

Timing of COVID-19 Vaccine Approval and Endorsement by Public Figures

Scott E. Bokemper*, PhD^{1,2}, Gregory A. Huber, PhD,^{1,2,3} Alan S. Gerber, PhD,^{1,2,3} Erin K. James, ScD,^{4,5} Saad B. Omer, MBBS MPH PhD^{4,5,6,7}

¹ Institution for Social and Policy Studies, Yale University; ² Center for the Study of American Politics, Yale University; ³ Department of Political Science, Yale University; ⁴ Yale Institute for Global Health; ⁵ Department of Internal Medicine, Section of Infectious Diseases, Yale School of Medicine; ⁶ Department of Epidemiology of Microbial Diseases, Yale School of Public Health; ⁷ Yale School of Nursing

* **Corresponding author: Email:** scott.bokemper@yale.edu; **Phone:** (203)432-0865; **Mailing Address:** 77 Prospect St., New Haven, CT 06520

Abstract

The global spread of COVID-19 has created an urgent need for a safe and effective vaccine. However, even if a safe and medically effective vaccine is developed, hesitancy by citizens to receive it would undercut its effectiveness as a tool for limiting the spread of COVID-19.^{1,2,3} A potential driver of hesitancy in the United States is the politicization of a potential vaccine, including when one might be approved with respect to the presidential election and which public figures are endorsing its safety and efficacy.^{4,5} Using a pair of randomized survey experiments, we show that announcing approval of a COVID-19 vaccine one week before the election compared to one week after considerably reduces both beliefs about its safety and efficacy and willingness to receive it. However, endorsement by Dr. Anthony Fauci increases reported beliefs about safety and willingness to receive a vaccine among all partisan subgroups. Further, an endorsement by Dr. Fauci increased uptake and confidence in safety even if a vaccine receives pre-election approval. The results here suggest that perceptions of political influence in COVID-19 vaccine approval could significantly undermine the viability of a vaccine as a strategy to end the pandemic.

Notes and Acknowledgments: The authors declare that there are no conflicts of interest related to this work. We would like to acknowledge the generous support of the Tobin Center for Economic Policy, the Center for the Study of American Politics, the Institution for Social and Policy Studies at Yale University and the Yale Institute for Global Health.

Main

The true value of a vaccine in controlling an infectious disease is a combination of the vaccine's efficacy and the willingness of individuals to vaccinate. If enough individuals refuse to receive a vaccine, the protection afforded to the population at large is considerably diminished. Past research has documented the challenges that vaccine hesitancy poses for the medical community.^{1,2,3} COVID-19 presents a unique challenge given that the need to rapidly develop a vaccine could broadly undermine the public's beliefs that one will be safe. Recent survey evidence has shown that only 51% of US adults indicate they are likely to accept a COVID-19 vaccine with only 19% of the public having a "great deal" of confidence that the process to create a vaccine will produce one that is safe and effective.⁶

Hesitancy to receive a COVID-19 vaccine may also be driven, in part, by public concerns that political considerations are affecting when a vaccine is approved and whether it is approved before proven to be safe and effective. A majority of Americans report that they are worried that political pressure could cause a vaccine to be approved before it is safe and effective and a majority of both Republicans and Democrats express concerns that approval of the vaccine will be based more on politics than science.^{4,5} Further, in the 2020 Vice Presidential Debate, Senator Kamala Harris stated that she would not receive a vaccine if it was endorsed by President Trump, but she would receive it if NIAID (National Institute of Allergy and Infectious Diseases) director Dr. Anthony Fauci advised that it was safe and effective.⁷ Taken together, this fits into a broader pattern of the politicization of the COVID-19 pandemic and responses to it among political elites and in mass public opinion.^{8,9,10}

While approval of a COVID-19 vaccine prior to the November presidential election could affect the outcome, it is not known whether the timing of a COVID-19 vaccine approval coinciding with the presidential election would undermine the public confidence that the vaccine is safe and effective and willingness to receive it. Further, we also do not know whether endorsements of the vaccine by politicians, like President Donald Trump and House Speaker Nancy Pelosi, and health experts, like Dr. Anthony Fauci, would have consequences for beliefs about safety and efficacy and individuals' willingness to receive a vaccine.

Design

We use two randomized, controlled experiments fielded on a nationally representative sample of adult U.S. residents ($N = 5,014$) to examine how timing and elite endorsement effect public opinion about a COVID-19 vaccine. Both experiments were embedded in the same survey that was fielded by the survey vendor YouGov between September 9 and September 22, 2020. The experiments were fielded under an IRB exemption granted by the Yale University IRB.

