

Supplementary Information:

Quantifying the Potential Persuasive Returns to Political Microtargeting

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1 Overview of Research Design

Figure S1 provides an overview of the two-phase study design. Additional information about each step in the research process is provided in the main text and in the rest of the supplemental appendix.

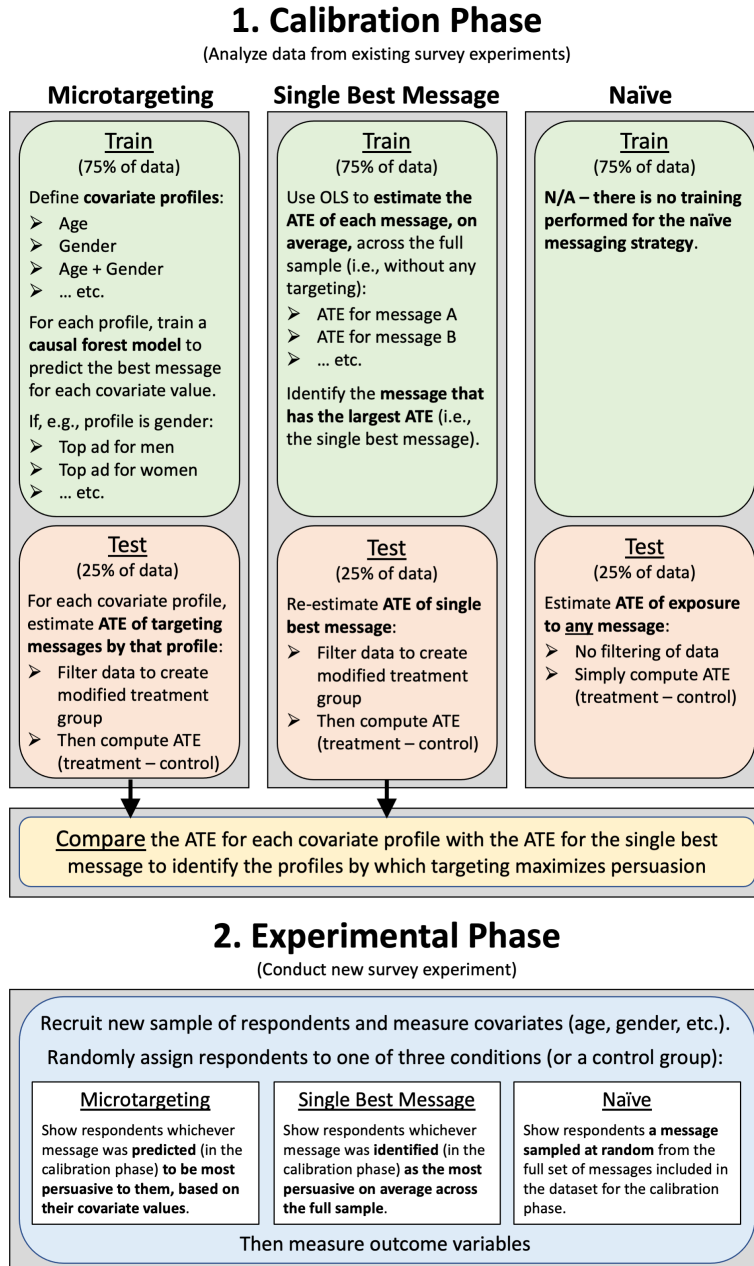


Figure S1: Overview of the two-phase study design

2 Calibration Phase

As described in the main text, in each study’s calibration phase we analyzed data from existing experiments in order to simulate the pre-test component of a campaign’s messaging strategy. Specifically, we used Monte Carlo cross-validation to identify the “top performing” combinations of covariates (i.e., *covariate profiles*)—those permutations of covariates (e.g., party identification, moral foundations) that were associated with the largest returns from microtargeting. These covariate profiles were then used to target messages to respondents in the experimental phase of each study. In the following section, we provide additional details about the set-up of the calibration phase.

2.1 Study 1

As described in the main text, the two datasets for Study 1’s calibration phase come from the two survey experiments reported by (1). In the U.S. Citizenship Act experiment, a total of $n = 17,013$ respondents were randomized to one of 26 treatment groups or a control group (average n per treatment = 348; n in the control group = 7,975). In the Universal Basic Income (UBI) experiment, a total of $n = 6,408$ respondents were randomized to one of 10 treatment groups or a control group (average n per treatment = 376; n in the control group = 2,647).¹ Information about the demographic composition of respondents in each dataset is reported in the **Covariates** section, and information about the persuasive messages is provided in the **Messages** section. In both datasets, our primary outcome of interest is support for the relevant policy proposal (the U.S. Citizenship Act or a UBI). For the latter dataset, we reverse-coded the outcome scale for all analyses, as the treatment messages uniformly expressed opposition to a UBI. As a result, in both cases, higher ratings indicate stronger agreement with the treatment messages.

The wording of the outcome variables was as follows:

- **U.S. Citizenship Act:** “Do you support or oppose the US Citizenship Act?” (7-point Likert scale: [1] Strongly oppose - [4] Not sure - [7] Strongly support)
- **UBI:** “Do you think the U.S. federal government should create a Universal Basic Income of \$1000 per month for every citizen?” (7-point Likert scale: [1] Definitely no - [4] Not sure - [7] Definitely yes; reverse-coded)

¹In the original experiments—reported by (1)—there were also additional treatment messages *opposed* to the U.S. Citizenship Act and *in favor* of a UBI. However, due to resource constraints associated with the experimental phase of the present study, we restricted our focus here to the 26 messages in favor of the U.S. Citizenship Act and the 10 messages that were opposed to UBI. This approach allowed us to assess whether our results held across campaigns that varied in their ideological slant (liberal vs. conservative) and valence (pro vs. anti).

2.1.1 Covariates

Table S1 describes the covariates used in the calibration phase of Study 1. These covariates were included in both the U.S. Citizenship Act and UBI datasets, though the composition of the Moral Foundations (MF) indices varied slightly across the two datasets (as summarized below).

Table S1: Covariates used in Study 1 calibration phase

Covariate	Values
Age	In years
Gender	Female/Male
Party identification	Democrat/Independent/Republican
Ideology	Liberal/Moderate/Conservative
Religiosity	1-7 Likert scale (Not at all religious → Very religious)
MF1	1-7 Likert scales (average of 6 items)
MF2	1-7 Likert scales (average of 4-5 items)
MF3	1-7 Likert scales (average of 1-2 items)

^a MF = Moral Foundations dimension

Moral Foundations

As described in the main text, the Moral Foundations (MF) covariates reflect respondents' endorsement of three sets of moral values (MF1, MF2, MF3), inferred based on their responses to twelve questions originally taken from the Moral Foundations Questionnaire. These twelve items were developed to measure people's endorsement of several core moral foundations: the "binding" foundations of loyalty, authority, and sanctity; the "individualizing" foundations of care and fairness; and the foundation of "liberty" (2, 3). The full slate of questions was originally presented to respondents across two sets of six questions, summarized in Table S2:

- **The stem for the first six items was:** "When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking?" (1 = *Not at all relevant* → 7 = *Extremely relevant*)
- **The stem for the second six items was:** "To what extent do you agree or disagree with the following sentences?" (1 = *Strongly disagree* → 7 = *Strongly agree*)

Table S2: Items from Moral Foundations Questionnaire

Variable	Set	Text
mfq1a	1	Whether or not someone suffered emotionally.
mfq1b	1	Whether or not some people were treated differently than others.
mfq1c	1	Whether or not someone’s action showed love for his or her country.
mfq1d	1	Whether or not someone showed a lack of respect for authority.
mfq1e	1	Whether or not someone violated standards of purity and decency.
mfq1r	1	Whether or not everyone was free to do as they wanted.
mfq2a	2	Compassion for those who are suffering is the most crucial virtue.
mfq2b	2	When the government makes laws, the number one principle should be ensuring that everyone is treated fairly.
mfq2c	2	I am proud of my country’s history.
mfq2d	2	Respect for authority is something all children need to learn.
mfq2e	2	People should not do things that are disgusting, even if no one is harmed.
mfq2q	2	The government interferes far too much in our everyday lives.

For each dataset, we used principal component analysis (PCA) to identify which of three dimensions each of the items loaded onto most strongly. We specified three dimensions, corresponding to the three expected categories of moral foundations: the “individualizing,” “binding,” and “liberty” foundations.² We assigned each item to the dimension upon which it loaded most strongly. To generate individual scores for the MF1, MF2, and MF3 indices, we then took a simple mean of each respondent’s ratings for the items grouped within each dimension. The resulting loading patterns conformed closely to theoretical expectations (i.e., generally speaking: MF1 = endorsement of binding foundations; MF2 = individualizing foundations; MF3 = liberty foundation), though there was some variability across the two datasets. The dimension loadings for the U.S. Citizenship Act and UBI datasets are shown in Tables S3 and S4, respectively.

²To improve the reliability of our estimates for the UBI dataset, we used the full dataset reported by (1) to estimate item loadings—namely, we also included respondents who were assigned to treatment messages *in favor* of UBI (which, as noted above, are not otherwise analyzed here).

Table S3: Loadings for Moral Foundations items in U.S. Citizenship Act dataset

Item	F1	F2	F3	F max	F label
mfq1a	0.14	0.79	-0.11	0.79	MF2
mfq1b	0.12	0.83	-0.06	0.83	MF2
mfq1c	0.76	0.18	0.02	0.76	MF1
mfq1d	0.77	0.30	-0.04	0.77	MF1
mfq1e	0.64	0.38	0.02	0.64	MF1
mfq1r	0.22	0.50	0.28	0.50	MF2
mfq2a	0.14	0.71	0.15	0.71	MF2
mfq2b	0.12	0.67	0.30	0.67	MF2
mfq2c	0.75	-0.18	0.14	0.75	MF1
mfq2d	0.71	0.16	0.23	0.71	MF1
mfq2e	0.55	0.19	0.26	0.55	MF1
mfq2q	0.17	0.11	0.89	0.89	MF3

Table S4: Loadings for Moral Foundations items in UBI dataset

Item	F1	F2	F3	F max	F label
mfq1a	0.09	0.76	0.18	0.76	MF2
mfq1b	0.08	0.82	0.17	0.82	MF2
mfq1c	0.64	0.15	0.37	0.64	MF1
mfq1d	0.71	0.29	0.20	0.71	MF1
mfq1e	0.59	0.37	0.21	0.59	MF1
mfq1r	0.11	0.39	0.68	0.68	MF3
mfq2a	0.18	0.73	0.00	0.73	MF2
mfq2b	0.21	0.68	0.02	0.68	MF2
mfq2c	0.73	-0.21	0.18	0.73	MF1
mfq2d	0.78	0.17	0.01	0.78	MF1
mfq2e	0.66	0.21	-0.03	0.66	MF1
mfq2q	0.19	-0.02	0.75	0.75	MF3

Sample Composition

Figures S2 and S3 summarize the distribution of each of the pre-treatment covariates in the two datasets. The exact wording of each of these items is provided in the **Pre-Treatment Covariates** section.

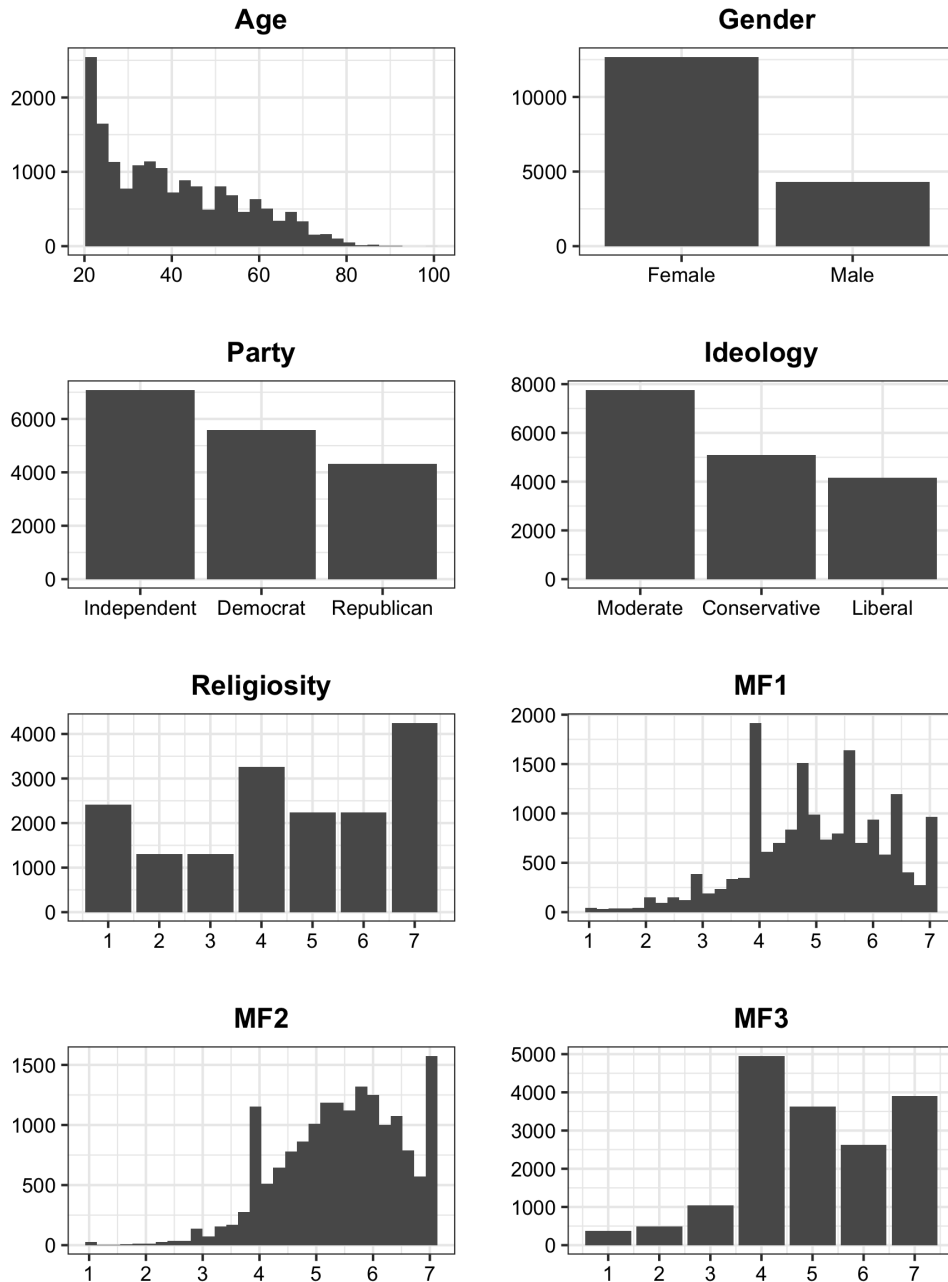


Figure S2: Distribution of pre-treatment covariates for the Study 1 calibration phase (U.S. Citizenship Act dataset)

