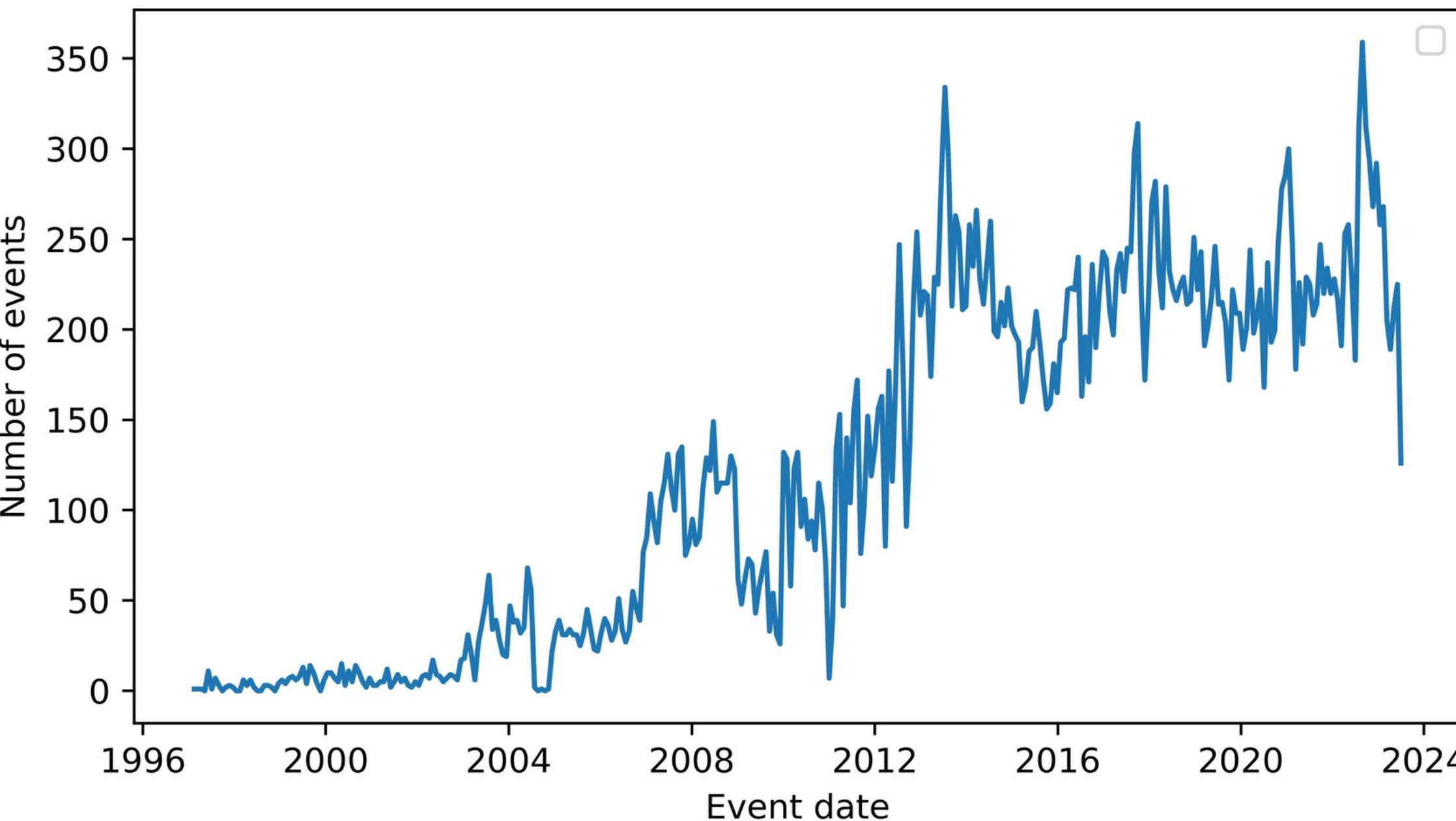


CLIMATE AND CONFLICT IN SOMALIA

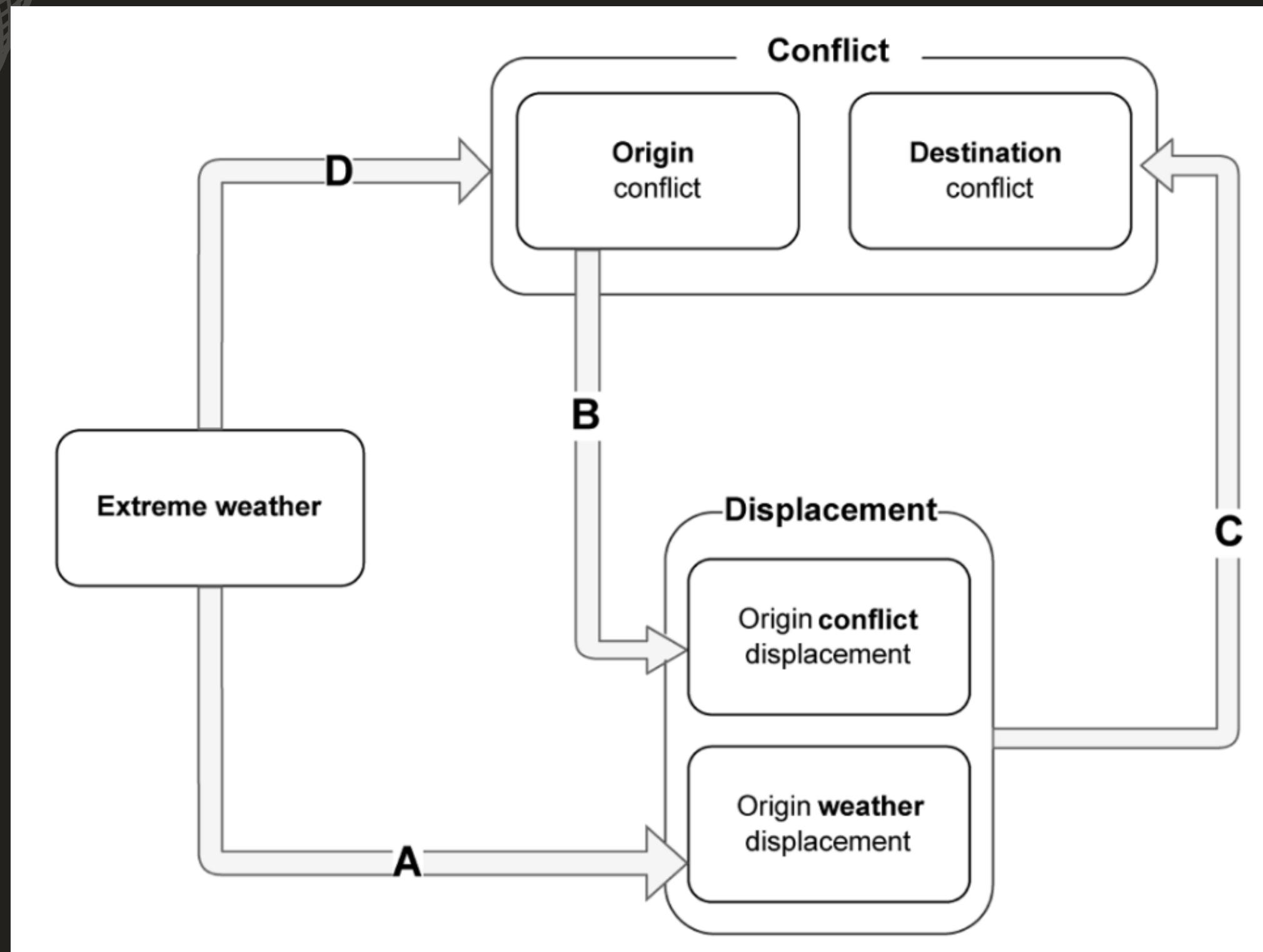
Sara Ghivarello



PROTESTS AND VIOLENT EVENTS



COMPLEX INTERACTION PATHWAYS



DATA

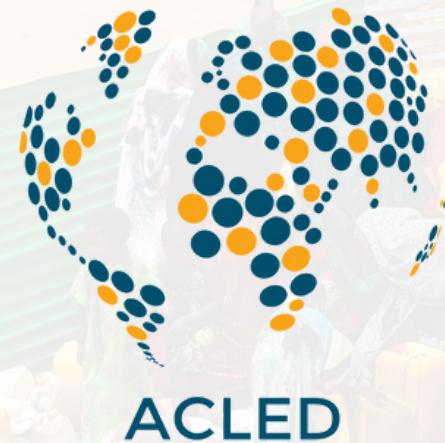
Climate



Timeseries dataset of gridded temperature and precipitation

$$TA_{i,m,y}^n = \frac{1}{n} \sum_n \frac{T_{i,m,y} - \mu_{i,m}^T}{\sigma_{i,m}^T}$$
$$PA_{i,m,y}^n = \frac{1}{n} \sum_n \frac{R_{i,m,y} - \mu_{i,m}^R}{\sigma_{i,m}^R}$$