Prior to our randomized treatments, respondents were asked about their background, including a generic vaccine confidence battery.¹¹ The first experiment was a vignette in which respondents were asked to consider a vaccine with a particular approval date: "Suppose a COVID-19 vaccine receives approval from the FDA on [DATE]." DATE was randomly assigned to be "October 27, 1 week before the election", "November 10, 1 week after the election", or "December 15." Respondents were then asked their likelihood of getting the vaccine ("How likely would you be to get this COVID-19 vaccine within the first 3-months of it becoming available to you?" measured on a 5-point scale running from 0 [Extremely unlikely] to 1 [Extremely likely]) and their confidence in its safety and efficacy ("How confident are you that this COVID-19 vaccine would be safe and effective?" measured on a 4-point scale running from

0 [Not confident at all] to 1 [Extremely confident]). For subsequent analyses, we dichotomized the measure of the likelihood that respondents would receive the vaccine, such that likely and extremely likely were coded 1 and the other responses were coded 0.

The second experiment followed the first and held fixed the date of approval but added a third-party statement about the approved vaccine's safety and efficacy. The statement was randomly assigned to one of six values, (1) a positive or (2) negative statement by Dr. Anthony Fauci, (3) a positive or (4) negative statement by President Trump, (5) a joint positive statement by Trump and Speaker of the House Nancy Pelosi, or (6) a positive Trump statement and a negative Pelosi statement. Respondents were then asked the same outcome questions.

Results

Using the data from the first experiment, Figure 1 shows how vaccine timing affects stated willingness to vaccinate and confidence. Panel A shows the results for the overall sample. Compared to a baseline announcement one week after the election, as well as an approval in December, approval before the election reduced willingness to vaccinate and confidence. An announcement of approval one week prior to the election was estimated to decrease the reported likelihood of receiving a COVID-19 vaccine within the first three months of availability by 4.2 percentage points (95% C.I. = -1.6 to -6.8, $p < .01$), a 14% reduction from reported intentions to vaccinate if announced one week after the election ($.042/.298 = .14$). Respondents were also less confident that the vaccine would be safe and effective if approved before the election (difference = .049 for scale outcome ranging from 0 to 1, 95% C.I. = -.030 to -.069, $p < .001$). A vaccine approved in December compared to the week after the election increased willingness to vaccinate by 1.7 percentage points (95% C.I. = -1.5 to 5.0, $p = .30$) and confidence by .41 units (95% C.I. = .18 to .63, $p < .001$).

The subsequent panels of Figure 1 show that the effect of the politicized context is based on a strong response among respondents with high general vaccine confidence (Panel B, for high confidence respondents the early announcement reduced uptake intentions by 8.2 percentage points (95% C.I. = -4.0 to -12.4, $p < .001$) and confidence by .085 units (95% C.I. = -.058 to -.113, $p < .001$) and was heavily concentrated among Democrats (Panel C, uptake reduced by 8 percentage points (95% C.I. = -3.9 to -12.1, $p < .001$) and confidence by -.086 units (95% C.I. = -.058 to -.116, $p < .001$); Effects for Republicans and Independents smaller and not statistically significant).

For the second experiment, compared to the baseline condition of a positive statement by President Trump, Dr. Fauci's statements had dramatic effects on public reactions (Figure 2). For vaccine uptake and confidence, respectively, the effects of a positive rather than negative endorsement by Dr. Fauci were very large, approximately 21.6 percentage points (95% C.I. = 17.6 to 25.5, $p < .001$) and .234 units (95% C.I. = .204 to .264, $p < .001$). President Trump's statement in favor rather than opposed was not statistically significant for either outcome. Speaker Pelosi's co-endorsement with President Trump versus contradicting the President with a negative statement had effects approximately one-third to one half as large as that of Dr. Fauci (vaccine uptake difference = 5.7 percentage points, 95% C.I. = 1.7 to 9.8, $p < .001$; confidence difference = .067, 95% C.I. = .037 to .098, $p < .001$).

The effects of Fauci and Pelosi were concentrated among those with a high vaccine confidence (Figure 2), although there was a positive effect from a positive rather than negative statement from Dr. Fauci among both groups. In contrast, the overall null effect of President Trump's positive rather than negative statement is shown to be a combination of a positive (not

significant) increase in confidence among those low in baseline confidence and a *negative* (significant) effect among those high in confidence.

All groups indicated more willingness to receive a vaccine if Dr. Fauci supported it rather than opposed it, but the effect was 4 times larger for Democrats than Republicans, with the effect for Independents in between. In contrast, President Trump had a polarized effect; his statement in support of versus opposition to vaccine approval raised vaccine confidence among Republicans about as much as Dr. Fauci, but *lowered* confidence among Democrats and had no effect among independents. Speaker Pelosi's impact was concentrated among Democratic respondents, with effects near zero for both Republicans and independents.

Given the sensitive nature of pre-election approval, we more closely examine the effect of endorsement by public figures of an approval one week prior to the election (Table S3). Even in the most politicized window for approval, Dr. Fauci's support increased reported uptake intentions and confidence in safety and efficacy compared to Dr. Fauci opposing a vaccine (vaccine uptake difference = 15.4 percentage points, 95% C.I. = 9.2 to 21.6, $p < .001$; confidence difference = .201 units, 95% C.I. = .152 to .251, $p < .001$). Notably, endorsement by political figures does not appear to move vaccine uptake or confidence in safety and efficacy in the pre-election window.

