Supplementary Information

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1 Survey Error Challenge

This appendix describes the sources of survey error that make it difficult for standard sampling methods to reach fossil fuel communities. While one might hope to examine responses from fossil fuel regions in a large$-N$ national survey, this raises two challenges. First, many of these national surveys only include a handful of respondents from fossil fuel communities (Gaikwad, Genovese, and Tingley 2022; Gazmararian and Tingley 2023). Second, there are no guarantees that these individuals are representative of fossil fuel communities within their states. Thus, researchers hoping to explore public preferences in fossil fuel communities have turned to using online-based panels with geo-targeting in fossil fuel regions. While a meaningful improvement, this appendix describes why there are important limitations that necessitate going directly to these communities to sample in person.

1.1 Coverage Error for Online Panels

Online survey panels are a go-to tool for survey researchers. These opt-in panels are composed of individuals who sign up to take surveys in exchange for compensation. These are often nonprobability samples, where the researcher specifies quotas for the desired population and recruits until the target demographics are achieved, usually along marginal dimensions (e.g., age, gender, education, race). Some studies have employed internet opt-in panels to sample fossil fuel community residents. This sampling strategy typically involves setting a geographic quota for ZIP codes or counties with fossil fuel production, recruiting individuals from these areas who participate in online panels (Gaikwad, Genovese, and Tingley 2022).

However, scholars have long raised concerns about the non-representativeness that can result from opt-in internet-based panels (Carina Cornesse et al. 2020).[8] The primary concern is coverage error, where individuals in the population of interest are systematically not part of internet panels. Such coverage errors can occur because specific individuals are less likely to be online. The lack of awareness of online-based panels, which may be related to education, internet use, and political interest, could also contribute to coverage error. Even if someone is aware of internet-based panels, they may lack the incentive to participate because they do not have the financial need to earn money by taking surveys.

The challenges of coverage error are pertinent in fossil fuel communities because of low-internet penetration and the limited financial incentives of fossil fuel workers to participate in online-based panels.

Low-Internet Penetration Only 78% of Appalachian households have a broadband internet subscription (ARC 2021). It is obvious why this presents problems for online survey recruitment.

[8]When the focus is experimental, internet-based panels exhibit internal validity consistent with probability samples (Coppock and McClellan 2019). Representativeness matters most when the goal is descriptive inference about the preferences and beliefs of a target population.

Limited Financial Incentives for Fossil Fuel Workers Fossil fuel workers are an essential demographic to sample from within fossil fuel communities. However, people who work in coal, oil, and gas are unlikely to participate in online-based panels given their full-time employment and relatively high compensation, which reduces their need to supplement their income by participating in surveys.

1.2 Unit Nonresponse

Response rates for surveys are declining (Kathleen Hall Jamieson et al. 2023), and there are documented partisan differences, where Republicans are less likely to respond to interview requests (Clinton, Lapinski, and Trussler 2022). Fossil fuel-producing regions often are majority-Republican areas (Gazmararian 2023), so this type of nonresponse raises concerns about the representativeness of online-based samples of fossil fuel communities.

1.3 Evidence of Coverage Error and Unit Nonresponse

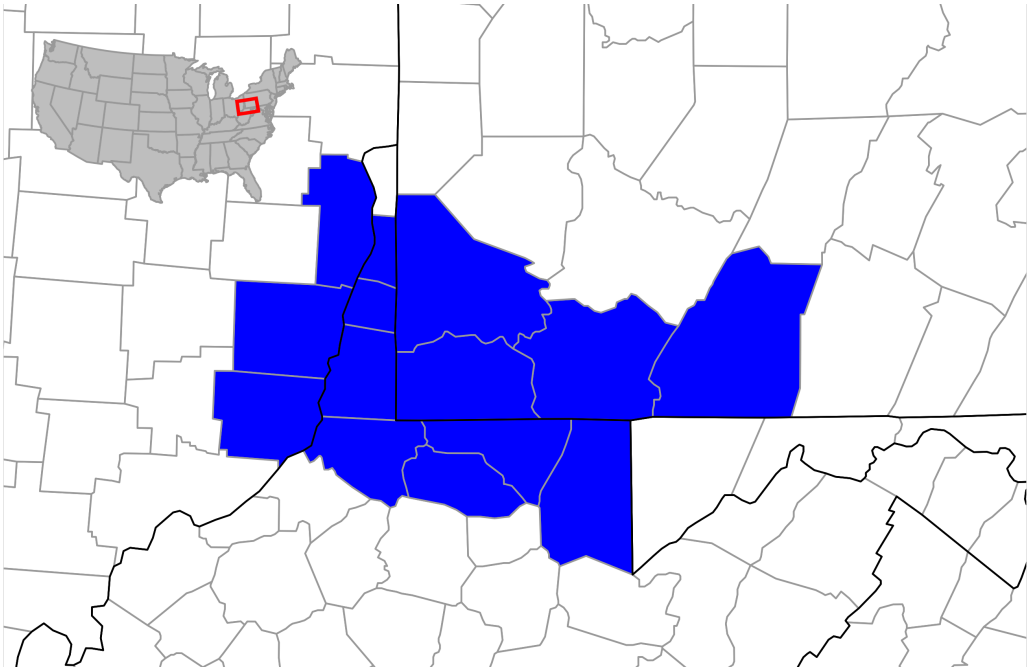
Appendix 3 benchmarks this study's sample against previous attempts to collect samples of fossil fuel communities, which demonstrate a remarkable improvement, likely due to mitigating issues of coverage error and unit nonresponse.

2 Population and Sampling Strategy

2.1 Target Population

The population of interest is fossil fuel-producing communities. This study focuses on Southwest Pennsylvania and the surrounding region. Appendix 3.3 describes how this target population is similar to fossil fuel communities more generally in different parts of the United States.

The reason for focusing on the Southwest Pennsylvania area is that it is home to multiple types of fossil fuel extraction: coal, oil, and gas. The local environmental effects of coal mining and hydraulic fracturing should be especially relevant for these communities. The region has also undergone deindustrialization and historical coal closures while also being a site of ongoing coal production, which makes the clean energy transition a salient topic (Ansolabehere et al. 2021). Figure 2.1 depicts the general area where the study occurred. The particular county is not identified to respect the confidentiality of study participants.[9]



SI Figure 2.1: Study area shaded in blue covers Southwest Pennsylvania and surrounding counties in West Virginia and Ohio.

2.2 Sampling Strategy

Convenience samples at two county fairs in the Southwest Pennsylvania area served as the sampling strategy to access this hard-to-reach population. County fairs represent a unique

[9]The population of counties in this area is small, and the survey records detailed demographic information like household size, occupation, age, and income, so it would be easy to de-identify the respondents.

opportunity to access a broad cross-section of the local population because fairs are iconic cultural institutions in the United States. As such, they are well-attended by residents. People from all socio-demographic groups attend the fair because of its entertainment and social value. There are events that adults and their children like to watch, and it is also an opportunity to connect with other community members. Fair organizers remarked that attendance was exceptionally high in the summer of the survey's fielding because it was one of the first in-person events after lifting COVID-19 restrictions.

The surveys were conducted in July and August 2021, both in the same county of Southwest Pennsylvania. The July 2021 fair was relatively smaller, whereas the August 2021 fair was larger. People who took the survey at the first fair were not allowed to retake it at the second fair.

2.3 Recruitment

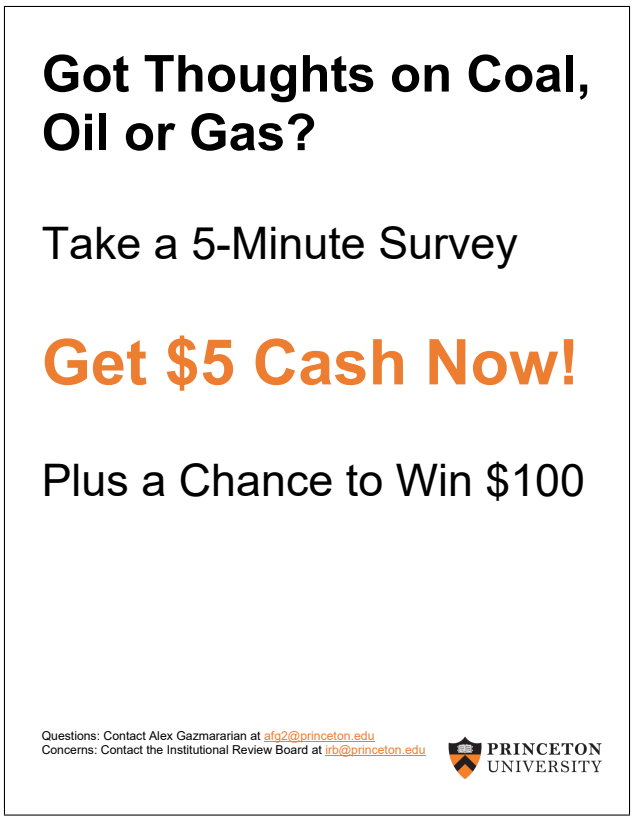
The researcher collaborated with a community group and non-governmental organizations to obtain well-located tables at the fairs. People who passed by the tables were recruited to take the survey by the enumerator. Figure 2.2 shows an example of the large posters which advertised the $5 cash remuneration and the potential to earn $100 in a raffle.[10] To maximize participation and communicate the purpose of the research, the posters describe the survey as being about coal, oil, or gas, which aimed to make the study relevant to fairgoers. In all, 248 took the survey.

2.3.1 Potential Sources of Response Bias

This section discusses the potential sources of response bias that could occur because this is a convenience sample. When evaluating the tradeoffs involved with the sampling strategy, it is essential to compare them to the alternative sampling strategy, a nonprobability internet-based panel survey. This alternative approach is also a convenience sample. As a comprehensive review described, "...most such samples rely on a collection of convenience samples that are aggregated and/or adjusted, with the goal of reducing the final difference between sample and population" (Carina Cornesse et al. 2020, 8). Thus, evaluating the quality of the county fair sample requires considering the relative susceptibility of this approach to sources of non-response bias versus the bias that would arise from using an opt-in online sample. As described below, there are theoretical and empirical reasons for why the county fair samples yield relatively more representative samples than the current sampling techniques employed by researchers.

