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Brailey, Thomas; Kelly, Edmund

#### **Working Paper**

A Robustness Reproduction of Tappin, Berinsky and Rand (2023): "Partisans' Receptivity to Persuasive Messaging is Undiminished by Countervailing Party Leader Cues"

I4R Discussion Paper Series, No. 147

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Thomas Brailey Edmund Kelly

August 2024



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#### AUGUST 2024

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# A Robustness Reproduction of Tappin, Berinsky and Rand (2023): "Partisans' receptivity to persuasive messaging is undiminished by countervailing party leader cues"

Thomas Brailey <sup>†</sup> Edmund Kelly <sup>‡</sup>

August 2, 2024

#### Abstract

Tappin, Berinsky, and Rand (2023) find that the effectiveness of persuasive messaging is not diminished by countervailing in-party leader cues, using a survey experiment fielded in the United States. In this robustness reproduction, we briefly summarize the original design and results before blindly reproducing the main results and conducting several additional robustness checks. We find that the original results are reproducible and robust to several additional checks. In so doing we contribute to the collaborative effort between the Institute for Replication (I4R) and *Nature Human Behaviour* to replicate recent findings published in the latter, and more broadly to advancing replication in political science.

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#### 1 Introduction

In the polarized political contexts of many contemporary democracies, it is widely assumed that party leader cues exert a powerful effect on partisans' information processing. When favoured party leaders encourage their followers in one direction, it is generally argued that counter-communication strategies will be ineffective. This may have troubling implications: if party leaders spread misinformation (for example, about election fraud), it may be difficult or impossible to correct the resulting misperceptions.

Tappin, Berinsky, and Rand (2023) test this argument using a survey experiment fielded in the United States. They use a 2 × 2 factorial design which we summarize in Table 1. Each respondent was asked about their opinion on 24 policy issues on which the two main party leaders disagree, before being randomized into one of four treatment conditions. The first treatment factor is a persuasive message involving substantive arguments without reference to party positions. The second treatment factor is a countervailing in-party leader cue (from Donald Trump for Republicans, or Joe Biden for Democrats) which opposes the persuasive message. Secondarily, those in the treatment condition were randomized to receive either just their in-party leader cue, or both party leader cues. Respondents were then asked again about their policy attitudes to test the independent and joint effects of the treatments.

Table 1: Original experimental design

|                    |        | Persuasive message |                   |  |
|--------------------|--------|--------------------|-------------------|--|
|                    |        | No message         | Message           |  |
| Countervailing cue | No cue | Control group      | Treatment group 1 |  |
|                    | Cue    | Treatment group 2  | Treatment group 3 |  |

Tappin, Berinsky, and Rand (2023) then fit a Bayesian multilevel regression model with random effects for each policy issue and party grouping. We report their original results in Table 2. As expected, they find that the persuasive message and the party leader cue push respondents' attitudes in opposite directions. However, crucially, they find no evidence of an interaction between the persuasive message and the in-party leader cue: countervailing cues from in-party leaders do not reduce the efficacy of persuasive messaging. This suggests that even in the presence of countervailing party leader cues, counter-communication strategies may be more effective than previously thought.

| Term          | Estimate | Standard error | Lower 95% HDPI | Upper 95% HDPI | Effective sample |
|---------------|----------|----------------|----------------|----------------|------------------|
| Intercept     | 4.40     | 0.09           | 4.22           | 4.56           | 1,337            |
| Cue           | 0.47     | 0.05           | 0.39           | 0.57           | 4,447            |
| Message       | -0.33    | 0.05           | -0.42          | -0.24          | 5,686            |
| Message x cue | -0.03    | 0.05           | -0.13          | 0.08           | 8,000            |

Table 2: Original main results

In this robustness reproduction, both authors independently reproduce the main findings of the original paper using a frequentist approach, instead of the original Bayesian approach. We do this to reduce the computational intensity and time demands of the modeling and to make the original results accessible to a wider audience. We then conduct four additional robustness tests. We find that the results are reproducible and robust to all four additional checks. Our replication contributes to the collaborative effort between the Institute for Replication<sup>1</sup> and *Nature Human Behaviour* to reproduce and replicate papers in *Nature Human Behaviour* published from 2023 onwards, with a view to later meta-analyze the results (Brodeur *et al.* 2024).

<sup>&</sup>lt;sup>1</sup> https://i4replication.org/index.html

#### 2 Re-analysis

We first conduct a robustness reproduction using the original data. This means that we reproduce the original results presented in the paper without looking at the authors' replication package. In other words, we attempt to yield the same results by only using their description of their methodology and results. From there, we conducted a number of robustness tests to ensure the validity of the original papers' findings.

