DEPARTMENT OF ECONOMICS

Linking Forests to Airsheds: Investigating Public Support and Willingness-to-Pay for Reducing Wildfire Smoke Exposure

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Acknowledgments

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- Principal investigator: Dr. Benjamin A. Jones
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- Reviewer: Dr. Xiaoxue Li
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Motivation

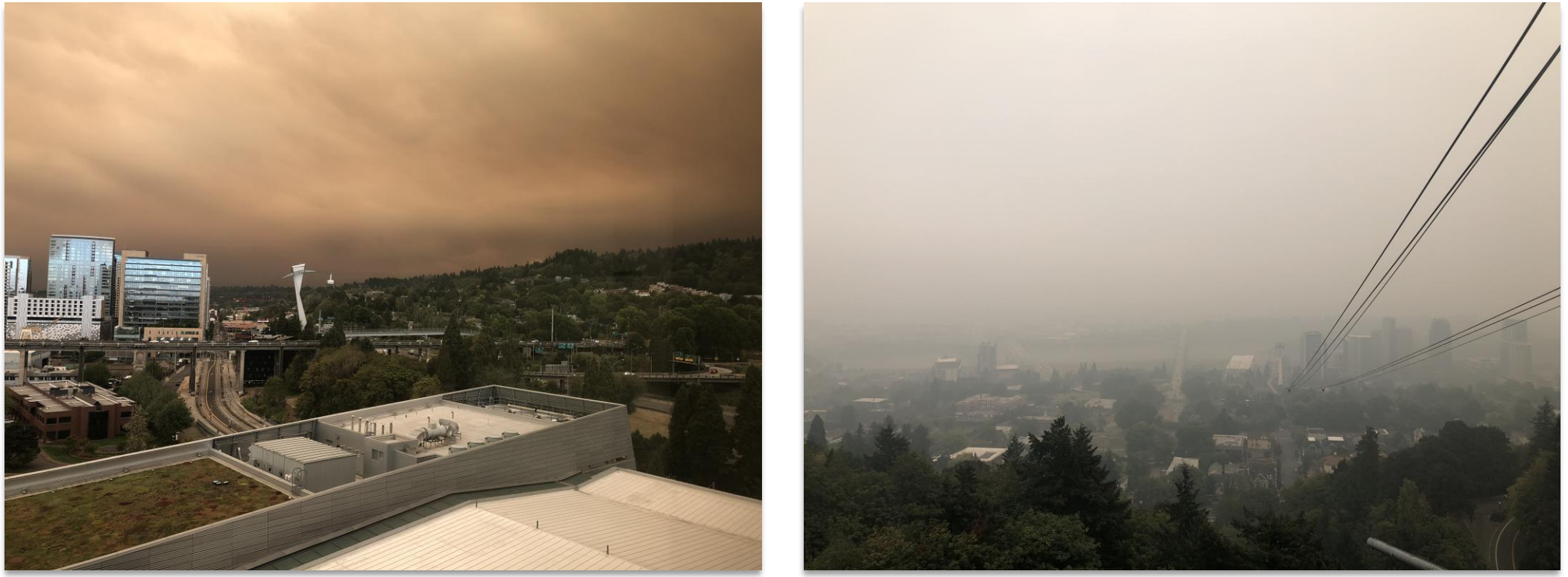

Figure 1. Extreme Smoke Event in Portland, Oregon (97239 Zip-Code). 10th September 2020.