Topical and political interest Advertising the topic of the study would introduce response bias if it attracted people who cared most about these topics, such as the most politically interested interviews. The compensation offered helps to counterbalance this possibility by creating a general incentive to participate. However, selection into surveys based on political and topical interest is a challenge that confronts not only this study but also both

[10]Cash remuneration was added for the second fair to bolster recruitment.



SI Figure 2.2: Recruitment poster displayed at the fair table.

probability and nonprobability sampling strategies. Thus, it is not a unique disadvantage to the recruitment approach. It is a limitation that should be considered when interpreting the results. Greater political engagement may also have advantages if these respondents are more likely to participate in politics, so their preferences would be more influential.

Families A potential concern would be if individuals might be too busy to take the survey at the fair. This could be the case if someone had children who made it difficult to pause and take a survey. To minimize this possibility, the survey length was kept short. In addition, the fair table provided postcards with a QR to allow the survey to be taken at home. Figure 2.3 shows what the postcard looked like.

Age and technology familarity Since the survey was administered on a tablet computer, individuals uncomfortable with technology, such as some older people, might have been less likely to take the survey. This also applies to online-based panel samples, which are also self-administered with computers. By contrast, this study ameliorated this possible source of non-response error by inventing a technique to generate a paper survey that contained a randomized experiment. This is a challenging technical task because of the complexity of

SI Figure 2.3: Recruitment postcard available for fairgoers to take to administer the survey at home after the fair.

the conjoint survey experiment.[11]

Partisanship Unit non-response by partisanship is a challenge confronting both probability and non-probability samples. The researcher built connections with a bipartisan set of local officials who helped to organize the fair, which may have helped build credibility to recruit respondents from both political parties, as evidenced by the distribution of respondent partisanship (Table 3.1).

2.4 Survey Administration

The survey was administered on a tablet computer. The survey was pre-tested on these devices and optimized the settings for a fluid survey-taking experience. Only the participant could see the tablet screen during the survey, so the survey-taker could be confident that her responses were private, reducing the potential for pressure from peers or the enumerator.

2.5 Response Rate

There is a formidable measurement challenge in calculating the response rate for a convenience sample, especially in a dynamic environment like a county fair. As part of a subsequent project where the researcher collected a sample at the same county fair, the author attempted to measure the cooperation rate using the following methodology. The enumerator used a

[11]The author used an RMarkdown script to create PDFs of the surveys with different realizations of randomized content. Each survey had a unique ID that paired the survey realization with meta-data about the randomized attributes.

handheld tally, the kind that one might see at a large event, to record how many people were asked to take the survey. Since it was not feasible to do this for the entire day, the enumerator would record how many people were asked to take the survey at random intervals. This somewhat systematic exercise produced an estimate that 39% of people asked to take the survey did so. This response rate is remarkably higher than other survey data collection methods, which today "rarely reach 10%" (Kathleen Hall Jamieson et al. 2023, 2). The response rate for the county fair recruitment method is almost 4× higher than is typical for survey research today.

3 Representativeness

3.1 Representativeness of Target Population

Though a convenience sample, the respondents generally match local demographics for sex, age, education, income, and race. Table 3.1 compares the demographic characteristics of the sample, the population, and the weighted sample. Population data come from the 2018 5-year American Community Survey (ACS). It is necessary to use the 5-year ACS because the 1-year version does not have adequate coverage of rural areas like the study site. In the unweighted sample, the two imbalances are that the sample is slightly wealthier and includes more younger individuals without college degrees than the population.

Calibration Weights The author constructed calibration weights using raking to enhance the sample's representativeness. Raking uses iterative post-stratification to match the marginal distributions of the sample to the known population margins. The population data employed covers the joint distribution of sex/age/education, the joint distribution of race/age/sex, and the distribution of income. Since missing item-level responses cannot be used for this procedure, they were imputed with the median value. There are low rates of item-level non-response. Of the items with missingness, less than 2.5% of the responses are missing. To reduce the influence of outlying observations, we trim the weights with a lower bound of 0.3 and an upper bound of 3. While survey weights enhance the representativeness of our estimates, they also reduce precision, which should introduce bias against detecting differences in preferences.

Political attitudes and beliefs There is no quality population-level data on political attitudes and beliefs in fossil fuel regions because national samples often do not capture these regions. Even when there are quality state-level polls, these do not always contain the appropriate questions nor have sufficient coverage in rural parts of states that are often most dependent on fossil fuels. Nonetheless, it is possible to compare the political characteristics of the sample to other related but not identical measures.

- **Partisanship** In terms of partisanship, about 34% of the unweighted sample identify as Democrats, close to the 28% in the county who voted for the Democratic presidential candidate in 2020. One would not expect these results to be identical because vote choice differs from party identification, but they should be similar, as is observed.
- **Climate change beliefs** Regarding the share that is worried about climate change, 57% express concern, similar to a 54% estimate for the county from previous studies (Howe et al. 2015).

SI Table 3.1: Representiveness of unweighted and weighted sample

	Sample	Population	Weighted
Sex/Age/Education			
Female × 18-34 years × College	0.04	0.07	0.06
Female × 18-34 years × No college	0.12	0.05	0.06
Female × 35-64 years × College	0.10	0.12	0.12
Female × 35-64 years × No college	0.19	0.12	0.14
Female × >65 years × College	0.03	0.03	0.03
Female × >65 years × No college	0.04	0.09	0.07
Male × 18-34 years × College	0.03	0.06	0.05
Male × 18-34 years × No college	0.18	0.09	0.10
Male × 35-64 years × College	0.07	0.10	0.10
Male × 35-64 years × No college	0.14	0.17	0.18
Male × >65 years × College	0.03	0.04	0.03
Male × >65 years × No college	0.03	0.07	0.06
Income			
<$20,000	0.17	0.18	0.18
$20,000-39,999	0.13	0.21	0.19
$40,000-59,999	0.15	0.16	0.15
$60,000-99,999	0.30	0.24	0.26
>$100,000	0.25	0.21	0.22
Race			
White	0.93	0.94	0.94

Notes: For exposition, the table collapses the 18-24 and 25-34, and 35-44 and 45-64 age bins together, respectively. Also not shown is the joint distribution of race/age/sex used to construct weights. Population data from the 2018 5-Year ACS and cover the primary study site county.

3.2 Representativeness Benchmark

The county fair sample demonstrates an improvement over attempts to use online-based panel samples to recruit respondents from fossil fuel communities. Table 3.2 compares the demographics of the fair sample with a nonprobability sample from an online-based panel. Keep in mind that these samples differ in scope: the online sample includes respondents outside the Southwest Pennsylvania area (e.g., Wyoming). Yet, statistically distinguishable differences between the samples indicate the value of going directly to fossil fuel community residents. For example, compared to the fair survey, the online sample skews female, younger, has fewer households with fossil fuel employment, and has a higher level of climate change concern. This is an indication of coverage error, where the types of people participating in online-based survey panels differ systematically from the population of interest. While online surveys that geotarget these regions represent valuable improvements over national surveys, researchers can complement and advance this critical work with surveys in the field, as in this study.

SI Table 3.2: Comparison of fair and online samples of coal country

	Sample				
	Fair	Online	Difference	t-stat	p-value
Female	0.51	0.62	-0.11	-2.77	0.01
18-34	0.38	0.42	-0.05	-1.26	0.21
35-54	0.38	0.41	-0.02	-0.58	0.56
55 or older	0.24	0.17	0.07	2.18	0.03
Fossil Fuel Employment	0.50	0.38	0.13	3.35	0.00
Employed	0.55	0.51	0.04	1.11	0.27
College Degree	0.27	0.29	-0.01	-0.36	0.72
Climate Concern	0.57	0.69	-0.12	-3.24	0.00

Notes: Two-sided t-test that assumes unequal variances. Online sample from Gaikwad, Genovese, and Tingley 2022. Samples cover different populations. The fair sample includes Southwest Pennsylvania, whereas the online sample includes states outside of that region. Fair sample size is 248. Online sample size is 516. For comparison, the fair sample is unweighted (since the online sample includes no weights).

3.3 Study Site Representativeness of Fossil Fuel Communities

When considering how to generalize this study's results to other fossil fuel communities, it is helpful to consider how representative the Southwest Pennsylvania area is of fossil fuel regions. A comparison of the demographics of the study area to other places in the United States facing energy transitions reveals similarities that provide for cautious optimism that the findings may travel. Still, this claim requires further testing with new samples from diverse settings.

Table 3.3 compares the demographics of the counties in the study area and fossil fuel-producing counties elsewhere in the United States. A county qualifies as an energy county if either coal or oil and gas employment account for over five percent of county employment. The study area is similar to other fossil fuel-extracting counties in population, gender, rurality, and coal employment. However, the study area differs in that it has a slightly higher median age, is less diverse in terms of race, and has lower average oil and gas employment.

SI Table 3.3: Study site representativeness of American fossil fuel counties.

	Non-Energy	Study	Energy	t-stat	p-value
Population	93542.20	33204.75	47863.45	-0.86	0.39
Median Age	40.42	43.42	39.55	4.43	0.01
Female	47698.24	16858.00	23989.64	-0.83	0.41
Male	45843.97	16346.75	23873.80	-0.89	0.38
White	69656.71	31700.00	34088.98	-0.23	0.82
Black	12942.62	779.75	6612.14	-1.86	0.06
Rural	19343.37	15317.25	13216.15	0.54	0.63
Coal Employment	0.00	0.10	0.01	1.31	0.28
Oil/Gas Employment	0.00	0.05	0.20	-6.00	0.00

Notes: Demographic data from the 2010 Census. Fossil fuel employment data from the 2020 Census County Business Patterns survey. NAICS codes for oil/gas include: 213111, 213112, 211120, 211130, 237120, 486110, 486210 486990, 486910, 424710, 424720, 324110, 324121, 324122, 324191, 324199, 221210 333131, 333132, 332420, and 454310. NAICS codes for coal include: 212114, 212115, 213113, 212111, 212112, and 212113. Two-sided t-tests reported to assess balance.

