Pre-Analysis Plan for IRA Experiment

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1 Introduction

Political movements often involve a series of intermediate steps forward (e.g. the Civil Rights Act of 1964 followed by the Voting Rights Act of 1965, the Wagner Act of 1935 followed by the Fair Labor Standards Act of 1938). These intermediate wins have uncertain implications for movements' momentum. On one hand, learning about a major legislative breakthrough might build hope in the movement and faith in the political process enough to increase engagement. On the other hand, learning about a major step forward could decrease action by reducing people's sense of urgency for continuing change. In this project, we will experimentally test these dynamics in the context of the American climate movement.

Under the Paris Agreement, the US is committed to reducing its greenhouse gas emissions to 50% below 2005 levels by 2030. Under policies in place as of February 2022, the US was projected to get to reductions of about 27% below 2005 levels by 2050. Under the IRA, emissions are expected to fall to about 42% below 2005 levels by 2050.[1] Thus, the IRA accomplishes roughly 65% of the remaining emissions reductions required to reach the United States' 2030 emissions goal. This experiment will test how learning about the IRA's major, but incomplete, political win for the climate movement affects motivation to continue advocating for climate policy.

Alongside, the experiment will also test the impacts of linking the IRA with a fictional story about the citizen-led climate movement that led to the bill's passage. Fictional stories have been shown to change beliefs and behaviors across a variety of contexts, like domestic violence (Banerjee et al., 2019), HIV/AIDs-related knowledge and behavior (Banerjee et al., 2018), dissent in Rwanda (Paluck and Green, 2009), and financial decision-making (Berg and Zia, 2017). We will test whether pairing information about political progress with a fictional

[1] https://repeatproject.org/docs/REPEAT_IRA_Prelminary_Report_2022-08-12.pdf

story about citizen-led action can yield stronger gains in collective efficacy and political engagement than the information alone.

2 Experimental design

We will conduct this experiment among a gender-balanced sample of participants on Prolific, an online surveying site. Participants will be pre-screened to include only those who are not aware of the IRA's major progress on climate change in the US. The basic intervention in this experiment will be to randomly provide information about the recent climate policy advance achieved in the Inflation Reduction Act. In addition, a randomly-selected subset of participants given information about the IRA will also be shown a fictional animated story about climate action. We will test how these interventions change participants' beliefs about climate change, collective efficacy around political movements, and willingness to engage in climate advocacy. The survey will proceed in three waves: an initial screening survey opened to a large number of participants on Prolific, a main experimental survey on a re-recruited subset of the screening sample, and an obfuscated follow-up survey meant to elicit additional outcomes without demand effects.

2.1 Participant screening and re-recruitment to main survey and obfuscated follow-up

The experiment will begin with a short screening survey to identify participants who are largely unaware of the Inflation Reduction Act. Following this screening survey, participants will be re-contacted for the main experimental survey.

2.1.1 Sample selection by baseline IRA knowledge

The primary purpose of this screening survey is to identify a sample of participants to recontact for the full study. In particular, our aim is to recruit a sample of American adults who are concerned about climate change and yet are largely unaware of the IRA and its implications. The screening survey will ask the following two questions about baseline knowledge:

- To your knowledge, has the US government made substantial progress on [climate change/reproductive rights/reducing inflation] so far during 2022?
- Have you heard of any of the following recent bills? (Inflation Reduction Act, Honoring our PACT Act, Affordable Insulin Now Act, Infrastructure Investment and Jobs Act)

Next, the survey will also ask participants if they think climate change is mostly human-caused, caused mostly by natural changes in the environment, neither since climate change isn't happening, or other. Finally, the baseline survey will elicit baseline worry about climate change, desire for government action, and collective efficacy, as described in more detail in Section 4.2.2.

Any participant will be eligible for the full study if they answer "No" or "I don't know" to whether the US government has made substantial progress on climate change during 2022 and think that climate change is mostly human-caused. Note that we will stratify recruitment to our initial screening survey by age (over and under age 35) and gender so as to ensure that approximately half of our sample for the main experimental survey is female and about half is younger than age 35.