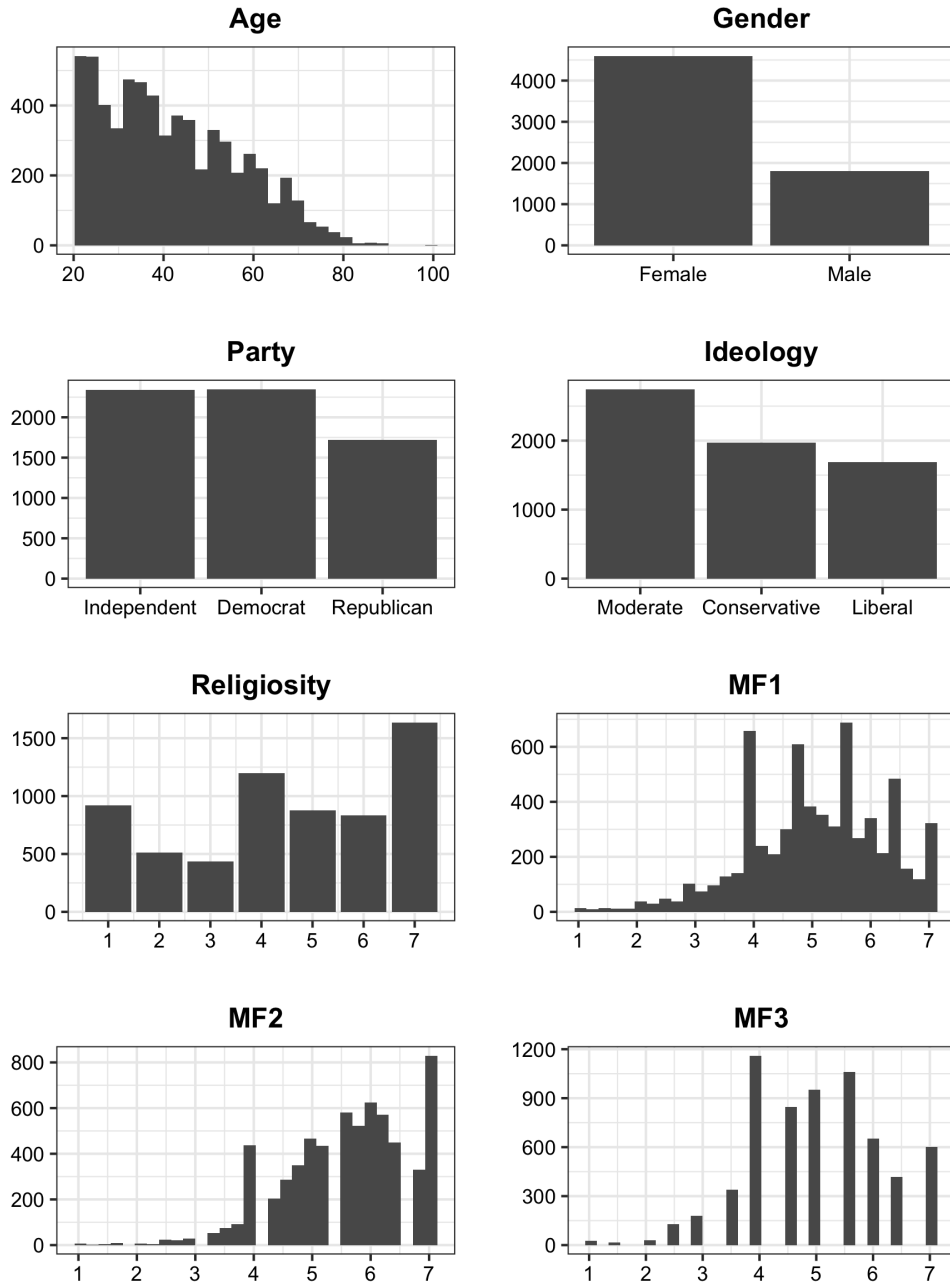


Figure S3: Distribution of pre-treatment covariates for the Study 1 calibration phase (UBI dataset)

2.1.2 Messages

The shorthand labels and URL links for the control and treatment messages in the U.S. Citizenship Act and UBI datasets are shown in Tables S5 and S6, respectively.

Table S5: Message names and URLs for U.S. Citizenship Act dataset

Message name	URL
control	https://youtu.be/o5S0bInsx7g
adhominem	https://youtu.be/QQBws3fPybQ
authority-constitution	https://youtu.be/OTPkW_uNJLA
authority-crime	https://youtu.be/dnuTEPHC6vY
authority-parents	https://youtu.be/XLMSgR0ApWw
care-betterlife	https://youtu.be/xqP-guV2l38
care-exploitation	https://youtu.be/dkASMSRBYFo
care-families	https://youtu.be/TCJloyv4gok
commonsense	https://youtu.be/d9tAnEsN15k
compromise	https://youtu.be/jnezBET25Xs
descriptive	https://youtu.be/V6TZBwNILmI
evidence-innovation	https://youtu.be/reP58qRaWGo
evidence-socialsecurity	https://youtu.be/4UQPImGLnTM
evidence-workingage	https://youtu.be/_pknbenIpGg
expert-growth	https://youtu.be/u6bw5bmsyGI
expert-workers	https://youtu.be/TNM9F0GW5t4
fairness-dreamers	https://youtu.be/zg9PJ-BlwUo
fairness-essentialworkers	https://youtu.be/FGIXBrHmXRg
fairness-taxes	https://youtu.be/WqHoORZkE6I
fairness-usfault	https://youtu.be/E-GK5Fe59LU
liberty-companies	https://youtu.be/6Q92mYHWHls
liberty-immigrants	https://youtu.be/-K3Uwu4o0GI
loyalty-americandream	https://youtu.be/0K6qSU2ExBY
loyalty-americanprosperity	https://youtu.be/4KWlXVGeL3k
religious	https://youtu.be/94ih9OkSCKE
sanctity-drugs	https://youtu.be/yP-fYRIHHjk
sanctity-history	https://youtu.be/tzKtWHhyuxk

Table S6: Message names and URLs for UBI dataset

Message name	URL
control	https://youtu.be/kNNIMPPZ64E
authority	https://youtu.be/SpaRKhVmaHU
care	https://youtu.be/B_FPtA2cw-o
descriptive	https://youtu.be/5lt_10YycGw
evidence	https://youtu.be/QYtaEcJxq4o
expert	https://youtu.be/7KFWaC7DPpQ
fairness	https://youtu.be/7Ztshw_h3fc
liberty	https://youtu.be/FI-ik4HyOi8
loyalty	https://youtu.be/SzS9i1QBJC0
religious	https://youtu.be/psn_RwD0OI8
sanctity	https://youtu.be/KnguULtXBQM

2.1.3 Cross-Validated Results

As described in the main text, the primary goal of the calibration phase was to identify the “top performing” covariate profiles—that is, the sets of covariates for which microtargeting conferred the largest persuasive advantage over alternative strategies. The table below summarizes the results of the Study 1 calibration phase across 250 cross-validation runs (i.e., 250 splits of the data into training/test sets). For both policy issues, we report the estimated persuasive impact of each of our three messaging strategies, relative to the control group; for the microtargeting strategy, we further disaggregate these results based on the number of covariates included in each covariate profile. Note that the estimates for the top performing covariate profiles are likely to be overestimated due to the winner’s curse and should be interpreted with caution. The results of this phase of analysis were then used to inform our subsequent targeting of messages in the experimental phase of the study.

To complement this table, Figures S4 and S5 also display the expected persuasive impact of microtargeting for *every* individual covariate profile that we considered. Each circular point represents a covariate profile, and the red triangles represent the average persuasive effect across covariate profiles within a given stratum (e.g., all covariate profiles containing between 2-3 covariates). To facilitate comparison, we also overlay horizontal lines corresponding to the cross-validated persuasion estimates for the *single-best-message* and *naïve* messaging strategies. As these figures indicate, within each stratum, the expected persuasive impact of political microtargeting varied widely across covariate profiles but generally out-performed both the single-best-message and naïve messaging strategies.

Table S7: Results of Study 1 cross-validations identifying the covariate profiles for microtargeting that produced the largest expected persuasive advantage relative to other messaging strategies.

Issue	Messaging Strategy	Estimated Persuasive Impact (Percentage Points)	
<i>U.S. Citizenship Act</i>	Naïve	0.43	
	Single Best Message	3.07	
	Microtargeting by:	Average Profile	Top-Performing Profile
	• 1 Covariate	5.08	8.15 (<i>Party</i>)
	• 2-3 Covariates	5.38	7.69 (<i>Ideology, Age</i>)
	• 4+ Covariates	5.85	7.40 (<i>Ideology, Age, MF1, MF2</i>)
<i>Universal Basic Income</i>	Naïve	3.45	
	Single Best Message	6.14	
	Microtargeting by:	Average Profile	Top-Performing Profile
	• 1 Covariate	7.88	9.79 (<i>MF2</i>)
	• 2-3 Covariates	7.67	11.09 (<i>MF1, MF2</i>)
	• 4+ Covariates	7.73	10.44 (<i>Ideology, Gender, MF1, MF2</i>)

Note. Reported estimates are the median(ATE) across 250 train-test splits. For the microtargeting strategy, we present results for both the average covariate profile and the top performing covariate profile, stratified by the number of covariates used for targeting (1, 2-3, or 4+ covariates). For the “average” profiles, we report the average median(ATE) across all covariate profiles within each stratum. For the “top performing” profiles, we report the median(ATE) of the top-performing covariate profile within each stratum, for which the expected persuasive impact of targeting is largest relative to the “single best message” strategy. For ease of interpretation, all estimates are coded in the same direction, such that higher values indicate greater persuasion. The covariates MF1 and MF2 are respondents’ endorsements of the moral values of authority, loyalty, and sanctity (MF1) and care and fairness (MF2), respectively.

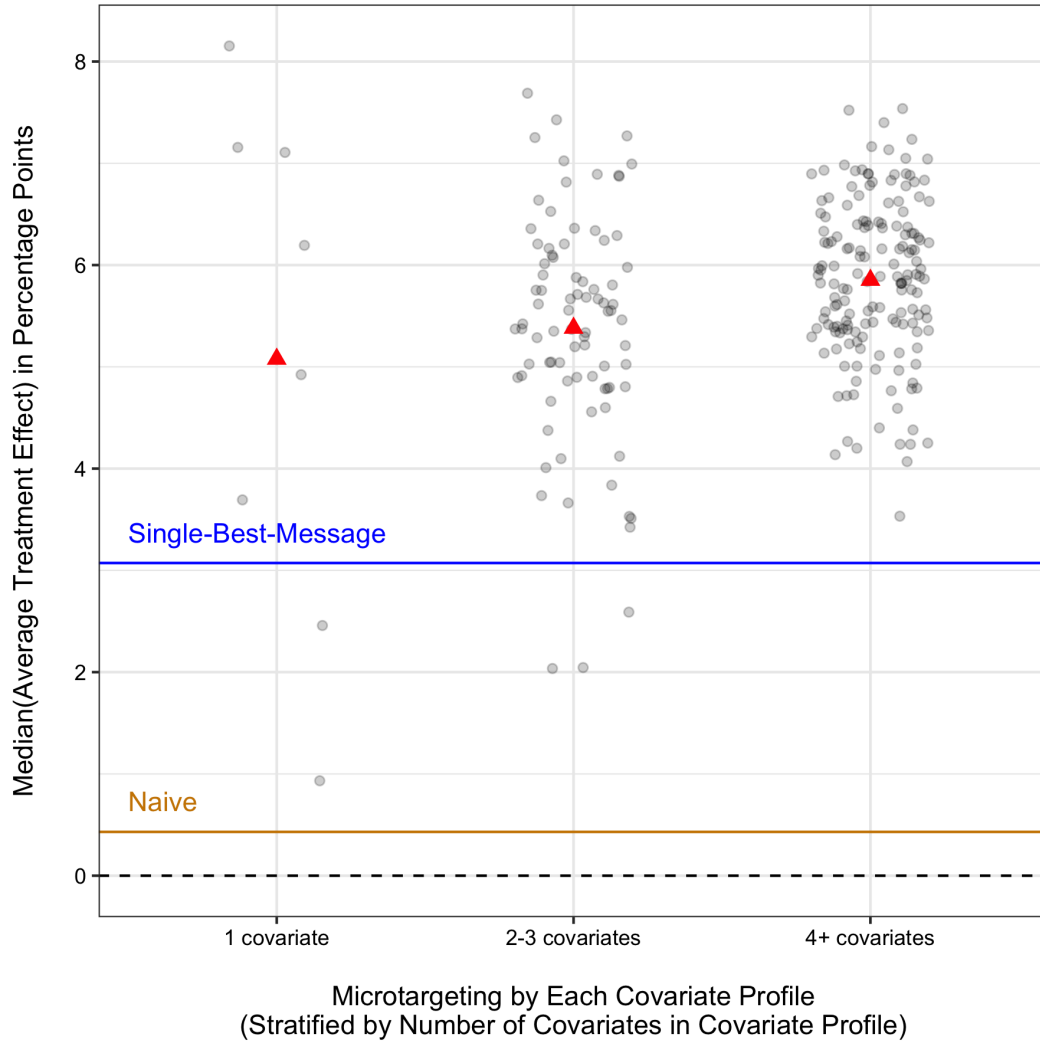


Figure S4: Study 1 calibration phase persuasion estimates across train-test splits (U.S. Citizenship Act dataset). Each circle corresponds to the median impact of microtargeting by a single covariate profile (horizontal jitter added to aid visibility). Red triangles represent the average persuasive effect across covariate profiles within each stratum.

