THE SHOT, THE MESSAGE, AND THE MESSENGER: COVID-19 VACCINE ACCEPTANCE IN LATIN AMERICA

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Abstract. Herd immunity by mass vaccination offers the potential to substantially limit the continuing spread of COVID-19, but high levels of vaccine hesitancy threaten this goal. In a cross-country analysis of vaccine hesitant respondents across Latin America in January 2021, we experimentally tested how five features of mass vaccination campaigns—the vaccine's producer, efficacy, endorser, distributor, and current population uptake rate—shifted willingness to take a COVID-19 vaccine. We find that citizens preferred Western-produced vaccines, but were highly influenced by information about factual efficacy. Vaccine hesitant individuals responded to vaccine messengers with medical expertise over political, religious, or media elite endorsements. Citizen trust in foreign governments, domestic leaders, and state institutions moderated the effects of the campaign features on vaccine acceptance. These findings can help inform the design of unfolding mass inoculation campaigns.

INTRODUCTION

A rich scientific literature evaluates public health strategies aimed at containing and eradicating infectious diseases among humans. Chief among these strategies is mass vaccination *[4]*, which offers the potential to control the current global COVID-19 pandemic. As of June 2021, governments around the world have approved eight vaccines shown to provide protection against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Seventy-one more vaccines are currently in the testing pipeline awaiting approval for full use *[59]*. As President Joseph Biden recently announced: "COVID-19 knows no borders" *[26]*; "We have to end COVID-19, not just at home...but everywhere." *[54]*. The end of the pandemic requires global vaccination, a goal to which the US and G7 countries are now more committed. However, achieving this goal requires not just overcoming the tenuous supply of vaccines in the developing world—resulting from global shot shortages, distribution inequities, intellectual property, and vaccine geopolitics *[36]*—but also addressing insufficient vaccine demand across the Global South stemming from vaccine hesitancy.

Academic research has studied the factors associated with vaccine hesitancy in the U.S. and Western Europe *[9, 16, 33, 34]*. It reveals that willingness to take a vaccine in these contexts responds significantly to characteristics of the specific vaccines: high efficacy, low incidence of major adverse effects, domestic production, and endorsements from medical organizations *[8, 24, 28, 29, 40, 53]*. However, little is yet known about the determinants of vaccine hesitancy in the developing world and specifically in virus hotspots, such as Latin America *[5, 51]*, which ranks among the hardest hit by the COVID-19 pandemic *[56]*.

There are several reasons to anticipate that the determinants of vaccine acceptance could

be different in Latin America than in the Global North. These are vaccine-receiving rather than vaccine-producing nations. Existing studies show that citizens prefer domestic-made over foreign-made vaccines *[29, 40]*. However, these studies have little leverage over citizens' COVID-19 vaccine preferences when selecting among only foreign-made vaccines (Latin America has procured vaccines from the U.S., U.K., China, Russia, and India to immunize its citizenry). Additionally, citizens in Latin America are often less informed about issues relating to public health *[20, 44]*. Accordingly, information on vaccine safety and efficacy may prove more potent in moving vaccine preferences in that region. Compared with the U.S. and Western Europe, Latin American countries also exhibit weaker health infrastructure, requiring their governments to consider institutions beyond the health sector to distribute vaccines, and Latin American citizens exhibit lower trust in science such that vaccine messengers beyond medical authorities may prove more persuasive *[49]*. Understanding how populations perceive different aspects of vaccines in different regions of the world will ultimately be critical for designing policies to bolster vaccine acceptance and achieve quick mass inoculation globally *[58]*.

We undertake this task by conducting a cross-country experimental analysis of the effect of different key features of mass vaccination roll out campaigns on vaccine hesitancy in six major Latin America countries where still-nascent campaigns include a variety of different vaccines and delivery methods. We use an experiment embedded in a survey of vaccine-hesitant respondents to understand how dimensions of vaccine campaigns—the vaccine producers, efficacy, endorsers, and distributors—shape the extent to which reluctant Latin Americans could be convinced to get vaccinated. While most current research measures vaccine hesitancy in a time-invariant fashion,

for a speedy return to normalcy and to outpace emergent mutations that could be resistant to vaccines, it also matters *how fast* the population is willing to vaccinate. Accordingly, we measure both willingness to vaccinate and intended time to wait until inoculation. Whereas existing scholarship focuses on how public health preferences respond to partisan cues, misinformation, and hypothetical efficacy and safety facts *[12, 24]*, we explore how these preferences also respond to alternative elite cues, to factual efficacy and safety information from clinical trials, and to varying institutions of vaccine distribution. We also compare many of these features to "unspecified" conditions, which approximate a realistic baseline where citizens are uninformed about the options available to them.