Conflicts



Protests and violent events at a sub-national level, grouped per month

Displacements



Protection and Return Monitoring Network (PRMN) survey

Control

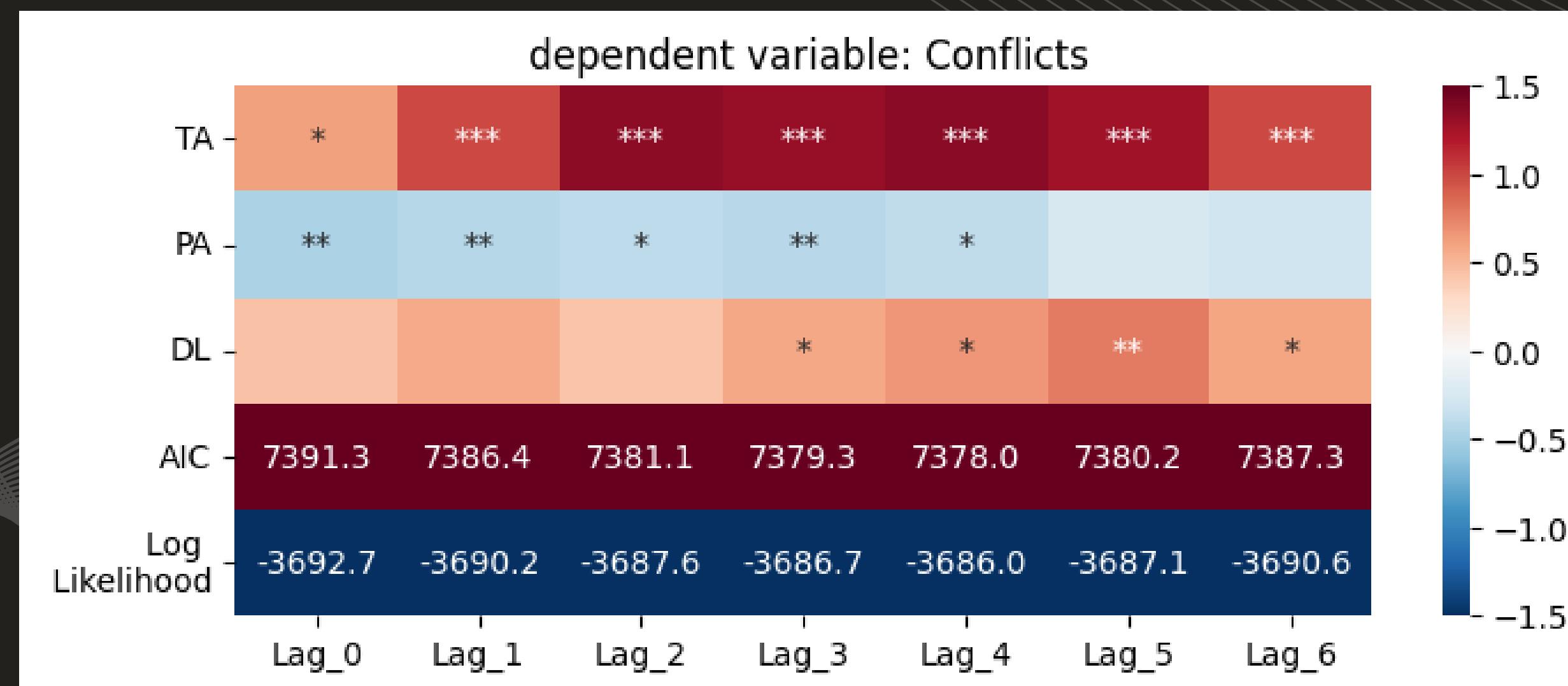


AIDDATA

GDP and population density

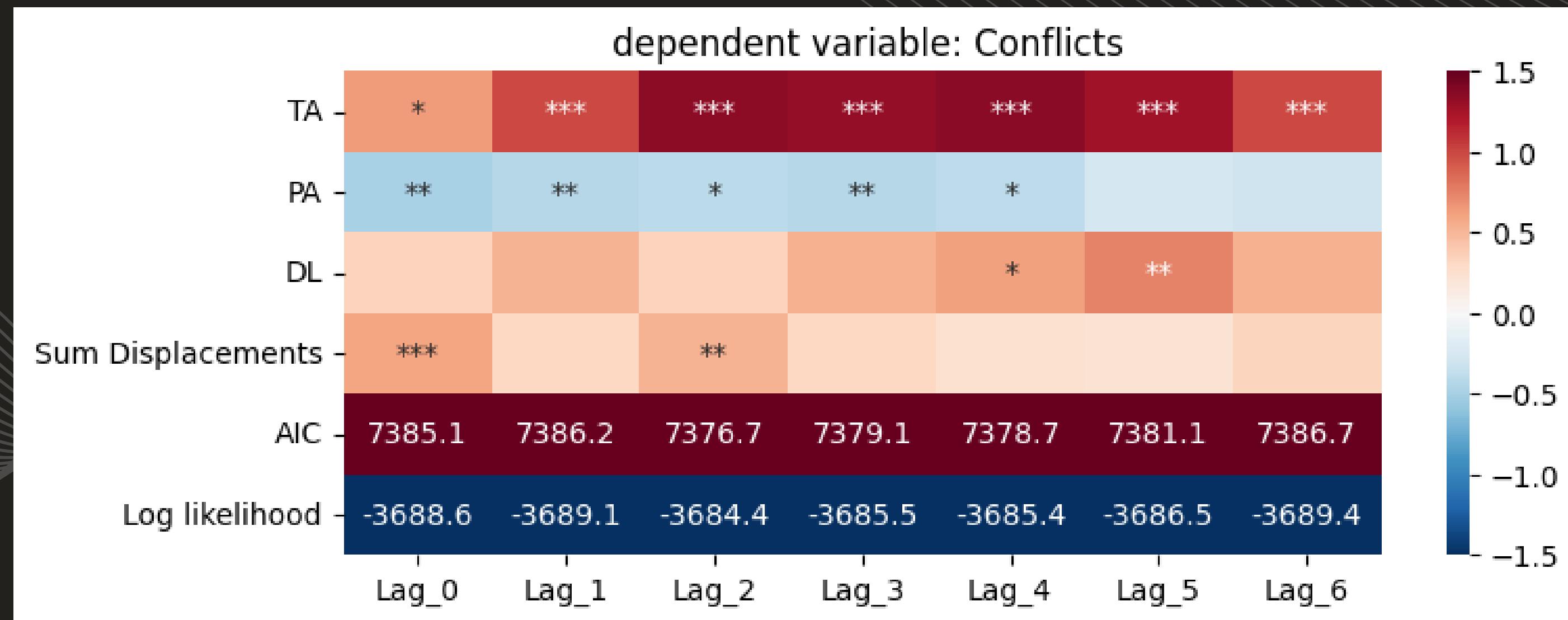
CLIMATE EFFECT ON CONFLICT

Conflicts \propto Temperature anomalies TA
Precipitation anomalies PA
Drought lenght DL