2.1.2 Re-recruitment to main experimental survey and obfuscated follow-up

Following this screening survey, we will re-contact participants from the same Prolific account and ask them to return for the main survey. Following the main experimental survey, we will again re-contact participants for an obfuscated follow-up survey. This survey will be associated with the Prolific account of a different study author than were the screening survey and main experimental survey. Moreover, the survey will use different formatting and a re-structured consent form to ensure that participants are not able to link it with the main experimental survey.

We do not expect differential attrition from the obfuscated follow-up survey, since we don't expect information about the IRA to affect willingness to take surveys in general. In the case that we do observe differential re-recruitment for the obfuscated follow-up survey, we will test robustness of any obfuscated follow-up analysis to Lee (2009) bounds.

2.2 Information treatment on the IRA

During the main experimental survey, we will randomize participants to watch informational videos with and without information on the recent Inflation Reduction Act. All participants will first watch a video with an update on global temperature and the Paris Agreement. Then, participants will be randomized to watch an informational video about US climate goals and historical US emissions that either provides information about the Inflation Reduction Act and the gains it is expected to achieve or does not (Section 2.2.2). While one control group will watch the beginning of the treatment-group video, up until information about the IRA, an extended control arm will watch a video that just includes the baseline information, extended to have roughly the same word count and duration as the treatment video (Section 2.2.4).

2.2.1 Baseline climate policy info, provided to all participants

All participants will first watch a video outlining global temperature rise from pre-industrial levels, the Paris Agreement's goal of limiting warming to 1.5°C, and the speed of emissions reductions that would be required to globally meet that goal.

Next, participants will be randomized to watch treatment or control versions of a second informational video. The control video (largely identical to the first half of the treatment video) will inform participants that the US goal under the Paris Agreement is to reduce emissions to 50% below 2005 levels by 2030. A graph will show historical US emissions relative to this goal, and the video then states that the US is currently not on track to meet its 2030 Paris goal. Finally, the control video will state that under climate policies in place as of February 2022, emissions are expected to fall to about 27% below 2005 levels by 2030.[2] A graph will plot these baseline reductions relative to historical emissions and the 2030 goal.

To this point, the control video exactly matches the beginning of the treatment information video. We provide this baseline information to all participants because it provides essential context to the treatment information about the Inflation Reduction Act (Section 2.2.2) and could by itself affect willingness to engage in pro-climate action. Thus, we standardize this information across the treatment and control groups. The control video then ends with the following statement: "From this baseline, we would still need to make major emissions cuts by 2030 to meet our Paris goal and limit catastrophic warming." (The treatment ends with a very similar statement, adapted to also mention the IRA, after the treatment information described in the next section.)

2.2.2 Treatment information on the IRA

The treatment informational video begins by reproducing the control video, providing the same baseline information about US climate policy, before then providing information about the Inflation Reduction Act.

In particular, the video informs participants that a major climate bill–the Inflation Reduction Act–recently passed both houses of Congress and was signed into law in August 2022. We describe that the bill includes $370 billion for climate action and is the largest climate bill in US history, including tax credits for clean energy use and manufacturing, household rebates for EVs and home appliances, and a tax on methane emissions. The video then states that the bill will achieve about 65% of the remaining reductions in US emissions required to

[2]Princeton's REPEAT project: https://repeatproject.org/docs/REPEAT_IRA_Prelminary_Report_2022-08-12.pdf

reach the 2030 target. Alongside this text, we will plot the projected impacts of the IRA on a graph alongside baseline emissions reductions and the US 2030 goal.

The treatment video ends with an adaptation of the sentence that ends the control video, as follows: "That means that the IRA takes a big step towards US emission commitments, but we still need to make major additional emissions cuts by 2030 to meet our Paris goal and limit catastrophic warming."

2.2.3 Comprehension questions

To encourage participants to pay attention to the control and treatment information, we will inform them ahead of time that we will randomly choose 10 participants and pay them $5 for each comprehension question that they answer correctly.

All participants will see two multiple-choice comprehension questions after the first video, which provides baseline information on global emissions and temperature rise. The first will ask about the international community's goal to limit warming to 1.5°C under the Paris Agreement, and the second will ask about the historical temperature increase of 1°C from pre-industrial levels.

