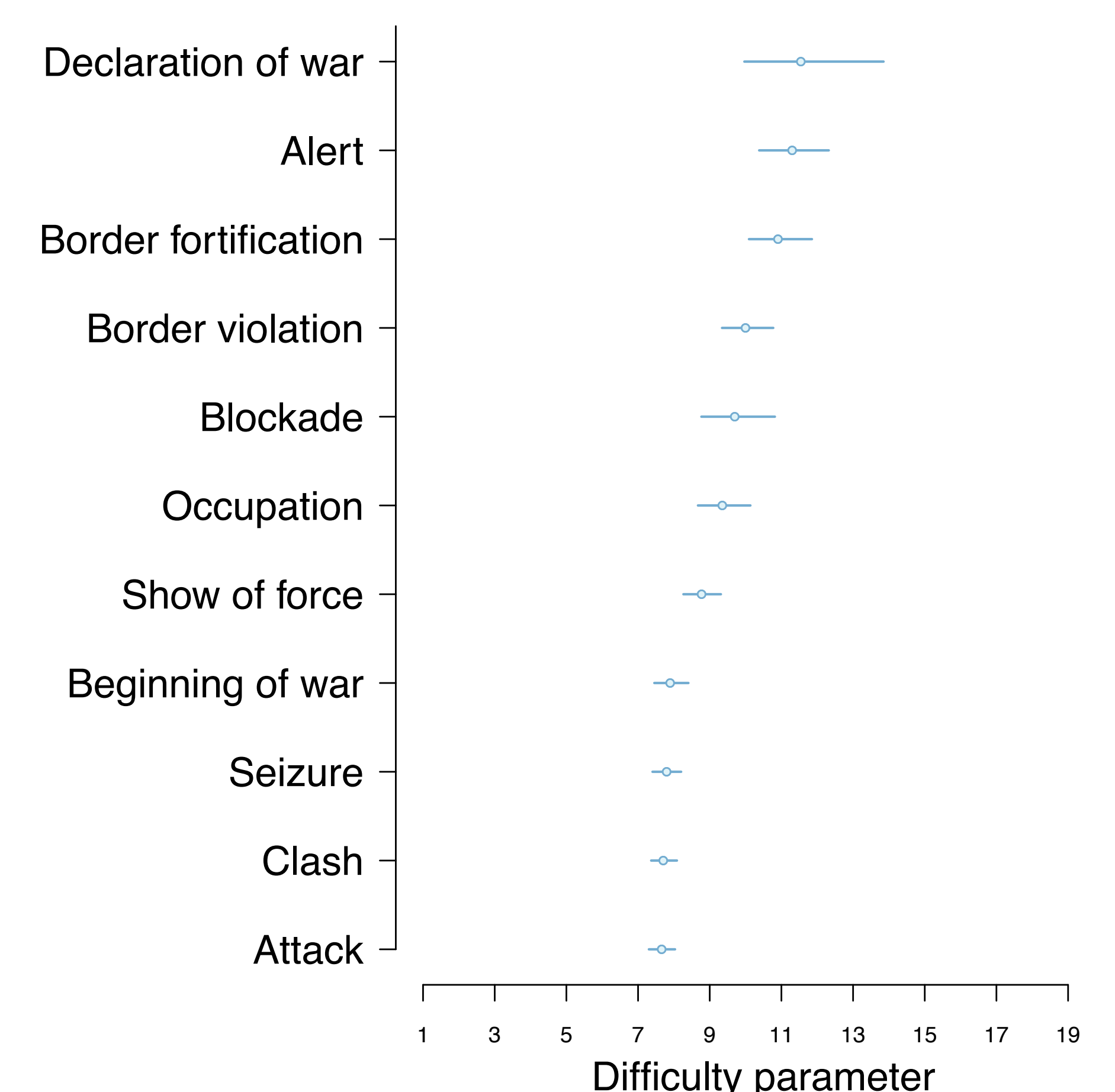
