



Wittgenstein Centre

FOR DEMOGRAPHY AND
GLOBAL HUMAN CAPITAL

Exposure to Hazards, Environmental Concerns, and Green Voting

Roman Hoffmann¹, Raya Muttarak^{1,2}, Jonas Peisker³, Piero Stanig⁴

¹ Wittgenstein Centre for Demography and Global Human Capital (IIASA, VID/ÖAW, WU)

² School of International Development, University of East Anglia

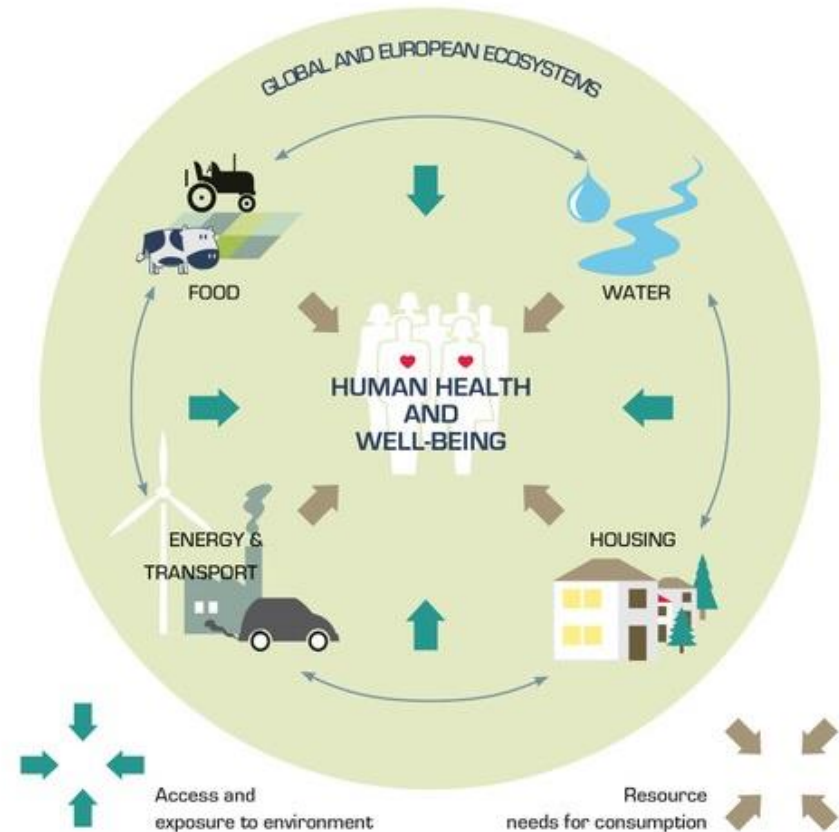
³ International Institute for Applied Systems Analysis (IIASA), Risk and Resilience Program

⁴ University of Bocconi, Department of Social and Political Sciences

Environment and well-being

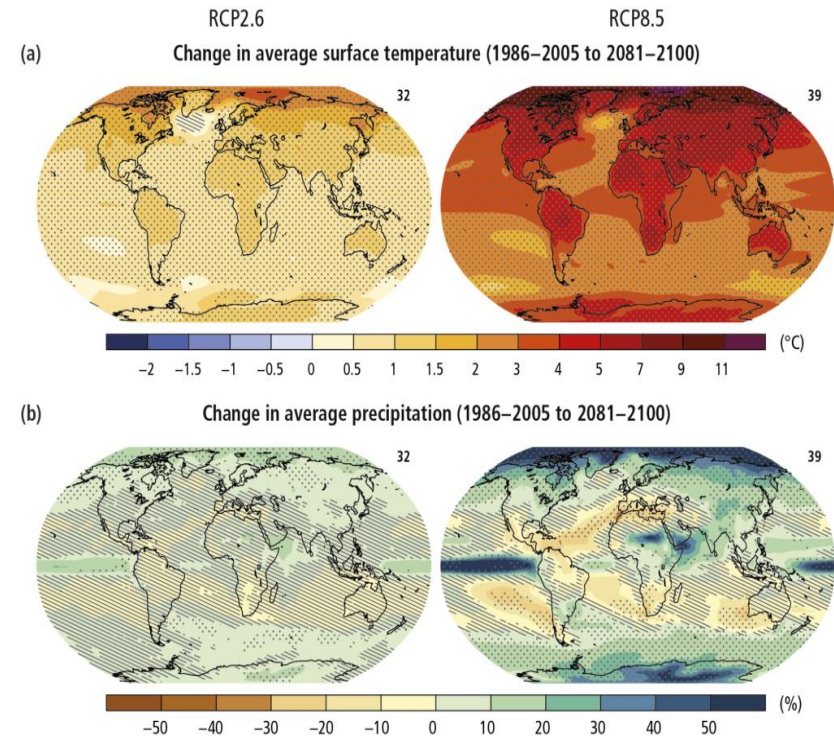
Environmental factors and human well-being are connected in various ways