After the second video, all participants will then answer an additional comprehension question asking about the US commitment to reduce emissions to 50% of 2005 emissions by 2030. Participants in the treatment group will answer two additional comprehension questions about the Inflation Reduction Act: eliciting the name of the Inflation Reduction Act and the fact that projections estimate the IRA will achieve about 65% of the remaining emissions cuts required to reach the US' 2030 emissions goal.

2.2.4 Expanded baseline information and comprehension questions

To reduce concerns that any treatment effects arise just because the treatment group sees more information about climate change or climate policy or watches a longer second video, we will randomize half of the control group to watch an expanded version of the control video that has approximately the same word count and duration as the treatment video.

This expanded control group will also see the same number of comprehension questions as the treatment group. In particular, they will answer two additional questions asking about the name of country commitments under the Paris Agreement (Nationally-determined contributions) and the fact that the US emissions reduction goal references emissions in the year 2005.

While the expanded baseline information offers the benefit of matching the length of information to which the treatment group is exposed, the standard baseline information control offers the alternative benefit of exactly matching what the treatment group sees before treatment information about the IRA. Thus, we take the approach of splitting the control group between seeing the baseline information and the expanded baseline information. We do not expect the two groups to be different, and so the main analysis will pool the two groups unless we find meaningful and statistically-significant differences between the two. Assuming we do not find these differences, analysis that separates the two will be in the appendix.

2.2.5 Manipulation check: Knowledge of the IRA

At the end of the main experimental survey, we will repeat two questions asked during the baseline/screening survey as manipulation checks on knowledge of the IRA:

- To your knowledge, has the US government made substantial progress on climate change so far during 2022? This could include things you've learned about in this survey.
- Have you heard of the following recent bills, including during this survey? (Inflation Reduction Act, Honoring our PACT Act, Affordable Insulin Now Act, Infrastructure Investment and Jobs Act)

In secondary analysis, we will estimate 2SLS specifications using treatment status to instrument for belief that the US government has made substantial progress on climate change.

2.3 Fictional story about climate action

After the information treatments about climate policy in the US, half of the treatment group will be assigned to watch a fictional, animated story about the climate movement. This video describes the story of a young woman whose dog dies in a heatwave. While she is initially hopeless about government progress on climate change, an elderly man convinces her that living in a democracy means people have power, and she organizes a climate march. The story positions itself as providing a loose, fictional backstory to the Inflation Reduction Act, writing that while the march wasn't itself what got change finally to start (showing politicians signing a climate bill), it was part of a movement all over the country that finally brought change.

The story has a duration of about 5 minutes. To ensure that any treatment effects of the fictional story do not derive just from a longer survey, we will also cross-randomize half of the basic treatment and control groups to answer a series of open-ended questions with minimum-time timers to ensure that their surveys also take five minutes longer. These questions focus

on the events and themes similar to those referenced in the story, helping us to also rule out the possibility that the story is acting simply as a prime.

2.4 Demand effects in outcome variables

We will elicit a set of belief-based and behavioral outcome variables both during our main experimental survey and during an obfuscated follow-up survey collected with the same participants on Prolific. Section 3 will go through these outcomes in detail. We take several approaches to ensure that any treatment effects in these outcomes do not arise solely from differential demand effects.

2.4.1 Maxing out demand effects in main experimental survey

Before introducing our primary action outcomes in the main experimental survey, we will intentionally create strong demand effects for all participants in the form of a call to action like those that an environmental organization might employ. In particular, we state the following: "The United States is not yet on track to meet its 2030 emissions reductions commitments under the Paris Climate Agreement. That means that it's important that we continue to push for ambitious climate action at the federal, state, and local levels." Our intention here is to create strong positive demand effects that are equal across treatment and control.

2.4.2 Measuring main-survey demand effects and beliefs about study hypothesis

We will directly test for any differential demand effects in the main experimental survey by directly asking participants how much they think we (the researchers) wanted them to donate money to a climate organization or contact their national representatives, on an integer scale from 1 (Not at all) to 6 (Very much so).

Next, we will also include an open-ended question in which we ask participants for their best guess at our research hypothesis. We will test for any difference in treatment versus control in the share that mention variants on "policy," "bill," "law," or "Inflation Reduction Act." Within those that do so, we will then manually identify those that reference any prediction about the positive or negative impact of climate policy on political engagement or beliefs. We will test for any differential prevalence of hypotheses in these classes (including predictions about the specifically positive or negative impacts of policy) between treatment and control.