#### 2.1 Reproduction

Both authors blindly reproduced, independently of one another, the main results. We did this using a frequentist approach rather than the Bayesian approach taken in the main paper. We do this for several reasons. First, while we believe the original authors' methodology to be robust, we do not see a strong justification to prefer a Bayesian approach. Since much of the existing experimental literature on persuasion takes a frequentist approach, we feel that reproducing these results may speak better to this literature. Second, given the large sample size and the weak priors specified in the analysis, we expect a frequentist approach to yield results of a similar magnitude, direction, and statistical significance<sup>2</sup>. Most importantly, the frequentist approach is substantially less time consuming, and to be more interpretable to a wider audience.

**Findings: Brailey.** I attempted to reproduce the results in the original manuscript without consulting the authors code. If I was uncertain about whether a variable was included in their analysis, I would attempt to run different version of the model to see which one best approximated the results, and then, as a last resort, would consult the authors codebook. Once I had completed the reproduction, I compared my analysis to their scripts to see if my approach matched theirs.

One immediate concern is that cleaning code and raw data are not provided on the authors' Open Science Framework (OSF) site. Given that there are variables, such

<sup>&</sup>lt;sup>2</sup> One potential disadvantage of frequentist approaches, as noted by the authors in the original paper, is that despite the large number of observations, the large number of subgroups could mean that power is reduced when looking at interaction effects.

as their main dependent variable "likertAgree\_recoded" which is verbally described in the manuscript: they recode the "outcome variable such that higher numbers indicate greater agreement with the in-party leader cue, allowing to meaningfully aggregate across policy issues and partisans." (Tappin, Berinsky, and Rand 2023, p. 570). While this is easy to replicate, providing the cleaning code and raw data is usually preferable.

I was able to replicate the inset of Figure 1 (which does not rely on Bayesian analysis) perfectly without any issues (Figure 1). I also replicated some of the supplementary material. Supplementary Figure 1 replicates perfectly. I used the 'Im\_robust' function from the 'estimatr' package to compute robust standard errors, though I had to test the model using different specifications (HC0, HC1, HC2, HC3) to see which one most closely aligned with the figure in the appendix. Though changing the standard error clustering does not change the results substantively, this could have been clarified in their manuscript. Supplementary Figure 2 also replicates perfectly. The same issue regarding the clustering of standard errors in supplementary Figure 1 applies here.

I then turned to replicating the main part of Figure 1 in the manuscript using a frequentist multilevel model. The results are presented in Figure 2. The results are almost identical to those in the original Figure 1, differing by a maximum of 0.01 units. The fact that the results are so similar is encouraging, and perhaps shifts us away from the common criticism of Bayesian statistics that it tends to be a lot more difficult to interpret than non-Bayesian approaches.

**Findings:** Kelly. I also attempted to reproduce the results in the original manuscript without consulting the authors' code. I ran a multilevel linear model with the lmer function in the lme4 package in R (Bates, Maechler, and Bolker 2011), with random effects for the policy group and the stated party identity of the respondent. Following the original authors, I use the 'likertAgree\_recoded' variable as the dependent variable and the persuasive message and in-party leader cues, and their interaction, as the independent variables.

I report my reproduction of the authors' main results in Table 3. While the coefficients are not exactly the same, this was not expected given that I adopted a frequentist

approach, and the coefficients are qualitatively very similar to the original results. The effect of the in-party leader cue is slightly lower than the authors' original results, but the persuasive message effect is almost identical, and the key conclusion of the paper - that there is no interaction between the two - is not changed. The interaction between the persuasive message and the in-party cue is small and not statistically significant. It appears therefore that the original results are reproducible and that they are not sensitive to the choice of frequentist or Bayesian approach.

#### 2.2 Additional robustness checks

Once we completed our reproduction of the original results and some of the supplementary results, we then conducted a number of additional robustness tests including the use and exclusion of different control variables (including using LASSO and stepwise regression approaches), re-analysis using different functional forms, and power calculations. These are described in more detail below.

#### 2.2.1 Check 1: Control variables

To begin, we assess the robustness of the original authors' findings to adding additional control variables in their main model. We begin with an 'omnibus' model adding a large number of additional control variables before using stepwise and Lasso regression to prune this model. We describe each approach below.