RESULTS

Design For this study, we recruited nationally representative samples of around 2,000 from Argentina, Brazil, Chile, Colombia, México, and Perú to participate in an online survey. These respondents, who were drawn from Netquest's online panel, are nationally representative by age, gender, socioeconomic level, and region, according to the most recent national censuses. The survey was enumerated in late January 2021, before the roll-out of mass vaccination campaigns in Latin America. At the moment of writing, these campaigns in Latin America—and much of the Global South—remain nascent, not yet serving the general population.

The survey first elicited a respondent's vaccine hesitancy. We measured both acceptance of a vaccine on a five-point scale ranging from strongly disagree to strongly agree and the number of months that a respondent intended to wait until vaccination. Across countries, we found that only 59% of respondents would accept a vaccine if a vaccine were available to them now and that they would wait, on average, 4.3 months to get vaccinated. We then screened out the 41% of

vaccine-acceptant respondents: those who agreed or strongly agreed that they would take a vaccine *and* would take it within two months of becoming eligible. Descriptive statistics for this vaccine hesitant population, as well the differences between the vaccine accepting and vaccine hesitant populations in our sample, are included in Supplementary Table 2. The full survey was completed by approximately 1,100 vaccine-hesitant individuals in each country—this focuses our analysis on the subset of the population whose vaccine attitudes prove most critical to understand.

We embedded a conjoint experiment *[21]* in the survey to assess how different features of hypothetical—yet, at the time of enumeration, highly plausible—mass vaccine roll out scenarios affect the demand for vaccination among hesitant citizens. This experimental design randomly varied multiple features of vaccine campaigns simultaneously, allowing us to evaluate the average marginal effect of each attribute, averaging over the joint distribution of the remaining attributes. A total of 6,489 respondents participated in the conjoint experiment and, because of the nature of conjoint studies, all of them were eventually exposed to the treatments. Our design replicates dimensions of vaccine conjoint experiments conducted in the U.S. and Western European contexts, but the features we study also depart and expand upon these studies in several important ways.

First, as in previous studies *[28, 29]*, we varied the producer of the vaccine offered to respondents. However, given our focus on vaccine recipient rather than on vaccine producer countries, our comparison focused not on domestic- versus foreign-made vaccines, but rather on vaccines created by a variety of foreign countries with varying geopolitical interests and histories of intervention in the region. Latin America is the U.S.'s traditional geopolitical backyard, but experienced high levels of Russian Cold-War era intervention and recent Chinese 'Belt and Road Initiative' and

vaccine diplomacy *[22]*. Accordingly, we anticipated that underlying international relations and consequent trust in foreign countries, rather than vaccine nationalism, might influence the effect of the vaccine producer on willingness to accept a vaccine.

Second, we further varied whether or not information about the efficacy of a given vaccine was provided. Unlike earlier studies in the U.S. and France, we relied not on hypothetical efficacy rates, but rather reported the stage III trial results to evaluate the effect of learning about the actual efficacy rates of the vaccines. Respondents were randomized to receive either true trial efficacy rates of the respective vaccine or no efficacy information. This benchmark, which captures citizens' prior beliefs, departs from existing studies which use as their baseline the FDA's 50% minimum effectiveness threshold *[24, 28, 29, 40]*. Our design thus enables us to disentangle the effects of vaccine efficacy from the brand of the vaccine and, given our lower public health information environment in which the population held weaker priors about vaccine efficacy, allowed us to study the merits of emphasizing efficacy rates to encourage vaccination.

Third, our design varied the endorser of the vaccines. Expanding beyond the President and medical association endorsers used in existing studies *[24, 28, 29, 40]*, we also study alternative messengers: religious elites, local government authorities, and the media. These endorsers could prove more persuasive in our context of high, albeit varied, religiosity, thinner interactions with the central government, and high polarization of the news media.

Finally, we randomized information about the proportion of the population that had taken the vaccine and the institution distributing the vaccine. The former allows us to assess social effects: how the behavior of others could influence individual willingness to vaccinate *[18, 23, 38, 39, 42,*

50]. The institution distributing the vaccine has largely been ignored by previous studies, but has been found to influence vaccine hesitancy *[52, 53]*. We consider the three actors considered for vaccine implementation in Latin America at the time we fielded our survey: the state-run public health system, the military, and civil society; private sector health and pharmaceutical facilities were not part of the distribution equation.

