Appendix (Online Supplemental Information)

A1. Pre-Analysis Plan (available at osf.io/2h9fx)

Our first hypothesis is that Republicans exposed to the patriotism message will be more inclined to get a vaccine, see benefits to vaccination, encourage others to get a vaccine, and support policies around vaccines (H1). If the baseline patriotism message condition yields attitudes that are statistically distinct from the control condition, and in the direction of being more supportive of vaccines, we will consider that support for H1. We will consider results at $p \leq .05$, one-tailed as significant.[1]

We followed Pink et al. (2021) and included a pre-treatment measure of vaccine intentions. This question is asked only of those who report being unvaccinated. Pink et al. (2021) estimated treatment effects in a linear model controlling for demographics and vaccine intentions pre-treatment. As a supplement to our H1 core analyses, we will do the same for the unvaccinated group to assess the effectiveness of the treatments for this group, controlling on these variables. We will use the same threshold as in other analyses ($p \leq .05$, one-tailed). Note that we only have pre-treatment measures for vaccine intentions, not other outcomes.

H1a argues that this effect may be more pronounced among Republicans who are more conservative (H1a), given that these values have been found to be particularly important to conservatives. To test this hypothesis, we will interact ideological stance with the patriotism message. Support for the theory would mean that the effect of the patriotism condition on vaccine

[1] Participants will receive different questions regarding their vaccination intentions based on their vaccination status at the time of the survey, as noted above. We will first pool all participants to estimate a broad treatment effect on vaccination intentions. Then we will assess whether treatment effects vary by vaccination status (see supplemental hypothesis below).

attitudes is greater among conservatives. We will consider results at $p \leq .05$, one-tailed as significant.

Our next two hypotheses are that combining the patriotism message with a source cue referencing a Republican voter will increase the positive effect of the message on Republicans (H2a), while combining the message with a source cue referencing a Democratic voter will decrease the effectiveness of the message (H2b). If the patriotism message from a Republican voter condition is higher and statistically distinct from the patriotism message alone, we will consider that as support for H2a. If the patriotism message from a Democratic voter condition is lower and statistically distinct from the patriotism message alone, we will consider that as support for H2b. We will consider results at $p \leq .05$, one-tailed as significant.

Operationalization of Key Concepts

Partisanship. Partisanship will be asked using the standard U.S. partisanship branching module. The first question in the module asks the individual's political party identification: Democrat, Republican, Independent, some other party, or Don't know.

Ideology. Ideology is asked using a branching question similar to party identification.

Additional Analyses

In addition to the core hypotheses, we will examine the data for at least one other potential moderation effect.

Supplemental Hypothesis 1: Vaccination status

As a supplemental hypothesis, we posit that vaccination status could condition responses to the treatments. We do not have a strong directional expectation for this hypothesis. It could be that those who are vaccinated are already supportive of vaccines, so are less likely to be moved by the treatment. However, it could be that the unvaccinated are so opposed to vaccines that they will be less inclined to move. To test whether vaccine status moderates the effect of the treatments, we will interact whether the respondent is vaccinated with our treatment condition. Given that the cells become smaller in these analyses, and we do not have directional hypotheses, we will use an upper significance threshold of $p \leq .10$, two-tailed in these analyses.

A2. Additional Information on the Treatment

Why focus on patriotism: Theoretical background

We posit that Republicans, many of whom resisted COVID-19 vaccination, may shift their opinions in response to moral reframing. As we reference in the main text, Feinberg and Willer (2019, 2) define moral reframing as "a technique in which a position an individual would not normally support is framed in a way that is consistent with that individual's moral values." From a theoretical perspective, they ground their work in moral foundations theory and work that finds conservatives (and by extension Republicans in an era of ideological sorting) tend to prioritize loyalty, purity, and authority "and therefore ground many of their political stances in patriotism, traditionalism, and religious purity concerns" (Feinberg and Willer 2019, 2; see also Haidt and Graham 2007; Graham, et al. 2009; Graham, et al. 2011; Haidt 2012).

Empirical work has found that persuasive appeals framed in terms of the moral values people prioritize can move conservatives in a more liberal direction and liberals in a more conservative direction. Appealing to a conservative, for example, by invoking patriotism, authority, or purity, can shift attitudes in a more moderate or liberal direction. Several studies demonstrate attitude change in response to framing specific issues in light of the moral values conservatives or liberals prioritize on a number of hot-button issues, including immigration, Obamacare, LGBT rights, climate change, and pandemic mitigation (e.g., Feygina, Jost, and Goldsmith 2010; Feinberg and Willer 2015; Wolsko, et al. 2016; DeMora, et al. 2024). For example, framing same-sex marriage as patriotic, via a treatment including the message that "same-sex couples are proud and patriotic Americans," made conservatives more favorable toward same-sex marriage (Feinberg and Willer 2015). Along the same lines, framing mask wearing during the COVID-19 pandemic as patriotic led to more favorable attitudes toward

masks among evangelicals, a group that tends to be conservative and more opposed to masks than other groups (DeMora, et al. 2021).