**Omnibus model:** In Table 8, we report our main results. In this model, we add controls for sociodemographic variables including gender, age, race, and education, in addition to political controls including ideology and political knowledge. The results remain very similar to our main reproductions and to the original results in the paper. Most importantly, the key interaction between the persuasive message and the in-party leader cue remains small and statistically insignificant. We conclude that the original results are robust to additional control variables.

**Stepwise regression.** We ran three stepwise models: forward, backward, and both. The logic behind this approach is to find the variable or combination of variables which are most predictive of the outcome variable. Since the authors collect different demographic characteristics for each respondent, stepwise regressions allow

us to test whether there are other characteristics, in conjunction with the treatment conditions, which predict individuals' responses. Figure 6 shows the variable importance plots of these three models. We see that most of the individual item labels are most predictive of the outcome variable, while the two treatment conditions rank somewhere in the middle and are only selected in the forward models.

LASSO selection. In a similar spirit, LASSO selection, in experimental settings, allows us to see which variables are most predictive of the outcome variable. When we run the LASSO selection algorithm on the variables provided by the authors in their original paper, we find that all the variables are selected. This is then the same "full model" described in the first half of this section and presented in Table 8. In other words, all variables in the data are at least partially predictive of the outcome variable. Additional analyses, which fall out of the purview of this study, could use more sophisticated machine learning methods to look at different interaction effects or merge in additional covariates to gain a deeper understanding of the individual and interactive effects of partisan cues and information.<sup>3</sup>

#### 2.2.2 Check 2: Functional form

We will then turn to assessing the impact of different functional forms. Given that the outcome variable is a Likert scale, an ordered logistic regression may be more appropriate as a primary specification. We therefore ran an ordinal logistic multilevel model using the clmm function from the 'ordinal' package in R (Christensen 2018), otherwise using the same specification as in Table 3. We report the results in Table 9. Once again, the main result of the paper - that there is no interaction between the persuasive message and the in-party leader cue - remains unchanged. In addition, the other coefficients are very similar to the original results and remain highly statistically significant. The lower AIC and BIC scores compared to our main reproduction may also

<sup>&</sup>lt;sup>3</sup> Additional variables could include social and news media usage, historical voting records, earnings, and other covariates which might theoretically relate to individ-uals' interpretation of policies and political leader statements.

suggest that this model achieves better fit than the main reproduction<sup>4</sup>. We therefore find that the original results reported in the paper are robust to an ordered logit specification and note that this achieves slightly better fit than our main reproduction.

#### 2.2.3 Check 3: Power

Given that the sample size of the original study is very large (N = 22,499) and the effect sizes are quite substantial, we do not *a priori* expect power to be an issue with their study. It is not clear whether the authors conducted or reported the statistical power of their study. Given this, we conduct analytical and simulation-based power calculations. Analytical power calculations allow us to test, based on the available sample size, whether we would be able to detected smaller (measured in standard deviations) treatment effects than the ones identified in the original study. Simulation-based power calculations artificially re-run the study, varying different parameters such as the effective sample size, hypothesised treatment effects, or the number of clusters or blocks specified in a study.

Analytical power calculations tend to be less informative, providing only a single number rather than a distribution of p-values. Indeed, analytical power calculations on this study show that the design is well powered a 1/7 standard deviation change. Figure 5 presents the results of the simulation-based power calculations. These results confirm the results from the analytical power calculations, that is, this is a very well-powered study for both the cue and information treatments, but not for the interaction effect. I test power at a number of different sample sizes. Even at 5000 observations, roughly a quarter of the number of observations in the actual study, we would still be powered to detect the effects of the main treatment variables. However, across all instances, we are unable to detect effects of the interaction effect between the two variables.

<sup>&</sup>lt;sup>4</sup> The Brant Test indicated that the proportional odds/parallel regression assumption holds and therefore an ordered logit model is the appropriate specification rather than a multinomial logit model.

#### 2.2.4 Check 4: Definition of partisanship

In the original study, the authors group people based on their stated party identity. As a robustness check, we instead group people based on their reported vote choice in the previous election. We run the models separately to include or exclude respondents who report voting for different parties at the legislative and presidential levels (split tickets). We otherwise use the same specification as in Table 3, and we report the results in Table 10 (excluding split tickets) and Table 11 (including split tickets).

In each case, the results are very similar to the main paper, both in terms of the magnitude and the precision of the estimates. Importantly, the interaction between the persuasive message and the in-party leader cue remains statistically insignificant and small despite the slightly smaller number of observations. We conclude that the original results are not sensitive to the definition of the partisan groups based on stated party identity rather than vote choice.