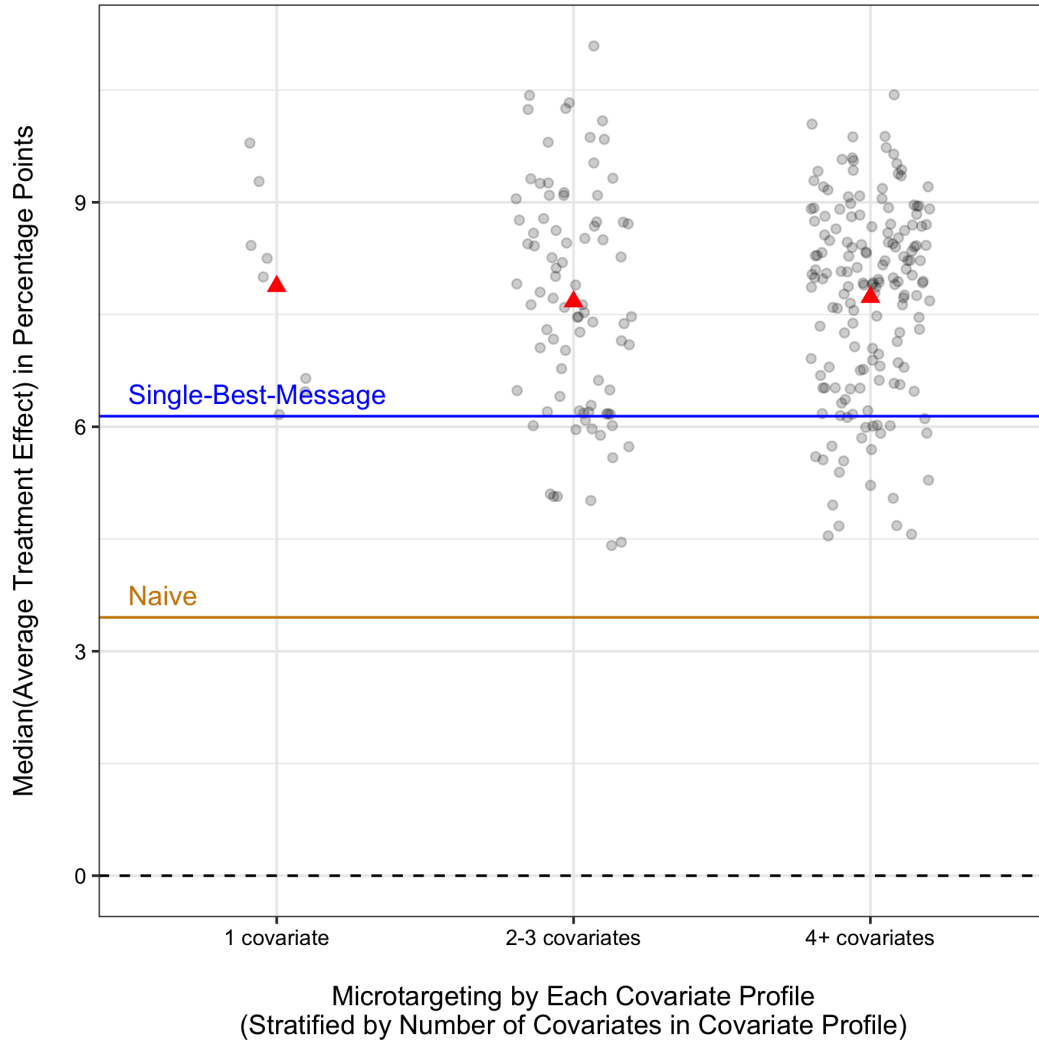


Figure S5: Study 1 calibration phase persuasion estimates across train-test splits (UBI dataset). Each circle corresponds to the median impact of microtargeting by a single covariate profile (horizontal jitter added to aid visibility). Red triangles represent the average persuasive effect across covariate profiles within each stratum.

2.1.4 Identifying Messages for the Experimental Phase

To determine which messages to show which respondents in the experimental phase of Study 1, we then identified the specific treatment messages that were predicted to be most effective for different groups of respondents. For example, in the calibration phase for the U.S. Citizenship dataset, party identification emerged as the top-performing profile within the single covariate stratum (across cross-validation runs). To use this profile for targeting in the experimental phase, we then estimated which treatment message was predicted to be most persuasive for self-identified Democrats, Independents, and Republicans. To do so, we trained a further series of generalized random forest models—this time on the *entirety* of the dataset (i.e., not using cross-validation)—and recorded the message with the largest predicted effect for each unique combination of covariate values. This procedure generated a “look-up” table of treatment-covariate value combinations for each covariate profile, which was used to determine which message was shown to respondents assigned to the microtargeting condition in the follow-up experiment. To illustrate, Table S8 reports the messages used in the U.S. Citizenship Act module to target respondents based on their partisan affiliation. For brevity, we do not report the look-up tables corresponding to the other top-performing covariate profiles here, but they can be accessed online at <https://osf.io/t3dhe/>.

Table S8: Microtargeting predictions for the party ID profile (U.S. Citizenship Act dataset)

Party ID	Message
Democrat	care-families
Independent	care-families
Republican	sanctity-drugs

At this stage, we also identified the message that performed best, on average, across the full population (i.e., absent any targeting), which we showed to respondents assigned to the *single-best-message* condition in the experimental phase of Study 1. Specifically, we used OLS on the entirety of each dataset to estimate the average treatment effect (ATE) of assignment to each message (relative to the control group) and recorded the message with the largest ATE: (i) *care-families* for the U.S. Citizenship Act module, and (ii) *evidence* for the UBI module. Note that *care-families* was also the message that was predicted to be most effective for Democrats and Independents in Table S8; as such, when evaluating the impact of targeting based on party identification for this module, we are essentially estimating the relative efficacy of showing a different message to Republicans versus Democrats and Independents, as opposed to showing all respondents the message that was predicted to be most impactful for both Democrats and Independents (and the sample as a whole).

2.2 Study 2

As described in the main text, in the calibration phase of Study 2 we analyzed the data from the first survey experiment reported in (4). In this study, U.S. adults ($n = 3,990$) were asked about three policy issues, drawn from a list of topics ranging from climate change to gun control to income inequality. For each issue, respondents were assigned to either a treatment or control group. Respondents in the treatment group were shown a progressive issue advertisement and then asked to rate their agreement with the message's core claims, whereas respondents in the control group rated their agreement without viewing the message. In total, there were 48 different treatment videos, spanning 36 distinct outcome variables. All outcome variables were measured using 5-point Likert scales; the wording of all items is reported in Table S4 of the supplementary material of (4), available [online](#).³ The messages were professionally-produced video ads drawn from the Peoria Project's [database of progressive appeals](#). Of note, in the original experiment, respondents could also be assigned to view a detailed transcript of the video ad. However, in our re-analysis of these data, we only include respondents that were assigned to either the video condition or control group.

2.2.1 Covariates

Table S9 reports the covariates used in the Study 2 calibration phase, and Figure S6 shows the distribution of these covariates in the data. In contrast to Study 1, Independent and moderate respondents who indicated in Study 2 leaning toward one party/ideology over the other were classified as partisans and ideologues, respectively. The Cognitive Reflection Test (CRT) included four items measuring respondents' reliance on intuitive versus deliberative thinking (5, 6), and the political knowledge measure consisted of four factual recall items measuring respondents' familiarity with American politics and elected officials (7).

Table S9: Covariates used in Study 2 calibration phase

Covariate	Values
Age	In years
Gender	Female/Not Female (Male or Other)
Party identification	Democrat/Independent/Republican
Ideology	Liberal/Moderate/Conservative
Education	College degree/No College degree
Race	White/Non-white
Income	<\$50k/\$50k-100k/>\$100k
Cognitive Reflection Test	Prop. of correct responses to 4 CRT items
Political knowledge	Prop. of correct responses to 4 PK items

³In Table S18, appearing later in the supplement, we also report the outcome variables as they appeared in our Study 2 experimental phase.

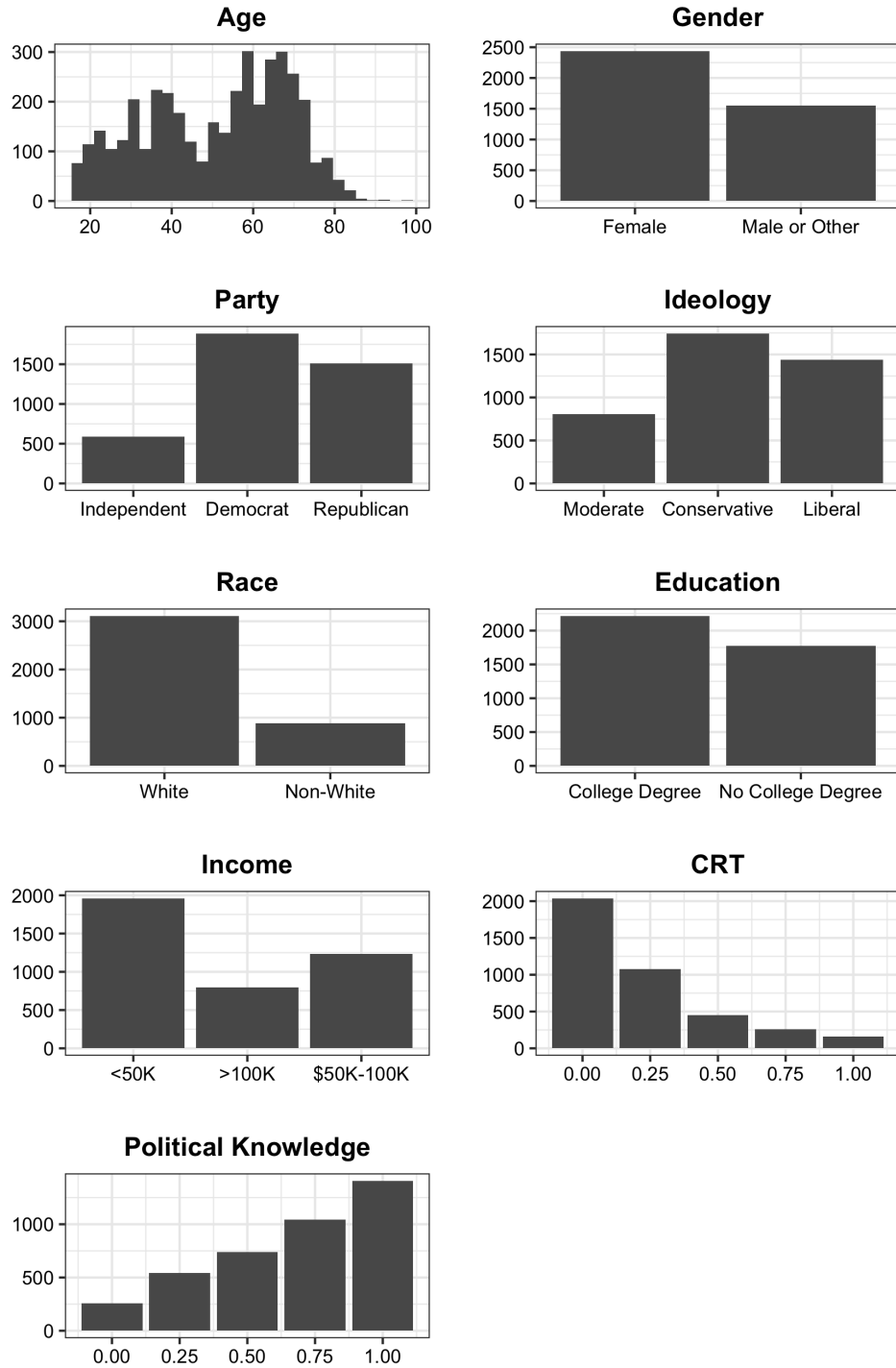


Figure S6: Distribution of pre-treatment covariates for the Study 2 calibration phase. Note: CRT and political knowledge were rescaled to range from 0-1, corresponding to the proportion of correct responses for each set of questions.

2.2.2 Messages

The full list of treatment messages is reported in Table S2 of the supplementary material of (4), available [online](#). In Table S18, appearing later in the supplement, we also report the titles of the videos (and their corresponding outcomes) as they appeared in our Study 2 experimental phase. The videos themselves can also be viewed [online](#).

2.2.3 Cross-Validated Results

In the table below, we summarize the results of the calibration phase across 250 cross-validation runs. Specifically, we report the estimated persuasive impact of assignment to one of our three message strategies, relative to the control group; for the microtargeting condition, we again further disaggregate these results based on the number of covariates used for targeting. Figure S7 then plots the expected persuasive impact of microtargeting for *every* covariate profile (i.e., combination of covariates) that we considered in the Study 2 calibration phase, stratified based on the number of covariates within each profile (1, 2-3, 4+). Note that the estimates of persuasion in Studies 1 and 2 are not comparable, given differing outcome scales, control groups (i.e., true control group versus placebo video), and sample characteristics. Moreover, estimates for the top-performing covariate profiles are again likely to be inflated in Study 2 (due to the winner’s curse).

Table S10: Results of Study 2 cross-validations identifying the covariate profiles for microtargeting that produced the largest expected persuasive advantage relative to other messaging strategies.

Messaging Strategy	Estimated Persuasive Impact (Percentage Points)	
Naïve	4.53	
Single Best Message	11.70	
Microtargeting by:	Average Profile	Top-Performing Profile
• 1 Covariate	13.00	18.75 (<i>Ideology</i>)
• 2-3 Covariates	13.20	18.78 (<i>Ideology, Political Knowledge, Race</i>)
• 4+ Covariates	13.70	17.95 (<i>Ideology, Political Knowledge, Race, Income</i>)

Note. Reported estimates are the median(ATE) across 250 train-test splits. For the microtargeting strategy, we present results for both the average covariate profile and the top performing covariate profile, stratified by the number of covariates used for targeting (1, 2-3, or 4+ covariates). For the “average” profiles, we report the average median(ATE) across all covariate profiles within each stratum. For the “top performing” profiles, we report the median(ATE) of the top-performing covariate profile within each stratum, for which the expected persuasive impact of targeting is largest relative to the “single best message” strategy. Contrary to Study 1, persuasion in Study 2 was measured relative to a true control group who were not exposed to a message of any kind.