In some ways, patriotism may be particularly relevant for Republicans in the context of the Trump era and the COVID-19 pandemic. Trump often emphasizes his own and his supporters' love for the U.S. while asserting that his critics and political opponents hate America (e.g., Baker 2019; Pitney 2020). For example, he called for "patriotic education" and referenced patriotism in his opposition to efforts to address racial discrimination like NFL player protests and the New York Times' 1619 Project (e.g., Musto 2020; Klein 2018; Perez and Gaudiano 2020). Conservative media personalities and conservative news media in general have also emphasized that Democrats hate America and "real" Americans celebrate America (e.g., Spicer 2020; Levin 2023).

Various polling results highlight the importance of patriotism to Republicans. The 2020 American National Election Study asked respondents how important being American is to their identity. Republicans averaged a 4.09 on the 1-5 scale, a mean between 4 ("very important") and 5 ("extremely important"). This was higher than the 3.45 mean for Democrats. According to Gallup polling, during Trump's presidency, often over 70% of Republicans said they were "extremely proud" to be American, two or even three times the percentage of Democrats (Brennan 2023). A 2023 WSJ-NORC poll found 59% of Republicans said patriotism is "very important to them" compared to 23% of Democrats (Zitner 2023).

In addition to patriotism, we included one line in the treatment acknowledging the freedom to choose whether to vaccinate against COVID-19. We did this because the Republican information environment emphasized the importance of this kind of liberty. Trump often highlighted the importance of liberty in general, declaring, for example, "In America, we believe

in the majesty of freedom" (The White House 2020). The Trump administration framed several issues in terms of protecting freedom and liberty (e.g., policies related to abortion, LGBTQ rights, free expression, religious freedom, K-12 education policy, higher education policy, providing disaster relief funding to religious organizations, and social media policy; The White House 2020). The conservative media environment also celebrates liberty with Fox News show "Life, Liberty, and Levin" serving as but one example. Around the time of our survey experiment, conservatives emphasized the harms of cancel culture, focusing on protecting liberty (e.g., The Conservative Political Action Conference's 2021 meeting was themed "America Uncanceled").

Why use this specific language? The information environment at the time of experiment

In the specific context of the pandemic, various voices connected mitigation efforts like social distancing, wearing face masks, and vaccination to patriotism and liberty. President Biden said on at least five occasions during 2021 that getting a COVID-19 vaccination was patriotic (April 6, April 21, May 13, July 4, and December 21), calling it "the most patriotic thing you can do" during a 4th of July speech. Members of Congress from both parties and various op-eds also argued that getting vaccinated is patriotic. For example, Bill Foster (D-IL) and Mariannette Miller-Meeks (R-IA), both of whom served on the Select Subcommittee on the Coronavirus Crisis, issued a joint statement entitled, "Getting a COVID-19 vaccination is a patriotic act. Do it for your family and for America" (Foster and Miller-Meeks 2021). West Virginia's Republican governor Jim Justice used pandemic relief funds to pay out $100 savings bonds for people who vaccinated, calling it a "patriotic move" (Christoforous 2021). For his part, Trump tweeted a picture of himself wearing a mask, saying "many people say that it is Patriotic to wear a

facemask when you can't socially distance. There is nobody more Patriotic than me, your favorite president" (Vazquez, Bash, and Collins 2020), though we could find no instance in which Trump called vaccination patriotic.

Opposition to pandemic mitigation strategies was often framed in terms of protecting liberty (e.g., Luthi 2020; Greenblatt 2021; Carpiano, et al. 2023; First Liberty N.D.). In response to pandemic-related protests in April 2020, Trump tweeted "LIBERATE MICHIGAN," "LIBERATE MINNESOTA," and "LIBERATE VIRGINIA" (Collins and Zadrozny 2020). Some Republicans highlighted the importance of liberty even as they supported the COVID-19 vaccine. For example, Senator Ted Cruz (R-TX) argued "I'm pro-vaccine, but I also believe in individual freedom and responsibility. I think it should be your choice what health care you get. You ought to be able to decide with your doctor" (Reston 2021). Various Republican office holders echoed Andy Biggs's (R-AZ) criticism of vaccine mandates as an "egregious assault on Americans' freedom and liberty" (see Morris 2021), while many protesters co-opted the pro-choice slogan, "my body, my choice" (Bluth 2022). Republican rhetoric continues to emphasize liberty, as in a 2024 congressional hearing, when Rich McCormick (R-GA) told Anthony Fauci, "The American people hate having their freedoms taken from them. You inspired and created fear through mask mandates, school closures, vaccine mandates" (Committee on Oversight and Accountability 2024).

Both Presidents Trump and Biden acknowledged patriotism and liberty in the context of the pandemic. Biden referred to both patriotism and liberty in one press briefing, during which he said "Republican men, particularly young men, don't think they should have to take the vaccine; it's their patriotic right not to do it, their freedom to choose…It's a patriotic responsibility you have" (The White House 2021). Trump also acknowledged his followers'

concerns with liberty and choice even as he encouraged people to vaccinate, telling Maria Bartiromo, "I would recommend it and I would recommend it to a lot of people that don't want to get it and a lot of those people voted for me, frankly….But again, we have our freedoms and we have to live by that and I agree with that also. But it is a great vaccine. It is a safe vaccine and it is something that works" (LeBlanc 2021).

In sum, from a theoretical perspective, we followed extant work in framing vaccination as patriotic in an appeal to Republicans. We also drew from the information environment of the time. We prioritized internal validity in drafting the statement to adhere as closely as possible to the value of patriotism, which is important to moral reframing theory, while also considering experimental realism and external validity. Below we provide a breakdown of how each statement is anchored in actual political messaging.