Motivation

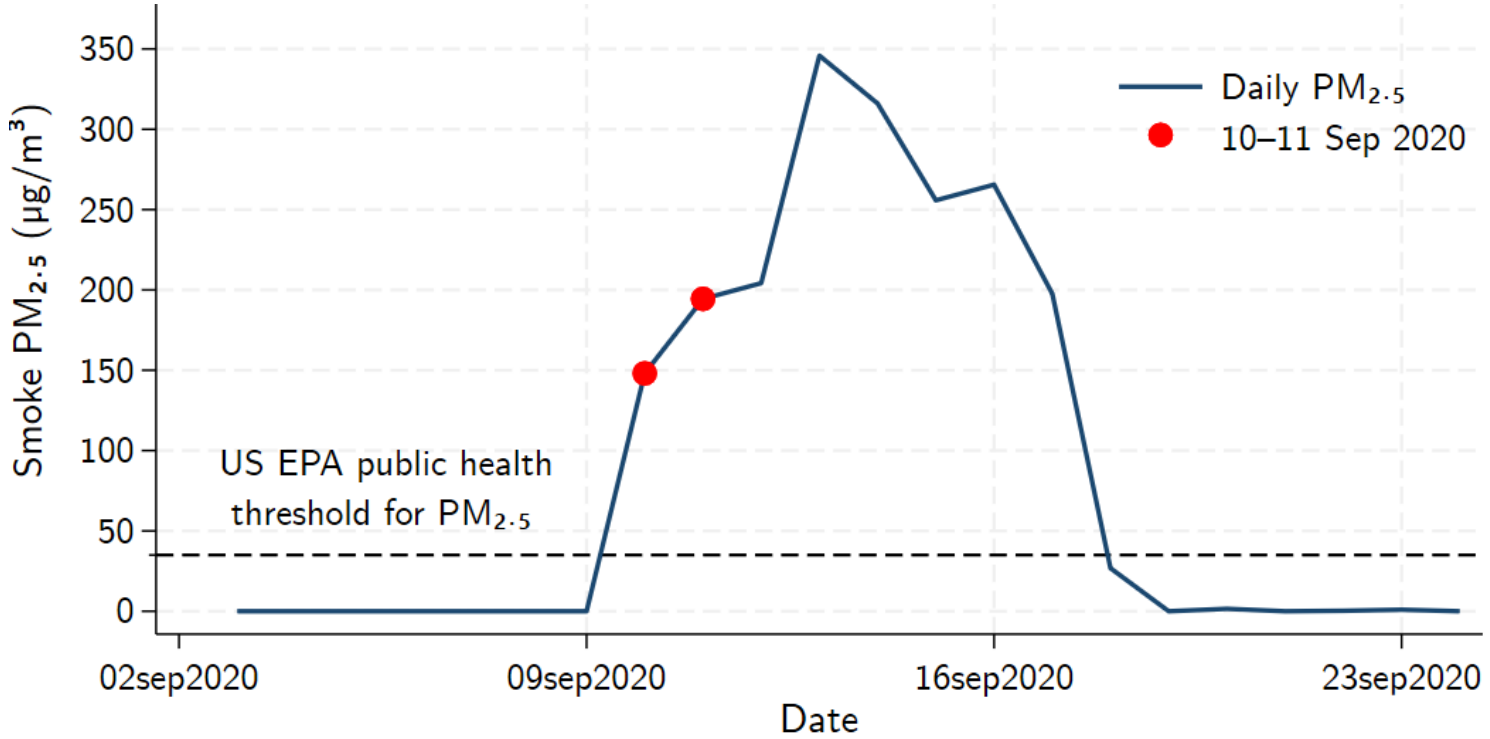

Figure 2. Extreme Smoke Event in Portland, Oregon (97239 Zip-Code). September 2020. Data Source: ECHO Lab (2025).