As a placebo check, we will also test for any differences between the treatment and control groups in the share whose guesses include the word "climate," since we would not expect this share to differ by treatment status.

2.4.3 Obfuscated follow-up

Finally, we will ensure that demand effects are not driving our main results by collecting parallel action measures in an obfuscated follow-up survey that participants should not be able to link to the main experimental survey. Any outcomes collected in that follow-up survey should be fully free from differential demand effects by treatment status.

2.5 Other experimental logistics

2.5.1 Attention checks

We will collect two attention check questions, each modeled after one of our primary question formats. We will exclude from analysis any participant who fails one of the attention checks. The two checks will be as follows:

1. Scientists are divided on which policy would be the most effective tool to combat climate change overall. To show that you are paying attention to the survey, please select "A carbon tax" in the list below. (We have to ask questions like this to identify participants who are answering our survey in a serious way.)

2. Some American adults identify as Independents, while others align more closely with a political party. If you are paying attention to the survey, please move the slider on this question to a number between 60 and 70. (Again, we have to ask questions like these so that we can identify people who are paying close attention to the survey questions.)

3 Outcomes

3.1 Primary outcomes

We will have two families of primary outcomes: a set of scales for external collective efficacy and a set of climate action outcomes collected during the main survey. Within each family, we will create indices or adjust p-values for multiple hypothesis testing as appropriate.

3.1.1 External collective efficacy scales

During the main experimental survey, we will elicit participants' collective external efficacy beliefs about political action on climate change, meaning their beliefs about how the government responds to collective citizen advocacy.

In particular, we will elicit agreement with three qualitative statements about the governments' responsiveness to citizen advocacy on climate change, using quantitative scales from 1 (Strongly disagree) to 7 (Strongly agree):

- People like me don't have any say about what the federal government does about issues like climate change. [-]
- Fossil fuel companies and their lobbyists have more power than citizens in determining what the US government does about climate change. [-]
- When groups of citizens push for policy on issues like climate change, the US government responds to their demands. [+]

We will define an outcome variable as a standardized index of agreement with these three statements, though we will also report regressions using standardized agreement with each statement as the outcome variable.

3.1.2 Climate action outcomes

We will collect two primary climate-action outcomes in the main experimental survey.

1. **Donation to a climate organization**

   We will inform participants that we will randomly choose 1 participant to receive a $80 bonus on Prolific, and we will tell them that they have the opportunity to preemptively donate any amount of the $80 that they may win to a climate organization. (Participants will be made aware of the bonus in consent form.)

   In particular, we will give them the opportunity to choose to donate either to the Citizens' Climate Lobby, the Natural Resource Defense Council, or the Sunrise Movement. Participants will first select whether they want to donate to any of the groups, will choose which group to donate to, and then will choose via a sliding scale how much of the $80 bonus to donate to that group. We will tell participants to choose carefully, because they will not have the opportunity to change their choice if they are selected to win the $80 bonus.

2. **Contacting Congress about climate change**

   We will tell participants that another crucial way to support climate action is to voice your policy preferences directly to Congress. We cannot directly offer a way for participants to contact legislators through the survey due to Prolific's requirement that all respondents be anonymous. However, we will first ask participants to write out a message to send to their legislators and will then offer a link to a contact portal hosted by the Natural Resource Defense Council. This contact portal then allows visitors to send Congress a message urging them to continue working to pass legislation to create clean energy jobs and fight the climate crisis.

   While we cannot observe whether participants actually contact their legislators through the portal, we can observe whether they first write out a personalized letter and then click a link to go to the contact form.

3.2 Secondary outcomes

In addition to the primary outcomes above, we will collect a series of secondary outcomes capturing other measures of political climate action and more detail of participants' beliefs about climate change, climate policy, and the government.