4 National Sample

Survey collection for the national sample ran from February-March 2023. The survey vendor Lucid conducted the data collection. The nonprobability sample used quotas matching population values from the 2020 Census.

- Race: Non-Hispanic White (60%), Non-Hispanic Black (13%), Hispanic (17%), Other (10%)
- Education: Bachelor's degree or higher (34%), Less than a bachelor's degree (66%)
- Age: 18-24 (12%), 25-34 (18%), 35-44 (16%), 45-54 (16%), 55-64 (17%), 65+ (21%)
- Sex: Male (49%), Female (51%)
- Region: Midwest (21%), Northeast (17%), South (38%), West (24%)

The median survey completion time was 8 minutes.

SI Table 4.1: National sample description

	Mean	SD	N	NA
Age	47.45	17.46	1001	0.00
Female	0.51	0.50	1001	0.00
Black	0.16	0.36	1001	0.00
Hispanic	0.18	0.38	1001	0.00
Employed	0.46	0.50	1001	0.00
Income Q1	0.26	0.44	1001	0.00
Income Q2	0.29	0.45	1001	0.00
Income Q3	0.22	0.41	1001	0.00
Income Q4	0.22	0.41	1001	0.00
Income Not Say	0.01	0.12	1001	0.00
College	0.34	0.48	1001	0.00
Democrat	0.49	0.50	1000	1.00
Republican	0.35	0.48	1000	1.00
Climate Concern	0.76	0.43	1001	0.00

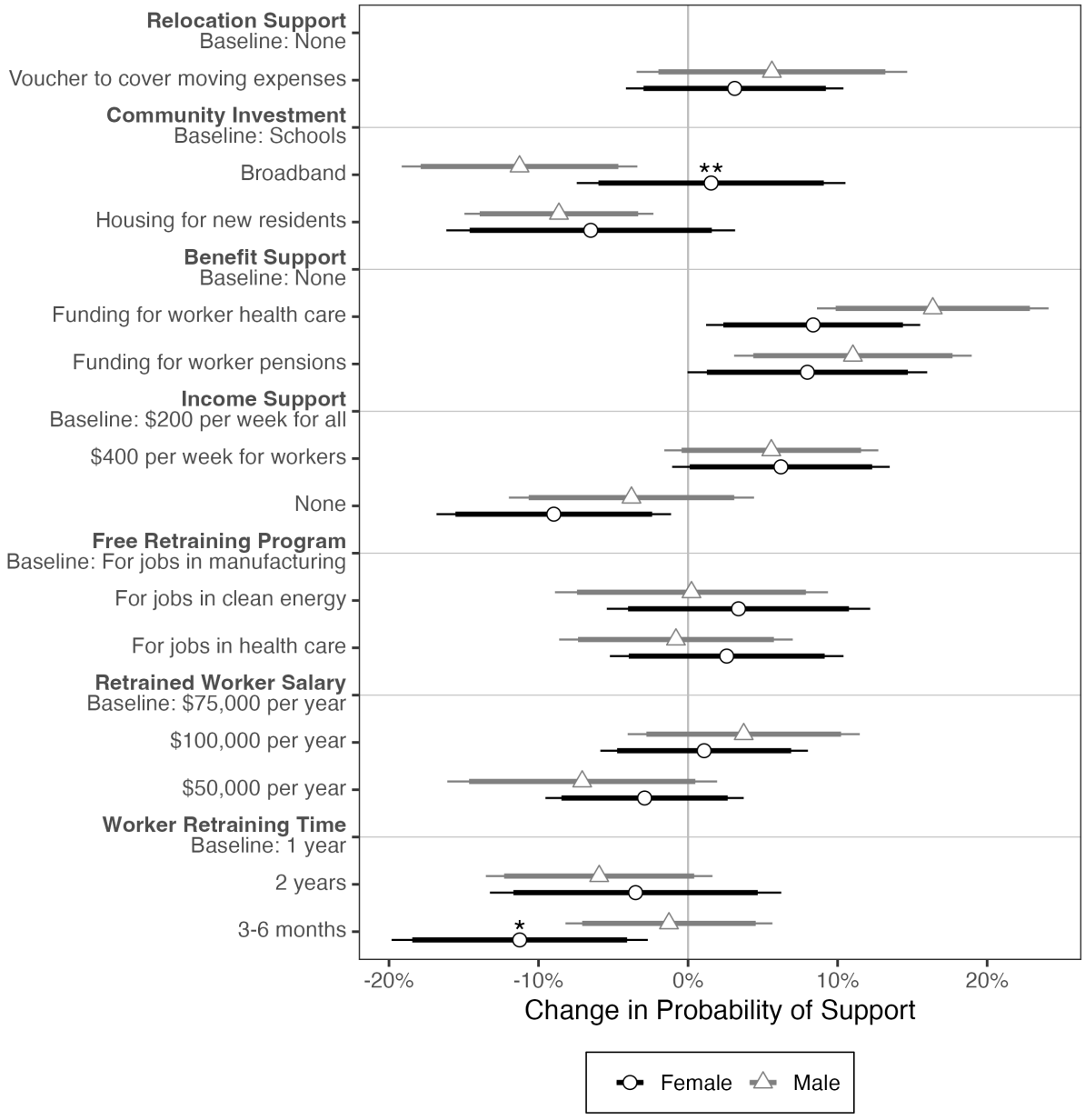
Data Quality The survey employed industry-standard safeguards for data quality, including embedded data for detecting bots and duplicate survey responses. The conjoint also employed the same attention check as in the county fair (Q 10). For the national sample, it was also used as a screener for attentiveness.

5 Conjoint Treatment Effect Heterogeneity

The conjoint treatment effect heterogeneity results use the targeted fossil fuel community sample. The researcher conducted the analysis by subsetting the data to the two subgroups, then estimating the ACME using each subset. This has the desirable statistical property of estimating a fully-saturated model that effectively interacts the subgroup indicator with all attribute levels.

SI 7 describes the questions used to construct the subgroups in the treatment effect heterogeneity analyses.

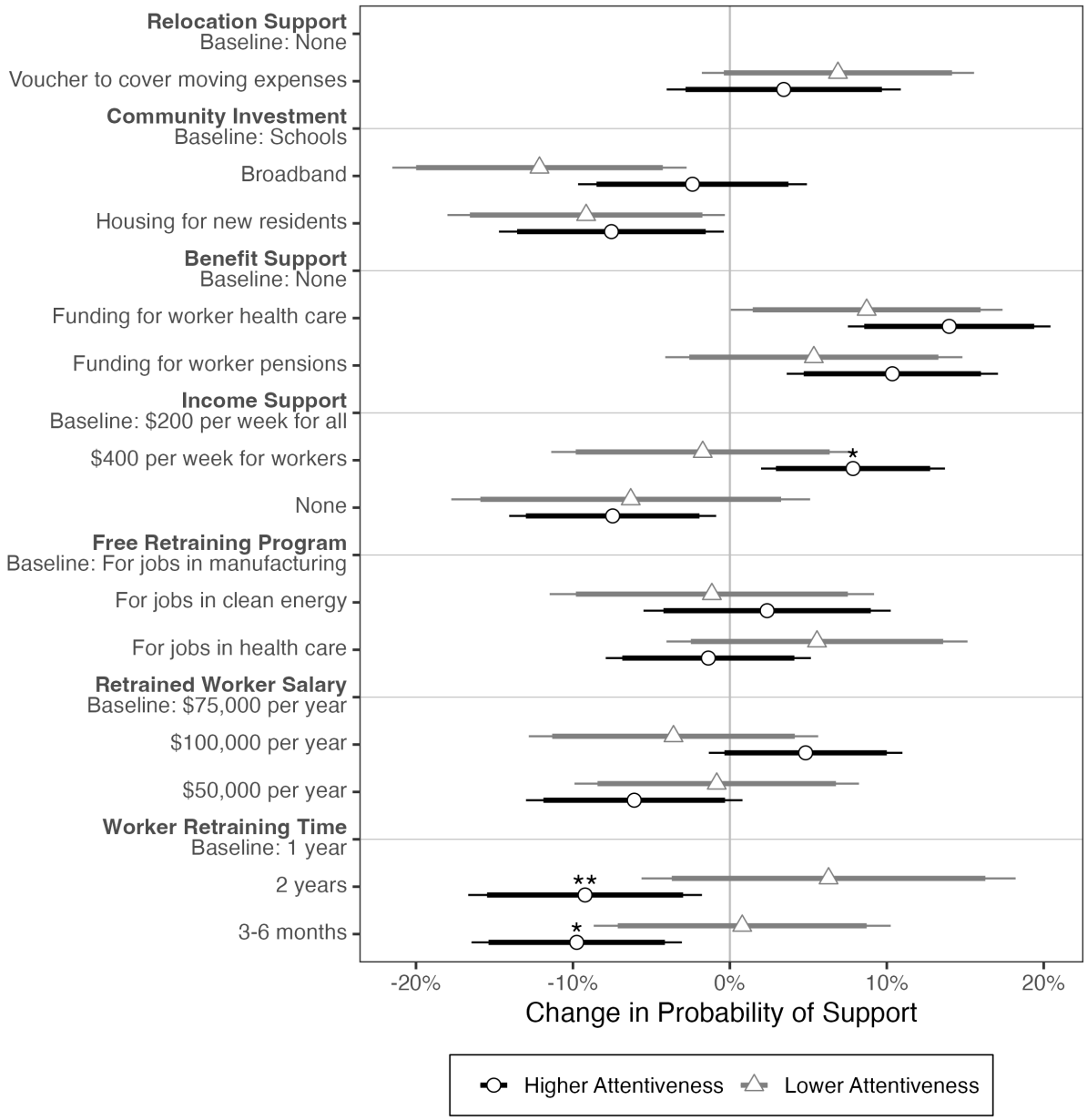
5.1 Sex



SI Figure 5.1: Treatment effect heterogeneity by sex. Bars denote 90 and 95% confidence intervals around heteroskedasticity-robust SEs clustered by respondent. Calibration weights are employed to enhance representativeness further. $^{*}p < 0.1$, $^{**}p < 0.05$, and $^{***}p < 0.01$ for two-sided hypothesis tests for a difference between the subgroups.