#### 3 Conclusion

Tappin, Berinsky, and Rand (2023) use a survey experiment to argue that the effectiveness of persuasive messaging is not diminished by countervailing in-party leader cues. In this robustness reproduction, we blindly reproduced their results and then applied several additional robustness tests, as part of an ongoing collaboration between *Nature Human Behavior* and the Institute for Replication to assess the replicability of studies published in the former.

We found that the original results are reproducible and are not sensitive to adopting a frequentist approach. In addition, the results are robust to using different combinations of control variables, running an ordered logit specification, and to changing the definition of the partisan groups. In addition, a sensitivity power analysis suggests that the original experiment was well-powered. Although in each case we found minor deviations from the original results, this was to be expected given that we adopted a frequentist approach, and in no case did the results differ meaningfully. Overall, we therefore find that the results reported in Tappin, Berinsky, and Rand (2023) are computationally reproducible, and robust in several ways.

#### References

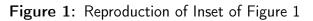
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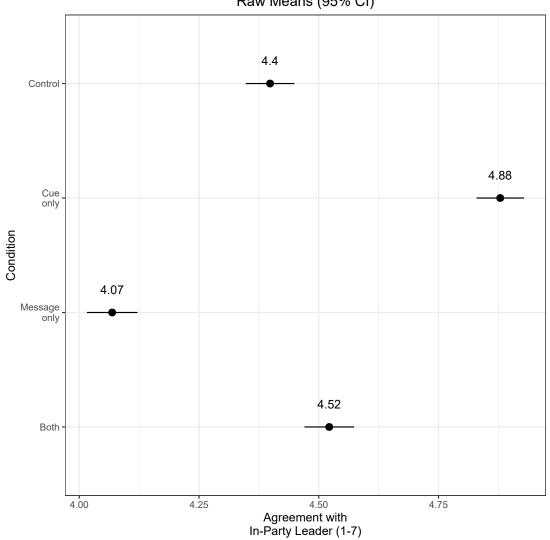
# Appendix A: Blind reproduction: Kelly

| Table 3: | Kelly Blind | Reproduction: | Main results |
|----------|-------------|---------------|--------------|
|----------|-------------|---------------|--------------|

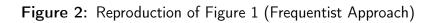
|  | Dependent variable:                                |
|--|--|
|  | Policy support (1-7)                               |
| Persuasive message   | -0.310***<br>(0.034)                               |
| Party leader cue   | 0.424***<br>(0.034)                                |
| Message : Cue  | -0.024<br>(0.048)                                  |
| Constant   | 4.352***<br>(0.078)                                |
| Observations<br>Log Likelihood<br>Akaike Inf. Crit.<br>Bayesian Inf. Crit. | 25,181<br>52,117.380<br>104,248.800<br>104,305.700 |
| Note:  | *p<0.1; **p<0.05; ***p<0.01                        |

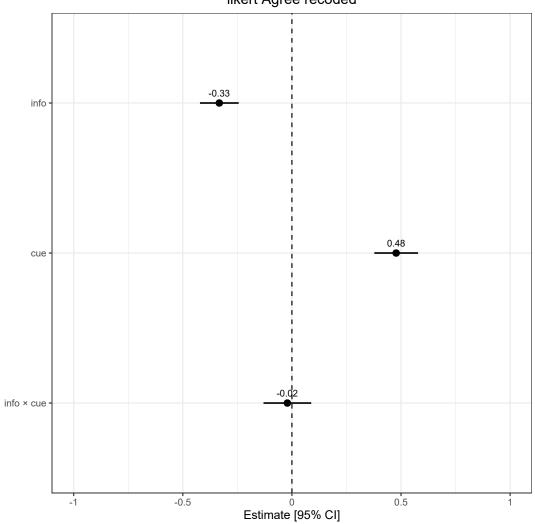
# Appendix B: Blind reproduction: Brailey





Raw Means (95% CI)





likert Agree recoded

|   | Model 1   |
|---|-----------|
| ATE of Party Leader Cue                                 | 0.48***   |
|   | (0.05)    |
| ATE of Persuasive Message                               | -0.33***  |
|   | (0.05)    |
| Change in Persuasive Message ATE Under Party Leader Cue | -0.02     |
|   | (0.06)    |
| AIC   | 93296.40  |
| BIC   | 93416.72  |
| Log Likelihood  | -46633.20 |
| Num. obs.   | 22499     |
| Num. groups: item_label                                 | 24        |
| Var: item_label (Intercept)                             | 0.19      |
| Var: item_label info                                    | 0.02      |
| Var: item_label cue                                     | 0.03      |
| Var: item_label info:cue                                | 0.01      |
| Cov: item_label (Intercept) info                        | -0.00     |
| Cov: item_label (Intercept) cue                         | -0.07     |
| Cov: item_label (Intercept) info:cue                    | 0.04      |
| Cov: item_label info cue                                | 0.01      |
| Cov: item_label info info:cue                           | -0.01     |
| Cov: item_label cue info:cue                            | -0.02     |
| Var: Residual   | 3.68      |