"I appreciate people's concern about making their own choice about vaccines." This line emphasizes liberty, consistent with Republican rhetoric opposing vaccination and other pandemic mitigation strategies illustrated above.

"The way I see it, getting the vaccine is patriotic. It's a way to love this great country. We can help the people that make the US great and our economy." These lines frame vaccination as patriotic as various elites had done around the time of the experiment, perhaps most notably President Biden. In addition, the language echoes Donald Trump's "Make America Great Again" slogan and highlights the importance of vaccination for helping people and the economy. The Trump Administration often trumpeted its efforts to develop a vaccine via Operation Warp Speed and the ways it would help Americans. For example, a fact sheet

released by the Trump White House included the following bullet points (The White House 2020):

- Under President Trump, America will soon deliver vaccines that will help defeat the COVID-19 pandemic and help support the global return to prosperity.
- From the outset of the pandemic, President Trump and his Administration have worked tirelessly to combat COVID-19 and protect Americans.
- President Trump has rejected pursuing across-the-board shutdowns, mandates, and restrictions, which inflict more harm on the American people and United States economy than they would prevent.

"We can beat the virus like we've beaten so many enemies before.'" This line emphasizes beating the virus, consistent with the use of the term "beat" by politicians from both parties, including both President Trump and President Biden and their administrations. In two representative instances, President Trump said, "We will vanquish the virus, we will overcome this pandemic…" and President Biden said, "As I said a long time ago, we're going to beat this [virus] as long as we do it together" (The White House 2020; 2021).

Why craft a strong message: Giving moral reframing the possibility of efficacy

When we ran the experiment, many Republicans were hesitant to vaccinating against COVID-19. We wanted to see if framing vaccination as patriotic might shift attitudes toward vaccination in the same way that patriotism messages on other issues (e.g., environmental protection, LGBTQ rights) shifted attitudes in a liberal direction (e.g., Feygina, et al., 2010; Feinberg and Willer, 2013; Wolsko et al., 2016; Bayes et al., 2020; Voelkel, et al., 2022). Yet,

Republican resistance seemed strong, such that Republicans may be unmovable. We sought to give the patriotism message a genuine possibility to persuade. If a strong patriotism message could not move Republicans, we would have some evidence that these kinds of appeals simply don't work in this particular context. This is what we found. Finding that message persuaded only a minority of Republicans suggests that in this evolving context, patriotism appeals have limited efficacy. Our conclusion discusses factors that might produce this limit to moral reframing and potential future research directions connected to these factors.

Pilot study: Assessing perceived effectiveness of potential frames

We conducted a pilot test in August 2021 via Lucid with N=1,673 individuals drawn to approximate the online US population. We aimed to answer three questions. First, which patriotism message did Republicans perceive to be the most effective? Second, did message length matter? Third, which source cues would make the message more persuasive? We focused on the 412 Republicans and Independents who lean Republican. We developed four messages, which varied in content and length. Each respondent was asked to evaluate the effectiveness of two of the four messages. We asked respondents, "regardless of whether you agree or not, how effective is the statement in making its case?" Responses ranged from 1 (not at all effective) to 4 (very effective). In addition to testing the content and length of the message, we also used the pilot to assess whether individuals rated these messages as more or less effective conditional on whether they were associated with no source, a Democratic or Republican voter, or Joe Biden or Donald Trump (ranging from 0 "much less effective" to 4 "much more effective").

Among Republicans, two of the messages were perceived as more effective: a message emphasizing patriotism and liberty (76% said the message was "somewhat effective,"

"effective," or "very effective," with a mean of 2.25) and a message emphasizing patriotism and purity (78% said the message was at least somewhat effective, with a mean of 2.32), values the literature has found to be especially important to conservatives as noted above. The other two messages were perceived to be less effective. One called vaccination a patriotic duty and encouraged Americans to catch up to other countries' vaccination rates, rating 2.08 on average. The other focused on patriotism and the historical points that George Washington and Thomas Jefferson supported vaccine mandates, scoring 2.15 on average. Since messages referring to other countries or historical precedents have little or no theoretical backing (unlike patriotism/liberty and patriotism/purity messages that have been used in several studies; e.g., Feinberg and Willer 2013; 2015; Wolsko, et al., 2016; DeMora, et al. 2021; Green, et al. 2023) and these two messages performed less well in the pilot, we focused on the messages emphasizing patriotism/liberty versus patriotism/purity. Below we discuss why we decided to use the patriotism/liberty message instead of the patriotism/purity message.

In sum, the patriotism/liberty message we ultimately used was perceived to be effective. Only 24% of the Republicans in our pilot sample saw the message as "not at all effective." In contrast, 39% said the message was "somewhat effective" and 38% saw it as either "effective" or "very effective."

Why use Democrat and Republican voters as source cues? Ethical considerations and perceived effectiveness

Three considerations drove our decision to use Democrat and Republican voters as source cues. First, we wanted to avoid deception. Second, our pilot analyses indicated that relying on partisan voters as source cues would be about as effective as using Biden and Trump as source

cues, but without deception. Third, since so much political communication is carried out via social media, non-elite sources are common and can be influential.

