

Fog or smog? The impact of uncensored reporting on pollution on individuals' environmental awareness



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Abstract

This paper analyzes the effect of exposure to foreign mass media on environmental awareness. We exploit a natural experiment occurring in the German Democratic Republic (GDR), where the reception of Western TV was determined by geographic characteristics. Western media was a source of information about environmental pollution in the GDR, a topic that was not covered in the East German state media due to systematic censorship. Using two surveys, we find a positive effect of Western TV reception on environmental awareness. In addition, by examining election data, we show that counties with previous Western TV access were more likely to vote for the Greens in the first two federal elections in reunified Germany.

Motivation

- Environmental pollution imposes enormous costs on societies worldwide
- Air pollution contributes to 11.3% of deaths among the G20 member states and to 2% in the United States (Murray et al., 2020)

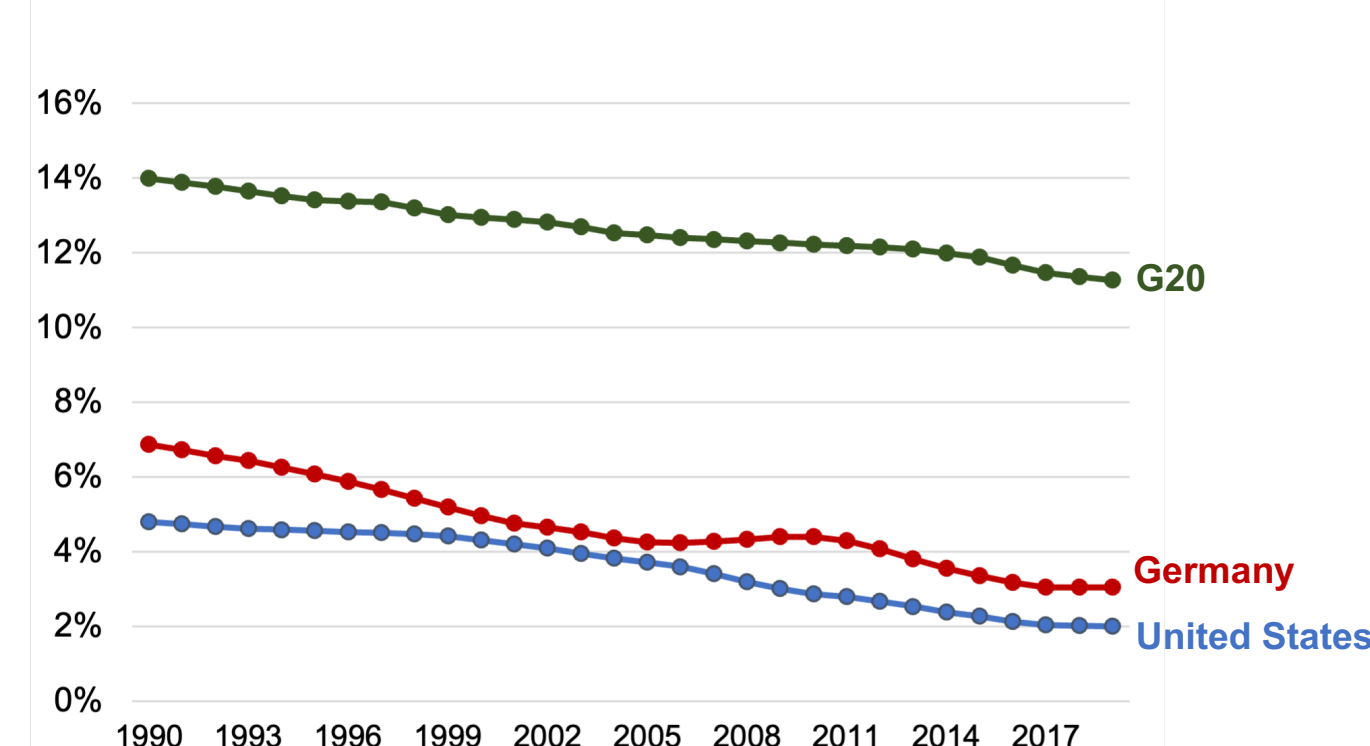


Figure 1. Share of deaths attributed to air pollution in 2019

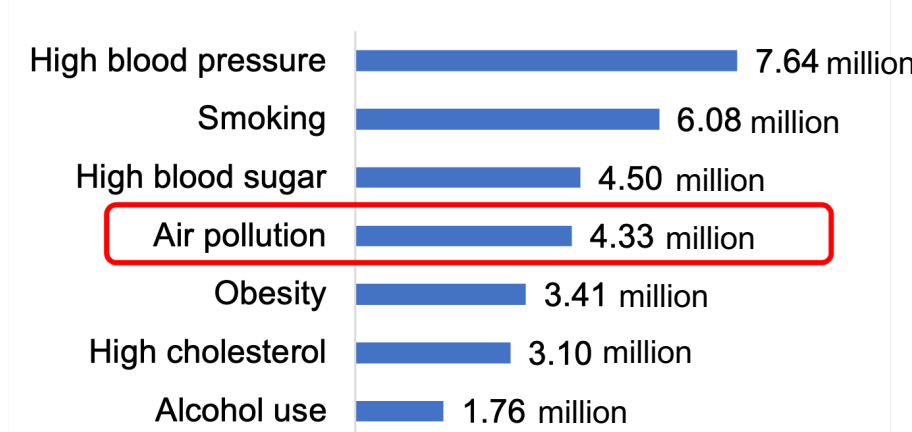


Figure 2. Number of deaths attributed to each risk factor in the G20 in 2019

- Experimental evidence shows that providing direct information on pollution levels affects individuals' environmental awareness (e.g. Barwick et al. (2019), Jalan & Somanathan (2008))
- My research question:** Can access to environmental information through mass media influence individuals' environmental awareness?

Natural experiment

Background

- High level of environmental pollution in the GDR
 - Highest per capita emissions of sulfur dioxide and particulate in Europe in 1985
 - 86 % of surface waters were polluted
- The socialist government tried to hide the extent of the pollution to prevent protest movements
- Majority of GDR citizens were able to receive Western TV
- Western TV reported on pollution in the GDR



Figure 3. Silbersee in Bitterfeld



Figure 4. Western TV footage

Hypothesis

The reception of Western TV increased environmental awareness.

Data and empirical strategy

- TV signal simulation from Crabtree et al. (2015)
- Variation: Individuals living in East German regions with and without Western TV access

$$Y_{it} = \beta_1 WTV_i + \beta_2 X_{it} + \alpha_t + \varepsilon_{it}$$

- Y_{it} measure of environmental awareness
- WTV_i binary for Western TV reception
- X_{it} vector of covariates
- α_t time fixed effects

- Measures of environmental awareness:

- Individual-level: Concerns about pollution, membership in environmental organizations, opinions on environmental protection, etc.
- Aggregate-level: Votes for the Greens in federal elections, Complaint letters to the GDR regime