Motivation

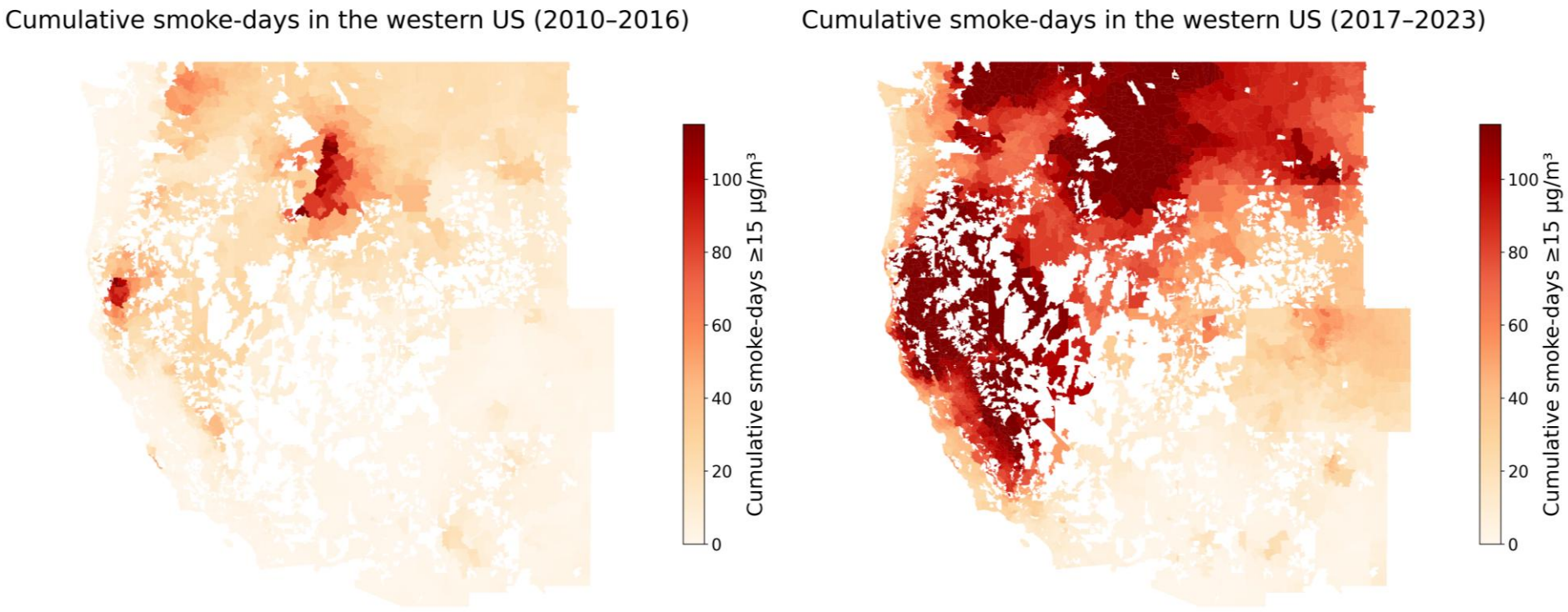

Figure 3. Cumulative Smoke Days in the American West (2010-2023). Data Source: ECHO Lab (2025).

Literature

- **Wildfire-smoke is a regional public "bad":** crosses state lines (Bruce et al., 2025).
- Valuation studies value smoke reduction without link to treatment mechanisms.
- **Policy dilemma:** "smoke today (prescribed) vs. smoke tomorrow (wildfire)" (Jones et al., 2022).

Research Questions

1. How does support for forest fuel treatments and trust in federal agencies associate with WTP?
2. Does resistance to short-term prescribed fire smoke undermine households' valuation for smoke reduction?

Data and Methods

- Public referendum using a Qualtrics online panel (July 2021).
- Representative sample of $n = 1,023$ observations (Appendix A1; A2).
- Follow state-of-the-art measures to reduce hypothetical bias.