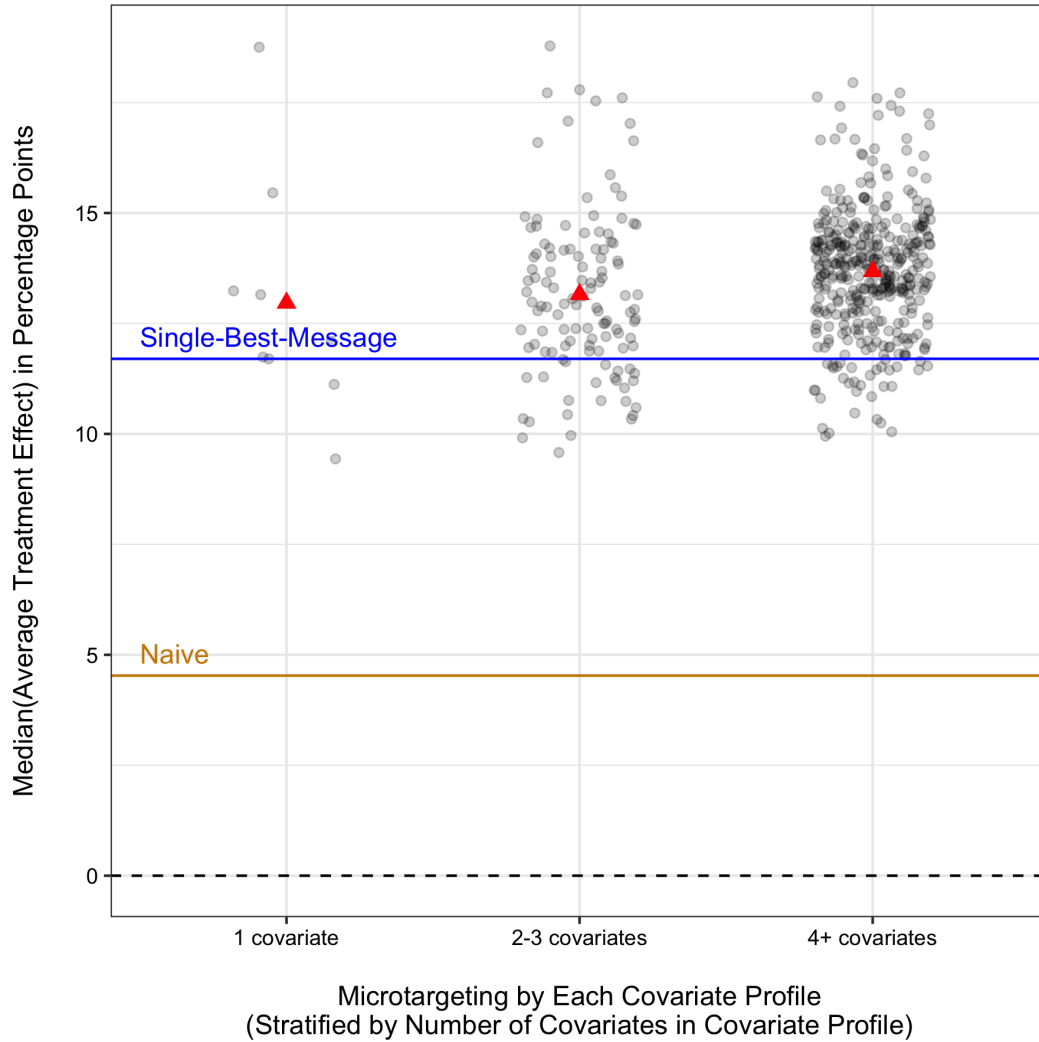


Figure S7: Study 2 calibration phase persuasion estimates across train-test splits (multi-issue dataset). Each circle corresponds to the median impact of microtargeting by a single covariate profile (horizontal jitter added to aid visibility). Red triangles represent the average persuasive effect across covariate profiles within each stratum.

2.2.4 Identifying Messages for the Experimental Phase

As in Study 1, after identifying the top-performing covariate profiles using cross-validation, we trained a further series of generalized random forest models on the full Study 2 dataset, in order to determine the particular treatment messages to show to respondents in the microtargeting condition of the experimental phase. The corresponding “look-up” tables (for each of the three top-performing covariate profiles) are accessible online at <https://osf.io/t3dhe/>. In addition, we again identified the message to use in the single-best-message condition by estimating OLS models and selecting the video with the largest estimated ATE (in this case, a [video](#) that argued that legal representation should be provided to children who are undocumented immigrants).

3 Experimental Phase

3.1 Survey Sample

As described in the main text, we contracted with Lucid in February 2022 to recruit a sample of U.S. adults quota-matched to the national distribution on age, gender, ethnicity and geographic region (8), with a pre-registered sample size of 5,000 respondents. In total, 5,284 respondents completed at least one experiment module and were thus included in our resulting analyses. Figure S8 summarizes the demographic composition of this sample. Note that, contrary to Study 1, respondents had the option of self-identifying as male, female, or another gender identity. As noted below, only a small number of respondents (0.41% of the full sample) identified outside the gender binary.

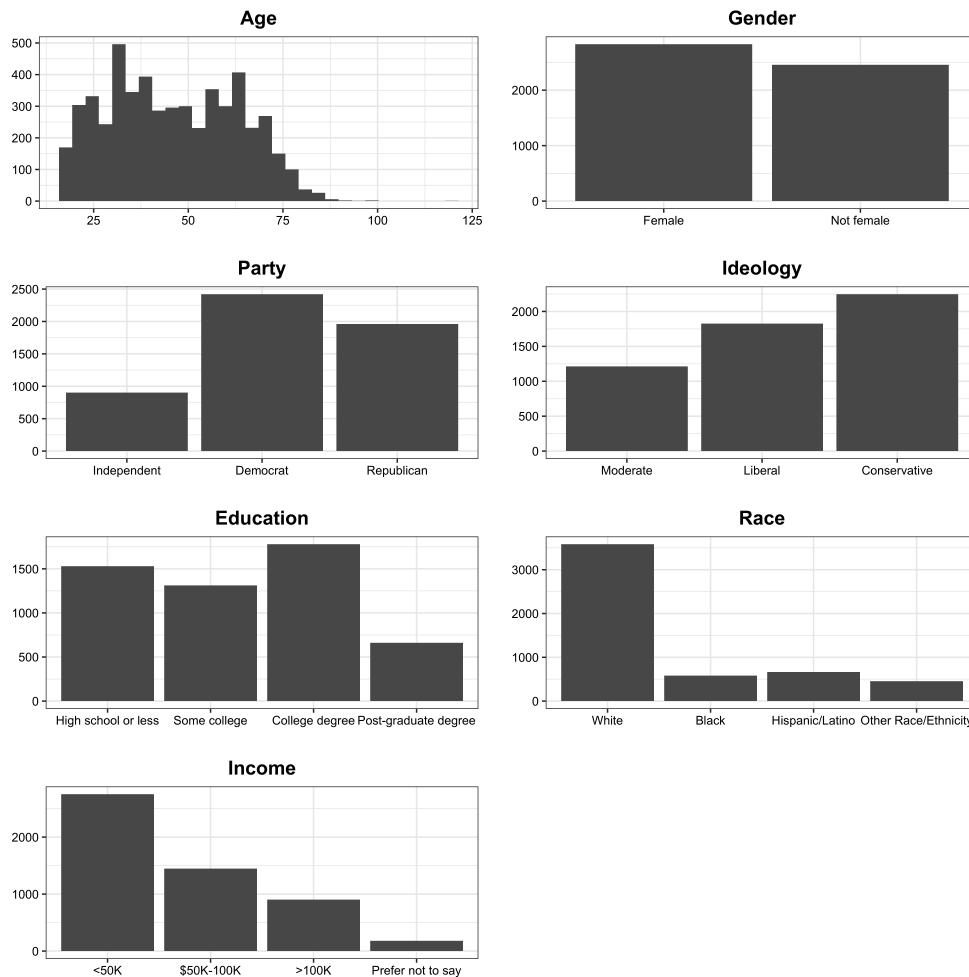


Figure S8: Distribution of pre-treatment covariates in the experimental phase

3.2 Survey Design

The survey consisted of three experiment modules, corresponding to each of the three datasets used in the calibration phase: *U.S. Citizenship Act* and *UBI* (Study 1), and *Multi-Issue* (Study 2). The order in which the modules were completed by respondents was fully randomized. Each module was a self-contained experiment in which respondents were randomized to one of several conditions, where randomization to condition was independent across modules. Prior to completing any of the experiments, respondents provided informed consent and were required to pass an audiovisual check to ensure they were willing and able to watch video content. They then answered a battery of demographic and psychological measures, which we used to determine the message they would be shown if assigned to the microtargeting condition of any experiment.

3.2.1 Audiovisual Check

Respondents were first asked two questions to determine whether they both watched and listened to a brief [test clip](#). This clip included an image of a cow and audio of a chicken clucking; respondents were asked what kind of animal they saw and heard in the clip to confirm that they were paying attention to the clip. Respondents were required to answer both of these questions correctly in order to proceed to the rest of the survey and were given two chances to complete this step before being removed from the survey sample. 77.8% of respondents passed these technical checks.

- Instructions: “As part of this study, you may be required to watch videos with sound. Please confirm you are able to do so by watching the short video below and answering the questions on the next page. Please watch carefully. If you do not answer these questions correctly, you will not be eligible to participate in this survey. Before you start the clip, make sure your sound is on, and press play when you are ready to begin. Note that the video may take a few seconds to load.”
- Visual check: “What kind of animal did you **see** when you watched the video?” (1 = *Cow**; 2 = *Chicken*; 3 = *Dog*; 4 = *Cat*; 5 = *Pig*)
- Audio check: “What kind of animal did you **hear** when you listened to the video?” (1 = *Chicken**; 2 = *Cow*; 3 = *Dog*; 4 = *Cat*; 5 = *Pig*)

3.2.2 Pre-Treatment Covariates

Respondents then completed a series of pre-treatment covariates, corresponding to the demographic and psychological variables used in the calibration phase. All items except for political knowledge were forced-response.

1. Gender: “What is your gender?” (1 = *Male*, 2 = *Female*, 3 = *Other (please specify)*)
2. Age: “What is your age (in years)?”

3. Hispanic origin: “Are you of Hispanic, Latino, or Spanish origin?” (1 = Yes, 0 = No)
4. Race: “Please choose one or more races that you consider yourself to be. For this survey, Hispanic origin is not a race. (Please select all that apply)” (Check all that apply; 1 = White, 2 = Black or African-American, 3 = American Indian or Alaska Native, 4 = Asian, 5 = Native Hawaiian or other Pacific Islander, 6 = Other (please specify))
5. Income: “Thinking back over the past year, what was your family’s annual income?” (1 = Less than \$10,000, 2 = \$10,000-\$19,999, 3 = \$20,000-\$29,999, 4 = \$30,000-\$39,999, 5 = \$40,000-\$49,999, 6 = \$50,000-\$74,999, 7 = \$75,000-\$99,999, 8 = \$100,000-\$149,999, 9 = \$150,000 or more, 10 = Prefer not to say)
6. Education: “What is the highest level of education you have completed?” (1 = Did not graduate from high school, 2 = High school graduate, 3 = Some college, but no degree, 4 = 2-year college degree, 5 = 4-year college degree, 6 = Post-graduate degree (MA, MBA, JD, PhD, etc.))
7. Partisanship, measured using a series of branching questions:
 - “Generally speaking, do you consider yourself a . . .” (1 = Democrat, 2 = Republican, 3 = Independent, 4 = Other party)
 - (If respondents selected either Democrat or Republican) “Would you call yourself a strong [**Democrat/Republican**] or a not very strong [**Democrat/Republican**]?” (1 = Strong [Democrat/Republican], 2 = Not very strong [Democrat/Republican])
 - (If respondents selected either Independent or other party) “Do you think of yourself as closer to the Republican Party or to the Democratic Party?” (1 = Closer to the Republican Party, 2 = Closer to the Democratic Party, 3 = Neither)
8. Ideology, measured using a series of branching questions:
 - “Generally speaking, do you usually think of yourself as a liberal, a conservative, a moderate, or haven’t you thought much about this?” (1 = Liberal, 2 = Conservative, 3 = Moderate, 4 = Haven’t thought much about it)
 - (If respondents selected either liberal or conservative) “Would you call yourself a strong [**liberal/conservative**] or a not very strong [**liberal/conservative**]?” (1 = Strong [liberal/conservative], 2 = Not very strong [liberal/conservative])
 - (If respondents selected either moderate or haven’t thought much about it) “Do you think of yourself as closer to liberals or closer to conservatives?” (1 = Closer to liberals, 2 = Closer to conservatives, 3 = Neither)
9. Political knowledge, measured using a four-item battery of factual recall questions about political leaders and institutions. Starred responses were coded as correct. All other responses (including missing data) were coded as incorrect.

- “Whose responsibility is it to decide if a law is constitutional or not?” (1 = *The President*, 2 = *Congress*, 3 = *The Supreme Court**; order randomized)
- “Whose responsibility is it to nominate judges to federal courts?” (1 = *The President**, 2 = *Congress*, 3 = *The Supreme Court*; order randomized)
- “Do you know what job or political office is currently held by Nancy Pelosi? Is it:” (1 = *Speaker of the House**, 2 = *Treasury Secretary*, 3 = *Senate Majority Leader*, 4 = *Justice of the Supreme Court*, 5 = *Governor of New Mexico*; order randomized)
- “Do you know what job or political office is currently held by Janet Yellen? Is it:” (1 = *Attorney General*, 2 = *Justice of the Supreme Court*, 3 = *Treasury Secretary**, 4 = *House Republican Leader*, 5 = *Secretary of State*; order randomized)

11. Moral foundations, measured using the 12 items described in Table S2.

3.3 Study 1

3.3.1 Experimental Design

The design for the Study 1 modules is shown in Figure S9. We used an identical design for the U.S. Citizenship Act and UBI modules. In the microtargeting condition, Profiles 1, 2, and 3 correspond to the “top-performing” covariate profiles from the calibration phase that contained 1 covariate, 2-3 covariates, or 4 or more covariates, respectively. To assign respondents in the microtargeting condition to the appropriate video, we passed their pre-treatment covariate values into an .R script via a web service. We then used the “look-up” tables generated during the calibration phase to match each respondent to the message that was predicted to be most persuasive to them, given their covariate values. The .R script that performed these computations can be accessed online at <https://osf.io/t3dhe/>.