Conclusion

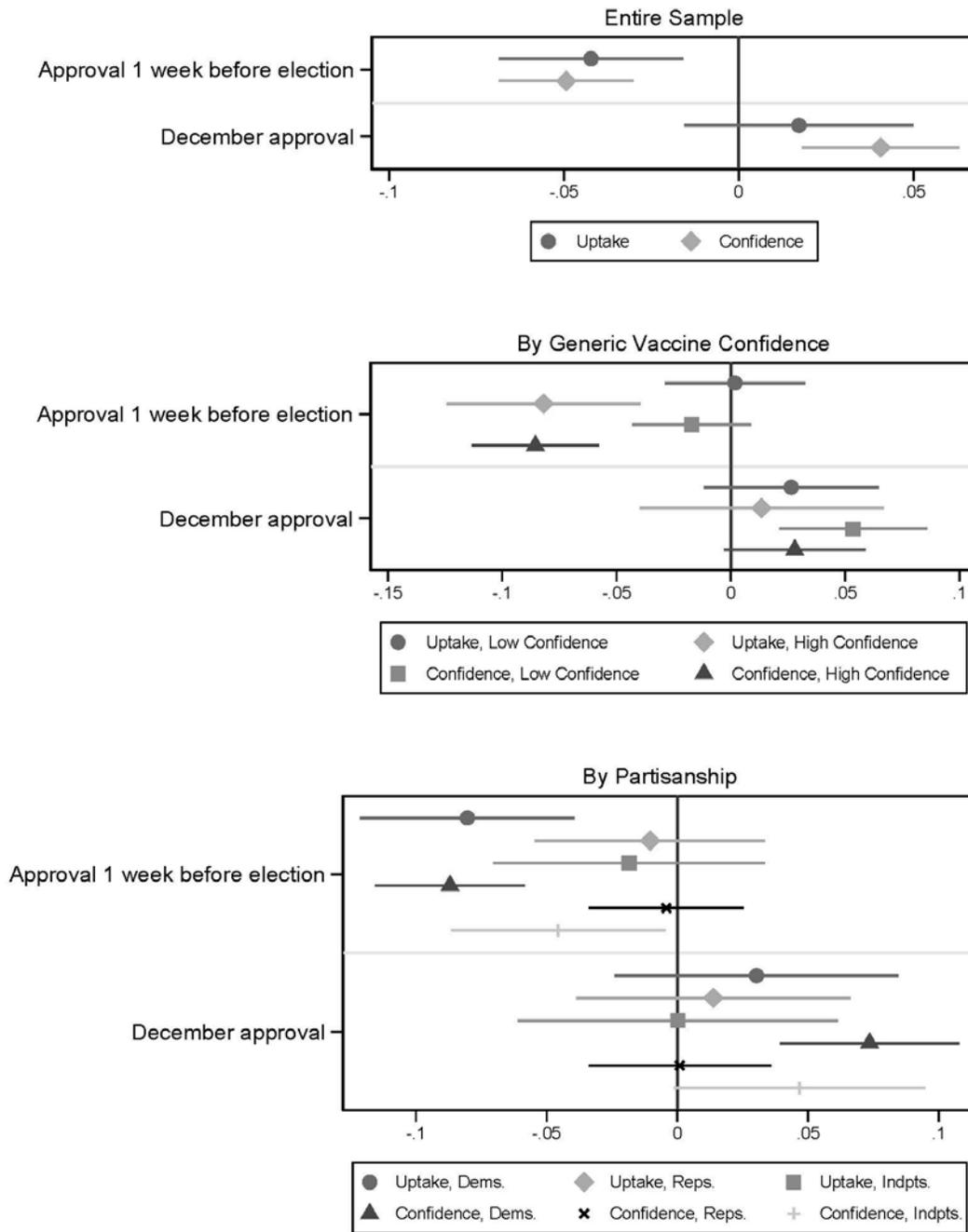
There are several key conclusions from our experiments. First, public confidence in a COVID-19 vaccine is significantly affected by the political context of vaccine approval. Second, and consistent with our evidence about the importance of political context, endorsements of the vaccine by political leaders have a polarized response, increasing confidence among co-partisans

while being ignored or undermining confidence among respondents affiliated with the other party. In contrast, Dr. Fauci's endorsement (versus skepticism) increases confidence among Democrats, Republicans, and Independents, but the effect is greatest for Democrats and smallest for Republicans. Third, those who have a high level of baseline vaccine confidence appear to be especially sensitive to political context and endorsements suggesting that the politicization of a COVID-19 vaccine may be particularly detrimental to achieving a high rate of take-up.

In sum, these experiments demonstrate that public opinion toward the efficacy and safety of the COVID-19 vaccine is responsive to perceptions of political motivation and endorsements. While it is common for politicized issues to display polarized beliefs, the evidence that vaccine approval has become politicized suggests that there is great value in understanding how to communicate factual information about vaccine safety and efficacy, including the importance of independent public figures who are not perceived in partisan terms. Further research is needed to develop strategies to provide accurate information that is not ignored or exaggerated due to the political dispositions of the public and their perceptions of the political motives of those overseeing this key public medical and public health issue.