„The changes that have been made to ecosystems have contributed to substantial net gains in human well-being and economic development, but these gains have been achieved at growing costs [...]“



Environmental change

In many regions of the world, we observe increased degradation and more frequent and extreme environmental events

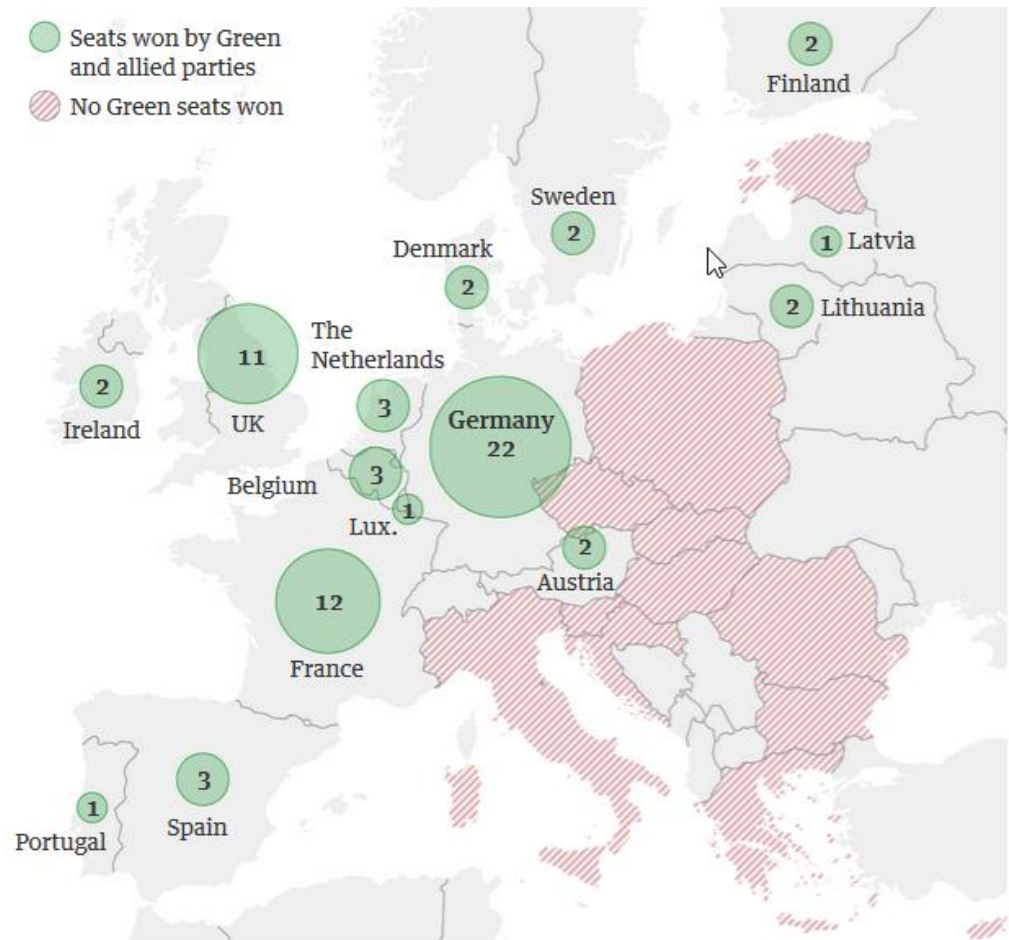


... but there is hope

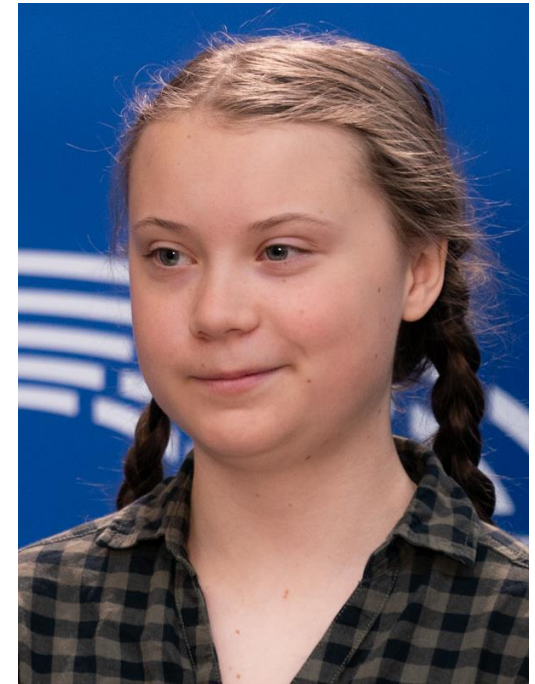
“A quiet revolution sweeps Europe as Greens become a political force”

Germany: Support for the Greens has almost trippled in the two years prior to the 2019 EU election

Aim: Study to what extent experiences with environmental hazards influence environmental concerns and voting behavior



- A variety of factors can influence voting outcomes, including political movements
- **Main challenge:** Removing the influence of potentially confounding trends from the estimation
- **Contribution:**
 - ➔ First study to explore the impact of exposure to hazards on voting
 - ➔ Identification exploiting quasi-experimental variation in conditions
 - ➔ Using a unique spatially fine-gridded data set of EP elections over time



Picture: European Parliament 2019

- Environmental hazards and well-being (WHO 1972, Luechinger & Raschky 2009, Carroll et al. 2009, Frey et al. 2010, Möllendorf & Hirschfeld 2016)