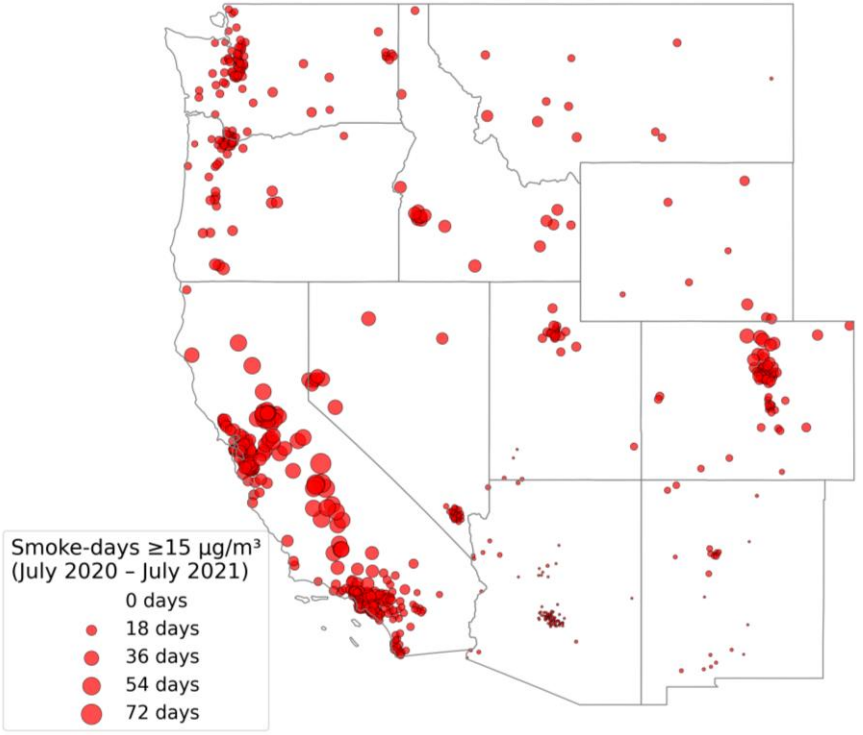

Figure 5. Cumulative Smoke Days in respondents zip codes 365 prior to survey.

Data and Methods

- **Referendum Question**

> "Would you vote for the...Program if it cut your smoke exposure by one day each year and added $\$t_i$ to your household's federal taxes annually for 20 years?"

- **How votes translate to $ values**
  - We find the tipping point price where 50% say "Yes" (median WTP).
  - Uncertainty handled carefully.