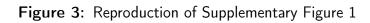
Table 4: Reproduction of Figure 1 (Frequentist Approach)

\*\*\*\* p < 0.001; \*\*\* p < 0.01; \*p < 0.05; 'p < 0.1

 Table 5: Reproduction of Inset of Figure 1

|   | Model 1  |
|---|----------|
| ATE of Party Leader Cue                                 | 0.48***  |
|   | (0.04)   |
| ATE of Persuasive Message                               | -0.33*** |
|   | (0.04)   |
| Change in Persuasive Message ATE Under Party Leader Cue | -0.03    |
|   | (0.05)   |
| Adj. R <sup>2</sup>                                     | 0.02     |
| Num. obs.   | 22499    |
| RMSE  | 1.96     |

\*\*\*p < 0.001; \*\*p < 0.01; \*p < 0.05;  $^{\cdot}p < 0.1$ 



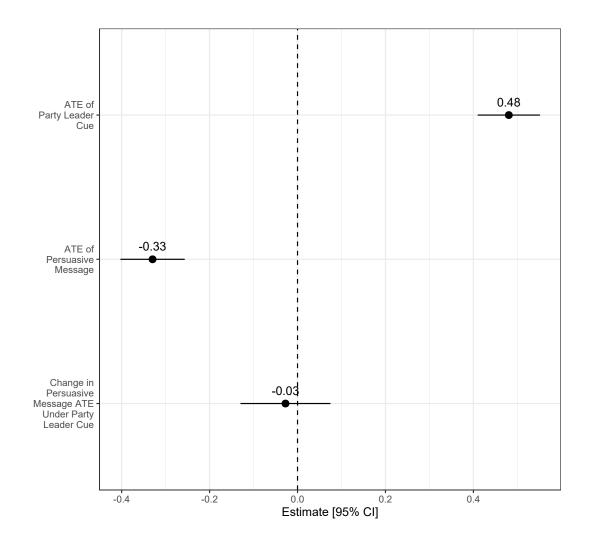


 Table 6: Reproduction of Supplementary Figure 2 (1 - 12)

|                     | Allow religious | Subsidized     | Abolish   | Allow   | Require  | Amnesty     | Limit        | More           | Require  | Allow             | Illegal      | Deny      |
|---------------------|-----------------|----------------|-----------|---------|----------|-------------|--------------|----------------|----------|-------------------|--------------|-----------|
|                     | denial of       | healthcare for | electoral | death   | women on | for illegal | donations to | restrictions   | work for | assisted          | to burn U.S. | criminals |
|                     | service         | immigrants     | college   | penalty | boards   | immigrants  | candidates   | at U.S. border | Medicaid | suicide           | flag         | the vote  |
| Cue                 | 0.18            | -0.14          | 0.85***   | 0.33    | 0.43**   | 0.34*       | 0.89***      | 0.38*          | 0.50**   | 0.33 <sup>.</sup> | 0.64**       | 0.36      |
|                     | (0.18)          | (0.18)         | (0.19)    | (0.19)  | (0.16)   | (0.15)      | (0.19)       | (0.17)         | (0.18)   | (0.18)            | (0.21)       | (0.19)    |
| Info                | -0.65***        | -0.40*         | -0.40*    | -0.49*  | -0.28    | -0.25       | -0.00        | -0.72***       | -0.50**  | -0.42*            | 0.12         | -0.37     |
|                     | (0.19)          | (0.18)         | (0.18)    | (0.19)  | (0.17)   | (0.16)      | (0.20)       | (0.19)         | (0.18)   | (0.19)            | (0.22)       | (0.20)    |
| Cue x Info          | 0.35            | 0.46           | -0.29     | 0.10    | 0.14     | 0.05        | -0.51        | 0.23           | 0.06     | -0.16             | -0.48        | -0.21     |
|                     | (0.27)          | (0.26)         | (0.26)    | (0.27)  | (0.24)   | (0.22)      | (0.27)       | (0.27)         | (0.25)   | (0.26)            | (0.30)       | (0.27)    |
| Adj. R <sup>2</sup> | 0.02            | 0.00           | 0.04      | 0.02    | 0.02     | 0.01        | 0.03         | 0.03           | 0.03     | 0.02              | 0.01         | 0.01      |
| Num. obs.           | 953             | 956            | 965       | 943     | 948      | 909         | 925          | 942            | 954      | 931               | 951          | 941       |
| RMSE                | 2.06            | 1.97           | 2.05      | 2.02    | 1.82     | 1.68        | 2.04         | 2.03           | 1.96     | 1.99              | 2.28         | 2.09      |