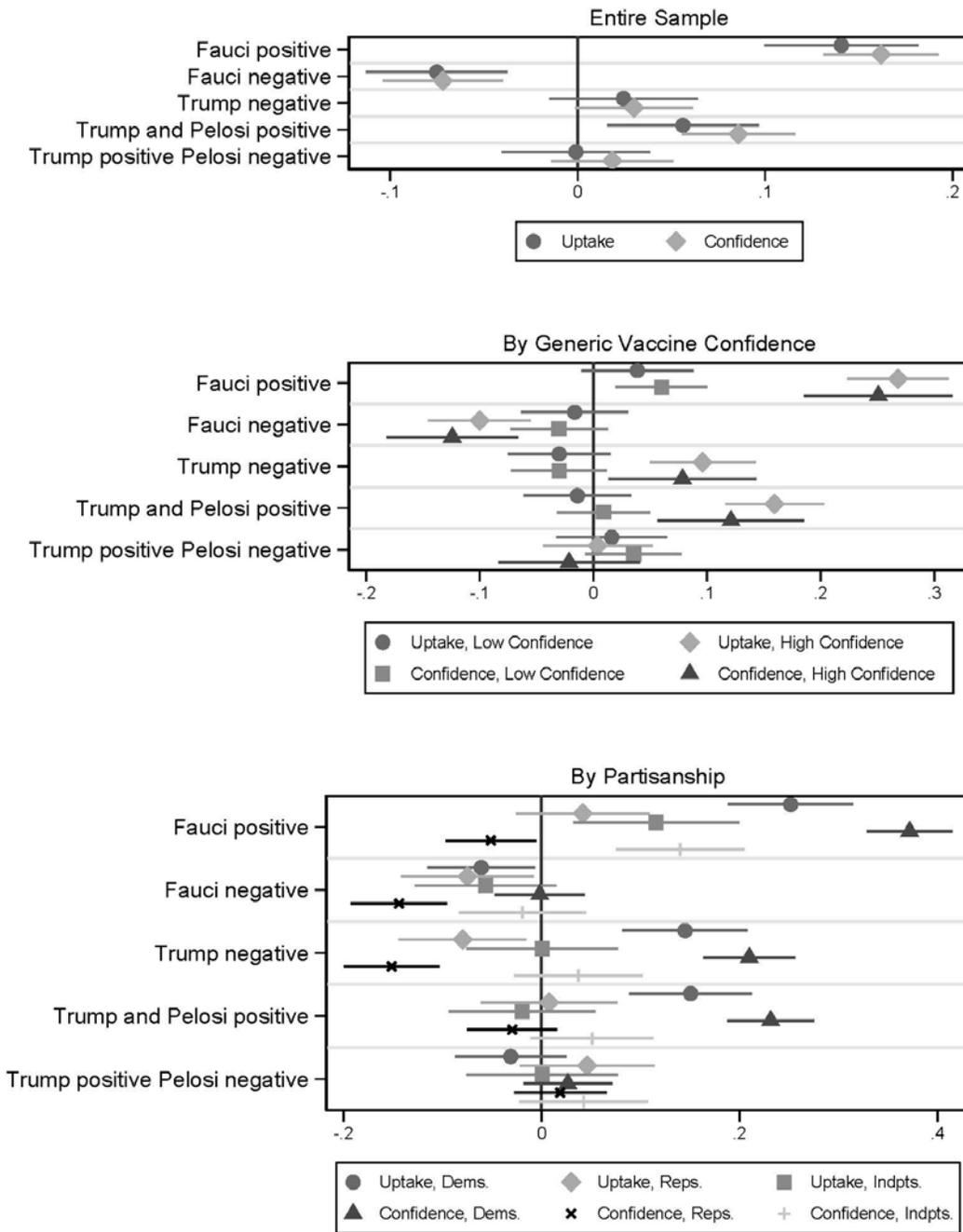
References

1. MacDonald, N.E. Vaccine hesitancy: Definition, scope, and determinants. *Vaccine* **33**, 4161-4164 (2015).
2. Salmon, D.A. Dudley, M.Z. Glanz, J.M. & Omer, S.B. Vaccine hesitancy: Causes, consequences, and a call to action. *Vaccine* **33**, D66-D71 (2015).
3. Dubé E. Gagnon D. & MacDonald NE. Strategies intended to address vaccine hesitancy: Review of published reviews. *Vaccine* **33**, 4191-4203 (2015).
4. Hamel, L. Kearny, A. Kirzinger, A. Lopes, L. Munana, C. & Brodie, M. KFF health tracking poll- September 2020: top issues in 2020 election, The role of misinformation, and views on a potential coronavirus vaccine. Kaiser Family Foundation. <https://www.kff.org/coronavirus-covid-19/report/kff-health-tracking-poll-september-2020/> (2020).
5. Silverman, E. Poll: Most Americans believe the COVID-19 vaccine approval process is driven by politics, not science. STAT news. <https://www.statnews.com/pharmalot/2020/08/31/most-americans-believe-the-covid-19-vaccine-approval-process-is-driven-by-politics-not-science/> (2020).
6. Tyson A, Johnson C, & Funk C. U.S. public now divided over whether to get COVID-19 vaccine. Pew Research Center. <https://www.pewresearch.org/science/2020/09/17/u-s-public-now-divided-over-whether-to-get-covid-19-vaccine/> (2020).
7. Facher, L. Harris and Pence square off on whether- and when- to trust a COVID-19 vaccine. STAT news. <https://www.statnews.com/2020/10/07/harris-pence-vaccine-trump-covid-19/> (2020).
8. Kreps, S.E. & Kriner, D.L. Model uncertainty, political contestation, and public trust in science: Evidence from the COVID-19 pandemic. *Science Advances*, eabd4563 (2020).
9. Green, J. Edgerton, J. Naftel, D. Shoub, K. & Cranmer, S.J. Elusive consensus: Polarization in elite communication on the COVID-19 pandemic. *Science Advances* **6**, eabc2717 (2020).
10. Hart, P.S. Chinn, S. & Soroka, S. Politicization and polarization in COVID-19 news coverage. *Science Communication*, 1075547020950735 (2020)
11. Larson, H. J. Schulz, W. S. Tucker, J. D. & Smith, D. M. Measuring vaccine confidence: introducing a global vaccine confidence index. *PLoS currents* **7**, (2015).



Comparison to approval 1 week after election.

Figure 1. Experiment 1, effect of vaccine timing on uptake and confidence. Panels show ordinary least squares (OLS) regression coefficient estimates with 95% confidence intervals for the entire sample (Panel A, top), by generic vaccine confidence (Panel B, middle) and by political partisanship (Panel C, bottom). Full model estimates shown in Table S1.



Comparison to Trump positive statement