3.2.1 Qualitative climate worry and policy priorities

During our main experimental survey, we will elicit the following three attitudes around climate change:

- How worried they are about climate change, from 1 (Not at all worried) to 7 (Extremely worried);
- How much they want the federal government to do to slow or stop climate change, relative to what it's currently doing, from 1 (Much less) to 4 (The same as it's currently doing) to 7 (Much more);
- How they want Congress to prioritize among a set of issues (climate change, reproductive rights, reducing inflation, combating terrorism, and racial justice) by ranking them in order of priority, where 1 denotes the top priority. (The outcome variable will be rank assigned to climate change.)

During the obfuscated follow-up survey, we will also elicit the following:

- The degree to which participants want the next Congress to focus on addressing climate change, from 1 (Not at all) to 6 (Very much so). We will ask the same question around gun control, reducing inflation, and reproductive rights / abortion access to obscure our focus on climate change.

In analysis, we will standardize all of these outcomes to have mean 0 and standard deviation 1 in the control group.

3.2.2 Emotional state

We will elicit participants' emotional state by asking the following: "Please list up to 5 emotions that you're currently feeling." We will then provide five open-response blanks. On the next page of the survey, we will then ask participants to rate how strongly they are feeling each emotion, from 1 (Very weakly) to 6 (Extremely strongly).

We plan to ask a separate sample of respondents on Prolific or MTurk to categorize emotional states by how strongly they would expect those states to influence political engagement. Then, we could define outcomes based on the extent to which the treatments increase emotions that others believe drive political action. We may alter this system of classifying participants' emotions, but these outcomes will be used only for suggestive evidence on mechanisms by which the story and information treatments affect our primary action outcomes.

3.2.3 Probabilistic beliefs about US and international climate goals

We will elicit participants' beliefs about the following:

- The probability that the United States will successfully meet its 2030 goal under the Paris Agreement;
- The probability that globally we will successfully limit warming to 1.5°C.

We will not elicit pre-treatment, prior beliefs on these measures because we do not know or provide information on the "truth" for these questions. Thus, we can't identify initial over- or under-estimators in this context to test heterogeneity in treatment effects by direction of the information shock. Moreover, participants may not have the knowledge about climate goals required to answer these questions before the baseline information (Section 2.2.1), and eliciting these beliefs between the baseline and treatment information (Section 2.2.2) could alert participants to our study hypothesis.

3.2.4 Probabilistic beliefs about US climate policy and collective external efficacy

In additional to the qualitative external collective efficacy scales described in Section 3.1.1, we will elicit participants' probabilistic beliefs about US climate policy and how it responds to citizen engagement.

We will ask participants to imagine that a bill pushing for climate action were introduced to Congress in January 2023, assuming that Democrats still had majorities in the Senate and House after the 2022 midterm elections. Then, we will ask them to estimate the probability that Congress would pass the bill if either 2% of Americans or 10% of Americans contacted their national representatives to support it. We will define outcome variables as the probability a bill is passed with 2% calls, as the probability a bill is passed with 10% calls, and as the difference in the probability a bill is passed with 10% vs. 2% calls.

3.2.5 Collective internal efficacy beliefs

We will elicit participants' collective internal efficacy beliefs on climate change, meaning their beliefs about the potential to mobilize citizen advocacy. In particular, we will ask participants to answer the following on scales from 0 to 100:

- Out of 100 Americans, how many do you think would say that they think climate change is a problem the US government should take action to solve?
- In the last question, you guessed that X Americans out of 100 would say that climate change is a problem that US government should take action to solve. How many of those X Americans do you think would actually call or email their national representatives to support a climate bill if it were proposed in January 2023?

3.2.6 Stating interest in contacting legislators

In addition to our primary outcomes for whether participants write a personalized letter to legislators and click to send it (Section 3.1.2), we will also define a secondary outcome as whether participants state that they are interested in being linked to a form to contact their legislators in the main survey.

3.2.7 Letter contents

We will code up participants' personalized letters to legislators to define the following secondary outcomes:

- The length of the personalized message, in words and sentences;
- How many of the key points we recommended the letter covers: a personal reason that climate change matters to you and that you will vote in part based on the politician's climate record.

3.2.8 Donations to the Environmental Defense Fund and other advocacy groups in obfuscated follow-up

During the obfuscated follow-up, we will tell participants that we will select one participant to receive a $100 bonus, and they can choose how much (if any) of it to donate across four organizations. One of each of these four organizations will advocate for gun control, climate policy, abortion access, and protection of individual liberty. All will be framed as working via political advocacy. Participants can split the bonus across these four organizations and their own take-home pay in any way.