 $^{***}p < 0.001; \ ^{**}p < 0.01; \ ^{*}p < 0.05; \ ^{*}p < 0.1$ 

 Table 7: Reproduction of Supplementary Figure 2 (13 - 24)

|                     | Ban juvenile<br>solitary<br>confinement | Minimum<br>sentences<br>for drugs | Allow<br>enhanced<br>interrogation | Allow<br>affirmative<br>action | Increase<br>capital<br>gains tax | Military<br>aid to<br>Saudia<br>Arabia | Decrease<br>power of<br>labor<br>unions | Decrease<br>foreign<br>aid | Privatization<br>of veterans'<br>healthcare | Increase<br>tariffs on<br>Chinese imports | Decrease<br>estate<br>tax | Private<br>pensions<br>for public<br>workers |
|---------------------|---|-----------------------------------|------------------------------------|--------------------------------|----------------------------------|--|---|----------------------------|---|---|---------------------------|--|
| Cue                 | 0.46**                                  | 0.81***                           | 0.38*                              | 0.29*                          | 0.36*                            | 0.87***                                | 0.62***                                 | 0.49**                     | 0.37*                                       | 0.49**                                    | 0.52**                    | 0.64***                                      |
|                     | (0.17)                                  | (0.19)                            | (0.17)                             | (0.15)                         | (0.17)                           | (0.15)                                 | (0.17)                                  | (0.17)                     | (0.17)                                      | (0.18)                                    | (0.17)                    | (0.15)                                       |
| Info                | -0.24                                   | -0.28                             | -0.34                              | -0.25                          | -0.35*                           | -0.22                                  | 0.11                                    | -0.31                      | -0.66***                                    | -0.19                                     | -0.63***                  | -0.26  |
|                     | (0.18)                                  | (0.18)                            | (0.18)                             | (0.15)                         | (0.17)                           | (0.15)                                 | (0.17)                                  | (0.17)                     | (0.18)                                      | (0.16)                                    | (0.18)                    | (0.16)                                       |
| Cue x Info          | -0.12                                   | -0.17                             | -0.08                              | -0.08                          | 0.10                             | -0.07                                  | -0.14                                   | 0.00                       | -0.02                                       | 0.15                                      | 0.14                      | 0.06   |
|                     | (0.25)                                  | (0.26)                            | (0.25)                             | (0.21)                         | (0.24)                           | (0.23)                                 | (0.24)                                  | (0.24)                     | (0.25)                                      | (0.24)                                    | (0.25)                    | (0.23)                                       |
| Adj. R <sup>2</sup> | 0.01                                    | 0.04                              | 0.01                               | 0.01                           | 0.02                             | 0.06                                   | 0.02                                    | 0.02                       | 0.04  | 0.02                                      | 0.04                      | 0.04   |
| Num. obs.           | 934                                     | 929                               | 934                                | 944                            | 958                              | 968                                    | 900                                     | 899                        | 919   | 926                                       | 936                       | 934  |
| RMSE                | 1.87                                    | 1.95                              | 1.91                               | 1.64                           | 1.85                             | 1.75                                   | 1.79                                    | 1.83                       | 1.89  | 1.80                                      | 1.89                      | 1.73   |