First, given the highly controversial nature of the COVID-19 vaccine among our target sample of Republicans, we wanted to avoid any hint of deception. We feared that deception by university professors could heighten Republican respondents' distrust in science and higher education. From past work on the impact of partisan source cues on vaccination intention (Pink, et al. 2021), we derived the relevance of partisan source cues. We considered using Joe Biden as a source cue since he said on several occasions that getting vaccinated is patriotic, as discussed above. However, to our knowledge Donald Trump never said the same about vaccination, despite framing mask wearing as patriotic (at least on occasion) and generally supporting COVID vaccinations. Therefore, we could not have a Democrat and Republican of equal political stature (i.e., both presidents) as source cues without deception.

Second, our pilot analyses indicated that relying on partisans from the mass public as source cues would be about as effective as using Biden and Trump as source cues, but without deception. As noted above, in our pilot, we gauged the perceived effectiveness of different patriotism messages without source cues and then asked if the statements would be more effective if delivered by Donald Trump, Joe Biden, a Republican voter, and a Democratic voter (scaled from 1 "much less effective" to 5 "much more effective"). For the patriotism message we adopted, the mean score for Trump was 3.40, an average between a Trump source cue making no difference (3 on the scale) and more effective (4 on the scale). The mean for a Republican voter was 3.33, just 0.07 points lower than the Trump average, but this difference was not statistically significant ($p = 0.47$). For the patriotism/purity message, the mean score for Trump was 3.48, compared to a mean of 3.22 for a Republican voter, a statistically significant difference of 0.26

($p < 0.01$). We judged that the difference in perceived effectiveness between using Trump versus a Republican voter as a source cue would be minimal for the patriotism message and larger for the patriotism/purity message. Thus, we decided to use the patriotism message because it enabled us to use one of the strongest messages with a strong partisan cue that would not require deception. In other words, with the patriotism message we used, employing deception (conveying that Trump said something he did not say) would have only provided minimal additional perceived message effectiveness, if any.

Third, since so much political communication is carried out via social media, non-elite sources are common and can be influential. A long line of social science research has studied the impact of interpersonal political communication, which a recent review defined as "communication between members of the mass public" (Settle 2024, 5; for recent studies, see e.g., Cramer 2004; Klar 2014; Broockman and Kalla 2016; Druckman, Levendusky, and McClain 2018; Santoro and Broockman 2022). These studies find communication between non-elites can impact individuals' attitudes in a variety of ways and contexts (e.g., face-to-face or computer mediated interactions as on social media platforms; Settle 2018; 2024), including on attitudes relating to pandemic mitigation efforts like wearing facemasks (DeMora, et al. 2021). Once again, to avoid the deception of saying an elite actor said something they did not, we opted to employ Republican and Democratic voters as partisan source cues.

Why use a relatively short treatment? Short messages were perceived as most effective

Although some studies examining moral reframing use slightly longer messages (e.g., Feinberg and Willer 2015 and Wolsko et al. 2016), recent work argues that short messages can be as effective as longer message (Green, et al. 2023). We do not try to resolve this question, but

simply wanted to craft a strong treatment. Republicans in the pilot study rated the short patriotism frame we used 2.25 on average, compared to 2.08 for a longer patriotism message. The longer frame scored about 0.14 points lower than the short liberty frame among Republicans and this difference, when accounting for within-participant variation, was marginally statistically significant (p = 0.06). The longer frames emphasizing purity scored about 0.04 points higher than the short liberty frame among Republicans, but the difference when accounting for within-participant variation was not statistically significant (p = 0.52). Therefore, we selected the shorter message that recognizes liberty to choose and emphasizes patriotism.

A3. Full Survey Instrument

The survey includes several measures of vaccine/booster intentions and attitudes toward vaccines.

Pre-test vaccine/booster intentions

Have you received at least one dose of the COVID-19 vaccine (not including boosters)?

1. Received one dose of the Johnson & Johnson vaccine
2. Received one dose of the Moderna or Pfizer vaccine
3. Received two doses of the Moderna or Pfizer vaccine
4. Received a COVID-19 vaccine not listed above (for example, the AstraZeneca, Sputnik, or Sinovac vaccine)
5. Have not had any doses of a COVID-19 vaccine

[For those who respond 1-4]: Which of the following best represents your COVID-19 booster status?

1. I have received a booster.
2. I have not received a booster.

[For those who respond 5]: How likely are you to get vaccinated against COVID-19?

1. Extremely likely
2. Somewhat likely
3. Somewhat unlikely
4. Extremely unlikely

Treatment

Suppose a public health official / Republican voter / Democratic voter made the following argument to encourage people to get the vaccine:

"I appreciate people's concern about making their own choice about vaccines. The way I see it, getting the vaccine is patriotic. It's a way to love this great country. We can help the people that make the US great and our economy. We can beat the virus like we've beaten so many enemies before."

How effective do you think this argument is?

1. Not at all effective
2. Somewhat effective
3. Effective
4. Very effective

Post-test module

Those who report in the pretest if they are unvaccinated (5 to the first question) get asked:

How likely are you to choose to get the COVID-19 vaccine?[2]

0% - Extremely unlikely to 100% - Extremely Likely [slider]

Those who report having one dose of Moderna or Pfizer in the pre-test (2 to the first question) get asked:

How likely are you to choose to get the second dose of the COVID-19 vaccine?

[2] Those in this condition who received the control (no treatment) receive the same question, but with a lead-in to address the redundancy of the last pre-test question and this first post-test question: Put another way, how likely are you to choose to get the COVID-19 vaccine?