- The impact of exposure to environmental hazards on climate change concerns and environmental behavior (Whitmarsh 2008, Spence et al. 2011, Akerlof 2013, Hornsey et al. 2016, Konisky et al. 2016, Sisco et al. 2017)
- Environmental concerns and green voting (Schuhmacher 2014, Herrin et al. 2018, Vandeweerd et al. 2016, McCrea et al. 2016)
- Gap in the literature as to what extent experiences with environmental hazards influence voting outcomes

- **Election data**

- Data from last 8 EP elections (1984-2009) for all EU member countries on constituency, i.e. district level
- Geo-referenced data allowing analysis on fine spatial scales

- **Environmental concern**

- Eurobarometer data, 2000-2019, NUTS 2 level
- Outcome: Environmental issues or climate change as priority for EU
- Future work: Eurobarometer life satisfaction data

- **Environmental hazards**

- Temperature anomalies, CRU TS dataset of the University of East Anglia, 1901-2019
- Urban flood magnitude, Dartmouth Flood Observatory, 1985-2019

Analysis of the change in environmental concerns and voting outcomes for the same region given exogenously changing conditions

Two-way fixed effects specification:

$$Y_{it} = T_{it}\alpha + F_{it}\beta + X_{it}\gamma + \theta_i + \delta_t + \varepsilon_{it}$$

with:

Y_{it} : Outcomes: environmental concern or voting behavior

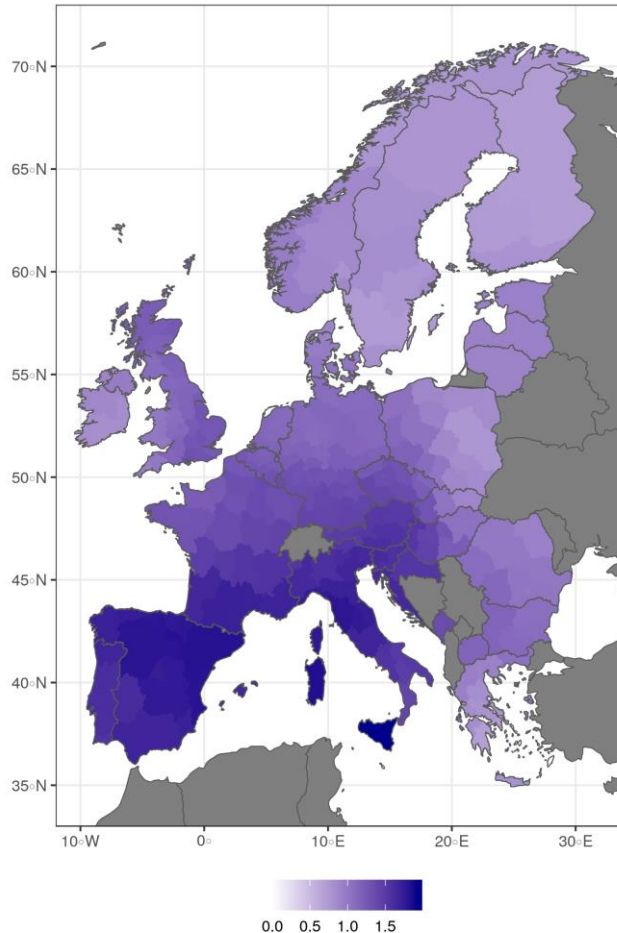
F_{it}, T_{it} : Flood and temperature anomalies in region