Findings

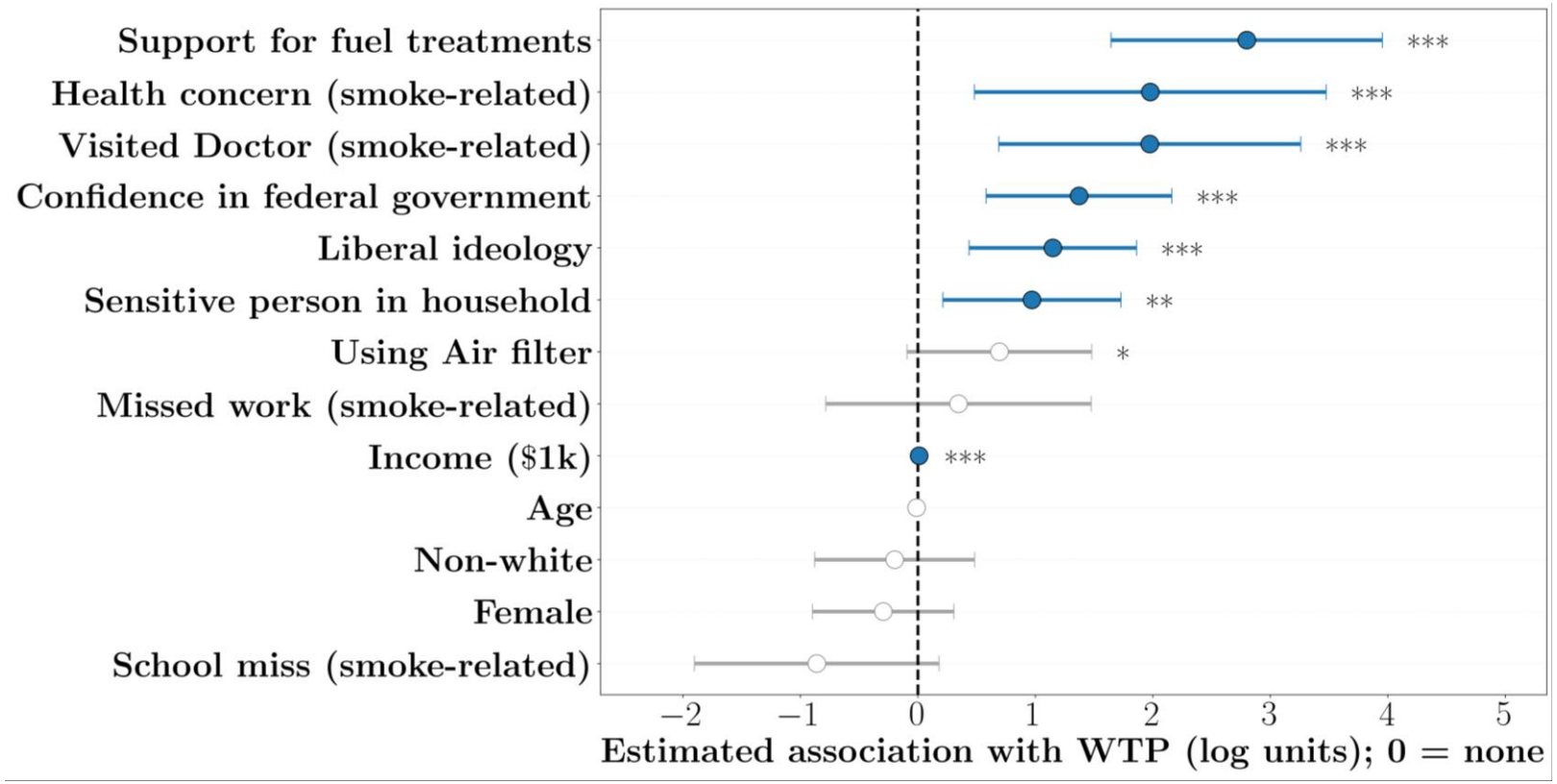

Figure 6. Identified determinants of latent WTP.