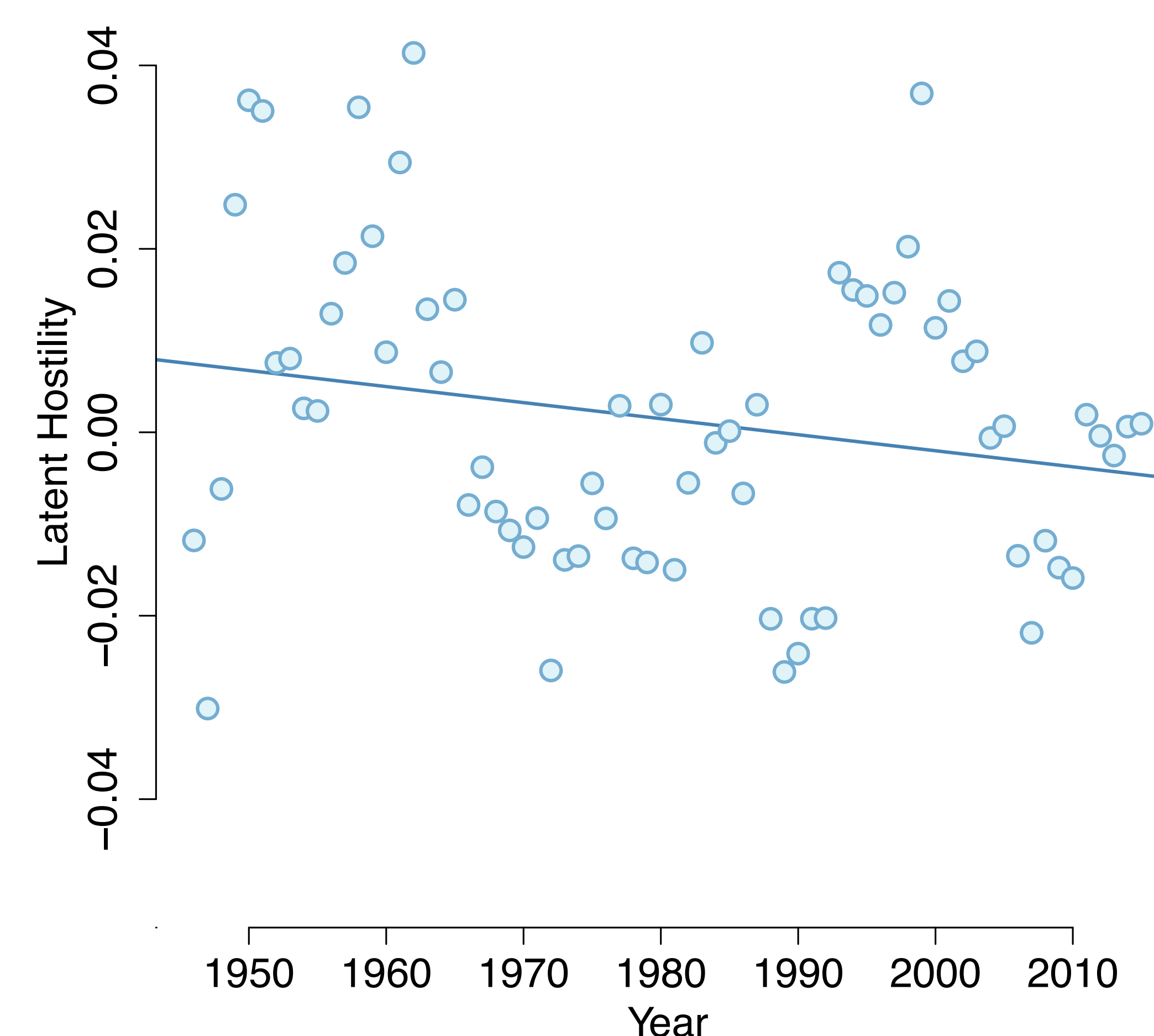
## Conclusion