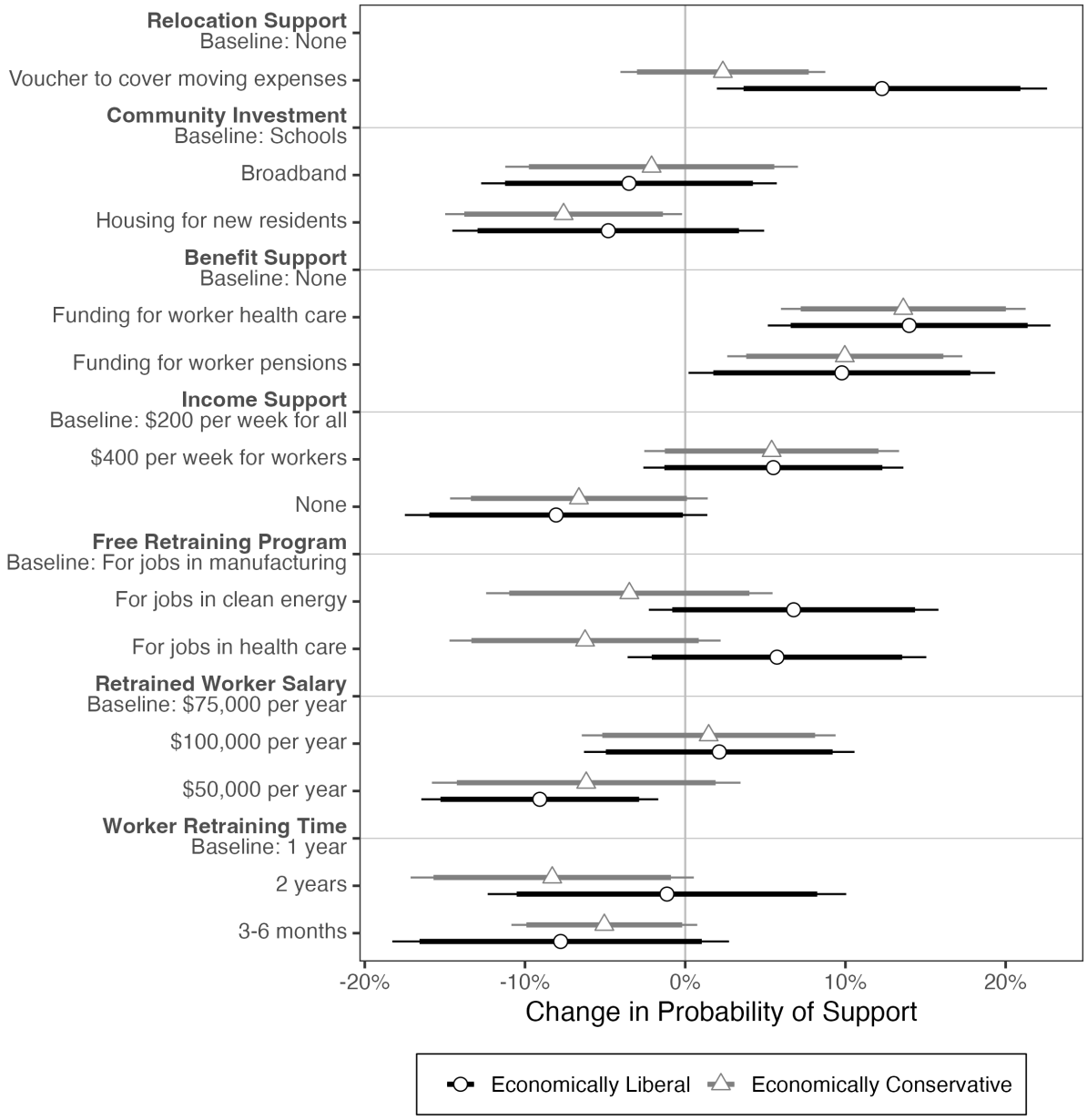
5.2 Attentiveness

Estimating AMCEs conditional on passing the attention check shows consistent or stronger results except for retraining time, perhaps due to income differences.



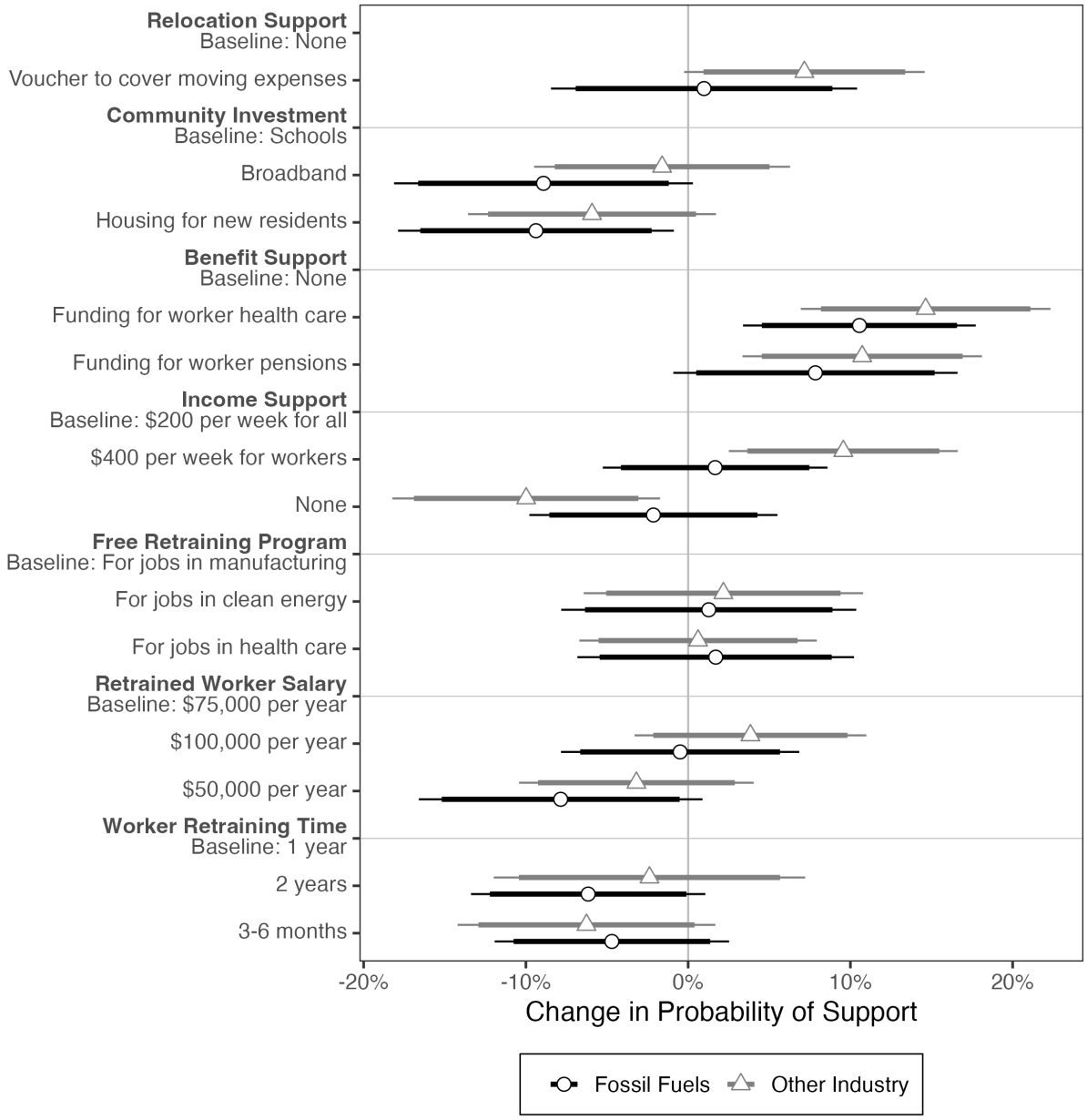
SI Figure 5.2: Treatment effect heterogeneity by attentiveness. Bars denote 90 and 95% confidence intervals around heteroskedasticity-robust SEs clustered by respondent. Calibration weights are employed to enhance representativeness further. $^{*}p < 0.1$, $^{**}p < 0.05$, and $^{***}p < 0.01$ for two-sided hypothesis tests for a difference between the subgroups.