Table 1 summarizes all of the scenario features along each dimension; Supplementary Table 1 further lists the country-specific values of the attributes. The following script shows the translated wording which each hypothetical vaccine scenario followed:

> Suppose that [respondent's country] has obtained the vaccine produced by [producer of vaccine] based in [country where the vaccine was produced]. It has been demonstrated that the vaccine prevents [efficacy rate]% of COVID-19 infections.
>
> The vaccine is free of charge for everyone and [endorser] is recommending that everyone take the vaccine as soon as possible.
>
> The vaccine is being distributed by [implementer], and [community take up rate]% of people in your community have already been vaccinated.

Each respondent was shown five scenarios. Immediately after each scenario, respondents were asked whether, if the vaccine were available to them, they would get vaccinated, and how many months they would wait to do so (we reverse the code so positive coefficients always imply greater willingness). We also use four post-treatment measures to capture the mechanisms by which the vaccine scenario influenced willingness to vaccinate: whether the respondents believed the specific vaccine would quickly stop the spread of COVID-19; would prevent the inoculated

from contracting the virus; would be unlikely to cause adverse health effects; and whether the government, by mass inoculating with the vaccine, would be acting in the public interest. We leverage within-respondent variation in scenario features across rounds to increase the precision of our estimates of the average marginal effect of each feature on vaccine willingness, timing, and these four potential mechanisms.

Analysis How do different aspects of vaccines—their origin, effectiveness, uptake, endorsers, and distributors—affect acceptance rates in Latin America? Pooling the five scenarios presented to each respondent, Figures 1 and 2 report the average marginal component effect of the campaign features on whether the respondents would get vaccinated and how long they would wait to get vaccinated. Each estimate in the figures should be read as relative to a baseline feature within each category: for vaccine producer, vaccine efficacy, and the current uptake rate, the baseline category is receiving no information on that dimension; for the endorser, the baseline category is a national medical association; and, for the distributor, the baseline category is the national public health system. We present plots for the estimated marginal means in Supplementary Figure 1. To address concerns of waning participant focus over the course of the conjoint, we demonstrate in Supplementary Table 8 that the results are robust to restricting attention only to the first scenario encountered.

Among those reluctant to vaccinate in Latin America, hesitant respondents were sensitive to the particular vaccine on offer. Relative to a generic vaccine (that did not specify any producer), which 52% of respondents would be willing to take, respondents reported being 0.11 probability points—or about 20%—less likely to get vaccinated if they were offered China's Sinovac vaccine

(95% CI: -0.130 to -0.085) and 0.05 probability points less likely to get vaccinated if they were offered Russia's Gamaleya Institute's vaccine (95% CI: -0.077 to -0.032). As shown in Supplementary Table 6, analyses of mechanisms for why suspicion rises against these vaccines suggest that respondents are skeptical of the safety of the Sinovac and Gamaleya Institute vaccines, and, in the case of the Sinovac vaccine, would distrust their governments' motives when inoculating with this particular vaccine—mechanisms that are quite distinct from the vaccine nationalism observed in the Global North. In contrast, citizens expressed slightly greater willingness to take a Western-produced vaccine: the UK AstraZeneca-Oxford vaccine increased willingness by 0.021 probability points (95% CI: -0.001 to 0.043) and the US-German Pfizer-BioNTech vaccine bolstered acceptance by 0.025 probability points (95% CI: 0.002 to 0.046). Supplementary Figure 2 shows that these differences in uptake also translate into willingness to take the vaccine sooner (See Supplementary Table 8 for robustness checks).

We find that vaccine hesitancy decreases significantly with the extent of trust in the government of the producer's nation, as displayed in Figure 3. This suggests that, while all foreign vaccines are, in theory, on equal footing in vaccine-recipient countries, in practice, underlying international relations, and consequent levels of confidence in foreign countries, play an important role in shaping vaccine preferences. Having high trust in the U.S., for example, increases willingness to take the U.S.-produced vaccine by approximately 37% of baseline willingness, relative to a generic vaccine.