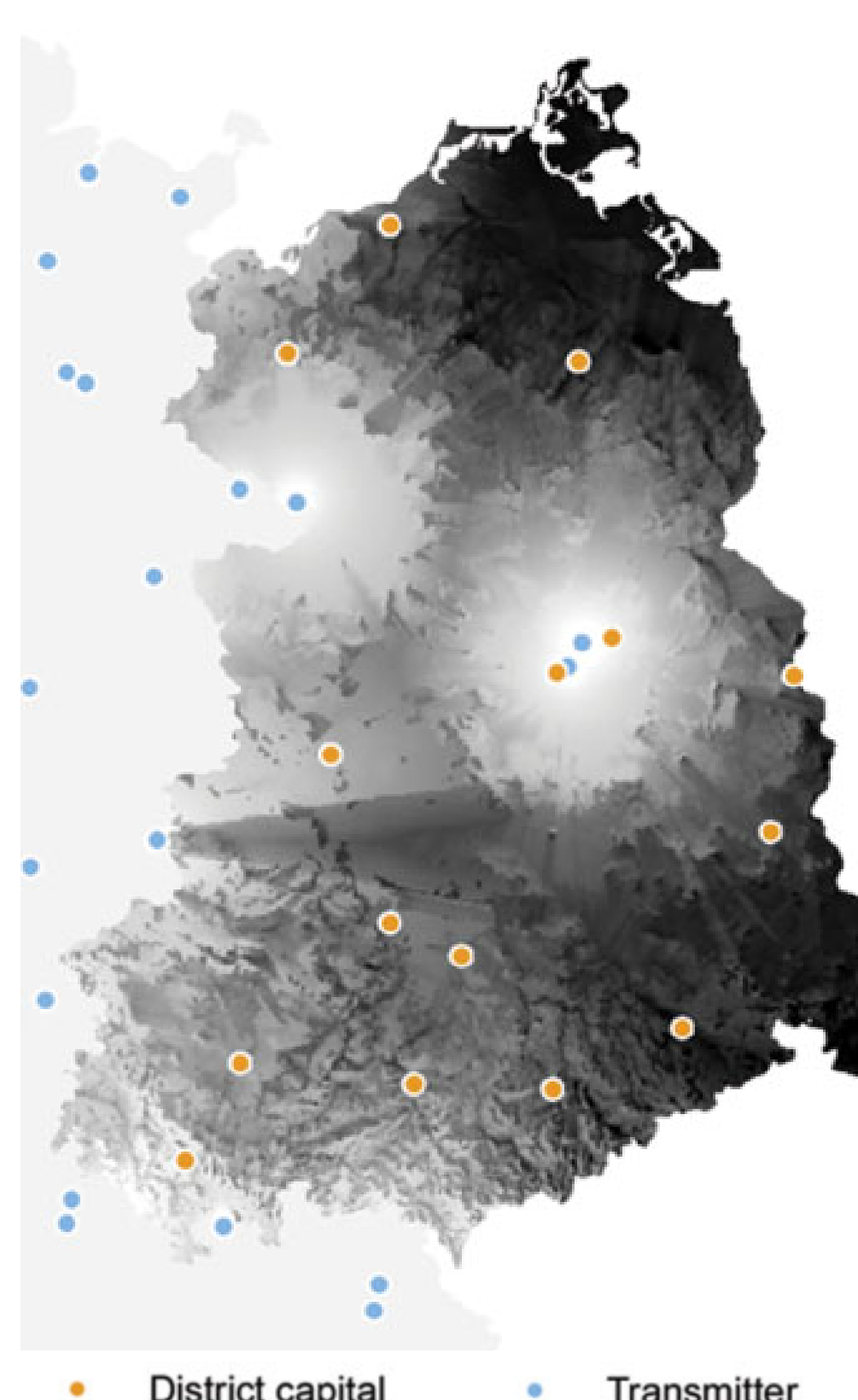


Figure 5. Western TV Signals in East Germany

Individual-level evidence

Before the fall of the Iron Curtain

- "Living Conditions and Value Orientations of Students" Survey (GESIS, 1989)
- Survey covers 3,918 students and includes information on:
 - self-reported Western TV consumption
 - residence information matched to signal simulation