5.3 Economic Conservatism



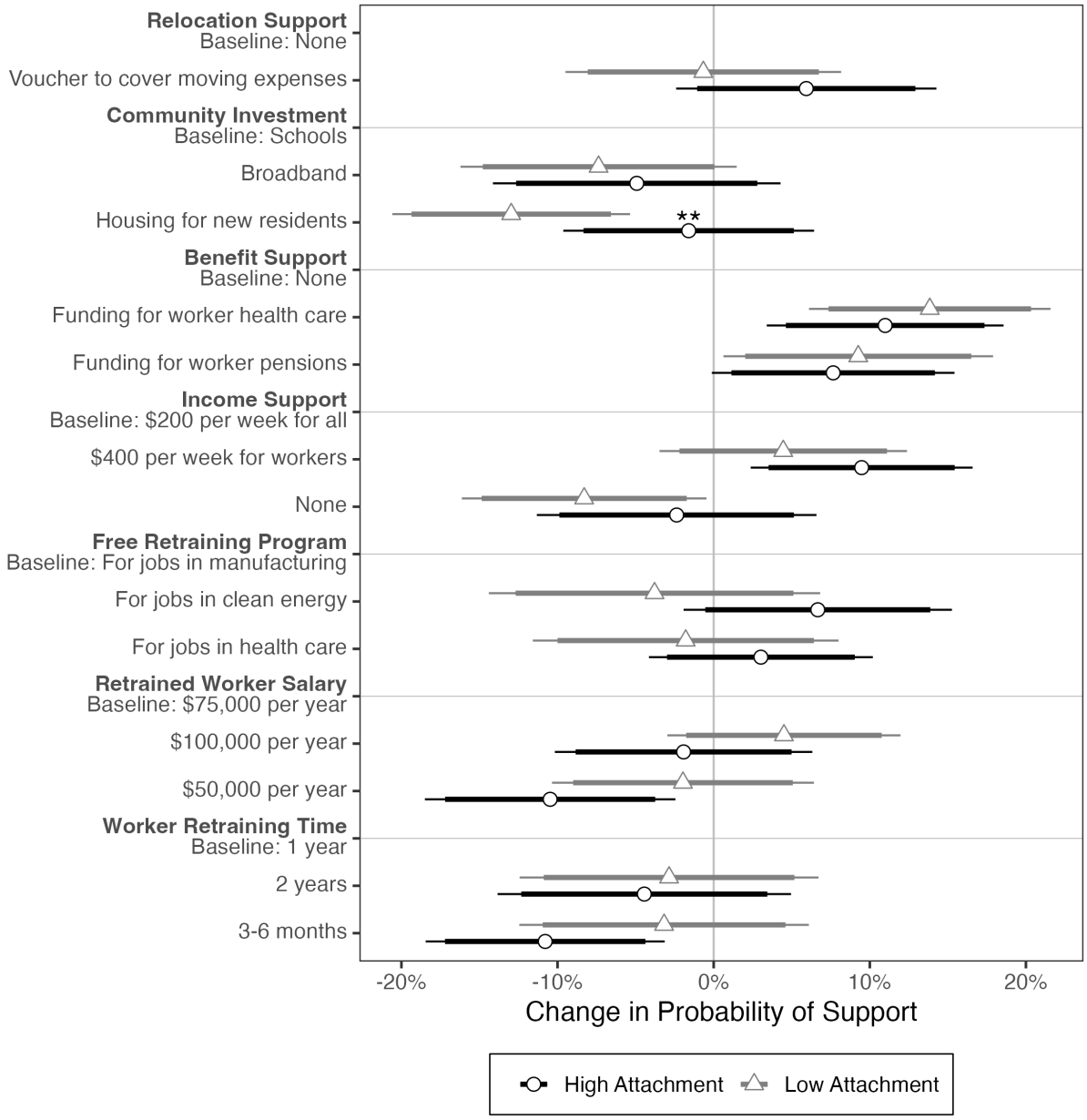
SI Figure 5.3: Treatment effect heterogeneity by economic conservatism. Bars denote 90 and 95% confidence intervals around heteroskedasticity-robust SEs clustered by respondent. Calibration weights are employed to enhance representativeness further. $^{*}p < 0.1$, $^{**}p < 0.05$, and $^{***}p < 0.01$ for two-sided hypothesis tests for a difference between the subgroups.

5.4 Fossil Fuel Employment



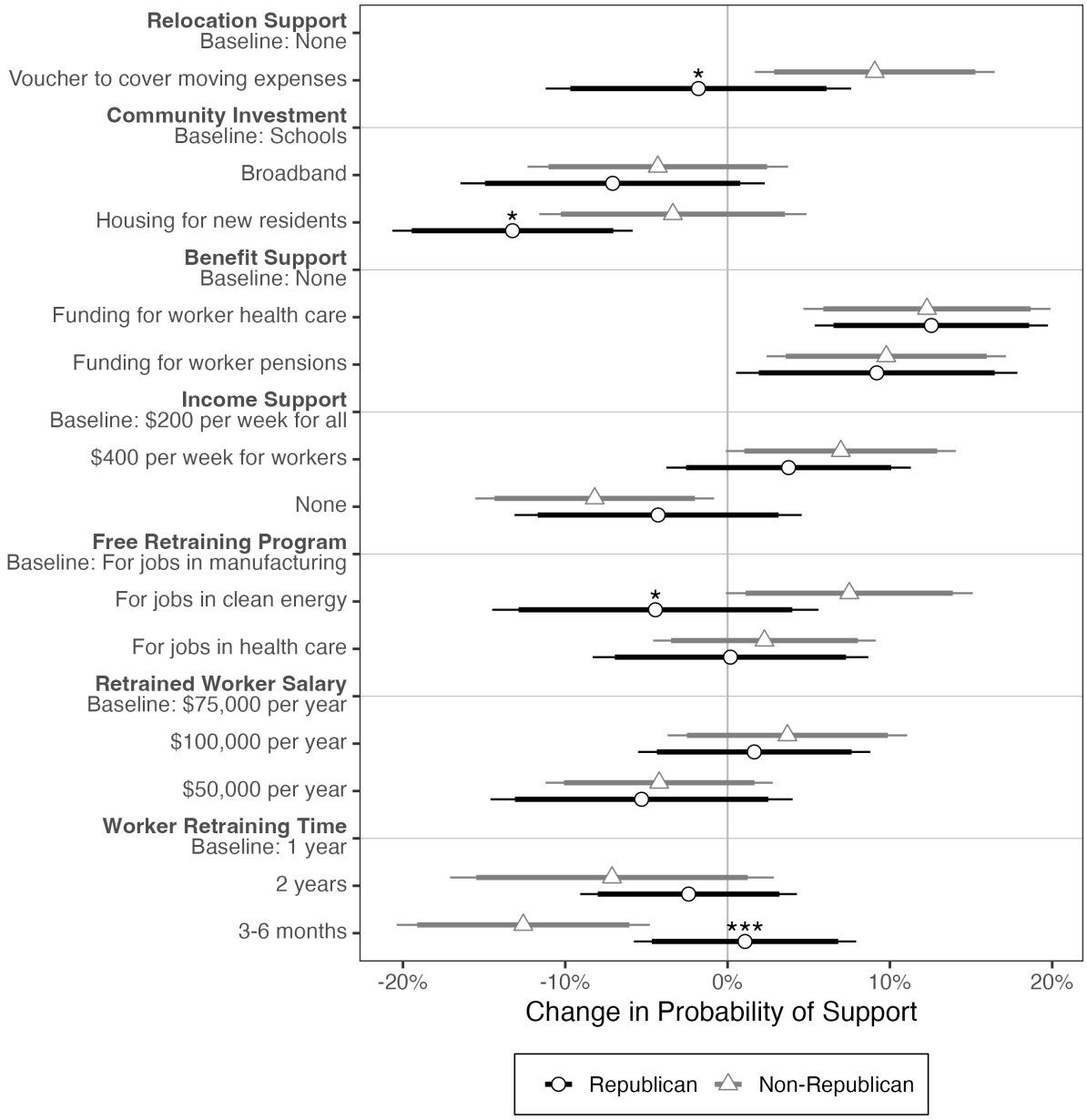
SI Figure 5.4: Treatment effect heterogeneity by household fossil fuel employment. Bars denote 90 and 95% confidence intervals around heteroskedasticity-robust SEs clustered by respondent. Calibration weights are employed to enhance representativeness further. $^{*}p < 0.1$, $^{**}p < 0.05$, and $^{***}p < 0.01$ for two-sided hypothesis tests for a difference between the subgroups.

5.5 Career Attachment



SI Figure 5.5: Treatment effect heterogeneity by household subjective career attachment. Bars denote 90 and 95% confidence intervals around heteroskedasticity-robust SEs clustered by respondent. Calibration weights are employed to enhance representativeness further. $^{*}p < 0.1$, $^{**}p < 0.05$, and $^{***}p < 0.01$ for two-sided hypothesis tests for a difference between the subgroups.

5.6 Partisanship



SI Figure 5.6: Treatment effect heterogeneity by Republican partisan identification. Bars denote 90 and 95% confidence intervals around heteroskedasticity-robust SEs clustered by respondent. Calibration weights are employed to enhance representativeness further. $^{*}p < 0.1$, $^{**}p < 0.05$, and $^{***}p < 0.01$ for two-sided hypothesis tests for a difference between the subgroups.

6 Conjoint Task Example

Round 1

Please read the proposals to help fossil fuel workers and communities. Then choose which proposal you would prefer the government to pursue.

Make sure to scroll to the bottom of the page.

	Proposal A	Proposal B
Benefit Support	None	Funding for worker pensions
Relocation Support	Voucher to cover moving expenses	None
Retrained Worker Salary	$50,000 per year	$75,000 per year
Worker Retraining Time	2 years	1 year
Community Investment	Schools	Schools
Free Retraining Program	For jobs in clean energy	For jobs in health care
Income Support During Retraining	$400 per week for workers	$400 per week for workers

If you had to choose, which proposal would you prefer the government to pursue?

○ Proposal A

○ Proposal B

SI Figure 6.1: Example of a conjoint task as seen by the respondent. Screenshot from Qualtrics survey instrument.

7 Survey Instrument

Consent

1. This is a research study by investigators from [[redacted institution]]. We hope to learn what people in your community think about coal, oil and gas. The survey should last around 5 minutes. Your responses are confidential.

   Your answers matter. We will share the study with politicians.

   If you are taking the survey in person, we will give you $5 cash once you complete the questions. All survey-takers – in person and online – will also be entered in a raffle for $100. The winner will be notified by email.

   Your participation is voluntary. There is no penalty if you decide not to participate. You may stop at any time. For questions, contact [[redacted contact information]]. For concerns, contact the Institutional Review Board at [[redacted institution]].

   Do you agree to participate?

   I agree to participate; I do not agree to participate

2. How old are you? (programming: skip to end of survey if "Under 18" selected)

   Under 18; 18-24; 25-34; 35-44; 45-54; 55-64; 65 or older

Economic conservatism

3. Some people feel that the government in Washington, D.C. should see to it that every person has a job and a good standard of living. Others think the government should just let each person get ahead on his own. Where would you place yourself on this scale, or have you not thought much about this?

   1 - Government Should See to Jobs; 2; 3; 4; 5; 6; 7 - Each on His Own; Haven't thought much about this

Mobility

4. If you had an offer for a job in a **different line of work** with the **same pay and benefits** as you have now, how likely or unlikely would you be to take it?