 $^{***}p < 0.001; \ ^{**}p < 0.01; \ ^{*}p < 0.05; \ ^{}p < 0.1$ 

| ATE of                     | Abolish electoral college             | Allow affirmative action          | Allow assisted suicide              | Allow death penalty             |
|----------------------------|---------------------------------------|-----------------------------------|-------------------------------------|---------------------------------|
| eader -<br>Cue             |                                       |                                   |                                     |                                 |
| ATE of<br>Jasive -         | -0.4                                  | -0.25                             | -0.42                               | -0.49                           |
| A§egA<br>uasive            | -0.29                                 | -0.08                             | -0.16                               | D.1                             |
| e ATE -                    |                                       |                                   |                                     |                                 |
| er Cue                     |                                       |                                   |                                     |                                 |
|                            | Allow enhanced interrogation<br>U.38  | Allow religious denial of service | Amnesty for illegal immigrants 0.34 | Ban juvenile solitary confinem  |
| ATE of<br>eader -          | 0.58                                  | 0.18                              | <u> </u>                            | 0.40                            |
| Cue<br>ATE of              | -0.34                                 | -0.65                             | -0.25                               | -0.24                           |
| ngaga                      | -0.08                                 | 0.35                              | 0,05                                | -0.12                           |
| e ATE                      |                                       |                                   |                                     | -0.12                           |
| r Party<br>er Cue          |                                       |                                   |                                     |                                 |
|                            | Decrease estate tax                   | Decrease foreign aid              | Decrease power of labor unions      | Deny criminals the vote         |
| ATE of -                   | 0.52                                  | 0.49                              | 0.62                                | 0.36                            |
| Cue<br>ATE of              | -0.63                                 | -0.31                             | Q.11                                | -0.37                           |
| nasive                     | •                                     |                                   |                                     | •                               |
| uasive<br>e ATE -          | 0.14                                  | 0                                 | -0.14                               | -0.21                           |
| r Party<br>er Cue          |                                       |                                   | i                                   |                                 |
|                            | Illegal to burn U.S. flag             | Increase capital gains tax        | Increase tariffs on Chinese imports | Limit donations to candidate    |
| ATE of eader               | 0.64                                  | 0.36                              | 0.49                                | 1                               |
| Cue<br>ATE of              | 0.12                                  | -0.35                             | -0.19                               | 6                               |
| nasive -                   | • • •                                 |                                   |                                     |                                 |
| uasive<br>e ATE -          | -0.48                                 | 0.1                               | 0.15                                | -0.51                           |
| Party<br>er Cue            |                                       |                                   |                                     |                                 |
|                            | Military aid to Saudia Arabia         | Minimum sentences for drugs       | More restrictions at U.S. border    | Private pensions for public wor |
| ATE of                     | 0.87                                  | 0.81                              | 0.38                                | 0.64                            |
| eader -<br>Cue             | -0.22                                 | -0.28                             | -0.72                               | -0.26                           |
| ATE of<br>uasive -         |                                       |                                   |                                     |                                 |
| ngeyn<br>uasive<br>e ATE - | -0.07                                 | -0.17                             | 0.23                                | 0:06                            |
| Party<br>er Cue            |                                       |                                   |                                     |                                 |
|                            | Privatization of veterans' healthcare | Require women on boards           | Require work for Medicaid           | Subsidized healthcare for immig |
| ATE of                     | 0.37                                  | 0.43                              | 0.5                                 | -0.14                           |
| eader -<br>Cue             | -0.66                                 | -0.28                             | -0.5                                | -0.4                            |
| ATE of<br>uasive           |                                       |                                   |                                     |                                 |
| asive<br>e ATE -           | -0.02                                 | 0.14                              | 0,06                                | 0.46                            |
| Party                      |                                       |                                   |                                     |                                 |

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## Figure 4: Reproduction of Supplementary Figure 2

## Appendix C: Additional robustness checks

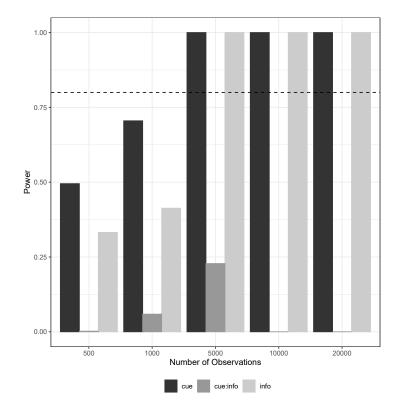
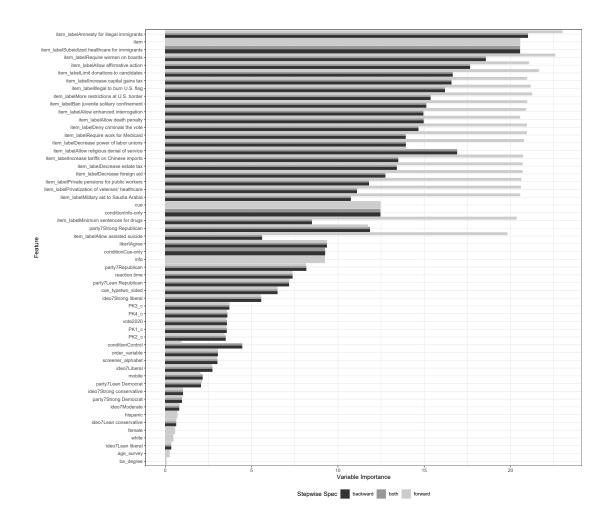


Figure 5: Simulation-based power calculations

*Notes:* Results are based off of a one-thousand iteration simulation for each sample size. The dashed line indicates the typical threshold of a powered study.