- This project presents a new latent measure of interstate hostility that can be used to study conflict dynamics
- The results show that scholars should be cautious when using machine-coded datasets to make comparisons across time
- Good news: global hostility is declining!

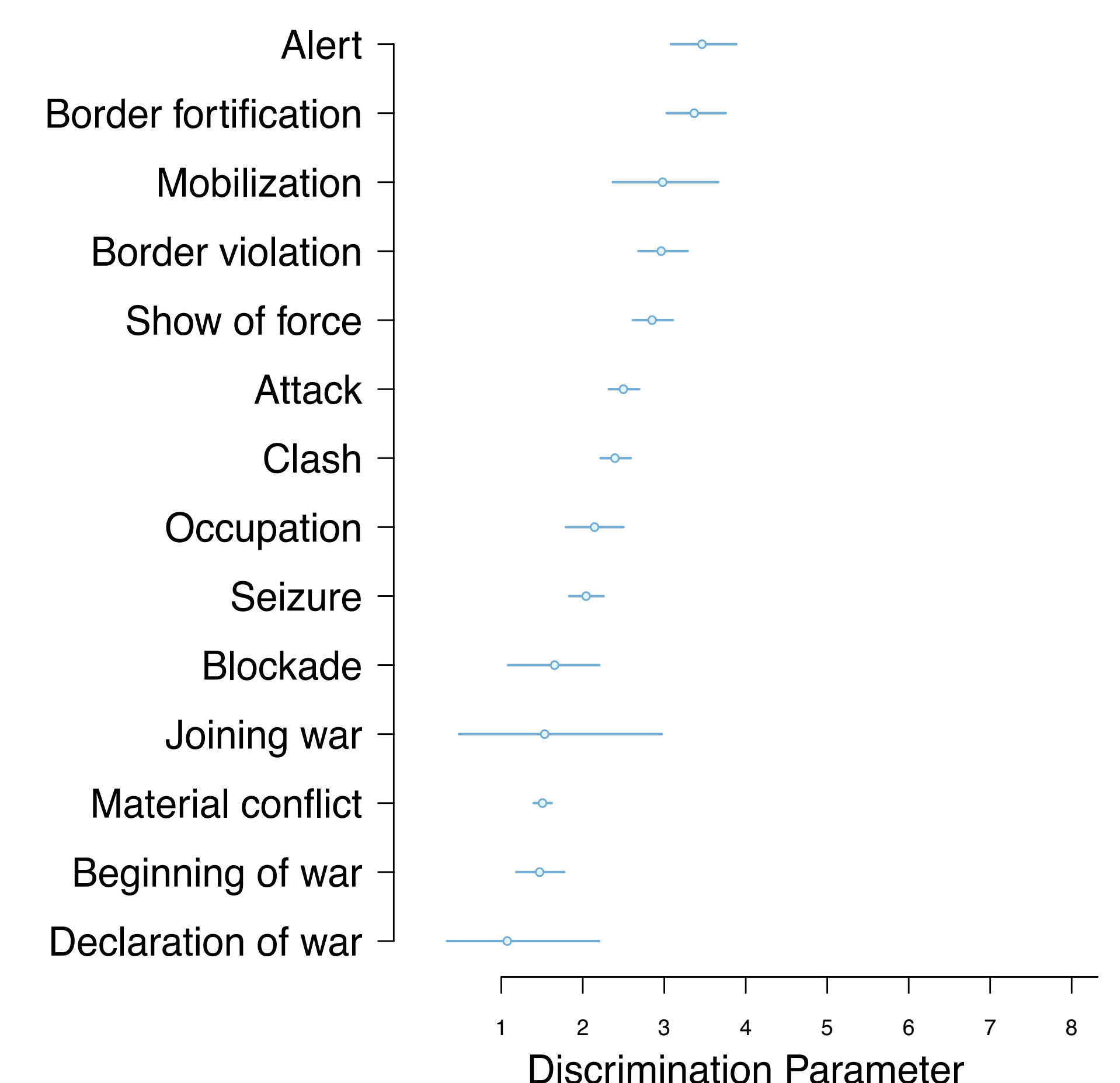
## Results

- Temporal variation in the level of the global hostility shows that (contrary to the Phoenix data) the world has become less hostile over time

### Decline in the level of global hostility (1946-2015):



Difficulty parameters (intercepts) indicates the probability of the item at average level of hostility



Discrimination parameters (weights) shows how informative the item is