Figure 2. Experiment 2, effect of vaccine endorsement on uptake and confidence. Panels show ordinary least squares (OLS) regression coefficient estimates with 95% confidence intervals for the entire sample (Panel A, top), by generic vaccine confidence (Panel B, middle) and by political partisanship (Panel C, bottom). Full model estimates shown in Table S2.

Online Supplement for:

Timing of COVID-19 Vaccine Approval and Endorsement by Public Figures

Scott E. Bokemper*, PhD^{1,2}, Gregory A. Huber, PhD,^{1,2,3} Alan S. Gerber, PhD,^{1,2,3} Erin K. James, ScD,^{4,5} Saad B. Omer, MBBS MPH PhD^{4,5,6,7}

¹. Institution for Social and Policy Studies, Yale University; ². Center for the Study of American Politics, Yale University; ³ Department of Political Science, Yale University; ⁴. Yale Institute for Global Health; ⁵. Department of Internal Medicine, Section of Infectious Diseases, Yale School of Medicine; ⁶. Department of Epidemiology of Microbial Diseases, Yale School of Public Health; ⁷. Yale School of Nursing

* **Corresponding author: Email:** scott.bokemper@yale.edu; **Phone:** (203)432-0865; **Mailing Address:** 77 Prospect St., New Haven, CT 06520

	(1)	(2)	(3)	(4)	(5)	(6)
	Willingness to obtain vaccine in first 3 months (0,1)	Confidence in safety and efficacy of vaccine (0-1)	Willingness to obtain vaccine in first 3 months (0,1), Low vaccine confidence	Confidence in safety and efficacy of vaccine (0-1), Low vaccine confidence	Willingness to obtain vaccine in first 3 months (0,1), High vaccine confidence	Confidence in safety and efficacy of vaccine (0-1), High vaccine confidence
Approval 1 week before election	-0.042 [0.013]***	-0.049 [0.010]***	0.002 [0.016]	-0.017 [0.013]	-0.082 [0.022]***	-0.085 [0.014]***
December approval	0.017 [0.017]	0.041 [0.011]***	0.026 [0.019]	0.053 [0.016]***	0.014 [0.027]	0.028 [0.016]*
How many times in last 5 years got flu shot (0-5)	0.014 [0.003]***	0.006 [0.002]**	0.018 [0.004]***	0.010 [0.003]***	0.009 [0.005]*	0.004 [0.003]
Vaccine Confidence Scale (Pre) (0-1)	0.600 [0.031]***	0.404 [0.024]***	0.375 [0.049]***	0.707 [0.043]***	0.531 [0.102]***	0.171 [0.066]***
Constant	-0.136 [0.018]***	0.167 [0.015]***	-0.065 [0.023]***	0.010 [0.021]	-0.030 [0.084]	0.373 [0.055]***
Observations	4996	4995	2482	2481	2514	2514
R-squared	0.107	0.093	0.039	0.115	0.022	0.027
Mean of outcome in 1 week after condition	0.298	0.449	0.142	0.363	0.446	0.530
S.D. of outcome	0.458	0.318	0.349	0.306	0.497	0.308

Table S1: Effect of Timing of Vaccine Approval on Reported Uptake and Confidence, Experiment 1. OLS regression coefficients with standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%. Vaccine confidence split at sample mean. Partisan categories include partisan "leaners." (independents who identify as closer to one party).