#### Figure 6: Variable importance plot from stepwise regression

Notes: Results derived from forward, backward, and both-ways stepwise regressions.

|                            | Dependent variable      |
|----------------------------|-------------------------|
|                            | Policy support (1-7)    |
| Persuasive message         | -0.303***               |
|                            | p = 0.000               |
| Party leader cue           | 0.433***                |
|                            | p = 0.000               |
| emale                      | 0.013                   |
|                            | p = 0.656               |
| Vhite                      | 0.045                   |
|                            | p = 0.219               |
| lispanic                   | 0.021                   |
|                            | p = 0.653               |
| Age                        | -0.001                  |
|                            | p = 0.360               |
| College degree             | 0.012                   |
|                            | p = 0.672               |
| Strong partisan            | 0.245***                |
|                            | p = 0.000               |
| Republican                 | 0.393***                |
|                            | p = 0.000               |
| Conservative               | -0.008                  |
|                            | p = 0.794               |
| Survey completed on mobile | -0.075**                |
|                            | p = 0.017               |
| Political knowledge        | 0.121***                |
|                            | p = 0.000               |
| Question order             | 0.031***                |
|                            | p = 0.0002              |
| Message : Cue              | -0.034                  |
|                            | p = 0.482               |
| Constant                   | 3.725***                |
|                            | p = 0.000               |
| Observations               | 25,166                  |
| Akaike Inf. Crit.          | 103,853.400             |
| Bayesian Inf. Crit.        | 103,999.800             |
| Vote:                      | *p<0.1; **p<0.05; ***p< |
|                            |                         |

#### Table 8: Omnibus model with additional control variables

|                                   | Policy support (1-7) |
|-----------------------------------|----------------------|
| 1 2                               | -2.284***            |
|                                   | (0.000)              |
| 2 3                               | $-1.414^{***}$       |
|                                   | (0.000)              |
| 3 4                               | -0.757***            |
|                                   | (0.000)              |
| 4 5                               | 0.041                |
|                                   | (0.591)              |
| 5 6                               | 0.690***             |
|                                   | (0.000)              |
| 6 7                               | 1.651***             |
|                                   | (0.000)              |
| Persuasive message                | -0.294***            |
|                                   | (0.000)              |
| In-party cue                      | 0.418***             |
|                                   | (0.000)              |
| Persuasive message : In-party cue | -0.034               |
|                                   | (0.463)              |
| SD (Intercept pid)                | 0.668                |
| SD (Intercept item)               | 0.351                |
| Num.Obs.                          | 25 181               |
| AIC                               | 94 995.9             |
| BIC                               | 95 085.3             |

## Table 9: Ordered logit specification

+ p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

|                                   | Dependent variable:      |  |
|-----------------------------------|--------------------------|--|
|                                   | Policy agreement (1-7)   |  |
| Persuasive message                | -0.325***                |  |
|                                   | p = 0.000                |  |
| In-party cue                      | 0.482***                 |  |
|                                   | p = 0.000                |  |
| Persuasive message : In-party cue | -0.031                   |  |
|                                   | p = 0.537                |  |
| Constant                          | 4.429***                 |  |
|                                   | p = 0.000                |  |
| Observations                      | 22,499                   |  |
| Akaike Inf. Crit.                 | 92,987.500               |  |
| Bayesian Inf. Crit.               | 93,043.650               |  |
| Vote:                             | *p<0.1; **p<0.05; ***p<0 |  |

 Table 10:
 Using 2020 vote choice instead of stated party ID: excluding split-tickets

|                                   | Dependent variable:     |
|-----------------------------------|-------------------------|
|                                   | Policy support (1-7)    |
| Persuasive message                | -0.308***               |
|                                   | p = 0.000               |
| In-party cue                      | 0.439***                |
|                                   | p = 0.000               |
| Persuasive message : In-party cue | -0.020                  |
|                                   | p = 0.686               |
| Constant                          | 4.378***                |
|                                   | p = 0.000               |
| Observations                      | 24,373                  |
| Akaike Inf. Crit.                 | 101,148.200             |
| Bayesian Inf. Crit.               | 101,204.900             |
| Vote:                             | *p<0.1; **p<0.05; ***p< |

 Table 11: Using 2020 vote choice instead of stated party ID: including split-tickets