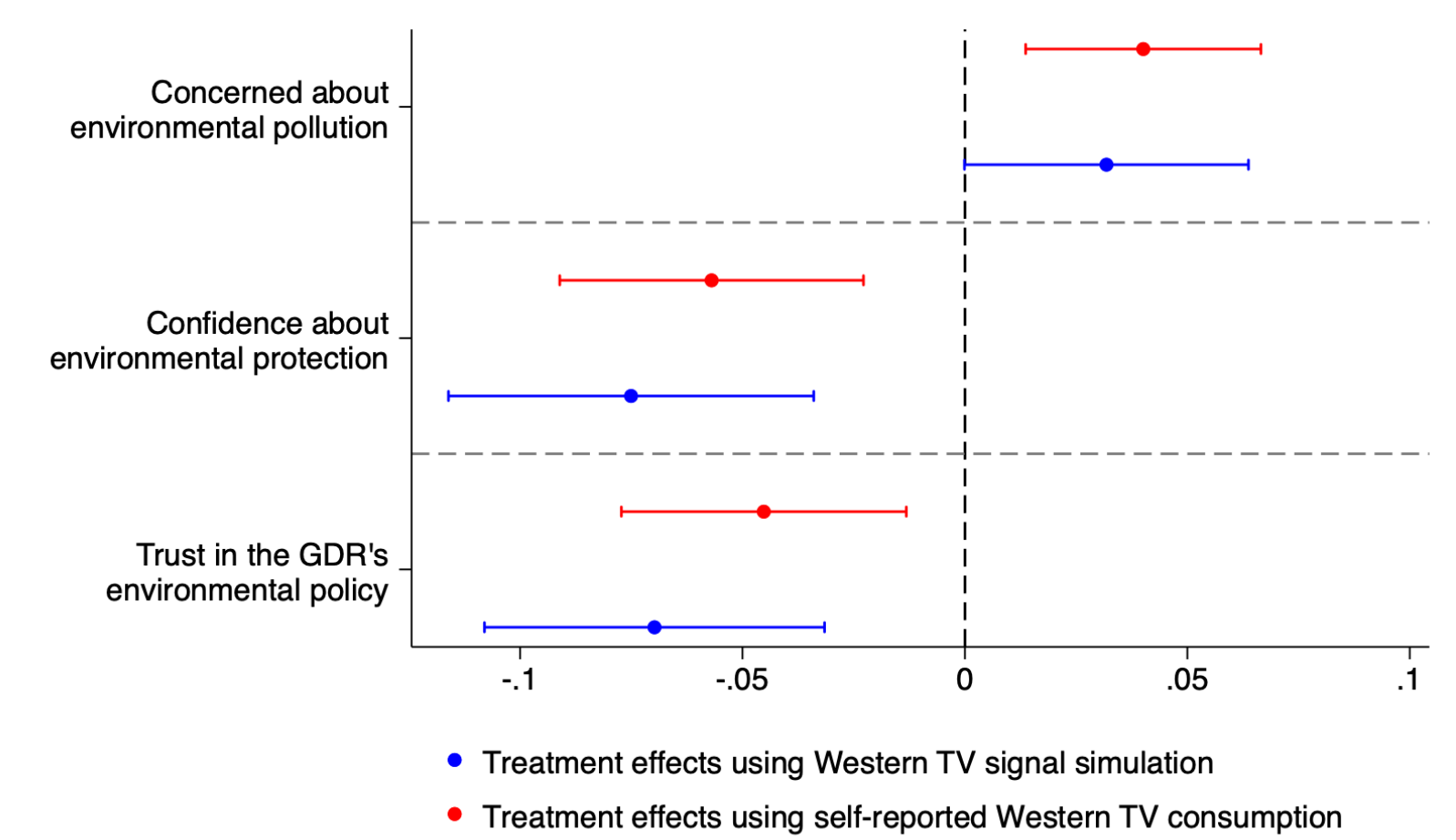


Figure 6. Impact of Western TV on concerns and attitudes

After the fall of the Iron Curtain

- German Socio-Economic Panel interviewed 4,697 individuals in 1990
- Treatment assignment via residence information