	(7)	(8)	(9)	(10)	(11)	(12)
	Willingness to obtain vaccine in first 3 months (0,1), Democrats	Confidence in safety and efficacy of vaccine (0-1), Democrats	Willingness to obtain vaccine in first 3 months (0,1), Republicans	Confidence in safety and efficacy of vaccine (0-1), Republicans	Willingness to obtain vaccine in first 3 months (0,1), Independents	Confidence in safety and efficacy of vaccine (0-1), Independents
Approval 1 week before election	-0.080 [0.021]***	-0.087 [0.015]***	-0.010 [0.022]	-0.004 [0.015]	-0.018 [0.026]	-0.046 [0.021]**
December approval	0.030 [0.028]	0.074 [0.018]***	0.014 [0.027]	0.001 [0.018]	0.000 [0.031]	0.047 [0.025]*
How many times in last 5 years got flu shot (0-5)	0.004 [0.005]	0.000 [0.004]	0.025 [0.006]***	0.007 [0.004]**	0.008 [0.007]	0.003 [0.005]
Vaccine Confidence Scale (Pre) (0-1)	0.571 [0.054]***	0.232 [0.040]***	0.811 [0.054]***	0.793 [0.037]***	0.542 [0.064]***	0.483 [0.051]***
Constant	-0.110 [0.035]***	0.255 [0.028]***	-0.243 [0.028]***	-0.007 [0.021]	-0.115 [0.033]***	0.123 [0.031]***
Observations	2144	2144	1770	1769	1082	1082
R-squared	0.072	0.060	0.188	0.273	0.089	0.111
Mean of outcome in 1 week after condition	0.325	0.428	0.320	0.501	0.213	0.407
S.D. of outcome	0.469	0.308	0.467	0.325	0.410	0.317

Table S1 (continued). OLS regression coefficients with standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%. Vaccine confidence split at sample mean. Partisan categories include partisan "leaners." (independents who identify as closer to one party).

	(1)	(2)	(3)	(4)	(5)	(6)
	Willingness to obtain vaccine in first 3 months (0,1)	Confidence in safety and efficacy of vaccine (0-1)	Willingness to obtain vaccine in first 3 months (0,1), Low vaccine confidence	Confidence in safety and efficacy of vaccine (0-1), Low vaccine confidence	Willingness to obtain vaccine in first 3 months (0,1), High vaccine confidence	Confidence in safety and efficacy of vaccine (0-1), High vaccine confidence
Approval 1 week before election	-0.033 [0.013]**	-0.032 [0.010]***	-0.004 [0.016]	-0.016 [0.014]	-0.057 [0.021]***	-0.048 [0.014]***
December approval	-0.001 [0.016]	0.023 [0.012]*	0.012 [0.019]	0.032 [0.017]*	-0.004 [0.026]	0.020 [0.017]
Fauci positive	0.141 [0.021]***	0.162 [0.016]***	0.039 [0.025]	0.060 [0.021]***	0.251 [0.033]***	0.268 [0.023]***
Fauci negative	-0.075 [0.019]***	-0.072 [0.016]***	-0.017 [0.024]	-0.030 [0.022]	-0.124 [0.029]***	-0.100 [0.023]***
Trump negative	0.025 [0.020]	0.030 [0.016]*	-0.030 [0.023]	-0.030 [0.021]	0.078 [0.033]**	0.096 [0.024]***
Trump and Pelosi positive	0.056 [0.021]***	0.086 [0.015]***	-0.014 [0.024]	0.009 [0.021]	0.121 [0.033]***	0.159 [0.022]***
Trump positive Pelosi negative	-0.001 [0.020]	0.018 [0.017]	0.016 [0.025]	0.035 [0.022]	-0.021 [0.032]	0.004 [0.025]
How many times in last 5 years got flu shot (0-5)	0.014 [0.003]***	0.009 [0.002]***	0.018 [0.004]***	0.014 [0.003]***	0.008 [0.005]*	0.005 [0.003]
Vaccine Confidence Scale (Pre) (0-1)	0.477 [0.030]***	0.307 [0.025]***	0.371 [0.047]***	0.611 [0.045]***	0.352 [0.098]***	0.065 [0.069]
Constant	-0.106 [0.022]***	0.160 [0.019]***	-0.058 [0.027]**	0.038 [0.026]	0.010 [0.083]	0.337 [0.059]***
Observations	4995	4996	2482	2483	2513	2513
R-squared	0.097	0.100	0.042	0.104	0.072	0.129
Mean of outcome in 1 week after condition	0.270	0.424	0.147	0.360	0.386	0.484
Difference: Fauci negative versus positive	-0.216	-0.234	-0.055	-0.090	-0.375	-0.368
P-value of Fauci difference	0.000	0.000	0.027	0.000	0.000	0.000
Difference: Trump negative versus positive	0.025	0.030	-0.030	-0.030	0.078	0.096
P-value of Trump difference	0.225	0.061	0.192	0.159	0.018	0.000
Difference: Pelosi negative versus positive	-0.057	-0.067	0.030	0.026	-0.143	-0.156
P-value of Pelosi difference	0.006	0.000	0.220	0.207	0.000	0.000

Table S2: Effect of Endorsements of Vaccine Approval on Reported Uptake and Confidence, Experiment 2. OLS regression coefficients with standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%. Vaccine confidence split at sample mean. Partisan categories include partisan "leaners." (independents who identify as closer to one party).