We will define outcomes as whether and how much participants donate to the climate organization, as well as to the other non-climate organizations.

3.2.9 Probability of voting in the midterm elections

During the obfuscated follow-up survey, we will give participants information about the upcoming midterm elections and then ask them how likely (from 0% to 100% chance) they are to vote. If some participants are taking the follow-up survey after the midterms, we will replace this question with asking whether they voted or not.

3.2.10 Clicking for information on midterm candidates' climate positions

In the obfuscated follow-up survey, we will provide participants with links to scorecards or endorsements of midterm election candidates. In particular, we will provide links to Planned Parenthood's endorsements for candidates that support abortion rights, the NRA's score cards for candidates' support of gun rights, and the Vote Climate US PAC's scorecards for candidates' climate policy positions. We will define a secondary outcome based on whether participants click to learn about climate report cards.

3.2.11 Clicks for information on advocacy groups

In addition to defining primary and secondary outcomes based on how much participants donate to environmental organizations in both the main experimental survey and obfuscated

follow-up (Section 3.1.2), we will also define secondary outcomes based on whether participants click on links for the climate organizations listed in each case.

- In the main experimental survey, we will define a secondary variable as a dummy for whether participants click on links to any of the NRDC, Sunrise Movement, or Citizens' Climate Lobby.
- In the obfuscated follow-up, we will define secondary variables as both whether participants click on a link to the Environmental Defense Fund and whether they click on links to any of the political organizations listed.

4 Analysis

4.1 Regression specifications

4.1.1 Treatment differences

In our basic specification, we will regress each outcome variable on treatment indicators as in the following regression:

$$y_i = \alpha_0 + \alpha_1 Treatment1_i + \alpha_2 Treatment2_i + A^T X_i + \epsilon_i$$

where $Treatment1$ is an indicator for being in the treatment group that just receives information about the IRA, $Treatment2$ is an indicator for being in the treatment group that receives IRA information and watches the fictional story, ϵ_i is an individual-specific error term, and X_i is a vector of controls. We describe these controls below in Section 4.2. Our primary statistical tests of interest are testing the null hypotheses that $\alpha_1 = 0$, $\alpha_2 = 0$, and $\alpha_1 = \alpha_2$.

4.1.2 Heterogeneous treatment effects by age

Next, we will test for heterogeneous treatment effects by age group:

$$y_i = \beta_0 + \beta_1 Treatment1_i + \beta_2 Treatment2_i + \beta_3 Under35_i + \beta_4 Treatment1_i \times Under35_i + \beta_5 Treatment2_i \times Under35_i + B^T X_i + \epsilon_i$$

where $Under35_i$ is a dummy set equal to 1 if respondent i is younger than age 35. Note that we will stratify recruitment so that about half of our sample is younger than 35 (see Section 2.1).

4.1.3 Heterogeneous treatment effects by baseline climate worry

We will also test for heterogeneous treatment effects by climate worry:

$$y_i = \gamma_0 + \gamma_1 Treatment1_i + \gamma_2 Treatment2_i + \gamma_3 Worried_i + \gamma_4 Treatment1_i \times Worried_i + \gamma_5 Treatment2_i \times Worried_i + G^T X_i + \epsilon_i$$

where $Worried_i$ is a dummy set equal to 1 if respondent i answers above the sample median on baseline climate worry. We will collect baseline climate worry in our screening survey (described in more detail in Section 4.2.2 below).

4.1.4 Heterogeneous treatment effects by baseline collective efficacy

We will also test for heterogeneous treatment effects by baseline collective efficacy:

$$y_i = \delta_0 + \delta_1 Treatment1_i + \delta_2 Treatment2_i + \delta_3 LowEfficacy_i + \delta_4 Treatment1_i \times LowEfficacy_i + \delta_5 Treatment2_i \times LowEfficacy_i + D^T X_i + \epsilon_i$$

where $LowEfficacy_i$ is a dummy set equal to 1 if respondent i scores below the sample median on an index of baseline external collective efficacy beliefs. We will collect baseline external collective efficacy in our screening survey (described in more detail in Section 4.2.2 below).