X_{it} : Additional demographic controls

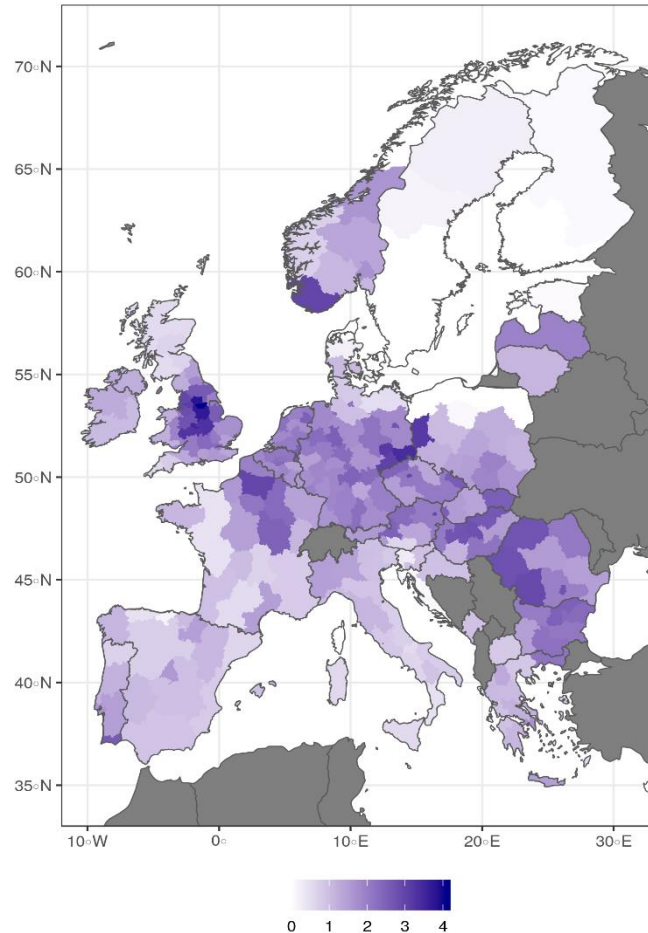
θ_i, δ_t : Spatial and time fixed effects

Descriptive statistics

Temperature anomalies
cumulated 1985-2018



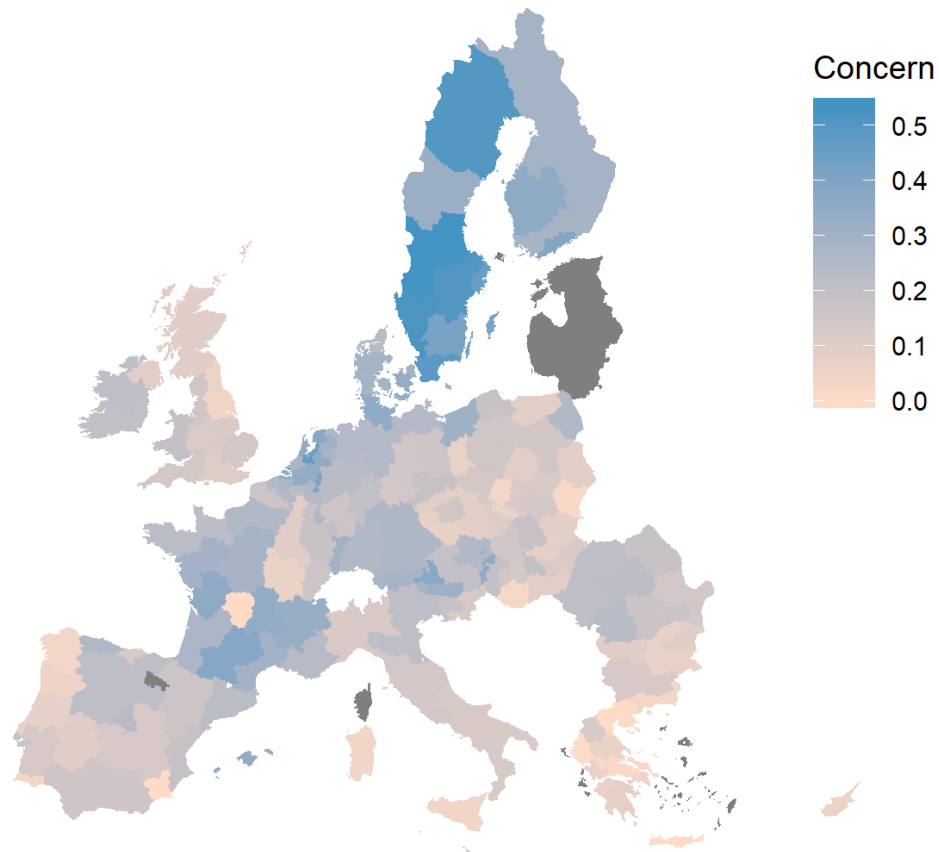
Urban flood magnitude
cumulated 1985-2018