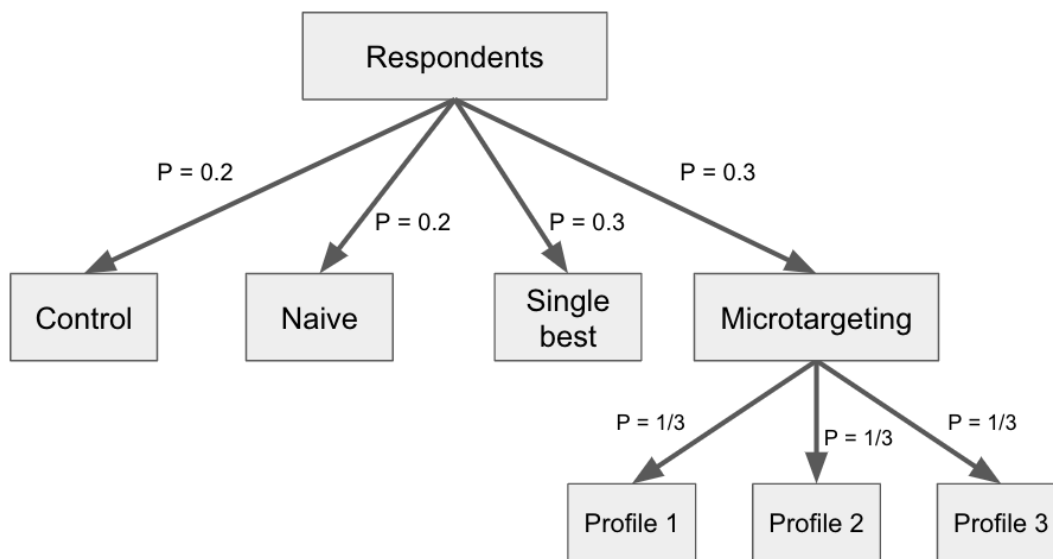


Figure S9: Design of the Study 1 experimental phase. P denotes the probability of being assigned to a given condition.

Of note, in Study 1 the calibration phase dataset only contained a dichotomous measure of gender—meaning that the targeting models were trained on a binary measure—but our survey measure in the experimental phase allowed respondents to select an option other than “Male” or “Female.” In order to facilitate targeting by gender in the experimental phase we randomly sampled a value of “Male” or “Female” for the very small portion of respondents who identified outside the gender binary (0.41% of respondents).

Our primary outcome of interest for these two modules was a measure of support or opposition to the focal policy (i.e., the U.S. Citizenship Act or UBI), identical to the measures used in the calibration phase studies. For UBI, we again reverse-coded this item so that higher ratings indicated greater agreement with the presented message (i.e., stronger opposition to a UBI). In addition, as noted in our pre-analysis plan, we also measured two secondary variables for exploratory analyses: (i) a measure of *personal*

importance, and (ii) a measure of *sharing intentions*.

1. Attitude (primary outcome):

- **U.S. Citizenship Act:** “Do you support or oppose the U.S. Citizenship Act?” (7-point Likert scale: [1] *Strongly oppose* - [4] *Not sure* - [7] *Strongly support*)
- **UBI:** “Do you think the U.S. federal government should create a Universal Basic Income of \$1000 per month for every citizen?” (7-point Likert scale: [1] *Definitely no* - [4] *Not sure* - [7] *Definitely yes*; reverse-coded)

2. Personal importance: (7-point Likert scale: [1] *Not at all important* - [4] *Moderately important* - [7] *Extremely important*)

- **U.S. Citizenship Act:** “How important is the issue of immigration reform to you, relative to other issues?”
- **UBI:** “How important is the issue of a universal basic income to you, relative to other issues?”

3. Sharing intentions: “How likely would you be to share the video you just watched with a friend or a colleague?” (7-point Likert scale: [1] *Not at all likely* - [4] *Moderately likely* - [7] *Extremely likely*)

3.3.2 Data Description

Figures S10, S11 and S12 show the response distributions for our three outcome variables for the Study 1 experimental phase—policy support, personal importance, and sharing intentions, respectively—disaggregated by experimental condition (control, naïve, single-best-message, or microtargeting). Means and 95% confidence intervals are displayed. In addition, Figures S13 (U.S. Citizenship Act) and S14 (UBI) report mean ratings for the policy support variable, further disaggregated by the different covariate profiles within the microtargeting condition (1, 2-3, or 4+ covariates). As these latter figures show, ratings on this variable do not reliably increase from profile 1 to profile 3, indicating that microtargeting by a larger number of covariates did not confer a larger persuasive effect, on average, in Study 1.

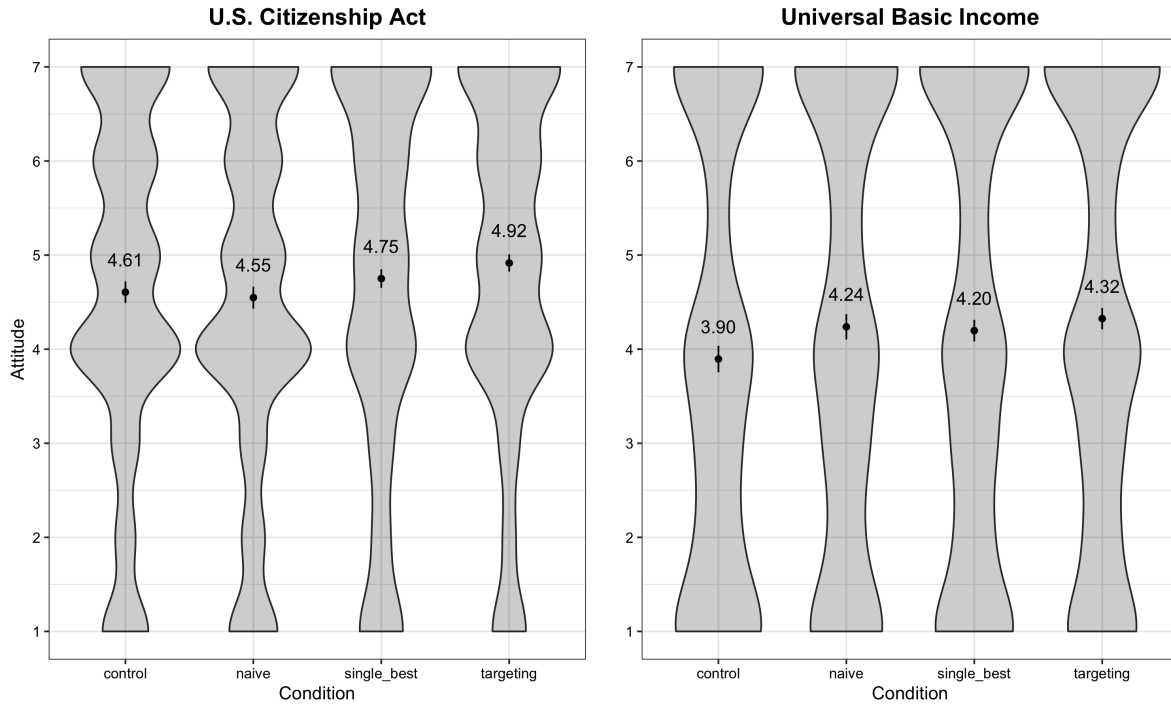


Figure S10: Data distributions for the *policy support* outcome in Study 1. Note that the outcome variable for UBI is reverse-coded, such that higher ratings indicate greater agreement with the treatment messages. Means and 95% confidence intervals are displayed.

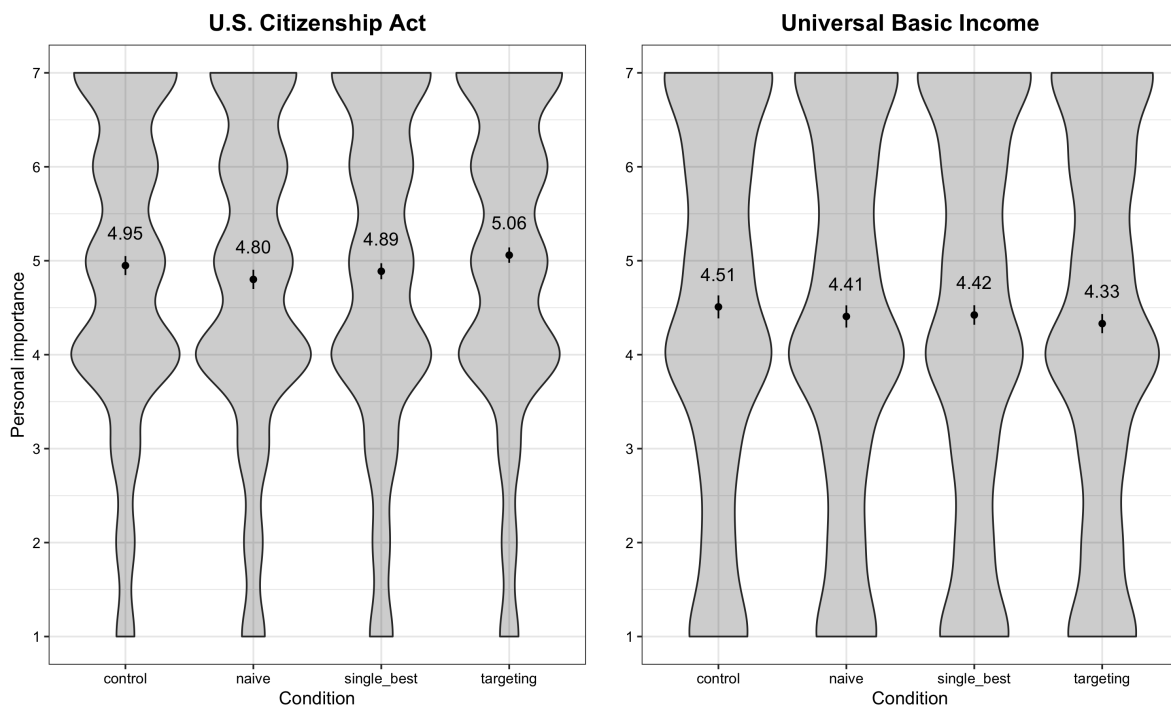


Figure S11: Data distributions for the *personal importance* outcome. Means and 95% confidence intervals are displayed.

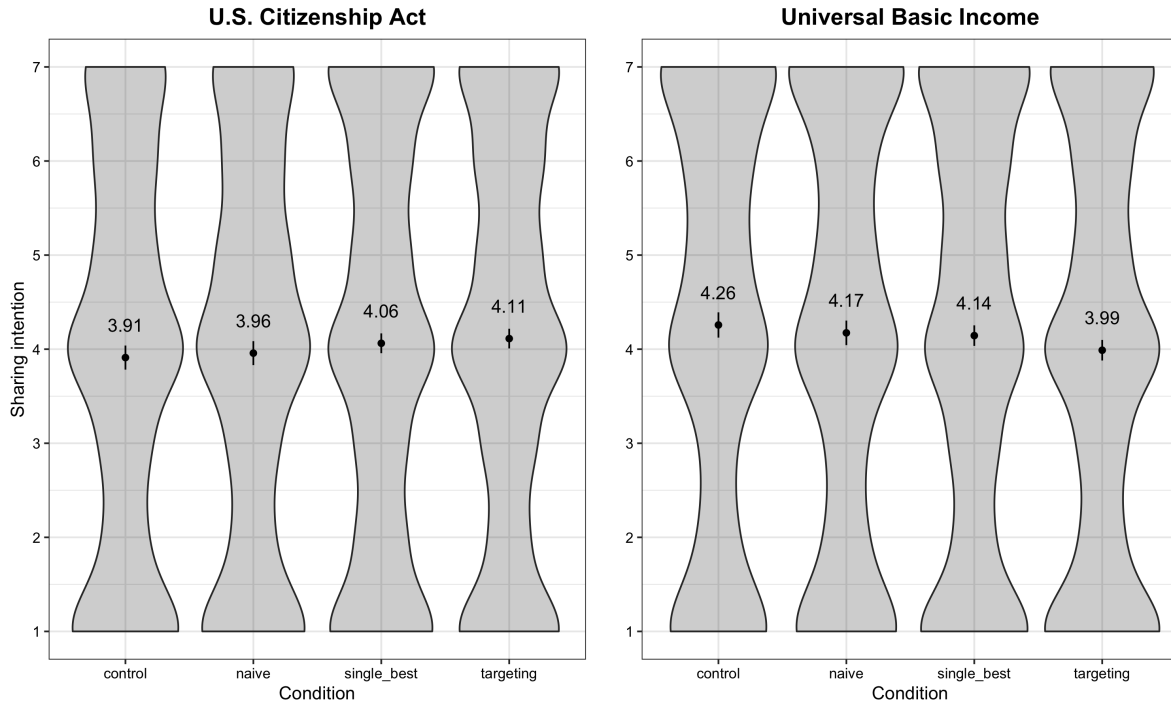


Figure S12: Data distributions for the *sharing intentions* outcome. Means and 95% confidence intervals are displayed.

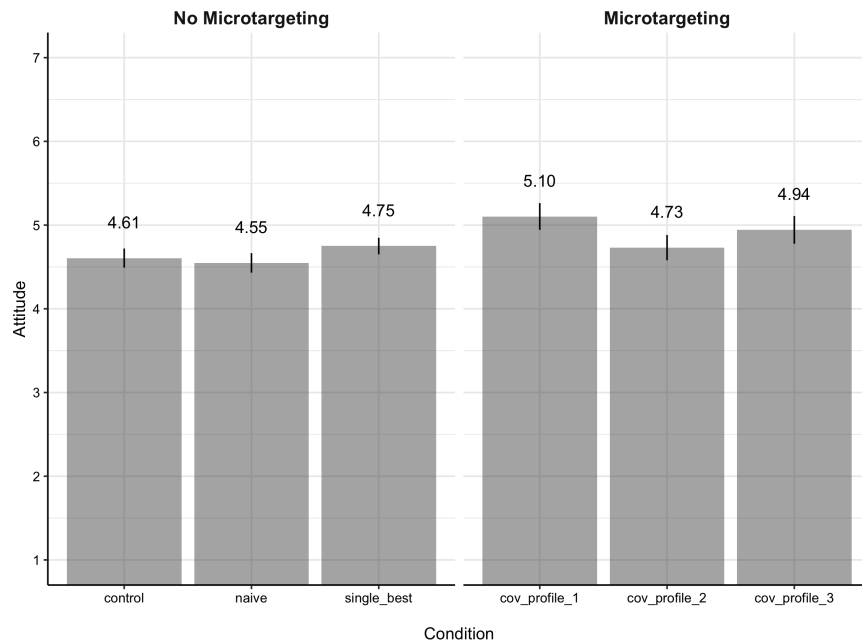


Figure S13: Average policy support in Study 1 (U.S. Citizenship Act module), disaggregated by covariate profile in the microtargeting condition. Means and 95% confidence intervals are displayed.