CLIMATE & DISPLACEMENTS EFFECT

Add the number of displacements arriving to the region

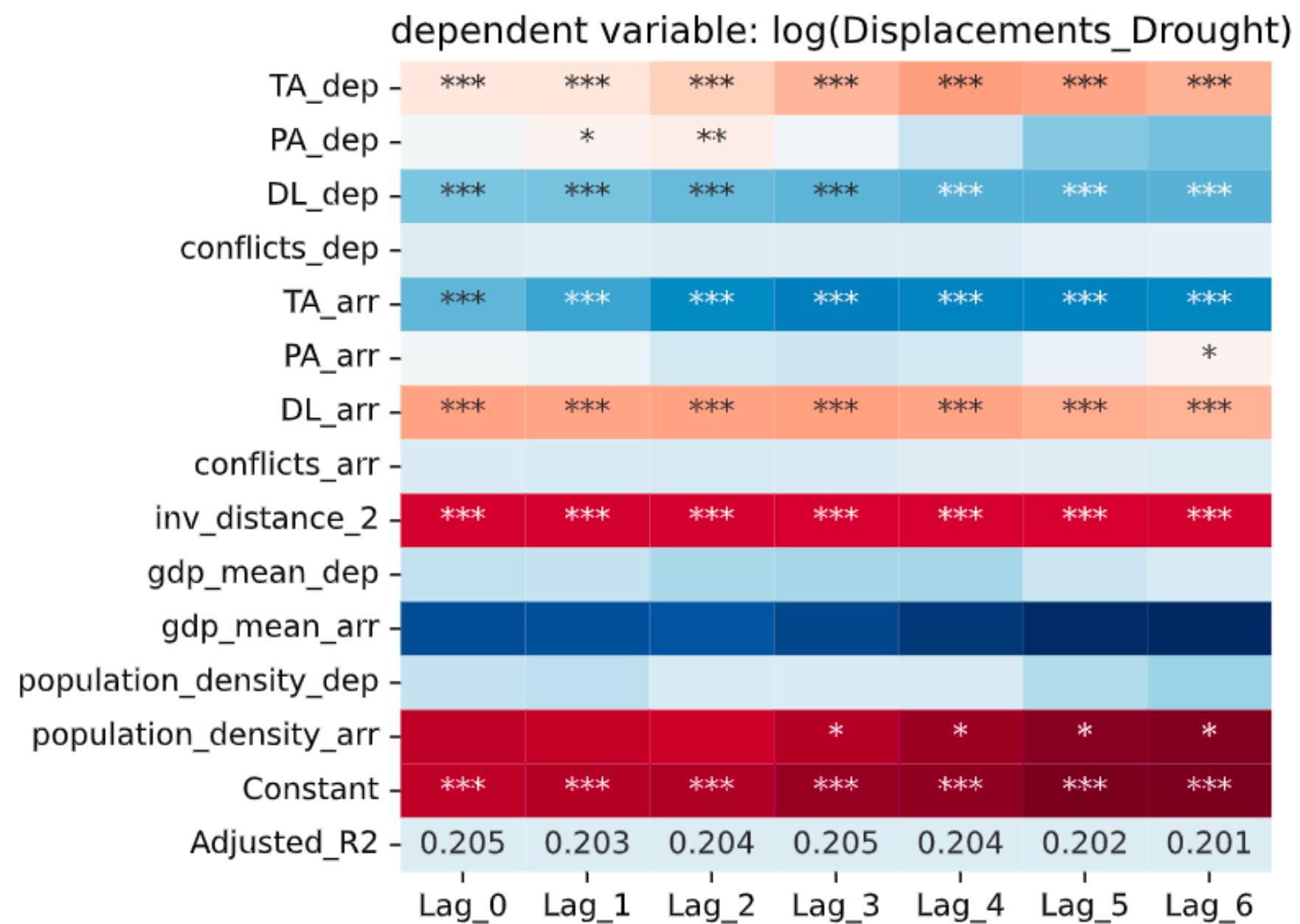


CLIMATE EFFECT ON DISPLACEMENTS

$$\text{Log (Displacements)} \propto$$

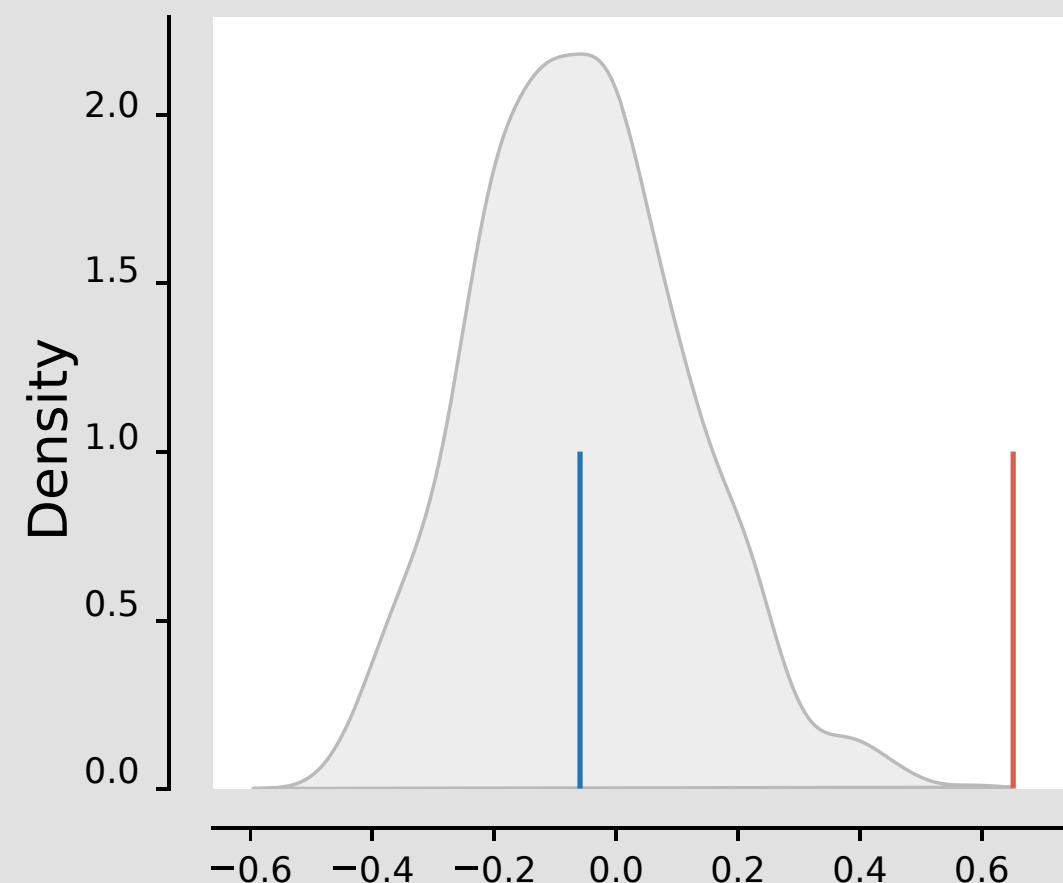
- Climate and conflict variables in the departure and arrival regions,
- inverse distance^{^2},
- control variables

Regression coefficients and significance levels, 2016-2022
Number of observations: 3630