Descriptive statistics

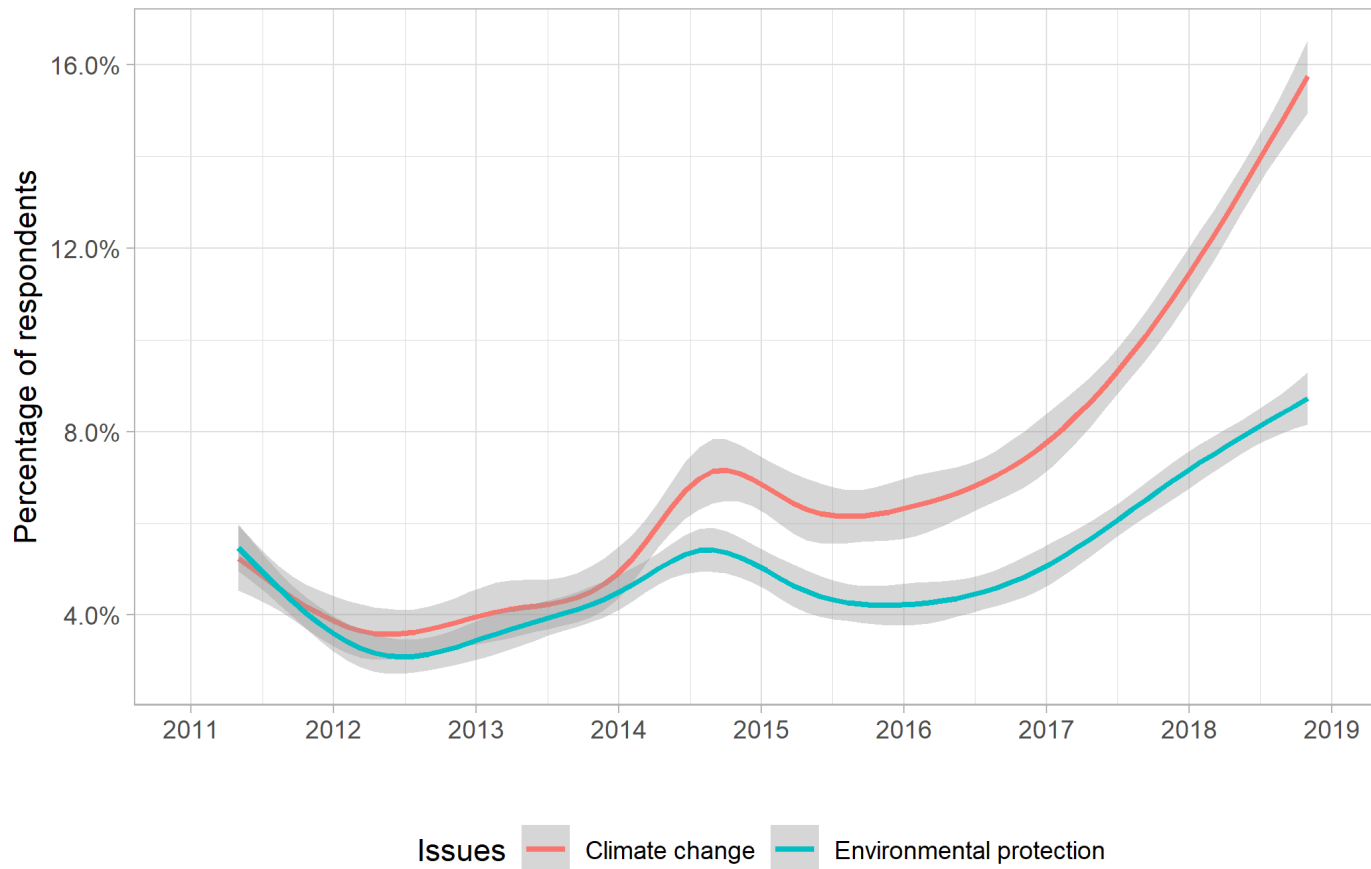
Differences in environmental concerns across Europe