	(7)	(8)	(9)	(10)	(11)	(12)
	Willingness to obtain vaccine in first 3 months (0,1), Democrats	Confidence in safety and efficacy of vaccine (0-1), Democrats	Willingness to obtain vaccine in first 3 months (0,1), Republicans	Confidence in safety and efficacy of vaccine (0-1), Republicans	Willingness to obtain vaccine in first 3 months (0,1), Independents	Confidence in safety and efficacy of vaccine (0-1), Independents
Approval 1 week before election	-0.058 [0.020]***	-0.062 [0.014]***	-0.016 [0.022]	0.010 [0.016]	-0.005 [0.026]	-0.032 [0.021]
December approval	-0.008 [0.025]	0.042 [0.018]**	0.021 [0.027]	0.004 [0.019]	-0.022 [0.029]	0.017 [0.025]
Fauci positive	0.252 [0.032]***	0.372 [0.022]***	0.042 [0.034]	-0.051 [0.023]**	0.116 [0.043]***	0.140 [0.033]***
Fauci negative	-0.061 [0.028]**	-0.002 [0.023]	-0.075 [0.034]**	-0.144 [0.025]***	-0.056 [0.036]	-0.019 [0.033]
Trump negative	0.145 [0.032]***	0.210 [0.024]***	-0.080 [0.033]**	-0.151 [0.025]***	0.001 [0.039]	0.037 [0.033]
Trump and Pelosi positive	0.151 [0.032]***	0.231 [0.022]***	0.008 [0.035]	-0.030 [0.023]	-0.020 [0.038]	0.051 [0.032]
Trump positive Pelosi negative	-0.031 [0.029]	0.027 [0.023]	0.046 [0.035]	0.019 [0.024]	0.001 [0.039]	0.043 [0.033]
How many times in last 5 years got flu shot (0-5)	0.003 [0.005]	0.003 [0.003]	0.020 [0.005]***	0.006 [0.004]*	0.012 [0.006]*	0.008 [0.005]
Vaccine Confidence Scale (Pre) (0-1)	0.415 [0.052]***	0.137 [0.039]***	0.702 [0.052]***	0.677 [0.040]***	0.441 [0.062]***	0.374 [0.052]***
Constant	-0.107 [0.038]***	0.148 [0.031]***	-0.180 [0.036]***	0.099 [0.028]***	-0.093 [0.042]**	0.104 [0.038]***
Observations	2144	2145	1770	1770	1081	1081
R-squared	0.105	0.201	0.156	0.234	0.094	0.097
Mean of outcome in 1 week after condition	0.288	0.402	0.295	0.477	0.195	0.380
Difference: Fauci negative versus positive	-0.312	-0.374	-0.116	-0.093	-0.172	-0.159
P-value of Fauci difference	0.000	0.000	0.001	0.000	0.000	0.000
Difference: Trump negative versus positive	0.145	0.210	-0.080	-0.151	0.001	0.037
P-value of Trump difference	0.000	0.000	0.015	0.000	0.987	0.258
Difference: Pelosi negative versus positive	-0.182	-0.205	0.038	0.048	0.021	-0.008
P-value of Pelosi difference	0.000	0.000	0.282	0.041	0.583	0.793

Table S2 (continued). OLS regression coefficients with standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%. Vaccine confidence split at sample mean. Partisan categories include partisan "leaners." (independents who identify as closer to one party).