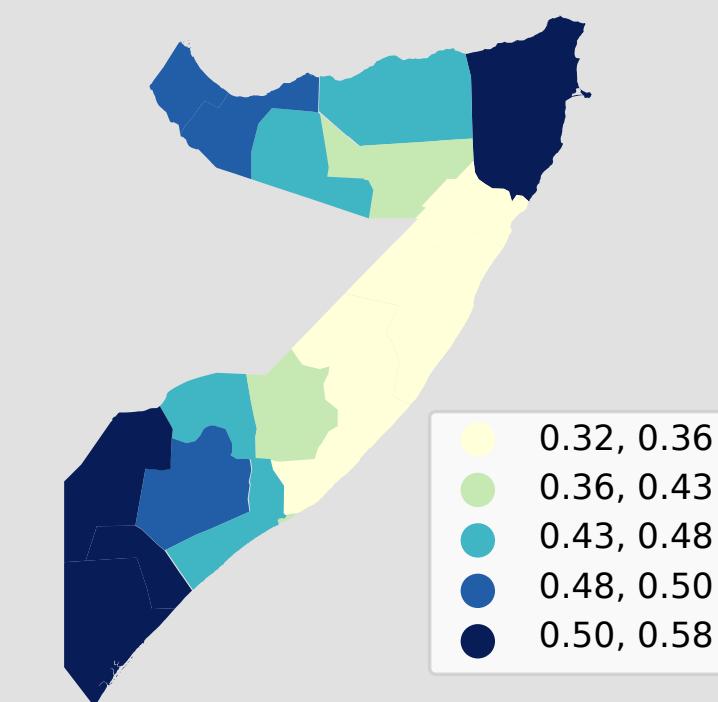
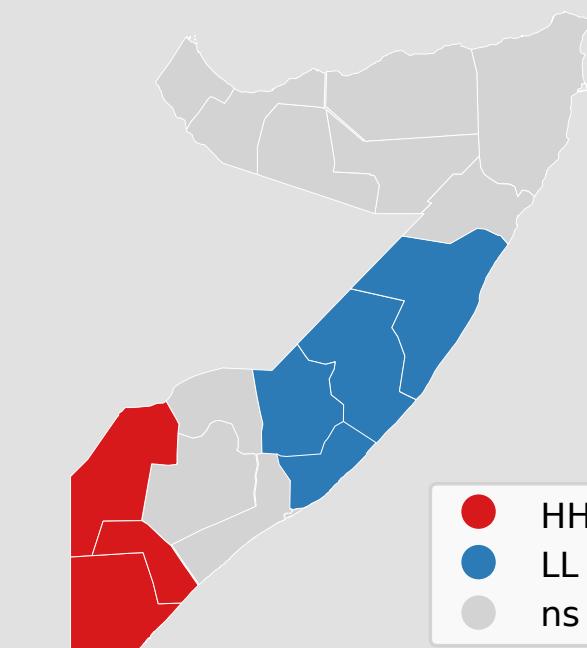
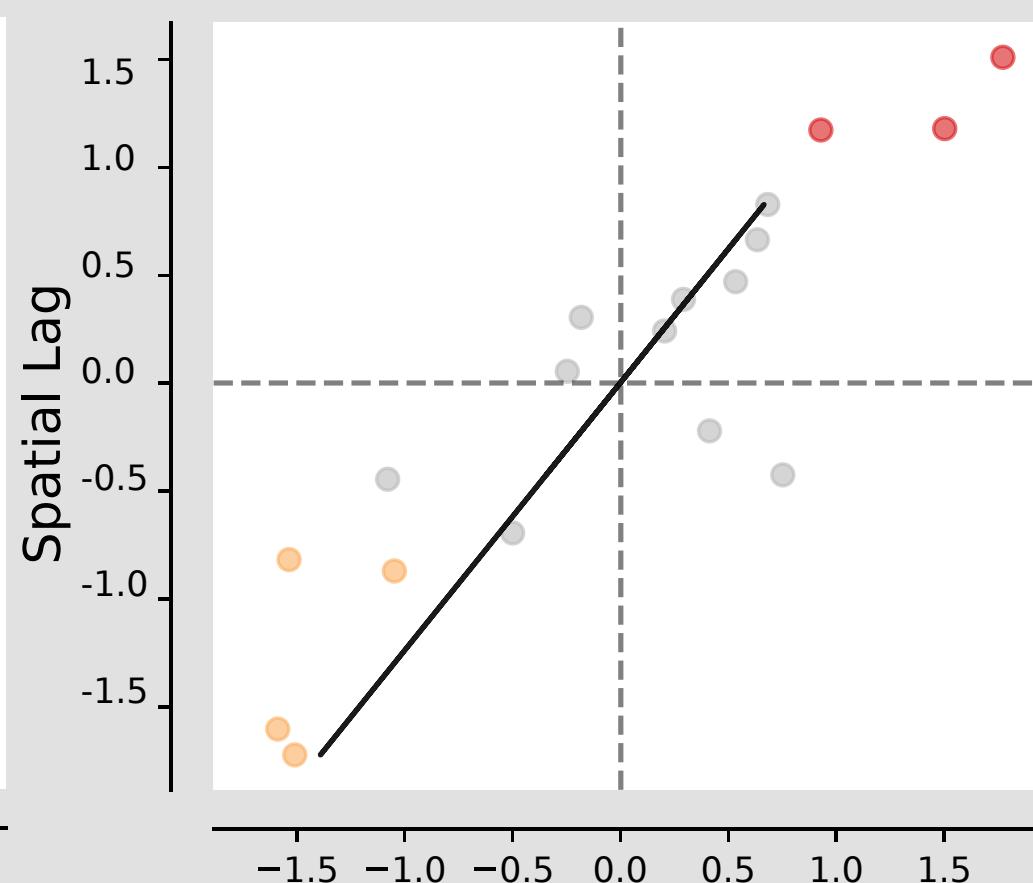