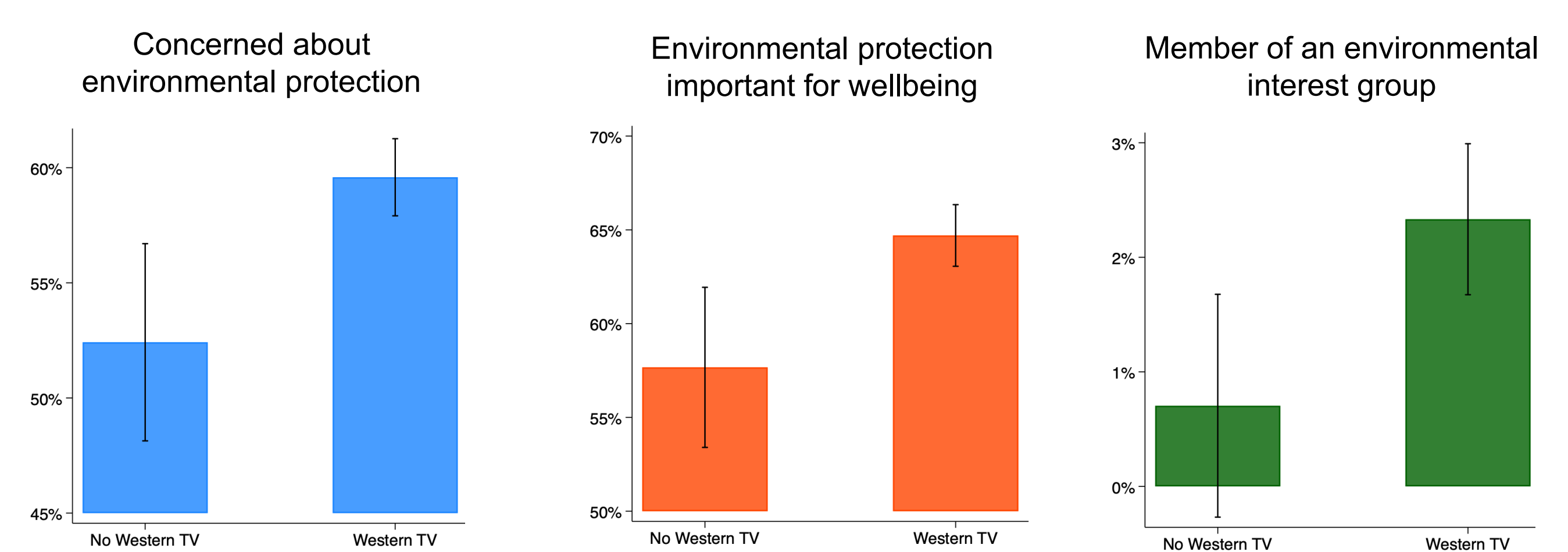


Figure 7. The effect of Western TV exposure on measures for environmental awareness in 1990

Further results:

- TV effects vanish in the first decade after reunification
- TV effects are stronger for individuals employed in industries where workers are more exposed to the adverse health effects of pollution

Aggregate-level evidence

Voting for the Green Party in federal elections

- Sample: 217 counties in East Germany
- Period: 1990, 1994, and 1998
- Western TV increases votes for the Greens
- Effects vanish in the second half of the 1990s
- TV effects are higher in less polluted regions

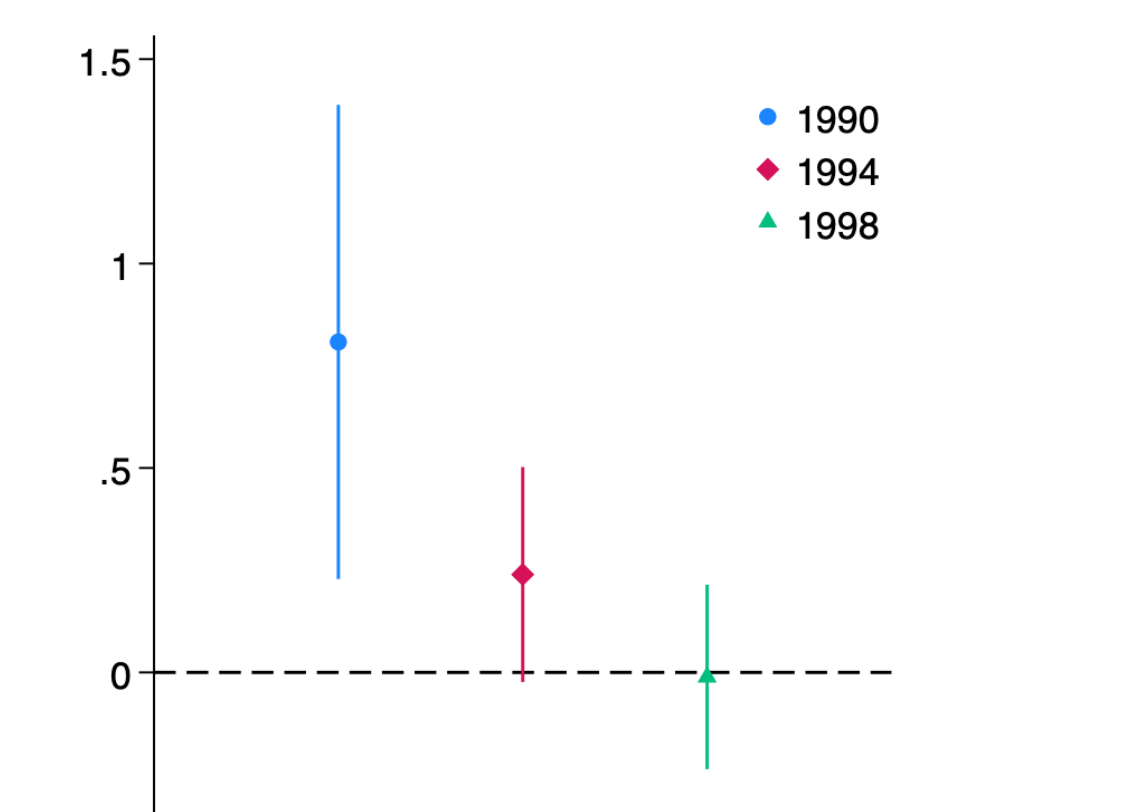


Figure 8. Treatment effects for Green Party votes

Complaint letters

- GDR citizens could write complaint letters to the regime
- The Potsdam Grievance Statistic File covers 3.2 million letters sent in the 1980s
- ≈ 3.3% of all letters are related to environmental pollution
- Western TV increases the number and share of letters related to environmental issues