% respondents perceiving environmental issues as important for EU



Environmental issues are increasingly seen as priority

% respondents agreeing that issues are important for EU



Results: Impact of exposure on concerns

Fixed Effects models: Impacts of hazard exposure on env. concerns

VARIABLES	(1) Climate change as priority	(2) Env. issues as priority	(3) Both issues combined
Temperature anomalies (mean, past 12 months)	0.00793*** (0.00140)	0.00424*** (0.000840)	0.0108*** (0.00166)
Urban flood magnitude (mean, past 12 months)	0.00270** (0.00135)	0.00328*** (0.00112)	0.00550*** (0.00180)
Constant	0.0382*** (0.00289)	0.0488*** (0.00217)	0.0854*** (0.00349)
Spatial and time FE	yes	yes	yes
Observations	2,609	2,609	2,609
R-squared	0.428	0.249	0.460
Number of NUTS units	142	142	142

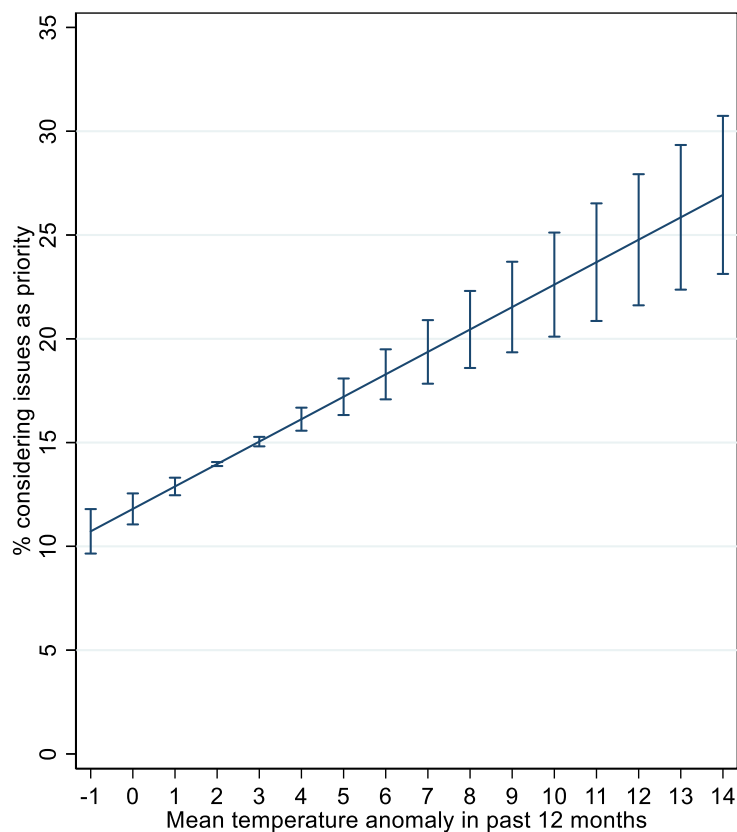
Clustered robust standard errors in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Results: Impact of exposure on concerns

Effect of temperature anomalies

Mean temperature anomaly in past 12 months



- **Limitations:**
 - Direct vs. indirect exposure
 - Unclear mechanisms
- Preliminary evidence that exposure to **environmental hazards influences environmental concerns** and political priorities in Europe
- **Next steps:**
 - Manifestation in voting outcomes
 - Embedding findings in theoretical framework
 - Exploration of mechanisms explaining effects

Thank you for your attention!

Contact

roman.hoffmann@oeaw.ac.at

Funding for this project was provided by the Research Council of Norway. Project “Sustainable European Welfare Societies: Assessing Linkages between Social and Environmental Policy”

Preliminary results

Changes in flood magnitude in Europe over time 1985-2018