SPATIAL AUTOCORRELATION

Reference Distribution



Moran Local scatterplot



MODELS

$$y = X$$

Linear

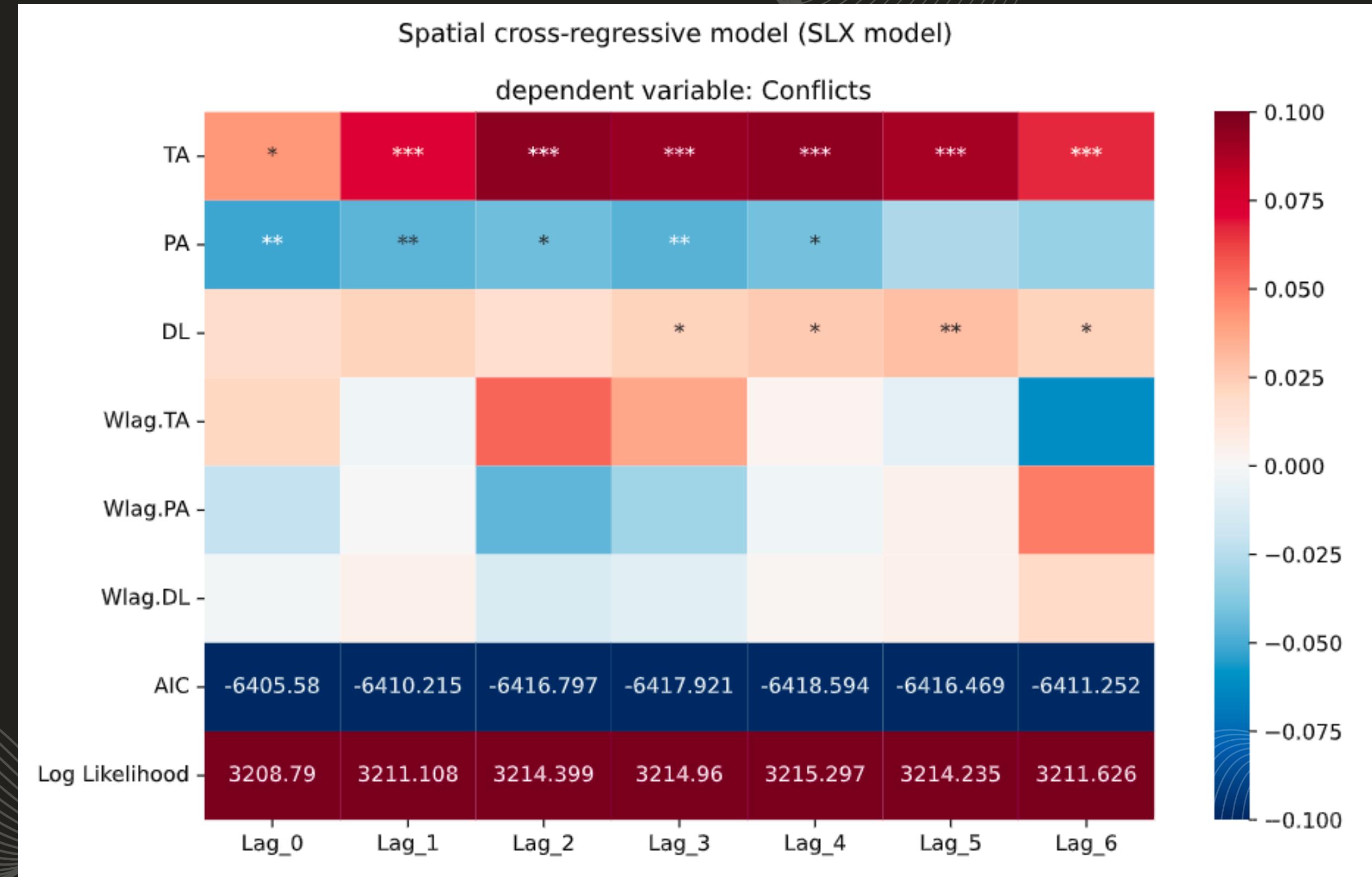
$$y = WX + X$$

SLX

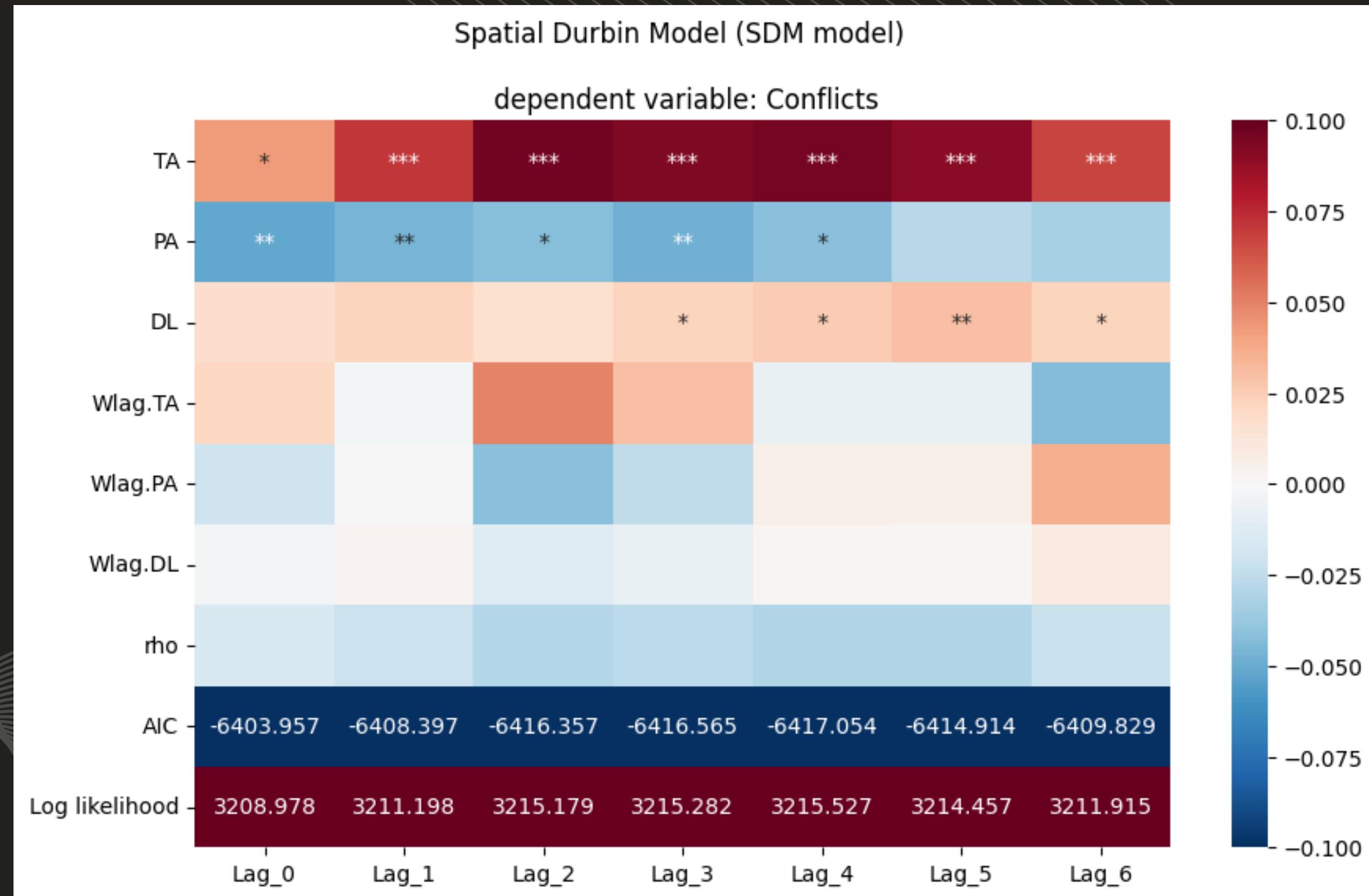
$$y = WY + WX + X$$

SDM

$$y = \beta X + W_{lag} \cdot \beta W X$$



$$y = \beta X + W_{lag} \cdot \beta W X + \rho W Y$$



Thanks to the team

Elisa Omodei, Eugenio Valdano,
Alberto Antonioni, Daniela Paolotti,
Kyriaki Kalimeri, Lorenzo Dall'Amico,
Rossano Schifanella



Thank you for
your attention

Sara Ghivarello