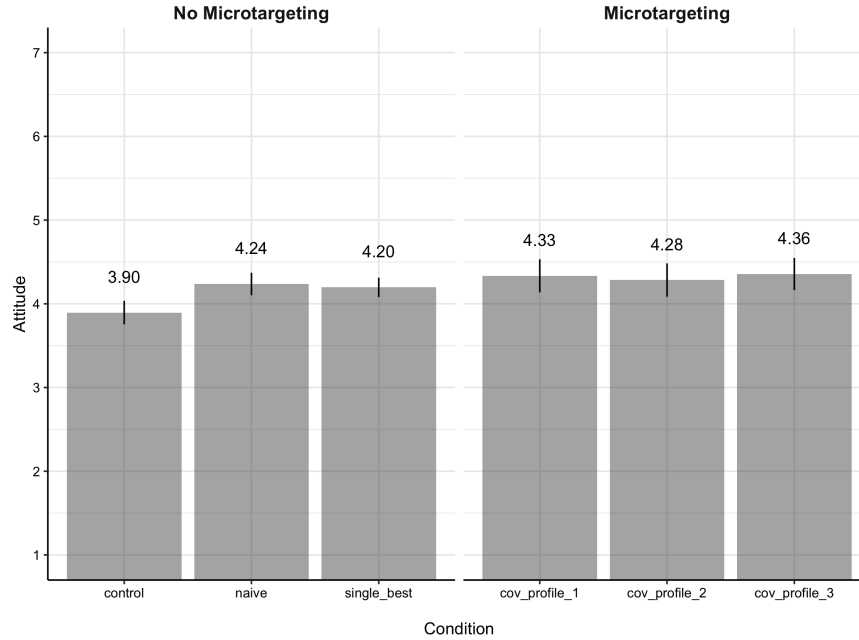


Figure S14: Average policy support in Study 1 (UBI module), disaggregated by covariate profile in the microtargeting condition. Note that the outcome variable is reverse-coded, such that higher ratings indicate greater agreement with the treatment messages. Means and 95% confidence intervals are displayed.

3.3.3 Attrition Analysis and Balance Checks

In this section, we report attrition analyses and balance checks for the experimental phase of Study 1. As shown in Tables S11 and S12, the amount of missing data for our primary outcome was quite low in both modules. This missingness also does not appear differential across experimental conditions, as evidenced by F-tests that fail to reject the null hypothesis that missingness is the same across conditions (Table S13). In addition, Figure S15 shows that the mean values for our covariates are roughly similar across conditions in both modules. This seeming covariate balance across conditions is further supported by F-tests that again fail to reject the null hypothesis that the mean covariate values are the same across conditions (Tables S14 and S15).

Table S11: Missing outcomes by condition: Study 1 (U.S. Citizenship Act)

Condition	# Missing	# Total	Prop. Missing
control	24	1054	0.023
naive	15	1038	0.014
single_best	22	1639	0.013
microtargeting	27	1587	0.017

Table S12: Missing outcomes by condition: Study 1 (UBI)

Condition	# Missing	# Total	Prop. Missing
control	11	1050	0.010
naive	22	1131	0.019
single_best	24	1572	0.015
microtargeting	29	1557	0.019

Table S13: F-test for differences in missingness across conditions (Study 1)

Term	df	SumSq	MeanSq	Statistic	p value	Experiment
condition	3	0.062	0.021	1.264	0.285	U.S. Citizenship Act
condition	3	0.057	0.019	1.190	0.312	UBI

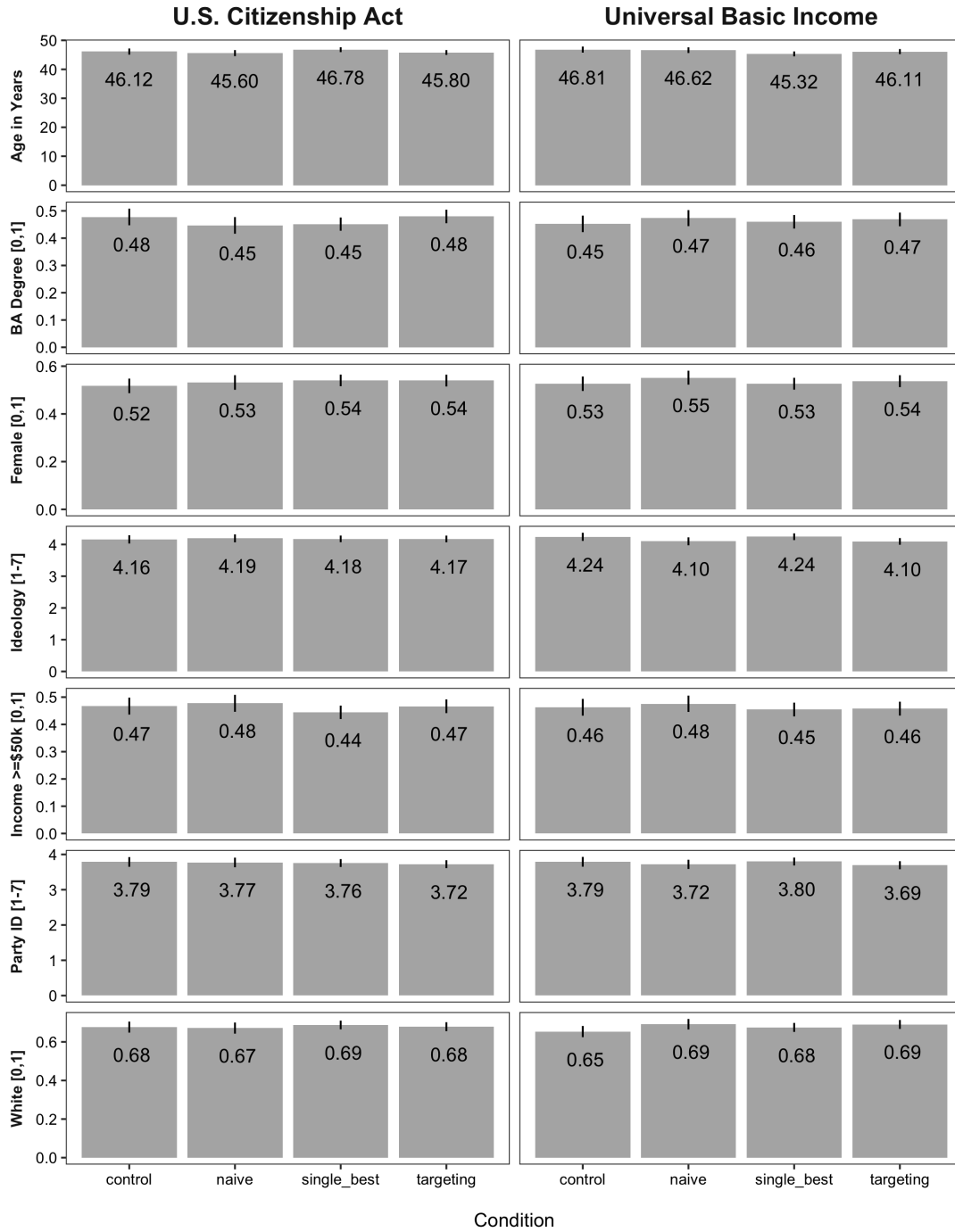


Figure S15: Mean covariate values across conditions in Study 1. 95% confidence intervals are displayed.

Table S14: F-tests for differences in mean covariate values across conditions: Study 1 (U.S. Citizenship Act)

Term	df	SumSq	MeanSq	Statistic	p value	Covariate
condition	3	1145.857	381.952	1.299	0.273	Age in Years
condition	3	0.406	0.135	0.544	0.652	Female [0,1]
condition	3	0.182	0.061	0.278	0.841	White [0,1]
condition	3	1.126	0.375	1.510	0.210	BA Degree [0,1]
condition	3	2.909	0.970	0.189	0.904	Party ID [1-7]
condition	3	0.545	0.182	0.041	0.989	Ideology [1-7]
condition	3	0.777	0.259	1.042	0.373	Income >=\$50k [0,1]

Table S15: F-tests for differences in mean covariate values across conditions: Study 1 (UBI)

Term	df	SumSq	MeanSq	Statistic	p value	Covariate
condition	3	1743.635	581.212	1.974	0.116	Age in Years
condition	3	0.511	0.170	0.684	0.562	Female [0,1]
condition	3	1.075	0.358	1.644	0.177	White [0,1]
condition	3	0.296	0.099	0.397	0.755	BA Degree [0,1]
condition	3	11.209	3.736	0.731	0.533	Party ID [1-7]
condition	3	27.274	9.091	2.037	0.107	Ideology [1-7]
condition	3	0.309	0.103	0.414	0.743	Income >=\$50k [0,1]

3.3.4 Primary Analysis and Results

Following our [pre-registration](#), for both the U.S. Citizenship Act and UBI modules we estimate the persuasive impact of the different messaging strategies using OLS models regressing our primary outcome variable on dummy variables corresponding to each of the three treatment conditions (naïve, single-best-message, microtargeting), with the reference category set to the control group:

$$Y_i \sim \text{Normal}(\mu_i, \sigma)$$

$$\mu_i = \alpha + \beta_1 \text{microtargeting}_i + \beta_2 \text{naïve}_i + \beta_3 \text{single-best-message}_i$$

where the outcome variable, Y_i , corresponds to the policy support item. To compute the difference between microtargeting and the other two messaging strategies, we also fit two additional OLS models where the reference category is either the naïve or single-best-message condition, respectively:

- Model with naïve as the reference category:

$$Y_i \sim \text{Normal}(\mu_i, \sigma)$$

$$\mu_i = \alpha + \beta_1 \text{microtargeting}_i + \beta_2 \text{control}_i + \beta_3 \text{single-best-message}_i$$

- Model with single-best-message as the reference category:

$$Y_i \sim \text{Normal}(\mu_i, \sigma)$$

$$\mu_i = \alpha + \beta_1 \text{microtargeting}_i + \beta_2 \text{control}_i + \beta_3 \text{naïve}_i$$

The parameter on the first dummy variable, β_1 , is the key quantity of interest in all models—corresponding to the difference in average attitudes among respondents assigned to the microtargeting condition versus the condition designated as the reference category in that model. Tables [S16](#) and [S17](#) show the full results from these models for the U.S. Citizenship Act and UBI modules, respectively, with the treatment effects for microtargeting bolded. Standard errors, p values, and confidence intervals are based on robust standard errors (“HC2” variant). In all cases, the estimates are expressed in units of percentage points.

Table S16: Results of primary regression models: Study 1 (U.S. Citizenship Act)

Model	Ref. Category	Term	Estimate	SE	p value	Low 95%	High 95%
1	control	(Intercept)	76.764	0.973	< 0.001	74.856	78.672
1	control	microtargeting	5.170	1.247	< 0.001	2.726	7.614
1	control	single_best	2.405	1.286	0.061	-0.115	4.926
1	control	naive	-0.957	1.389	0.491	-3.681	1.766
2	naive	(Intercept)	75.806	0.991	< 0.001	73.863	77.750
2	naive	microtargeting	6.127	1.261	< 0.001	3.656	8.599
2	naive	single_best	3.363	1.299	0.01	0.815	5.910
2	naive	control	0.957	1.389	0.491	-1.766	3.681
3	single_best	(Intercept)	79.169	0.840	< 0.001	77.522	80.816
3	single_best	microtargeting	2.765	1.146	0.016	0.519	5.010
3	single_best	naive	-3.363	1.299	0.01	-5.910	-0.815
3	single_best	control	-2.405	1.286	0.061	-4.926	0.115

^a Units are in percentage points.

Table S17: Results of primary regression models: Study 1 (UBI)

Model	Ref. Category	Term	Estimate	SE	p value	Low 95%	High 95%
1	control	(Intercept)	64.918	1.195	< 0.001	62.575	67.262
1	control	microtargeting	7.159	1.535	< 0.001	4.148	10.169
1	control	single_best	5.032	1.546	0.001	2.002	8.062
1	control	naive	5.701	1.655	0.001	2.456	8.946
2	naive	(Intercept)	70.619	1.145	< 0.001	68.374	72.864
2	naive	microtargeting	1.458	1.497	0.33	-1.476	4.392
2	naive	single_best	-0.669	1.507	0.657	-3.623	2.286
2	naive	control	-5.701	1.655	0.001	-8.946	-2.456
3	single_best	(Intercept)	69.950	0.980	< 0.001	68.029	71.872
3	single_best	microtargeting	2.126	1.374	0.122	-0.568	4.821
3	single_best	naive	0.669	1.507	0.657	-2.286	3.623
3	single_best	control	-5.032	1.546	0.001	-8.062	-2.002

^a Units are in percentage points.

3.4 Study 2

3.4.1 Experimental Design

The design for the Study 2 module is shown in Figure S16. Contrary to Study 1, we first assigned respondents to one of the three messaging strategies—the naïve, single-best-message, or microtargeting condition—before additionally assigning them to either the treatment or control group. This change was necessary, given that the wording of the outcome variables differed across messages. However, the assignment of messages to respondents in the microtargeting condition followed the same procedure as Study 1. Of note, in the experimental phase of Study 2, our pre-treatment measure of household income allowed respondents to indicate “Prefer not to say,” whereas our targeting model (trained on the calibration phase data) required respondents to provide a response to this item. In the small number of cases where “Prefer not to say” was selected (3.4% of respondents), we imputed a predicted value for income (<\$50K, \$50-100K, or >\$100K) using a random forest model trained on respondents’ other self-reported traits (gender, race, education, partisanship, ideology, and political knowledge).