Findings

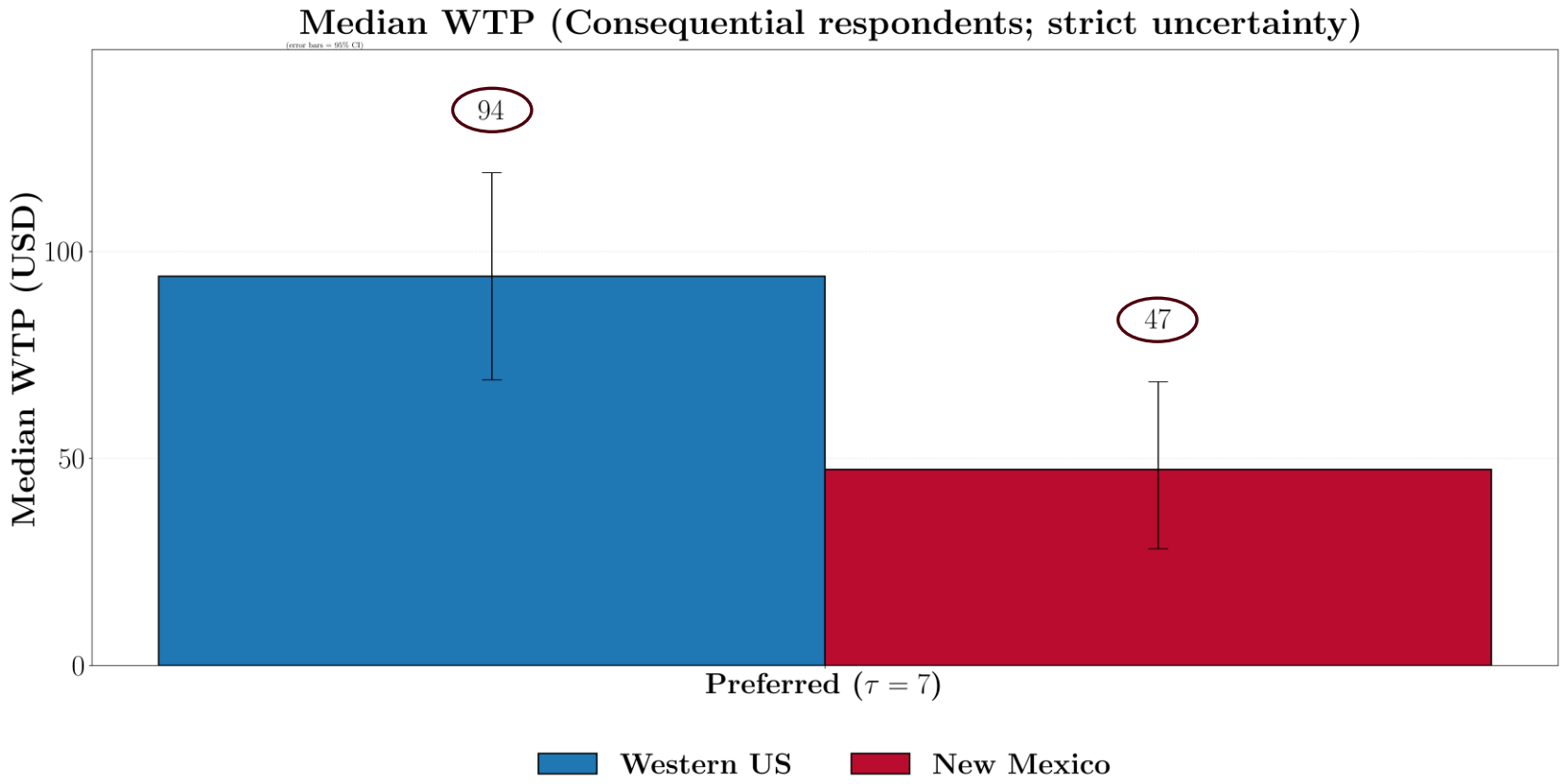

Figure 7. Preferred Median WTP (consequential respondents).

Smoke Tradeoff

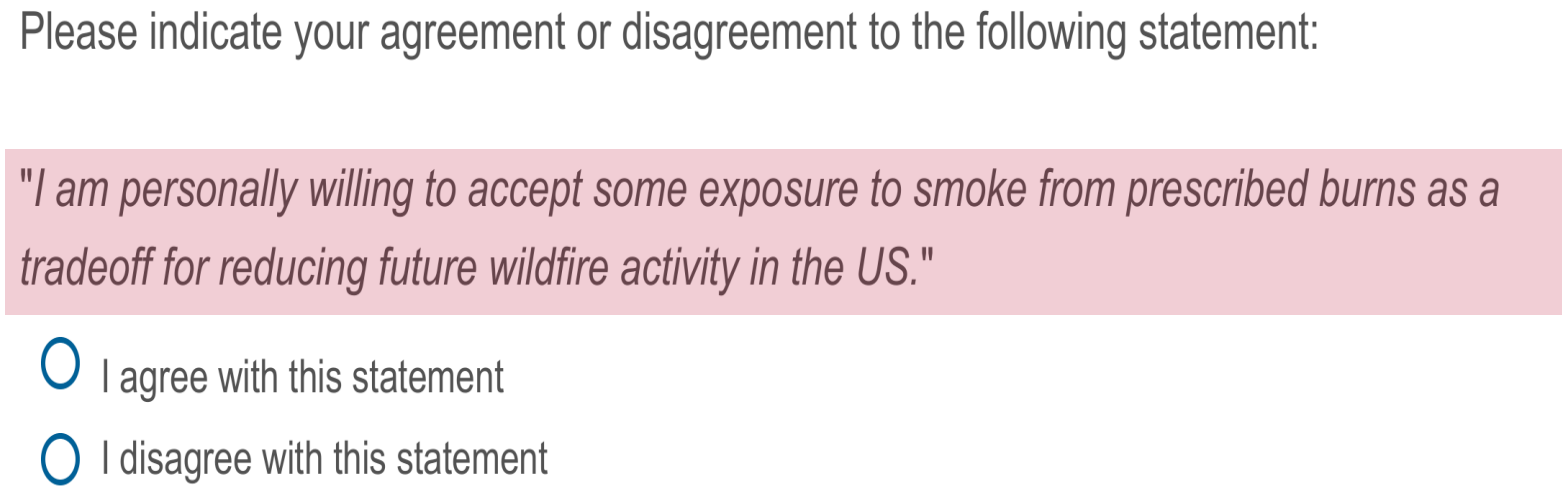

Figure 8. Snapshot from the Survey.