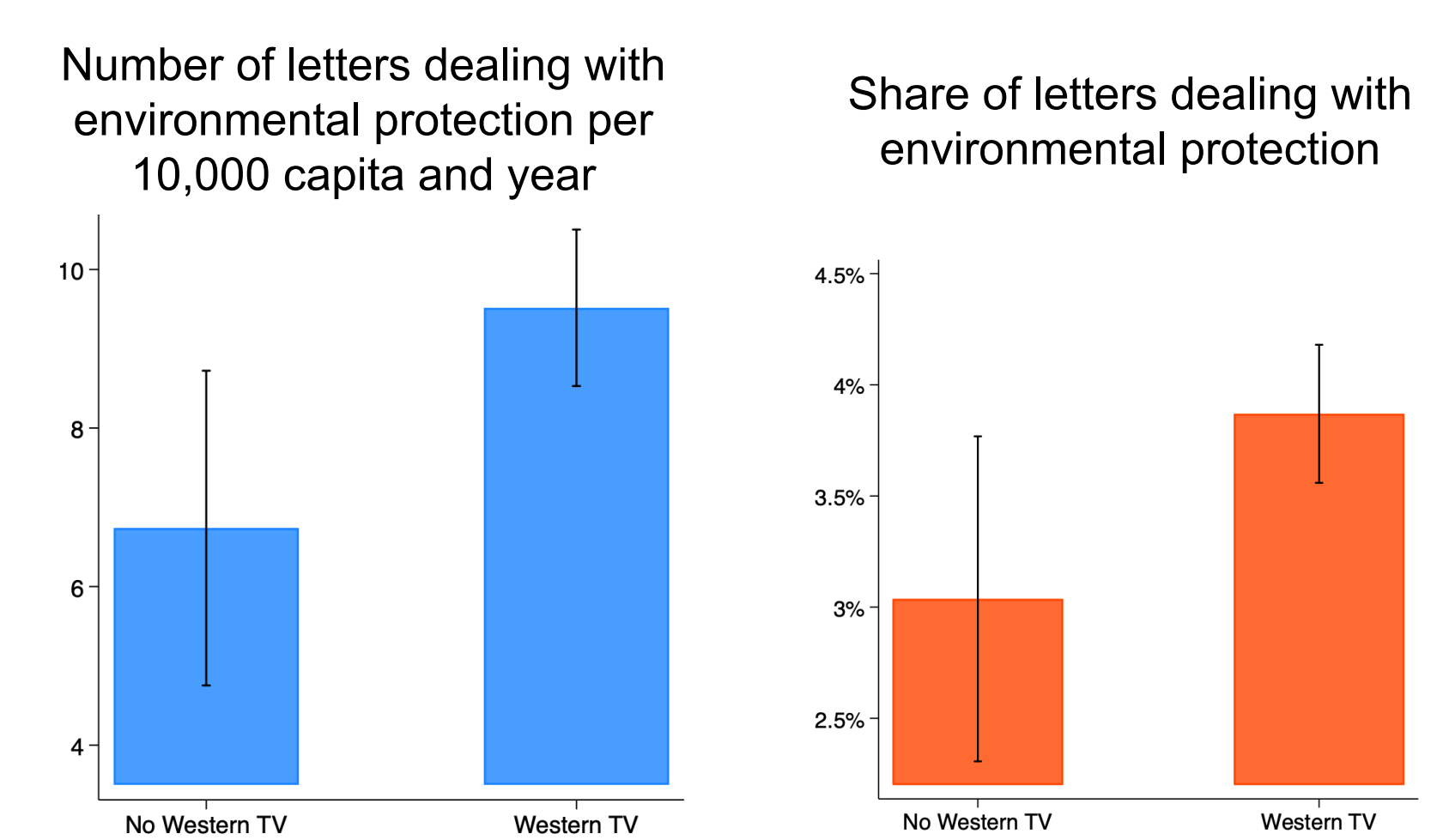


Figure 9. The impact of Western TV on complaint letters

Conclusion

Western TV exposure increased:

- concerns related to pollution** among GDR citizens
- the perceived **importance of environmental protection for wellbeing**
- pro-environmental behavior** (e.g., becoming active in organizations, voting for the Green party, writing complaint letters)
 - Access to environmental information through mass media can influence individuals' environmental awareness
 - Treatment effects are long-lasting