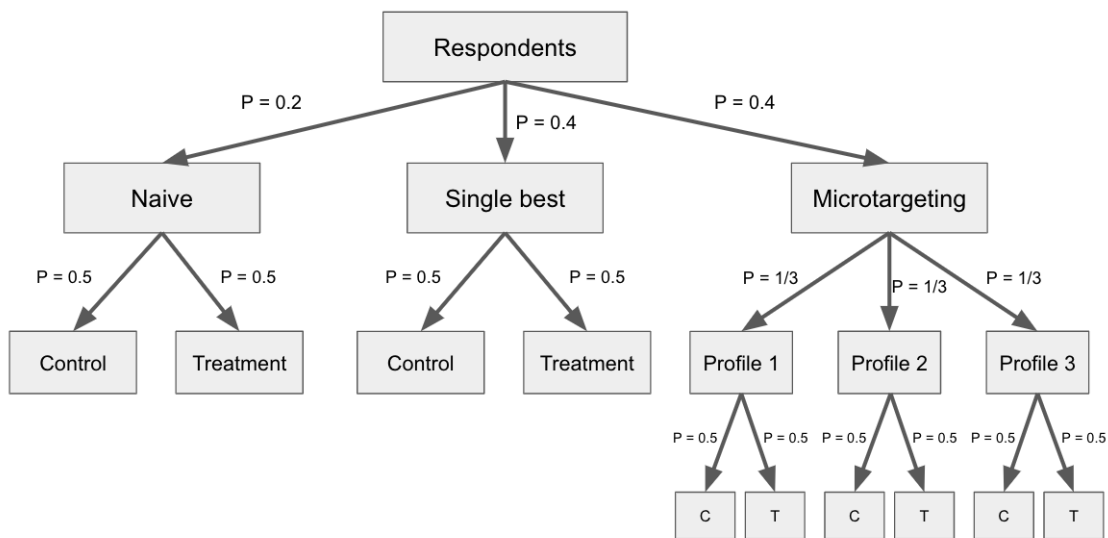


Figure S16: Design of the Study 2 experimental phase. P denotes the probability of being assigned to a given condition.

As noted [above](#), there were 36 unique outcome variables across the 48 different videos in Study 2. For the experimental phase we used these same items for our *policy support* outcome, along with the *personal importance* items from (4) and a standard measure of *sharing intentions*. In a small number of cases, we very slightly modified the wording from the calibration phase, in order to avoid asking similar questions across experimental modules. Table S18 lists the exact wording of these outcome variables.

- Attitudes: “Please rate the extent to which you agree or disagree with the following statement: [**Persuasive claim from video**]” (1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly agree)

- Personal importance: “How important is the issue of [**video topic**] to you, relative to other issues?” (1 = Not at all important, 2 = Slightly important, 3 = Moderately important, 4 = Very important, 5 = Extremely important)
- Sharing intentions: “How likely would you be to share the video you just watched with a friend or a colleague?” (1 = Not at all likely, 2 = Slightly likely, 3 = Moderately likely, 4 = Very likely, 5 = Extremely likely; asked only of respondents in the treatment group)

Table S18: Outcome variables in the experimental phase of Study 2

ID	Title	Attitude item	Personal importance item
00	Abigail Disney	Recent tax cuts have benefitted wealthy Americans more than others.	How important is the issue of tax cuts to you, relative to other issues?
01	Angry Young Man	Major corporations in the U.S. have too much power over politics.	How important is the issue of corporate lobbying to you, relative to other issues?
02	Autobarn Minimum Wage	The minimum wage should be increased to \$15.00/hour.	How important is the issue of the minimum wage to you, relative to other issues?
03	Ben Cohen	Recent tax cuts have benefitted wealthy Americans more than others.	How important is the issue of tax cuts to you, relative to other issues?
04	Bob’s Crab Shack	The minimum wage should be increased to \$15.00/hour.	How important is the issue of the minimum wage to you, relative to other issues?
05	Carbon Pollution	The U.S. should take steps to reduce its carbon emissions.	How important is the issue of climate change to you, relative to other issues?
06	Climate Science with Leo	Human activity contributes to climate change.	How important is the issue of climate change to you, relative to other issues?
07	Colorado and Birth Control	The U.S. should increase access to birth control.	How important is the issue of reproductive health to you, relative to other issues?
08	Cows and Seaweed	Farmers who raise cows should adopt more sustainable farming practices.	How important is the issue of climate change to you, relative to other issues?
09	Defunding Planned Parenthood	Planned Parenthood should receive funding from the federal government.	How important is the issue of reproductive health to you, relative to other issues?
10	Eddie // Veteran Affairs	Funding for the Department of Veteran Affairs (VA) should be increased.	How important is the issue of support for veterans to you, relative to other issues?
11	Education Privatization	Public schools in the U.S. should be privatized. (Reverse-coded)	How important is the issue of education privatization to you, relative to other issues?
12	Factory Worker Larry // Healthcare	Employers generally pursue profits at the expense of their employees.	How important is the issue of corporations’ treatment of employees to you, relative to other issues?

Table S18: Outcome variables in the experimental phase of Study 2 (*continued*)

ID	Title	Attitude item	Personal importance item
13	Factory Worker Larry // Jobs overseas	Employers generally pursue profits at the expense of their employees.	How important is the issue of job outsourcing to you, relative to other issues?
14	Farmer and Tax Cuts	Recent tax cuts have benefitted large corporations more than other groups.	How important is the issue of tax cuts to you, relative to other issues?
15	Father Enraged over Trumpcare	The Affordable Care Act (ACA) should be repealed. (Reverse-coded)	How important is the issue of affordable healthcare to you, relative to other issues?
16	Fox News and Taxes	The government should close tax loopholes for wealthy individuals.	How important is the issue of tax policy to you, relative to other issues?
17	Get the American Dream back on track	Taxes should be raised on the wealthiest Americans in order to fund infrastructure projects.	How important is the issue of infrastructure funding to you, relative to other issues?
18	Gun Control	There should be stricter gun laws in the United States.	How important is the issue of gun control to you, relative to other issues?
19	Income Inequality // Craig #1	The government should take steps to reduce differences in income between rich and poor people.	How important is the issue of income inequality to you, relative to other issues?
20	KFC Vet and Minimum Wage (30s)	The minimum wage should be increased to \$15.00/hour.	How important is the issue of the minimum wage to you, relative to other issues?
21	Main Street Economic Development	The government should invest more in small businesses.	How important is the issue of economic support for small businesses to you, relative to other issues?
22	Main Street Investment	The government should invest more in small businesses.	How important is the issue of economic support for small businesses to you, relative to other issues?
23	Marijuana Legalization	Marijuana use should be legal in all U.S. states.	How important is the issue of marijuana legalization to you, relative to other issues?
24	Massachusetts Nurse	The government should require employers to offer paid time off to workers whose family members are sick.	How important is the issue of paid sick leave to you, relative to other issues?
25	Net Neutrality	Internet service providers should be allowed to adjust the quality and/or speed of Internet content based on fees charged to companies. (Reverse-coded)	How important is the issue of Internet regulation to you, relative to other issues?
26	NJ Nurses	Funding for school nurses should be increased.	How important is the issue of children's healthcare to you, relative to other issues?

Table S18: Outcome variables in the experimental phase of Study 2 (*continued*)

ID	Title	Attitude item	Personal importance item
27	Nurse and ACA	The Affordable Care Act (ACA) should be repealed. (Reverse-coded)	How important is the issue of affordable healthcare to you, relative to other issues?
28	Oklahoma Teachers	Public school teachers should be paid a higher salary.	How important is the issue of funding for public schools to you, relative to other issues?
29	Opioid Crisis	The government should devote more resources to addressing the opioid epidemic.	How important is the issue of opioid addiction to you, relative to other issues?
30	Paid Family Leave (Jamie)	The government should require employers to provide their workers with paid family leave.	How important is the issue of paid family leave to you, relative to other issues?
31	Paid Family Leave (Tara)	The government should require employers to provide their workers with paid family leave.	How important is the issue of paid family leave to you, relative to other issues?
32	Payday Lending	There should be more government oversight of financial companies, such as payday lenders.	How important is the issue of personal finance to you, relative to other issues?
33	Protect our People at Home	The government should provide affordable healthcare coverage to all Americans.	How important is the issue of affordable healthcare to you, relative to other issues?
34	Real Prosperity	The government should provide funding for paid parental leave.	How important is the issue of paid family leave to you, relative to other issues?
35	Russian Interference	The government should do more to prevent Russian interference in American elections.	How important is the issue of election interference to you, relative to other issues?
36	Stop with the Games	The government should provide more economic support to working Americans.	How important is the issue of support for working Americans to you, relative to other issues?
37	Three Million Dollars	The government should provide affordable healthcare coverage to all Americans.	How important is the issue of affordable healthcare to you, relative to other issues?
38	Tim Cook and DACA	The U.S. should create a path to citizenship for undocumented immigrants brought to the country as children.	How important is the issue of support for undocumented immigrants to you, relative to other issues?
39	Time for a Real Change	The government should provide more economic support to the middle class.	How important is the issue of support for the middle class to you, relative to other issues?
40	Tuition Free College	Tuition at public colleges and universities should be free for all students.	How important is the issue of college access to you, relative to other issues?
41	Undocumented Children	The government should be required to provide legal representation for children who are undocumented.	How important is the issue of support for undocumented immigrants to you, relative to other issues?

Table S18: Outcome variables in the experimental phase of Study 2 (*continued*)

ID	Title	Attitude item	Personal importance item
42	Vocational Education	The government should provide more funding for career and technical education in public high schools.	How important is the issue of career and technical education to you, relative to other issues?
43	Walmart and Bad Corporations	Employers generally pursue profits at the expense of their employees.	How important is the issue of corporations' treatment of employees to you, relative to other issues?
44	Warren and Child Care	The government should provide more funding for child care to support parents who work.	How important is the issue of child care to you, relative to other issues?
45	We Call B.S.	There should be stricter gun laws in the United States.	How important is the issue of gun control to you, relative to other issues?
46	We Choose Us // Amber	A new generation of leaders is needed to change the political system.	How important is the issue of grassroots organizing to you, relative to other issues?
47	We The People // Gaby	The government should take steps to reduce differences in income between rich and poor people.	How important is the issue of income inequality to you, relative to other issues?

3.4.2 Data Description

Figure S17 plots the response distributions in Study 2 for our three outcome variables—policy support, personal importance, and sharing intentions, respectively—disaggregated by experimental condition. Note that sharing intentions were only measured among respondents in the treatment group, as respondents in the control group were not shown a video. Means and 95% confidence intervals are displayed. In addition, Figure S18 reports mean ratings of policy support, further disaggregated by the different covariate profiles within the microtargeting condition (1, 2-3, or 4+ covariates). As in Study 1, ratings on this variable do not reliably increase from profile 1 to profile 3, indicating that microtargeting by a larger number of covariates also did not confer a consistently larger persuasive effect, on average, in this study.

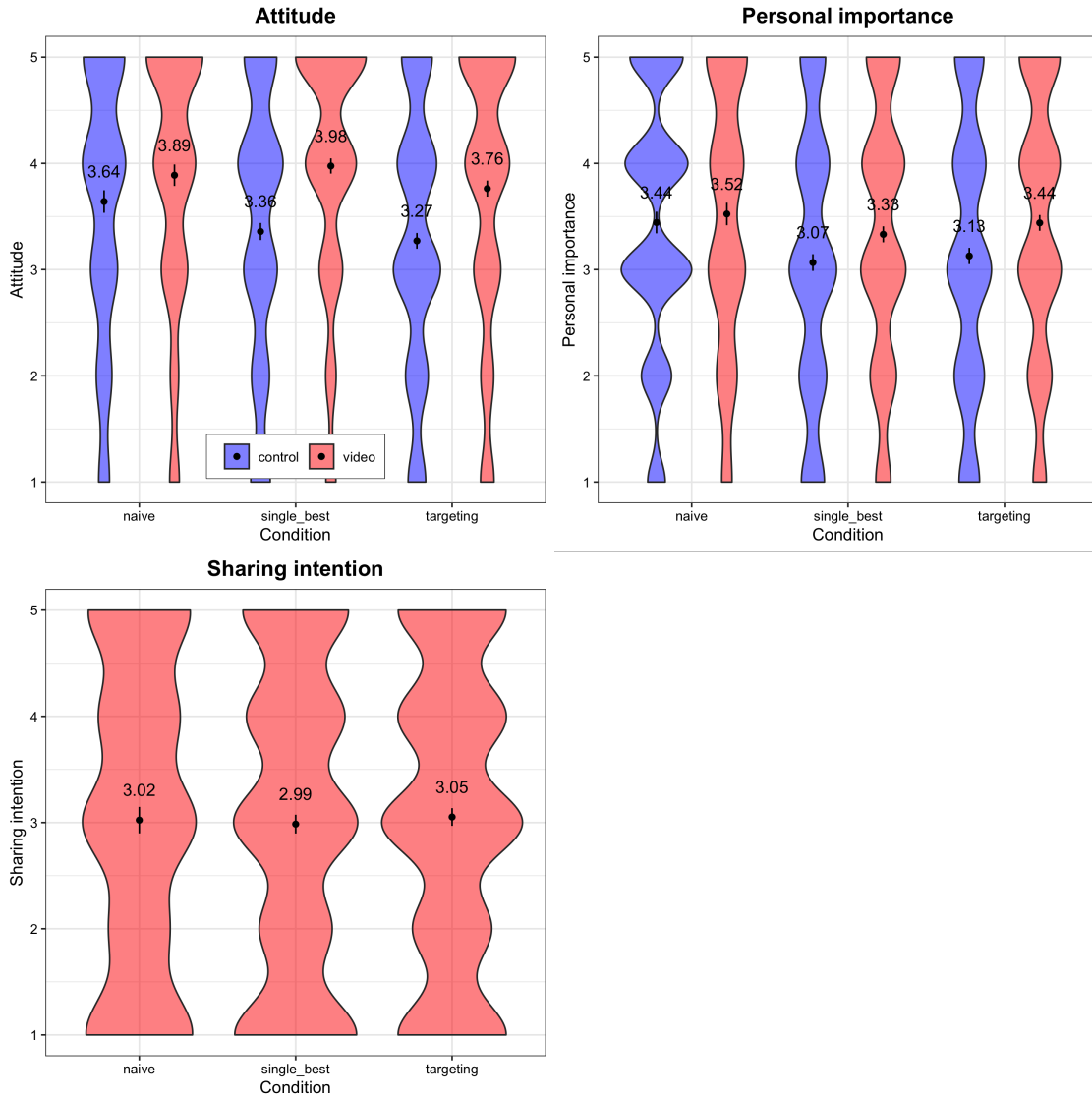


Figure S17: Study 2 data distributions for all three outcome variables. Means and 95% confidence intervals are displayed.