   Very likely; Somewhat likely; Somewhat unlikely; Very unlikely; I am not currently employed

5. How able or unable do you think you would be to move into a new line work, if you had to?

   Very able; Somewhat able; Somewhat unable; Very unable

Multi-attribute policy experiment

6. *We are interested in your views on how the government should help fossil fuel workers and communities. / Because of cheap natural gas and renewables, a move away from coal may be inevitable. We are interested in your views on how the government should help fossil fuel workers and communities if that happens.* (randomize)[12]

   On the next few screens, you will be shown a pair of proposals. Please read the descriptions carefully. Then choose which proposal you would prefer the government to pursue.

   Your answers matter. We will share the study with politicians.

7. **Round 1** *We are interested in your views on how the government should help fossil fuel workers and communities. / Because of cheap natural gas and renewables, a move away from coal may be inevitable. We are interested in your views on how the government should help fossil fuel workers and communities if that happens.* (keep randomization from introduction)

   Make sure to scroll to the bottom of the page.

   [Insert conjoint table.]

   If you had to choose, which proposal would you prefer the government to pursue?

   Proposal A; Proposal B

8. **Round 2** *We are interested in your views on how the government should help fossil fuel workers and communities. / Because of cheap natural gas and renewables, a move away from coal may be inevitable. We are interested in your views on how the government should help fossil fuel workers and communities if that happens.* (keep randomization from introduction)

   Make sure to scroll to the bottom of the page.

   [Insert conjoint table.]

   If you had to choose, which proposal would you prefer the government to pursue?

   Proposal A; Proposal B

9. **Round 3** *We are interested in your views on how the government should help fossil fuel workers and communities. / Because of cheap natural gas and renewables, a move away from coal may be inevitable. We are interested in your views on how the government should help fossil fuel workers and communities if that happens.* (keep randomization from introduction)

   Make sure to scroll to the bottom of the page.

[12] The purpose of this randomization was to evaluate whether providing information about the market-driven decline of coal would change support for different transition assistance instruments. The results in SI 5 show there are no statistically distinguishable differences in responses.

[Insert conjoint table.]

If you had to choose, which proposal would you prefer the government to pursue?

Proposal A; Proposal B

10. Which category was NOT included on the previous screens?

    Investment in nuclear power; Income support; Free retraining program; Community investment

11. **Round 4** *We are interested in your views on how the government should help fossil fuel workers and communities. / Because of cheap natural gas and renewables, a move away from coal may be inevitable. We are interested in your views on how the government should help fossil fuel workers and communities if that happens.* (keep randomization from introduction)

    Make sure to scroll to the bottom of the page.

    [Insert conjoint table.]

    If you had to choose, which proposal would you prefer the government to pursue?

    Proposal A; Proposal B

12. **Round 5** *We are interested in your views on how the government should help fossil fuel workers and communities. / Because of cheap natural gas and renewables, a move away from coal may be inevitable. We are interested in your views on how the government should help fossil fuel workers and communities if that happens.* (keep randomization from introduction)

    Make sure to scroll to the bottom of the page.

    [Insert conjoint table.]

    If you had to choose, which proposal would you prefer the government to pursue?

    Proposal A; Proposal B

13. **Round 6** *We are interested in your views on how the government should help fossil fuel workers and communities. / Because of cheap natural gas and renewables, a move away from coal may be inevitable. We are interested in your views on how the government should help fossil fuel workers and communities if that happens.* (keep randomization from introduction)

    Make sure to scroll to the bottom of the page.

    [Insert conjoint table.]

    If you had to choose, which proposal would you prefer the government to pursue?

    Proposal A; Proposal B

    Just a few more questions to go!

Global warming risk perceptions

14. How worried are you about global warming?

    Very worried; Somewhat worried; Not very worried; Not at all worried

Climate policy support

15. To fight global warming, politicians are considering policies to move away from fossil fuels. How likely or unlikely would you be to support such a policy if it included proposals to help fossil fuel workers and communities?[13]

    Very likely; Somewhat likely; Somewhat unlikely; Very unlikely

Coal competitiveness

16. Compared to natural gas and renewables, how competitive or uncompetitive do you think coal will be in the future?

    Very competitive; Somewhat competitive; Somewhat uncompetitive; Very uncompetitive

Green job beliefs[14]

17. Some

    politicians / power companies (randomize)

    say the growth of renewable energy like wind and solar will create new well-paying jobs.

    If these jobs come to your community, for how long do you think they would last?

    Very long; Somewhat long; Not very long; Not long at all

18. Compared to existing jobs in your community, how much better or worse do you think new renewable energy jobs would pay?

    Much better; Somewhat better; Somewhat worse; Much worse

---

[13]The proposals to help workers and communities referenced in the question are intentionally general to focus the respondent on the broader issue of whether she would support climate policy in exchange for assistance. The lack of specificity should decrease support by increasing uncertainty about the quality of the aid. Responses run along a four-point likelihood Likert scale. These results are descriptive, so we cannot estimate the causal effect of providing transition assistance on climate policy support, but the answers are nonetheless informative.

[14]These questions were for a separate project.

Fossil fuel proximity

19. What industry do you or a member of your household work in?

    Coal; Oil or gas; Renewables (for example: solar, wind); Other (please specify) (text box for "Other (please specify)")

20. Among the 10 people you know best in your community, roughly how many work in coal, oil or gas?

    None; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10

Background

21. What is your sex?

    Male; Female

22. What is your race?

    Asian; Black/African American; Hispanic/Latino; Native American/Pacific Islander; White/Caucasian; Other (text entry box for "Other")

23. What is the highest degree or level of education you have completed?

    Less than high school diploma; High school diploma or GED; Some college, but no degree; Associates Degree (for example: AA, AS); Bachelor's Degree (for example: BA, BBA, BS); Master's Degree (for example: MA, MS, MEng); Professional Degree (for example: MD, DDS, JD); Doctorate (for example: PhD, EdD)

24. Do you or anyone else in your household belong to a labor union?

    Yes; No

25. Including yourself, how many people live in your household?

    1; 2; 3; 4; 5; 6; 7; 8; 9; 10 or more

26. Information about income is very important to understand. Please choose the answer that includes your entire household income in (previous year) before taxes.

    Less than $20,000; $20,000 to $39,999; $40,000 to $59,999; $60,000 to $79,999; $80,000 to $99,999; $100,000 to $119,999; $120,000 to $139,999; $140,00 to $159,999; $160,000 or more

27. Generally speaking, do you consider yourself a...?

    Republican; Democrat; Independent; Other Party

28. (If 27 is "Independent" or "Other Party") Do you think of yourself as closer to the Republican Party or the Democratic party?

    Closer to the Republican Party; Closer to the Democratic Party; Neither

29. What is your current employment status?

    Employed full-time; Employed part-time; Not employed, but looking for work; Not employed, and not looking for work; Student; Retired; Self-employed; Prefer not to say

End of survey

30. May we recontact you for future research surveys? We will enter you in an additional $100 raffle when you complete the next survey.

    Yes; No

31. (If 30 is "Yes") What email address should we reach you at for future surveys? Your email will be kept confidential. (text entry)

32. (If 30 is "No") What email address should we send the $100 to if you are selected in the raffle? Your email will be kept confidential.

33. Thank you for taking the time to complete this survey! When the study is completed, we will select a raffle winner. If your name is drawn, we will send you your $100 compensation. For questions, contact [[redacted]]. For concerns, contact the Institutional Review Board at [[redacted]].

8 Conjoint Regression Results

SI Table 8.1: Probability of selecting a policy with a given attribute level

	(1)	(2)	(3)	(4)	(5)
Intercept	0.485***	0.467***	0.481***	0.507***	0.503***
	(0.042)	(0.035)	(0.042)	(0.045)	(0.045)
Free Retraining Program (Baseline: For jobs in manufacturing)					
For jobs in clean energy	0.018	−0.011	0.019	0.019	0.019
	(0.032)	(0.025)	(0.032)	(0.036)	(0.037)
For jobs in health care	0.010	0.005	0.010	0.011	0.011
	(0.028)	(0.025)	(0.028)	(0.032)	(0.033)
Retrained Worker Salary (Baseline: $75,000)					
$100,000 per year	0.024	0.026	0.024	0.027	0.027
	(0.027)	(0.023)	(0.027)	(0.030)	(0.030)
$50,000 per year	−0.051*	−0.055**	−0.051*	−0.055*	−0.055*
	(0.029)	(0.025)	(0.029)	(0.032)	(0.032)
Income Support During Retraining (Baseline: $200 per week for all)					
$400 per week for workers	0.058**	0.066***	0.058**	0.063**	0.063**
	(0.026)	(0.022)	(0.026)	(0.030)	(0.030)
None	−0.064**	−0.059**	−0.064**	−0.070**	−0.071**
	(0.029)	(0.024)	(0.029)	(0.033)	(0.033)
Relocation Support (Baseline: None)					
Voucher to cover moving expenses	0.043	0.065***	0.043	0.045	0.045
	(0.030)	(0.020)	(0.030)	(0.034)	(0.034)
Community Investment (Baseline: Schools)					
Broadband	−0.049	−0.055**	−0.050	−0.054	−0.054
	(0.031)	(0.024)	(0.031)	(0.035)	(0.035)
Housing for new residents	−0.076***	−0.066***	−0.076***	−0.083**	−0.083**
	(0.029)	(0.023)	(0.029)	(0.033)	(0.033)
Benefit Support (Baseline: No Benefit Support)					
Funding for worker health care	0.127***	0.103***	0.127***	0.138***	0.138***
	(0.027)	(0.024)	(0.027)	(0.030)	(0.030)
Funding for worker pensions	0.096***	0.100***	0.097***	0.108***	0.108***
	(0.029)	(0.023)	(0.029)	(0.033)	(0.033)
Sample Weights	No	Yes	Yes	Yes	Yes
Task Fixed Effects	No	No	Yes	No	Yes
Individual Fixed Effects	No	No	No	Yes	Yes
Respondents	248	248	248	248	248
N	2974	2974	2974	2974	2974
Adjusted R^2	0.029	0.029	0.027	−0.056	−0.058

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

Notes: Estimates from a linear regression of an indicator for if a respondent selected a policy on indicators for levels of each conjoint attribute. Heteroskedastic-robust standard errors clustered by respondent. Adjusted R^2 is negative for the models with a large number of fixed effects due to penalization from a greater number of parameters.