0% - Extremely unlikely to 100% - Extremely Likely [slider]

Those who report being fully vaccinated (1 or 2 to the first question above) but have not received a booster get asked:

A "booster" is a vaccine dose that helps improve your body's ability to fight an infection. How likely are you to choose to get the COVID-19 booster?

0% - Extremely unlikely to 100% - Extremely Likely [slider]

Those who report being fully vaccinated (1 or 2 to the first question above) and have received a booster get asked:

If an additional booster vaccine for COVID-19 were recommended by health officials and offered to you in the next year, how likely would you be to get an additional booster?

0% - Extremely unlikely to 100% - Extremely Likely [slider]

<u>Vaccine Benefits</u>

The next set of questions ask about perceptions of the benefits of vaccines:

How much do you agree with the following statements?

A. The benefits of COVID-19 vaccines are much greater than the risks.
B. Americans have a responsibility to get a COVID-19 vaccine.
C. If a large majority of Americans get a COVID-19 vaccine, it would help the economy a lot.

0 - Strongly Disagree to 100 - Strongly Agree [slider]

Vaccine Encouragement

The next set of question assesses if respondents will encourage others to get vaccinated.

> Consider a case in which you have a friend or family member who is unsure whether to get the COVID-19 vaccine. On the below scale, what best captures how you would respond to this person? You can pick any number from 0 to 100.

0 - Strongly discourage them from getting the vaccine / 50 - Neither encourage nor discourage them from getting the vaccine / 100% - Strongly encourage them to get the vaccine [slider]

Views toward vaccine mandates

The final two questions ask about support for vaccine mandates:

> Some people, such as the elderly, people with cancer, lung disease, or other medical conditions, are at greater risk for getting severely ill from COVID-19. Allowing for religious and other exemptions, to what extent do you oppose or support employers deciding to mandate the vaccine for their employees who act as caretakers for such populations?
>
> 0 - Strongly Oppose to 100 - Strongly Support [slider]

> Some colleges and universities in the U.S. have mandated that students and staff be vaccinated against COVID-19 to participate in on-campus in-person activities, often allowing religious and other exemptions. To what extent do you oppose or support these policies?
>
> 0 - Strongly Oppose to 100 - Strongly Support [slider]

A4. Interactions with Vaccination Status.

We found only two marginally statistically significant interactions out of 18 total interactions. For the item measuring views on whether the vaccine's benefits outweigh costs, we find unvaccinated Republicans in the Democratic voter condition were 5.4 points lower than vaccinated Republicans in the same condition ($p < .10$). On the question of whether universities should mandate vaccination for students, vaccinated Republicans in the Democratic voter condition were 4.2 points lower than unvaccinated Republicans in the same condition ($p < .20$).

A5. Additional tables referenced in paper

Table 1. Balance Checks

Baseline	Comparison Group	Gender	Age	Income	Education	Ideology
Control	Democratic Voter	0.853	0.54	0.487	0.767	0.464
Control	Public Health Official	0.503	0.094	0.92	0.673	0.442
Control	Republican Voter	0.715	0.898	0.435	0.799	0.811
Republican Voter	Control	0.715	0.898	0.435	0.799	0.811
Republican Voter	Democratic Voter	0.856	0.624	0.93	0.577	0.618
Republican Voter	Public Health Official	0.76	0.118	0.369	0.492	0.307
Democratic Voter	Control	0.853	0.54	0.487	0.767	0.464
Democratic Voter	Public Health Official	0.625	0.284	0.418	0.9	0.128
Democratic Voter	Republican Voter	0.856	0.624	0.93	0.577	0.618
Note: These are two-tailed p-values generated from a multinomial logistic regression.						

Table 2. Descriptive Statistics by Experimental Condition

Treatment	Outcome Variable	N	Mean	SD
Control	--	734	--	--
Democratic Voter	--	767	--	--
Public Health Official	--	790	--	--
Republican Voter	--	767	--	--
Control	2nd Dose	37	89.351	29.918
Democratic Voter	2nd Dose	31	78.323	35.188
Public Health Official	2nd Dose	36	71.417	39.489
Republican Voter	2nd Dose	30	74.3	40.112
Control	Benefits Outweigh	711	52.415	38.456
Democratic Voter	Benefits Outweigh	750	48.057	38.92
Public Health Official	Benefits Outweigh	777	50.78	37.95
Republican Voter	Benefits Outweigh	754	55.294	38.135
Control	Boost	138	46.225	36.106
Democratic Voter	Boost	135	44.793	35.781
Public Health Official	Boost	146	44.055	36.735
Republican Voter	Boost	152	43.967	35.529
Control	Boost on Recommendation	246	77.089	30.026
Democratic Voter	Boost on Recommendation	239	78.444	29.382
Public Health Official	Boost on Recommendation	269	78.067	29.438
Republican Voter	Boost on Recommendation	279	82.194	27.649
Control	Economy	712	39.596	37.8
Democratic Voter	Economy	733	34.005	35.297
Public Health Official	Economy	763	37.526	36.301
Republican Voter	Economy	751	39.605	36.784
Control	Encourage	723	55.643	29.375
Democratic Voter	Encourage	752	53.34	28.919
Public Health Official	Encourage	780	54.942	28.578
Republican Voter	Encourage	755	57.853	26.782
Control	Mandate Healthcare	700	41.44	38.661
Democratic Voter	Mandate Healthcare	730	35.905	37.424
Public Health Official	Mandate Healthcare	760	40.289	38.509
Republican Voter	Mandate Healthcare	731	43.237	38.491
Control	Mandate University	696	37.144	37.486
Democratic Voter	Mandate University	728	31.6	36.253
Public Health Official	Mandate University	750	35.423	37.108
Republican Voter	Mandate University	733	37.033	37.332