Smoke Tradeoff

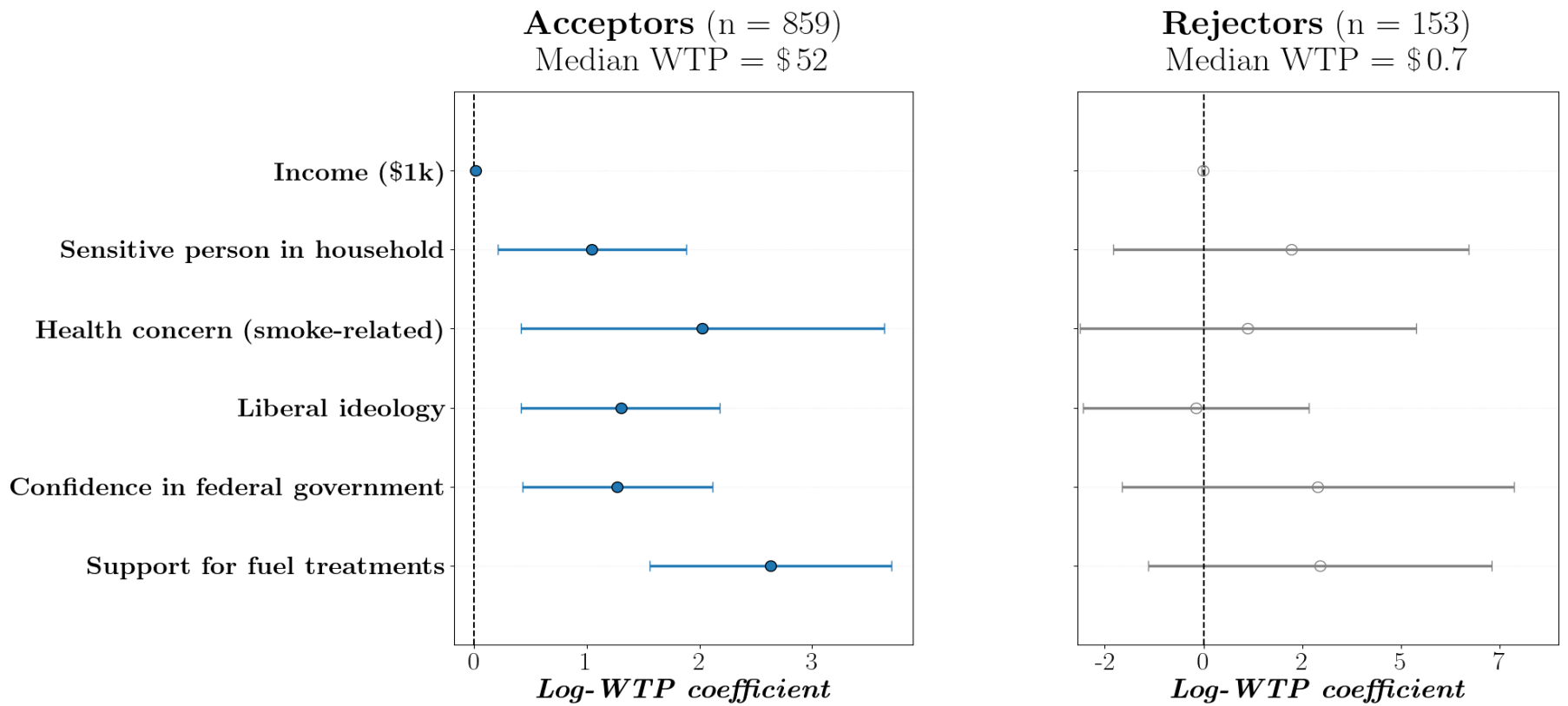

Figure 9. WTP Estimation Results by Prescribed Fire Smoke Acceptance.

Caveats

- **2021 baseline:** conditions and opinions may have shifted after 2022 events.
- **Survey limits:** we limit bias (certainty recoding; consequential sample) but it's still stated preference.
- **Not a tax proposal:** WTP is a non-market value for one smoke-free day; it informs cost-benefit comparisons, not a specific funding instrument.
- **NM estimate is model-based:** n=41; regional model + NM averages; assumes similar preferences.

Conclusions

1. **People value fewer smoke days**
   - Median WTP: $94 (Western US) and $47 (NM) per hh/yr for one smoke-free day.
2. **Airshed funding can close gaps**
   - Align down-wind beneficiaries with dedicated dollars for prescribed fire + thinning.
3. **Make it viable: credibility & tradeoffs**
   - **Trust in government boosts support**: effective communication about programs.
   - **Smoke tradeoff pushback (~15% reject planned smoke).**
     - Communicate potential benefits.

Thanks!

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