4.2 Control variables

We will estimate four specifications for each outcome variable, differing in the controls they include. In particular, we will estimate (1) specifications with no control variables, (2) specifications including just demographic controls, (3) specifications including just demographic controls and the lagged outcome variable (where available), and (4) specifications including both demographic controls and all baseline measures of climate attitudes and political engagement. We will determine which class of specifications to present as our preferred estimates based on balance in the final sample and power considerations based on the sample size we are ultimately able to collect.

4.2.1 Demographic controls

We will include the following demographic controls:

- Sex, coded as a dummy for being female;

- Age, coded in 5-year bin dummies (plus dummies for 18-20, over age 75, and missing age);
- Ethnicity, coded as dummies for White, Asian, Black, and Mixed / Other (categories defined by Prolific's demographic data);
- Education, coded as dummies for having a 4-year college degree interacted with dummies for being over age 25 or having missing age data;
- Affiliation with major political parties (Republican, Democratic, Independent, and Other / Prefer not to answer).

We will collect gender, age, and ethnicity from Prolific's demographic data. We will elicit education and political affiliation at the end of the main experimental survey.

4.2.2 Lagged outcome variables: Climate attitudes and political action

In some specifications, we will also control for baseline climate beliefs and political activity. We observe these controls as follows:

- At the start of the main experimental survey, we ask participants to report if they have engaged in the following forms of political action in the last two years:
  - Contacted elected representatives about a social or political issue;
  - Donated money to an organization working on a social or political issue;
  - Canvassed door-to-door on a political or social issue;
  - Signed a petition about a political or social issue;
  - Phone-banked for a political or social issue.

  In specifications that just control for lagged outcome variables, we will do the following:
  - Where the outcome variable is donation-related, control either just for a variable for having donated to a social or political organization or for a standardized index combining variables for engaging in each form of political action.
  - Where the outcome variable relates to contacting legislators, control either just for a variable for having contacted elected representatives or for the summed index.
  - Where the outcome is voting in the midterm elections, we will control for the standardized index combining variables for engaging in each form of political action.

In specifications controlling for all baseline climate beliefs and political engagement, we will either control for the index of baseline political activity or with separate binary variables for engaging in each form of action. If we adopt the latter approach, we may exclude controls for political actions that are highly uncommon in our study sample (e.g. with prevalence below 5%).

- Baseline climate worry, collected during the screening survey, answered from 1 (Not at all worried) to 7 (Extremely worried), and standardized for analysis;
- Baseline desire for federal government climate action, relative to what it's currently doing, collected during the screening survey. Answered from 1 (Much less) to 4 (The same as it's currently doing) to 7 (Much more), and standardized for analysis.
- Baseline external collective efficacy, defined as agreement from 1 to 7 with the three qualitative statements listed in Section 3.1.1. Our controls for baseline collective efficacy will either be a standardized index summed from standardized agreement with each of the three statements or three separate standardized variables corresponding to the statements. (We will choose this format based on the degree of correlation between these three measures.)

4.3 Power and sample size

We will recruit about 2000 participants per treatment arm: i.e. 2000 split between the basic control and extended control, 2000 that receive information about the IRA, and 2000 that both receive information about the IRA and watch the fictional story about climate action. With this sample size, we will be powered for the following approximate effect sizes on primary outcomes in our main survey:

- 0.09 SD for standardized outcomes;
- For binary outcomes in our main survey:
  - 2.75 pp with a control mean of 0.10;
  - 3.5 pp with a control mean of 0.20;
  - 4 pp with a control mean of 0.30;
  - 4.25 pp with a control mean of 0.40;
  - 4.5 pp with a control mean of 0.50;

Assuming about 80% follow-up in our obfuscated follow-up survey, we will be powered for the following approximate effect sizes:

- 0.1 SD for standardized outcomes;
- For binary outcomes in our follow-up survey:
  - 3 pp with a control mean of 0.10;
  - 4 pp with a control mean of 0.20;
  - 4.5 pp with a control mean of 0.30;
  - 4.75 pp with a control mean of 0.40;
  - 5 pp with a control mean of 0.50;

5 References

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