Control	Responsibility	719	41.414	38.996
Democratic Voter	Responsibility	739	34.886	37.147
Public Health Official	Responsibility	766	38.121	37.492
Republican Voter	Responsibility	749	39.491	37.706
Control	Vaccinate	280	13.275	22.606
Democratic Voter	Vaccinate	326	9.503	16.291
Public Health Official	Vaccinate	306	10.964	19.067
Republican Voter	Vaccinate	267	12.502	19.968

Table 3. Vaccine Intentions controlling for intent to vaccinate

	Vaccinate
Public Health Official	0.15
	(1.15)
Democratic Voter	-0.94
	(1.17)
Republican Voter	0.46
	(1.22)
Pre-Treatment Vaccination	20.30 **
Intention	(0.61)
Intercept	-15.64 **
	(1.22)
N	1178
R2	0.49

* $p < 0.1$; ** $p < 0.05$, standard errors in parentheses.

Table 4. Vaccine and Booster Intentions and Attitudes with Public Health Official set as Baseline for Comparison

	Vaccinate	Second Dose	Boost	Boost on Recommendation	Benefits Outweigh	Responsibility	Help Economy	Encourage	Mandate Healthcare	Mandate University
(Intercept)	12.29 **	72.51 **	39.99 **	73.87 **	51.22 **	37.16 **	38.32 **	54.45 **	41.51 **	36.73 **
	(1.07)	(6.37)	(3.02)	(1.88)	(1.35)	(1.34)	(1.32)	(0.97)	(1.37)	(1.34)
Democratic	-2.17	5.25	6.06	5.55 **	0.75	1.14	-1.83	0.53	-3.16	-2.83
Voter	(1.54)	(8.11)	(4.40)	(2.73)	(1.94)	(1.93)	(1.90)	(1.40)	(1.96)	(1.92)
Republican	2.02	-17.78 *	5.61	7.85 **	4.26 **	3.97 **	2.00	4.31 **	3.05	0.50
Voter	(1.62)	(9.10)	(4.15)	(2.65)	(1.91)	(1.92)	(1.86)	(1.38)	(1.94)	(1.90)
Control	0.87	21.52 **	7.16 *	0.49	5.51 **	8.48 **	4.96 **	6..28 **	6.30 **	5.57 **
	(1.60)	(8.09)	(4.29)	(2.72)	(1.97)	(1.95)	(1.41)	(1.99)	(1.94)	(1.91)
N	1179	134	571	1033	2992	2973	2959	3010	2921	2907
R2	0.01	0.16	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01

* $p < 0.1$; ** $p < 0.05$, standard errors in parentheses.

The above table replicates Tables 1 and 2 from the paper, but with the public health source cue condition as the baseline. For the vaccinate outcomes, it is only among Republicans who are vaccinated and boosted that we observe positive effects, with those in the Republican and Democrat source conditions 7.9 and 5.6 percentage points more likely to say they will get an additional booster if recommended compared to those in the public health condition. The former finding is consistent with Hypothesis 2a, while the findings for the Democrat cue are contrary to Hypothesis 2b. For attitudes, we do not observe differences between this condition and the Democrat condition. However, respondents in the Republican condition are more likely to express that the benefits outweigh the costs (by 4.3 points); that Americans have a responsibility to get the vaccine (by 4.0 points); and an increased willingness to encourage a friend or family member to get vaccinated (by 4.3 points).

Table 5. Attitudes Toward COVID-19 Vaccines Controlling for Vaccination Status

	Benefits Outweigh	Responsibility	Help Economy	Encourage	Mandate Healthcare	Mandate University
Public Health Official	-4.14 **	-7.80 **	-4.69 **	-4.40 **	-5.75 **	-5.90 **
	(1.51)	(1.68)	(1.65)	(1.19)	(1.80)	(1.74)
Democratic Voter	-2.86 *	-5.90 **	-6.18 **	-3.14 **	-7.99 **	-8.30 **
	(1.53)	(1.71)	(1.68)	(1.22)	(1.83)	(1.77)
Republican Voter	-3.20 **	-6.63 **	-5.06 **	-1.75	-4.71 **	-7.12 **
	(1.51)	(1.70)	(1.65)	(1.21)	(1.81)	(1.75)
Vaccinated	49.86 **	38.94 **	37.33 **	29.64 **	33.20 **	33.09 **
	(1.08)	(1.22)	(1.19)	(0.86)	(1.30)	(1.26)
(Intercept)	26.38 **	22.23 **	21.35 **	41.50 **	27.50 **	23.00 **
	(1.28)	(1.42)	(1.40)	(1.01)	(1.53)	(1.48)
N	2992	2973	2959	3010	2921	2907
R2	0.42	0.26	0.25	0.29	0.19	0.20

* $p < 0.1$; ** $p < 0.05$, standard errors in parentheses.

There were no statistically significant ($p < 0.05$) imbalances (See S.I. Table 1). Controlling for demographic measures only alters one finding from each of the included tables. Compared to the control, the message from a Democratic voter no longer statistically decreases vaccination intentions, and the Republican voter treatment no longer statistically impacts views that vaccination helps the economy.