SI Table 8.2: Probability of selecting a policy with a given attribute, differences across national and fossil fuel community samples

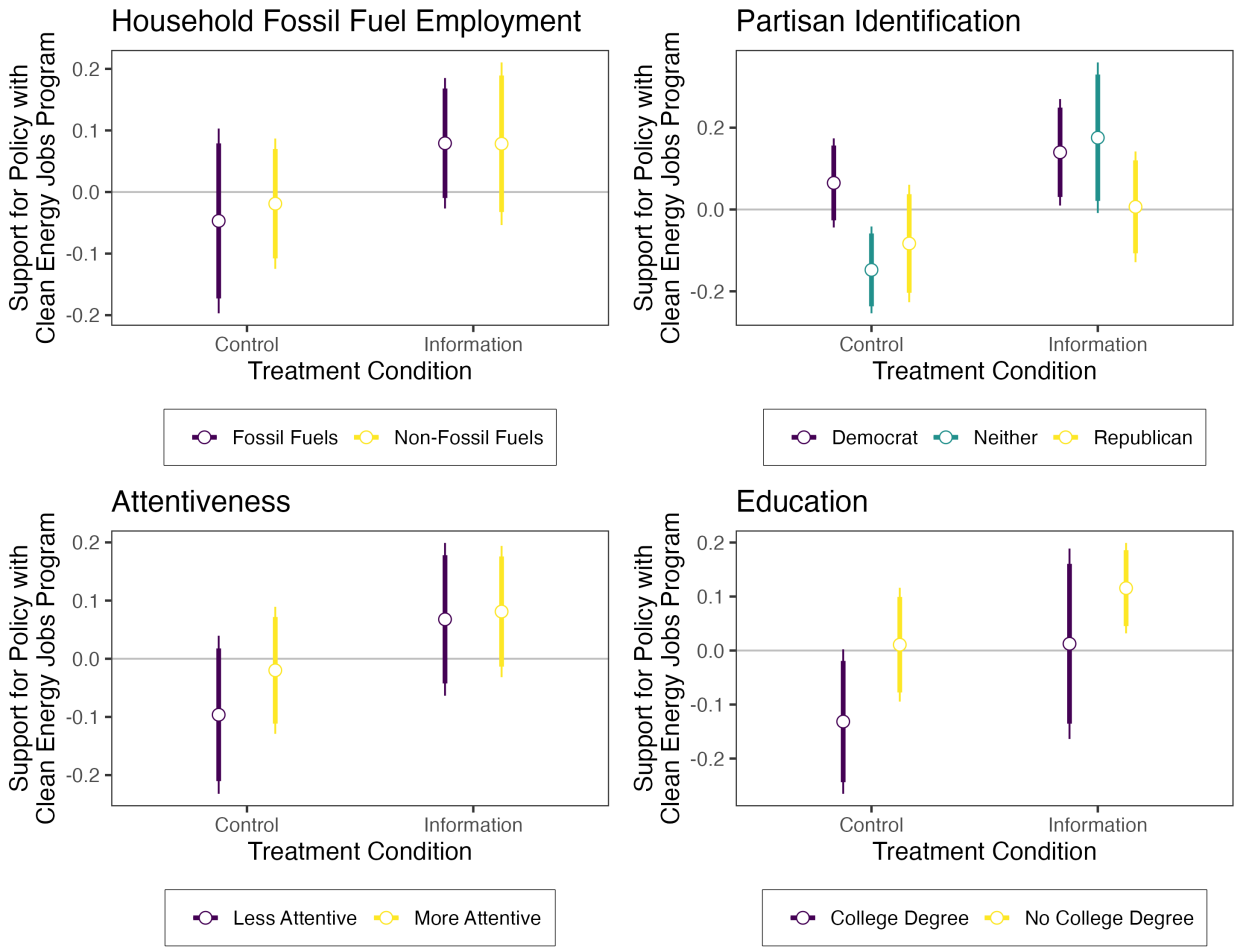
	(1)
Intercept	0.486***
	(0.047)
Community Investment: Broadband	−0.051
	(0.034)
Community Investment: Broadband × National	0.023
	(0.038)
Community Investment: Housing for new residents	−0.066**
	(0.033)
Community Investment: Housing for new residents × National	0.047
	(0.037)
Free Retraining Program: Clean Energy	0.024
	(0.037)
Free Retraining Program: Clean Energy × National	0.009
	(0.040)
Free Retraining Program: Health Care	0.018
	(0.031)
Free Retraining Program: Health Care × National	0.014
	(0.036)
Income Support During Retraining: $400 per week for workers	0.057**
	(0.027)
Income Support During Retraining: $400 per week for workers × National	0.009
	(0.033)
Income Support During Retraining	−0.070**
	(0.032)
Income Support During Retraining × National	−0.020
	(0.036)
Worker Retraining Time: 2 years	−0.042
	(0.038)
Worker Retraining Time: 2 years × National	0.065
	(0.042)
Worker Retraining Time: 3-6 Months	−0.062*
	(0.033)
Worker Retraining Time: 3-6 Months × National	0.089**
	(0.038)
Benefit Support: Worker Health Care	0.133***
	(0.028)
Benefit Support: Worker Health Care × National	−0.030
	(0.034)
Benefit Support: Pensions	0.093***
	(0.031)
Benefit Support: Pensions × National	−0.022
	(0.035)
Retrained Worker Salary: $100,000 per year	0.022
	(0.027)
Retrained Worker Salary: $100,000 per year × National	−0.010
	(0.032)
Retrained Worker Salary: $50,000 per year	−0.045
	(0.030)
Retrained Worker Salary: $50,000 per year × National	−0.027
	(0.035)
Relocation Support: Voucher to Cover Moving Expenses	0.026
	(0.034)
Relocation Support: Voucher to Cover Moving Expenses × National	0.068*
	(0.037)
Num.Obs.	12 984
R2	0.039
R2 Adj.	0.037

Notes: Estimates from a linear regression of an indicator for if a respondent selected a policy on indicators for levels of each conjoint attribute, interacted with a dummy variable for whether the respondent is in the national sample. Heteroskedastic-robust standard errors clustered by respondent. Model employs sample weights. $^{*}p < 0.1$,$^{**}p < 0.05$,$^{***}p < 0.01$

9 Information Experiment

9.1 Heterogeneous Treatment Effects

SI Figure 9.1: Heterogeneous effects of the information treatment on support for a free retraining program for clean energy jobs



9.2 Regression Results

SI Table 9.1: Effect of Information Intervention on Preferences over Transition Assistance Design

	Fossil Fuel			National		
	(1)	(2)	(3)	(4)	(5)	(6)
Community Investment: Broadband	−0.09**	−0.08**	−0.09**	−0.04*	−0.03	−0.04*
	(0.04)	(0.03)	(0.04)	(0.02)	(0.02)	(0.02)
Community Investment: Housing for new residents	−0.09**	−0.09***	−0.09**	−0.03	0.01	−0.03
	(0.04)	(0.03)	(0.04)	(0.03)	(0.02)	(0.03)
Free Retraining Program: For jobs in clean energy	−0.03	−0.06*	−0.03	0.06**	0.04**	0.06**
	(0.05)	(0.03)	(0.05)	(0.02)	(0.02)	(0.02)
Free Retraining Program: For jobs in healthcare	0.00	0.01	0.01	0.07**	0.00	0.07**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)
Income Support During Retraining: $400 per week for workers	0.08**	0.08**	0.08**	0.04*	0.03*	0.04*
	(0.04)	(0.03)	(0.04)	(0.02)	(0.02)	(0.02)
Income Support During Retraining: None	−0.05	−0.05	−0.05	−0.11***	−0.11***	−0.11***
	(0.04)	(0.03)	(0.05)	(0.03)	(0.02)	(0.03)
Worker Retraining Time: 2 years	−0.06	−0.05	−0.06	0.07***	0.03*	0.07***
	(0.05)	(0.03)	(0.05)	(0.02)	(0.02)	(0.02)
Worker Retraining Time: 3-6 months	−0.06	−0.04	−0.07	0.04	0.02	0.04
	(0.05)	(0.03)	(0.05)	(0.02)	(0.02)	(0.02)
Benefit Support: Funding for worker health care	0.11***	0.09**	0.11***	0.13***	0.11***	0.13***
	(0.04)	(0.04)	(0.04)	(0.03)	(0.02)	(0.03)
Benefit Support: Funding for worker pensions	0.08*	0.08**	0.08*	0.10***	0.09***	0.10***
	(0.04)	(0.03)	(0.04)	(0.02)	(0.02)	(0.02)
Retrained Worker Salary: $100,000 per year	0.00	0.00	0.00	0.01	0.04**	0.01
	(0.04)	(0.03)	(0.04)	(0.03)	(0.02)	(0.03)
Retrained Worker Salary: $50,000 per year	−0.04	−0.07**	−0.04	−0.07***	−0.06***	−0.07***
	(0.04)	(0.04)	(0.04)	(0.02)	(0.02)	(0.02)
Relocation Support: Voucher to cover moving expenses	0.03	0.07**	0.03	0.09***	0.09***	0.09***
	(0.05)	(0.03)	(0.05)	(0.02)	(0.01)	(0.02)
Community Investment: Broadband x Information	0.08	0.04	0.09	0.03	−0.03	0.03
	(0.06)	(0.05)	(0.06)	(0.03)	(0.02)	(0.03)
Community Investment: Housing for new residents x Information	0.02	0.03	0.02	0.01	−0.04	0.01
	(0.06)	(0.05)	(0.06)	(0.03)	(0.02)	(0.03)
Free Retraining Program: For jobs in clean energy x Information	0.11*	0.10*	0.11*	−0.05	−0.02	−0.05
	(0.06)	(0.05)	(0.06)	(0.03)	(0.03)	(0.03)
Free Retraining Program: For jobs in healthcare x Information	0.01	−0.01	0.01	−0.08**	−0.02	−0.08**
	(0.06)	(0.05)	(0.06)	(0.04)	(0.03)	(0.04)
Income Support During Retraining: $400 per week for workers x Information	−0.03	−0.02	−0.03	0.05	0.06**	0.05
	(0.05)	(0.04)	(0.05)	(0.04)	(0.03)	(0.04)
Income Support During Retraining: None x Information	−0.03	−0.02	−0.03	0.03	0.05*	0.03
	(0.06)	(0.05)	(0.06)	(0.04)	(0.03)	(0.04)
Worker Retraining Time: 2 years x Information	0.02	0.04	0.02	−0.09***	−0.04*	−0.09***
	(0.06)	(0.05)	(0.06)	(0.03)	(0.02)	(0.03)
Worker Retraining Time: 3-6 months x Information	0.02	0.03	0.02	−0.02	−0.03	−0.02
	(0.05)	(0.05)	(0.06)	(0.04)	(0.02)	(0.04)
Benefit Support: Funding for worker health care x Informationn	0.04	0.02	0.04	−0.05	0.00	−0.05
	(0.05)	(0.05)	(0.05)	(0.04)	(0.02)	(0.04)
Benefit Support: Funding for worker pensions x Information	0.05	0.04	0.05	−0.06*	0.00	−0.06*
	(0.06)	(0.05)	(0.06)	(0.03)	(0.02)	(0.03)
Retrained Worker Salary: $100,000 per year x Information	0.05	0.06	0.05	−0.01	−0.02	−0.01
	(0.05)	(0.05)	(0.05)	(0.03)	(0.02)	(0.04)
Retrained Worker Salary: $50,000 per year x Information	−0.02	0.04	−0.02	0.00	−0.01	0.00
	(0.06)	(0.05)	(0.06)	(0.04)	(0.02)	(0.04)
Relocation Support: Voucher to cover moving expenses x Information	0.03	−0.01	0.03	0.00	0.01	0.00
	(0.06)	(0.04)	(0.06)	(0.03)	(0.02)	(0.03)
N	2974	2974	2974	10 010	10 010	10 000
Adjusted R^2	0.030	0.028	0.025	0.042	0.043	0.041
Sample Weights	Yes	No	Yes	Yes	No	Yes
Covariates	No	No	Yes	No	No	Yes