	(1)	(2)	(3)	(4)	(5)	(6)
	Willingness to obtain vaccine in first 3 months (0,1)	Confidence in safety and efficacy of vaccine (0-1)	Willingness to obtain vaccine in first 3 months (0,1), Low vaccine confidence	Confidence in safety and efficacy of vaccine (0-1), Low vaccine confidence	Willingness to obtain vaccine in first 3 months (0,1), High vaccine confidence	Confidence in safety and efficacy of vaccine (0-1), High vaccine confidence
Fauci positive	0.097 [0.033]***	0.157 [0.025]***	-0.026 [0.039]	0.086 [0.032]***	0.235 [0.053]***	0.238 [0.037]***
Fauci negative	-0.057 [0.030]*	-0.045 [0.026]*	-0.023 [0.039]	-0.002 [0.035]	-0.083 [0.046]*	-0.073 [0.037]**
Trump negative	0.039 [0.032]	0.033 [0.025]	-0.024 [0.038]	-0.014 [0.033]	0.099 [0.052]*	0.084 [0.038]**
Trump and Pelosi positive	0.031 [0.032]	0.059 [0.024]**	-0.036 [0.038]	-0.001 [0.032]	0.095 [0.051]*	0.122 [0.035]***
Trump positive Pelosi negative	0.014 [0.032]	0.026 [0.026]	0.041 [0.042]	0.029 [0.033]	-0.012 [0.048]	0.032 [0.038]
How many times in last 5 years got flu shot (0-5)	0.015 [0.005]***	0.008 [0.004]**	0.021 [0.007]***	0.014 [0.006]**	0.007 [0.008]	0.004 [0.005]
Vaccine Confidence Scale (Pre) (0-1)	0.355 [0.048]***	0.230 [0.040]***	0.257 [0.075]***	0.542 [0.068]***	0.040 [0.156]	-0.233 [0.115]**
Constant	-0.060 [0.034]*	0.180 [0.028]***	-0.002 [0.045]	0.047 [0.039]	0.211 [0.128]	0.546 [0.096]***
Observations	1998	1999	997	997	1001	1002
R-squared	0.061	0.064	0.036	0.089	0.049	0.084
Mean of outcome	0.234	0.390	0.146	0.351	0.322	0.429
Difference: Fauci negative versus positive	-0.154	-0.202	0.003	-0.088	-0.318	-0.312
P-value of Fauci difference	0.000	0.000	0.930	0.011	0.000	0.000
Difference: Trump negative versus positive	0.039	0.033	-0.024	-0.014	0.099	0.084
P-value of Trump difference	0.227	0.195	0.530	0.668	0.058	0.027
Difference: Pelosi negative versus positive	-0.016	-0.033	0.077	0.029	-0.107	-0.091
P-value of Pelosi difference	0.618	0.186	0.051	0.372	0.031	0.010

Table S3. Endorsement effects for pre-election approval. OLS regression coefficients with standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%. Vaccine confidence split at sample mean. Partisan categories include partisan "leaners." (independents who identify as closer to one party).

	(7)	(8)	(9)	(10)	(11)	(12)
	Willingness to obtain vaccine in first 3 months (0,1), Democrats	Confidence in safety and efficacy of vaccine (0-1), Democrats	Willingness to obtain vaccine in first 3 months (0,1), Republicans	Confidence in safety and efficacy of vaccine (0-1), Republicans	Willingness to obtain vaccine in first 3 months (0,1), Independents	Confidence in safety and efficacy of vaccine (0-1), Independents
Fauci positive	0.186 [0.048]***	0.311 [0.036]***	0.041 [0.055]	0.033 [0.038]	0.059 [0.073]	0.104 [0.052]**
Fauci negative	-0.029 [0.041]	-0.003 [0.036]	0.002 [0.057]	-0.044 [0.041]	-0.137 [0.056]**	-0.019 [0.053]
Trump negative	0.169 [0.050]***	0.163 [0.039]***	-0.030 [0.052]	-0.072 [0.038]*	-0.051 [0.066]	0.037 [0.052]
Trump and Pelosi positive	0.118 [0.047]**	0.184 [0.035]***	-0.018 [0.056]	0.005 [0.037]	-0.004 [0.064]	0.013 [0.047]
Trump positive Pelosi negative	0.004 [0.044]	-0.008 [0.034]	0.061 [0.057]	0.092 [0.036]**	0.021 [0.069]	0.079 [0.051]
How many times in last 5 years got flu shot (0-5)	0.009 [0.008]	0.007 [0.006]	0.020 [0.009]**	0.008 [0.006]	0.007 [0.010]	-0.011 [0.008]
Vaccine Confidence Scale (Pre) (0-1)	0.276 [0.078]***	0.026 [0.061]	0.658 [0.089]***	0.659 [0.068]***	0.280 [0.102]***	0.419 [0.086]***
Constant	-0.079 [0.053]	0.190 [0.046]***	-0.188 [0.061]***	0.053 [0.045]	0.026 [0.071]	0.092 [0.057]
Observations	876	877	713	713	409	409
R-squared	0.065	0.142	0.131	0.203	0.058	0.085
Mean of outcome	0.226	0.338	0.273	0.481	0.183	0.342
Difference: Fauci negative versus positive	-0.215	-0.313	-0.039	-0.077	-0.196	-0.123
P-value of Fauci difference	0.000	0.000	0.494	0.071	0.002	0.030
Difference: Trump negative versus positive	0.169	0.163	-0.030	-0.072	-0.051	0.037
P-value of Trump difference	0.001	0.000	0.567	0.058	0.442	0.482
Difference: Pelosi negative versus positive	-0.114	-0.192	0.079	0.086	0.025	0.065
P-value of Pelosi difference	0.016	0.000	0.155	0.023	0.710	0.196

Table S3 (continued). Endorsement effects for pre-election approval. OLS regression coefficients with standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%. Vaccine confidence split at sample mean. Partisan categories include partisan "leaners." (independents who identify as closer to one party).