Table 6. Vaccine and Booster Intentions and Attitudes with All Demographics as Controls

	Vaccinate	Second Dose	Boost	Boost on Recommendation	Benefits Outweigh	Responsibility	Help Economy	Encourage	Mandate Healthcare	Mandate University
Public Health	-1.10	-22.73 **	-8.27 *	-1.23	-3.39 *	-7.11 **	-4.47 **	-3.71 **	-5.42 **	-5.28 **
Official	(1.61)	(8.92)	(4.29)	(2.67)	(1.86)	(1.88)	(1.83)	(1.34)	(1.93)	(1.88)
Democratic	-2.48	-14.71 **	-1.75	5.40 **	-4.15 **	-7.03 **	-7.01 **	-4.23 **	-8.69 **	-8.56 **
Voter	(1.63)	(6.92)	(4.39)	(2.74)	(1.88)	(1.91)	(1.86)	(1.36)	(1.96)	(1.90)
Republican	1.27	-36.38 **	-4.06	7.44 **	0.20	-3.80 **	-2.49	0.06	-2.59	-4.83 **
Voter	(1.72)	(8.25)	(4.17)	(2.66)	(1.86)	(1.89)	(1.84)	(1.35)	(1.95)	(1.89)
Gender	-0.99	-1.08	-1.27	0.37	-1.63	2.64 **	0.41	0.25	-1.71	1.45
	(1.15)	(5.91)	(3.09)	(1.95)	(1.32)	(1.34)	(1.31)	(0.95)	(1.38)	(1.34)
Age	-1.17 **	7.58 **	-0.43	7.91 **	9.92 **	8.06 **	7.01 **	6.93 **	5.28 **	6.54 **
	(0.58)	(2.88)	(1.61)	(1.16)	(0.66)	(0.67)	(0.65)	(0.48)	(0.70)	(0.67)
Income	0.29	-6.35 *	-4.94 **	1.07	3.92 **	0.98	1.02	2.43 **	1.06	1.05
	(0.58)	(3.29)	(1.51)	(0.99)	(0.66)	(0.67)	(0.65)	(0.48)	(0.69)	(0.67)
Education	-0.71	4.55	-0.40	1.10	3.47 **	3.06 **	3.31 **	1.78 **	1.53 **	1.15 *
	(0.60)	(2.78)	(1.40)	(0.84)	(0.61)	(0.62)	(0.60)	(0.44)	(0.64)	(0.61)
Ideology	-3.16 **	-4.65	-4.55 **	-4.68 **	-6.87 **	-8.42 **	-8.89 **	-5.52 **	-9.80 **	-9.34 **
	(0.64)	(3.64)	(1.88)	(1.12)	(0.75)	(0.77)	(0.75)	(0.55)	(0.79)	(0.77)

(Intercept)	31.39 **	93.16 **	82.86 **	58.39 **	35.59 **	38.83 **	44.42 **	48.13 **	64.93 **	50.94 **
	(3.72)	(17.95)	(11.45)	(8.10)	(4.70)	(4.76)	(4.65)	(3.42)	(4.94)	(4.79)
N	1174	134	569	1030	2983	2963	2950	3001	2912	2899
R2	0.04	0.23	0.04	0.07	0.13	0.09	0.09	0.11	0.07	0.08

* $p < 0.1$; ** $p < 0.05$, standard errors in parentheses.

For those in the public health condition, backlash is concentrated among the most conservative for intention to get a booster shot, intent to encourage others to vaccinate, and support for vaccine mandates for students and caretakers. We illustrate these significant marginal effects in Figure 1. We do not observe any positive effects for the Republican condition among the most conservative (see S.I. Figure 2, below).

Figure 1. Change in Vaccine Intentions and Attitudes Given Exposure to the Public Health Condition Relative to the Control Condition by Ideology (90% Confidence Intervals)