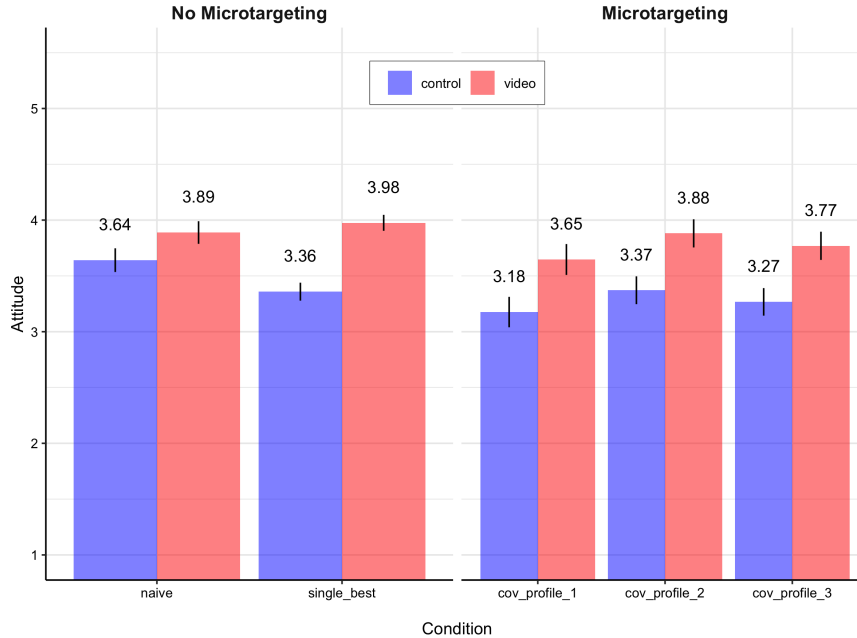


Figure S18: Average policy support in Study 2, disaggregated by covariate profile in the microtargeting condition. Means and 95% confidence intervals are displayed.

3.4.3 Attrition Analysis and Balance Checks

In this section, we report attrition analyses and balance checks for the experimental phase of Study 2. As shown in Table S19, the amount of missing data for our main outcome was very low in this module but varied across conditions—tending to be higher in the video (vs. control) treatment groups. Although an F-test fails to reject the null hypothesis that missingness is the same across messaging conditions (Table S20), we observe significant F-tests ($p < .05$) for a difference in missing outcomes between the video and control groups *within* each condition (Table S21). This indicates that missingness is higher in the video than control groups, which could bias the average treatment effect (ATE) if missingness is correlated with potential outcomes. For example, if missing values reflect conservative respondents dropping out of the survey after being asked to watch a progressive issue ad, then we might worry that the observed outcomes in the video group are inflated in a progressive direction, thereby distorting our ATE estimates.

Fortunately, however, Figure S19 indicates that the mean values of the pre-treatment covariates—including, importantly, both ideology and party ID—are similar across the video and control groups, as indicated by F-tests that fail to reject the null hypothesis that the mean covariate values are the same across video and control groups (Table S23). Furthermore, missingness is uncorrelated with either ideology or party ID in the video group specifically: $r = 0.019 [-0.019, 0.057]$, $p = 0.318$ and $r = 0.024 [-0.013, 0.063]$, $p = 0.203$, respectively. These results mitigate our concern that missingness is correlated with potential outcomes and therefore biases our ATE estimates. Finally, while F-tests indicate some minor imbalance in age across messaging conditions (Table S22), the p -value does not survive correction for multiple comparisons.

Table S19: Missing outcomes by condition: Study 2

Condition	Treatment	# Missing	# Total	Proportion Missing
naive	control	0	521	0.000
naive	video	5	535	0.009
single_best	control	1	1007	0.001
single_best	video	9	1035	0.009
microtargeting	control	3	1087	0.003
microtargeting	video	18	1093	0.016

Table S20: F-test for differences in missingness across conditions (Study 2)

Term	df	SumSq	MeanSq	Statistic	p value
condition	2	0.029	0.015	2.17	0.114

Table S21: F-test for differences in missingness for the video vs. control group within each condition: Study 2

Condition	Term	df	SumSq	MeanSq	Statistic	p value
naive	video	1	0.023	0.023	4.906	0.027
single_best	video	1	0.030	0.030	6.227	0.013
microtargeting	video	1	0.102	0.102	10.779	0.001

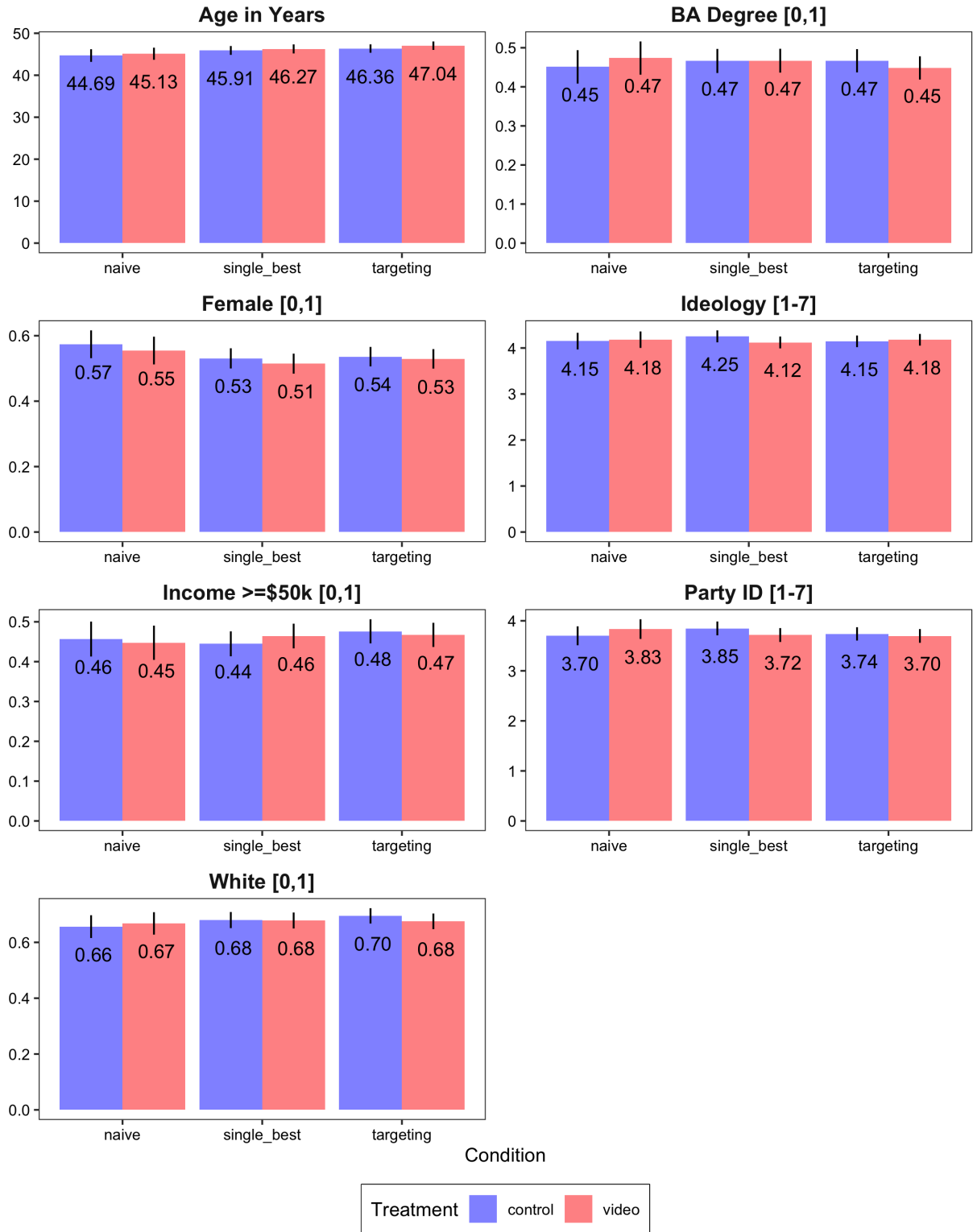


Figure S19: Mean covariate values across conditions in Study 2. 95% confidence intervals are displayed.

Table S22: F-tests for differences in mean covariate values between conditions: Study 2

Term	df	SumSq	MeanSq	Statistic	p value	Covariate
condition	2	2262.258	1131.129	3.845	0.021	Age in Years
condition	2	1.220	0.610	2.452	0.086	Female [0,1]
condition	2	0.376	0.188	0.861	0.423	White [0,1]
condition	2	0.084	0.042	0.169	0.844	BA Degree [0,1]
condition	2	4.447	2.223	0.436	0.647	Party ID [1-7]
condition	2	0.693	0.346	0.078	0.925	Ideology [1-7]
condition	2	0.398	0.199	0.800	0.449	Income >=\$50k [0,1]

Table S23: F-tests for differences in mean covariate values for video vs. control group within each condition: Study 2

Condition	Term	df	SumSq	MeanSq	Statistic	p value	Covariate
naive	video	1	49.377	49.377	0.166	0.684	Age in Years
single_best	video	1	66.699	66.699	0.221	0.638	Age in Years
microtargeting	video	1	248.349	248.349	0.868	0.352	Age in Years
naive	video	1	0.097	0.097	0.392	0.531	Female [0,1]
single_best	video	1	0.133	0.133	0.534	0.465	Female [0,1]
microtargeting	video	1	0.025	0.025	0.098	0.754	Female [0,1]
naive	video	1	0.035	0.035	0.155	0.694	White [0,1]
single_best	video	1	0.001	0.001	0.006	0.940	White [0,1]
microtargeting	video	1	0.208	0.208	0.966	0.326	White [0,1]
naive	video	1	0.133	0.133	0.536	0.464	BA Degree [0,1]
single_best	video	1	0.000	0.000	0.001	0.976	BA Degree [0,1]
microtargeting	video	1	0.182	0.182	0.732	0.392	BA Degree [0,1]
naive	video	1	4.674	4.674	0.917	0.338	Party ID [1-7]
single_best	video	1	8.919	8.919	1.753	0.186	Party ID [1-7]
microtargeting	video	1	0.896	0.896	0.175	0.676	Party ID [1-7]
naive	video	1	0.259	0.259	0.059	0.809	Ideology [1-7]
single_best	video	1	8.934	8.934	2.011	0.156	Ideology [1-7]
microtargeting	video	1	0.600	0.600	0.133	0.715	Ideology [1-7]
naive	video	1	0.022	0.022	0.087	0.767	Income >=\$50k [0,1]
single_best	video	1	0.187	0.187	0.755	0.385	Income >=\$50k [0,1]
microtargeting	video	1	0.042	0.042	0.168	0.682	Income >=\$50k [0,1]

3.4.4 Primary Analysis and Results

Again following our [pre-registration](#), in Study 2 we estimate the persuasive impact of each messaging strategy by fitting three separate OLS models—subsetting by messaging strategy—that each include a single dummy variable for respondents’ message exposure (treatment vs. control group):

$$Y_i \sim \text{Normal}(\mu_i, \sigma)$$
$$\mu_i = \alpha + \beta_1 \text{treat}_i$$

To compute the difference between microtargeting and the other two messaging strategies, we then fit two additional OLS models (using the full dataset) that regress our outcome variables on an interaction between the dummy variable indicating respondents’ message exposure and a dummy variable indicating assignment to the microtargeting condition versus the naïve or single-best-message conditions, respectively:

- Model with naïve as the reference category:

$$Y_i \sim \text{Normal}(\mu_i, \sigma)$$
$$\mu_i = \alpha + \beta_1 \text{treat}_i + \beta_2 \text{microtargeting}_i + \beta_3 \text{single-best-message}_i + \beta_4 (\text{treat} \times \text{microtargeting})_i + \beta_5 (\text{treat} \times \text{single-best-message})_i$$

- Model with single-best-message as the reference category:

$$Y_i \sim \text{Normal}(\mu_i, \sigma)$$
$$\mu_i = \alpha + \beta_1 \text{treat}_i + \beta_2 \text{microtargeting}_i + \beta_3 \text{naïve}_i + \beta_4 (\text{treat} \times \text{microtargeting})_i + \beta_5 (\text{treat} \times \text{naïve})_i$$

In these two interactive models, our key quantity of interest is β_4 , corresponding to the difference in the treatment effect of assignment to a video vs. the control group when comparing respondents assigned to the microtargeting condition to the reference group (i.e., the naïve or single-best-message condition). A positive value for this coefficient indicates that the average treatment effect of message exposure was larger in the microtargeting condition than in the reference condition (i.e., the naïve or single-best-message condition). Tables [S24](#) and [S25](#) report the full results from these models, with the differences between microtargeting and alternative strategies bolded in Table [S25](#). Standard errors, p values, and confidence intervals are based on robust standard errors (“HC2” variant). In all cases, the estimates are expressed in units of percentage points.

Table S24: Results of primary regression models: Study 2 (treatment vs. control group)

Model	Message Condition	Term	Estimate	SE	p value	Low 95%	High 95%
1	naive	(Intercept)	91.027	1.355	< 0.001	88.368	93.686
1	naive	treat	6.190	1.872	0.001	2.517	9.863
2	single_best	(Intercept)	83.971	1.027	< 0.001	81.958	85.985
2	single_best	treat	15.420	1.374	< 0.001	12.726	18.113
3	microtarget	microtargeting	81.770	0.945	< 0.001	79.916	83.623
3	microtarget	microtargeting	12.300	1.351	< 0.001	9.650	14.950

^a Units are in percentage points.

Table S25: Results of primary regression models: Study 2 (interactive models)

Model	Ref. Category	Term	Estimate	SE	p value	Low 95%	High 95%
1	naive	(Intercept)	91.027	1.355	< 0.001	88.370	93.683
1	naive	treat	6.190	1.872	0.001	2.520	9.860
1	naive	microtargeting	-9.257	1.652	< 0.001	-12.496	-6.018
1	naive	single_best	-7.056	1.700	< 0.001	-10.389	-3.723
1	naive	treat × microtargeting	6.110	2.309	0.008	1.584	10.636
1	naive	treat × single_best	9.230	2.322	< 0.001	4.678	13.781
2	single_best	(Intercept)	83.971	1.027	< 0.001	81.958	85.984
2	single_best	treat	15.420	1.374	< 0.001	12.727	18.112
2	single_best	microtargeting	-2.201	1.396	0.115	-4.937	0.535
2	single_best	naive	7.056	1.700	< 0.001	3.723	10.389
2	single_best	treat × microtargeting	-3.120	1.927	0.105	-6.897	0.657
2	single_best	treat × naive	-9.230	2.322	< 0.001	-13.781	-4.678

^a Units are in percentage points.

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