Notes: Heteroskedasticity-robust standard errors clustered by respondent. $^{*}p < 0.1$; $^{**}p < 0.05$; and $^{***}p < 0.01$.

10 Correlates of Climate Policy Support

SI Table 10.1: Regression models of the determinants of climate policy support in exchange for transition assistance

	Ordered Logit		Linear	
	(1)	(2)	(3)	(4)
Intercepts				
Very unlikely/Somewhat unlikely	−0.739	−0.625		
	(0.559)	(0.589)		
Somewhat unlikely/Somewhat likely	0.130	0.164		
	(0.558)	(0.589)		
Somewhat likely/Very likely	1.658***	1.767***		
	(0.568)	(0.598)		
Intercept			2.276***	2.285***
			(0.297)	(0.325)
Age (Baseline: 18-34 years)				
35-54 years	−0.085	−0.097	−0.056	−0.101
	(0.280)	(0.315)	(0.165)	(0.198)
>55 years	−0.112	−0.499	−0.086	−0.290
	(0.325)	(0.318)	(0.179)	(0.201)
Female	−0.219	−0.161	−0.061	−0.035
	(0.255)	(0.262)	(0.151)	(0.178)
College Degree	0.395	0.785**	0.179	0.324
	(0.336)	(0.311)	(0.184)	(0.202)
Fossil Fuel Employment	−0.341	−0.197	−0.159	−0.073
	(0.260)	(0.261)	(0.152)	(0.195)
Income (Baseline: >$100,000)				
<$20,000	0.167	0.497	0.091	0.216
	(0.433)	(0.445)	(0.256)	(0.307)
$20,000-39,999	−0.144	0.253	−0.087	0.134
	(0.444)	(0.425)	(0.252)	(0.305)
$40,000-59,999	0.351	1.022**	0.162	0.516*
	(0.414)	(0.447)	(0.251)	(0.305)
$60,00-99,999	0.431	0.710*	0.222	0.350
	(0.349)	(0.374)	(0.200)	(0.231)
Party (Baseline: Democrat)				
Republican	−0.623**	−0.916***	−0.290*	−0.419**
	(0.295)	(0.287)	(0.168)	(0.206)
Independent	−0.331	−0.812*	−0.200	−0.445
	(0.391)	(0.415)	(0.240)	(0.327)
Climate Concern	1.418***	1.341***	0.794***	0.719***
	(0.274)	(0.278)	(0.155)	(0.202)
Diversify Treatment	−0.329	−0.457*	−0.170	−0.215
	(0.241)	(0.248)	(0.139)	(0.183)
Sample Weights	No	Yes	No	Yes
Fair Fixed Effects	Yes	Yes	Yes	Yes
N	248	248	248	248
Adjusted R^2			0.132	0.191
BIC	710.3	678.6	799.3	841.5

Notes: HC3 standard errors employed in the linear regression model. Less than 2.5% of missing income and sex observations imputed with median response. * p < 0.1, ** p < 0.05, *** p < 0.01

11 Effect of Transition Assistance on Climate Policy Support

SI Table 11.1: Linear Regression of Climate Policy Support on Transition Assistance Treatment, National Population

	Binary				Scale	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment: Transition Assistance	0.078***	0.082***	0.052*	0.013	0.173***	0.184***
	(0.026)	(0.024)	(0.031)	(0.022)	(0.058)	(0.052)
Treatment x Independent				0.214***		
				(0.073)		
Treatment x Republican				0.100*		
				(0.056)		
Age		−0.003***	−0.004***	−0.003***		−0.007***
		(0.001)	(0.001)	(0.001)		(0.002)
Male		−0.009	−0.002	−0.009		0.012
		(0.025)	(0.031)	(0.025)		(0.056)
Black		0.008	0.033	0.008		0.001
		(0.033)	(0.047)	(0.033)		(0.071)
Hispanic		0.026	0.025	0.023		0.030
		(0.030)	(0.038)	(0.029)		(0.065)
Fossil Fuel Employment		0.011	−0.018	0.013		0.034
		(0.033)	(0.049)	(0.033)		(0.077)
Employed		0.080***	0.084**	0.082***		0.161***
		(0.029)	(0.040)	(0.029)		(0.061)
College Degree		0.029	0.044	0.031		0.036
		(0.029)	(0.036)	(0.029)		(0.063)
Income: 1st Quartile		0.063	0.052	0.063		0.035
		(0.040)	(0.055)	(0.040)		(0.087)
Income: 2nd Quartile		0.045	0.037	0.044		0.016
		(0.036)	(0.046)	(0.036)		(0.079)
Income: 3rd Quartile		0.018	0.006	0.017		−0.017
		(0.036)	(0.043)	(0.036)		(0.081)
Income: Not Say		−0.045	0.007	−0.027		−0.228
		(0.131)	(0.231)	(0.134)		(0.213)
Republican		−0.346***	−0.319***	−0.394***		−0.824***
		(0.029)	(0.039)	(0.040)		(0.062)
Independent		−0.235***	−0.236***	−0.347***		−0.602***
		(0.037)	(0.050)	(0.059)		(0.074)
Intercept	0.744***	0.978***	1.025***	1.009***	2.990***	3.609***
	(0.020)	(0.061)	(0.084)	(0.060)	(0.043)	(0.130)
N	1001	1000	1000	1000	1001	1000
Adjusted R^2	0.008	0.205	0.217	0.212	0.008	0.228
Sample Weights	No	No	Yes	No	No	No

Notes: HC3 standard errors. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$

12 Pre-Analysis Plan

The researcher pre-registered hypotheses with the Center for Open Science before data collection (https://osf.io/sdm4u). There are two modifications from the pre-analysis plan. First, we attempted to collect a sample using targeted Facebook advertisements in fossil fuel-producing counties but discarded this approach due to recruitment challenges. Second, we planned to estimate the average component preferences in addition to our main AMCE estimand (Ganter 2021), but could not do so due to sample size constraints that rendered standard errors unreliable. The pre-analysis plan also included hypotheses for a separate project.

We also pre-registered the following hypotheses derived from theoretical arguments advanced in the literature but did not focus on them in the main text due to space and exposition.

- *Occupational Identity.* Status-conscious men in male-dominated industries like coal and oil internalize hard and dangerous work as part of their identity. They may perceive industries like healthcare, to which they could transition, as feminine and thus less desirable (Bell and York 2010; Lamont 2000; Winant 2021). Training programs for the healthcare industry could be less likely to create support for the policy, especially among men, but less so for those with low career attachment.

- *Community Identity.* Communities based around extractive industries like coal mining or logging often have strong identities tied to the place and occupation, influencing their policy preferences (Bell and York 2010). Place-based attachments filter how residents make sense of distributive issues like climate policy, emphasizing community rather than individual welfare (Cramer 2016; Wong 2010). Strong community economic identity could have the following effects on preferences over transition assistance: relocation assistance could decrease policy support due to fear of out-migration; place-based investment in housing for new residents could weaken backing for transition assistance since outsiders may alter the identity of the community; investments in local public goods like schools and broadband create incentives for people to stay put and should raise the probability of support; and community-wide income assistance should increase favorable assessments of the policy, as found in other studies (Gaikwad, Genovese, and Tingley 2022).

- *Economic Conservatism.* Distrust of the federal government and ideological views about the appropriate role of the state in creating jobs could condition the effect of transition assistance on policy support (Cha 2020; Cramer 2016). Individuals with economically conservative worldviews may be less likely to support transition assistance that supports lost income, benefits, and relocation costs since these policies contradict their ideology.

- *Public Goods.* Preferences may differ for transition assistance that is excludable depending on if one has access to the good. Fossil fuel workers should support policies that provide targeted income support to carbon-intensive labor. In contrast, individuals in the area would prefer non-excludable income support for the entire community

(Gaikwad, Genovese, and Tingley 2022). Although, community members should still support targeted assistance for workers due to their perceived deservingness (Gilens 2000). Examining the scope of assistance is also important because citizens may perceive resource trade-offs.

SI 5 displays the conditional AMCEs, which test the additional hypotheses advanced in the literature.

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