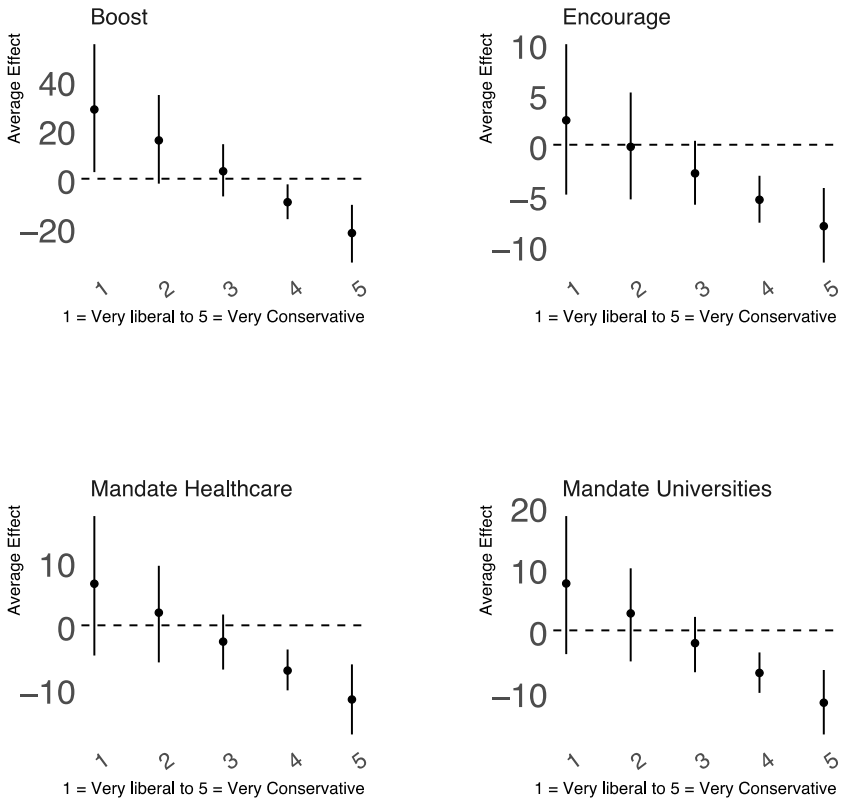
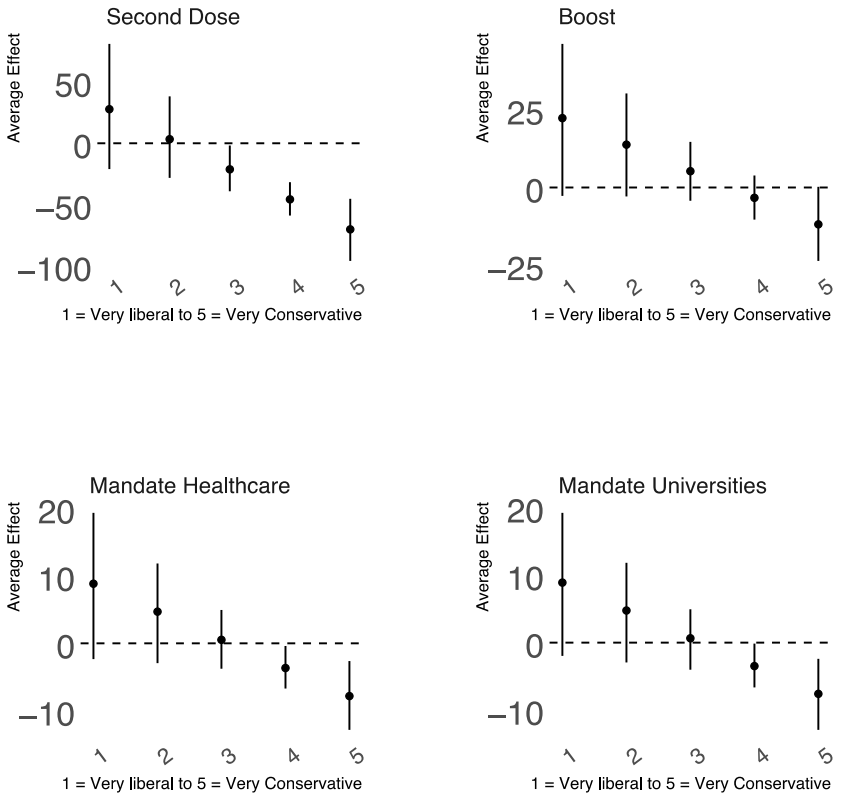


Fig. 2. Change in Vaccine Intentions and Attitudes Given Exposure to the Republican Voter Condition Relative to the Control Condition by Ideology (90% Confidence Intervals)



A6. Survey details

We affirm the experimental design was consistent with APSA's Principles and Guidance for Human Subjects Research. The experimental design avoided using any deception. As noted below, NORC paid respondents $2 and the median time taken to finish the survey was 3 minutes (hourly equivalent: $40/hr).

The following information was provided to the authors by NORC regarding the survey:

A sample of self-identified Republicans (using previously collected AmeriSpeak panel data) were selected for this study. Respondents who confirmed they self-identified as Republican at the beginning screener section of the survey were eligible for the study.

The sample for a specific study is selected from the AmeriSpeak Panel using sampling strata based on age, race/ethnicity, education, and gender (48 strata in total). The size of the selected sample per sampling stratum is determined by the population distribution for each stratum. In addition, sample selection takes into account expected differential survey completion rates by demographic groups so that the set of panel members with a completed interview for a study is a representative sample of the target population. If panel household has one more than one active adult panel member, only one adult in the household is eligible for selection (random within-household sampling). Panelists selected for an AmeriSpeak study earlier in the business week are not eligible for sample selection until the following business week.

Gaining Respondent Cooperation and Data Collection Procedures

The study was in field from Friday, January 14th through Tuesday, February 1st.
To encourage study cooperation, NORC sent email reminders to sampled web-mode panelists on the following dates:

- Friday, January 14th (Email Invitations for Soft-launch sample)
- Monday, January 17th (Email Reminder to Soft-launch sample)
- Tuesday, January 18th (Email invitation to Remainder sample)
- Friday, January 21st (Email Reminder to Remainder sample
- Monday, January 24th (Email Reminder to total sample)
- Sunday, January 30th (Email Reminder to total sample)

Panelists were offered the cash equivalent of $2 for completing the study.

Interviewed respondents took 3 minutes (median) to complete the survey.

Response Rate Reporting

Weighted AAPOR RR3 Recruitment rate: 17.1%

Weighted Household retention rate: 75.6%

Screener Completion rate: 39.8%

Survey interview completion rate: 61.5%

Weighted AAPOR RR3 cumulative response rate: 3.2%

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