Our results further show that citizens are highly sensitive to the effectiveness of vaccines *[41]*. Learning of the 50% efficacy rate of Sinovac further reduced vaccine acceptance, relative to

receiving no information about the vaccine's efficacy. While not statistically significant, learning of the 70% efficacy rate of the AstraZeneca-Oxford vaccine (based on its early trials) also slightly reduced vaccine willingness. These findings suggest that participants in our study may have held prior beliefs about the efficacy of a generic vaccine around 70%—such that they interpreted the treatment condition of 50% efficacy as worse than expected. The biggest gains associated with revealing efficacy relate to the Gamaleya Institute's vaccine, for which a 91% efficacy rate increased the likelihood of taking that vaccine by 0.076 probability points (95% CI: 0.057 to 0.092). Learning of Pfizer-BioNTech's 95% efficacy rate also increased willingness by 0.059 probability points (95% CI: 0.041 to 0.076). Despite its high efficacy, this information about the Pfizer vaccine deviated less from respondents' prior expectations than the high efficacy rate of the Russian vaccine. In these latter cases, Supplementary Table 6 shows that citizens became considerably more confident that COVID-19 would stop spreading and less concerned about individual health risks of inoculating. In sum, these results suggest that citizens discern between the vaccines on offer, and could be persuaded by factual health information to inoculate if a sufficiently appealing vaccine is available.

Our analyses also suggest that vaccine willingness in the hesitant sub-population varies with hypothetical uptake. Respondents would be 0.027 probability points less likely to get vaccinated if only 1% of their community had already been vaccinated (95% CI: -0.049 to -0.005) than if the uptake rate were unspecified. However, if 50% or 75% of the community were already vaccinated, relative to the no-information benchmark, willingness would rise by 0.031 (95% CI: 0.009 to 0.053) and 0.053 (95% CI: 0.031 to 0.075) probability points respectively. The increasing will-

ingness of respondents to vaccinate as the percentage of the population that has been vaccinated increases is consistent with at least three mechanisms *[11]*: (i) social learning *[23, 50]*, whereby individuals infer safety or efficacy of vaccines from high uptake rates *[42]*; (ii) social conformity, whereby individuals seeking to conform are more likely to vaccinate when the uptake rate/norm of vaccinating is higher *[18, 38, 39]*; and (iii) individuals becoming likely to inoculate only when they believe the campaign will be successful at reaching herd immunity *[17, 25, 47]*. Future research should seek to differentiate these mechanisms, which are observationally equivalent in our data. Regardless of the precise mechanism by which uptake influences inoculation preferences, the results highlight the importance of communicating high uptake rates to encourage further vaccination.

Once countries have procured specific vaccines, our design enables us to ask *who* should promote the vaccines to maximize uptake. Cues sent by different elites are known to influence public opinion and behavior in democracies *[32]*. Studies of the general population in the U.S. context find that endorsements from medical organizations are associated with a higher probability of choosing a vaccine than a recommendation from the President *[24, 29]*. We find similar results among the vaccine-hesitant population in the Latin American context, where trust in science is lower *[57]*. Relative to a vaccine endorsement from the national medical association, willingness to get vaccinated when the President (or local Mayor) recommends the vaccine is around 0.037 (95% CI: -0.052 to -0.023) probability points lower and the wait to get vaccinated is around 0.255 (95% CI: -0.328 to -0.122) months higher. The dampening mayoral result holds in both the federal and centralized countries in our sample (with the exception of Colombia). Endorsements

from actors endowed with less professional medical knowledge are least effective. Following recommendations from religious leaders and newspapers, vaccine willingness is between 0.060 and 0.068 probability points lower and the wait to get vaccinated is between 0.267 and 0.326 months higher than if the endorsement came from the country's medical experts.

There is important heterogeneity, however, in the persuasive power of these different messengers, as shown in Supplementary Figure 2. In particular, Evangelical respondents departed from this dominant trend. In the survey, respondents were asked their religion and, if the respondent was Catholic or Evangelical, they were then assigned to their co-religious endorser in the conjoint experiment: the Catholic archbishop (given the vertical nature of the Catholic church) or national Evangelical organization (given the far less hierarchical structure of the Evangelical church). Non-Catholics and non-Evangelicals were assigned to the Catholic archbishop of their country. In a sub-group analysis, we find that Evangelicals prove equally responsive to endorsements from their religious representatives as to recommendations from public health authorities (Supplementary Table 11). This result may explain why Brazil, the country in our sample with the largest share of Evangelicals (approximately 25%, *[48]*), is an outlier in this regard. Education pointed in the opposite direction: relative to the general population, respondents with higher educational attainment proved significantly less positively responsive to endorsements from religious leaders as well as the incumbent President, as we show in Supplementary Table 12.

Brazil and México also defied the prevailing trend of presidential endorsers proving less effective than medical ones. Existing U.S.-centric studies of COVID-19 vaccine acceptance were conducted in the shadow of the polarizing and populist Trump presidency; and yet, they found

that medical authorities remained more persuasive than Trump in moving individuals to accept the COVID-19 vaccine *[24, 29]*. The effects diverge in the Latin American countries with the most similarly populist executives who played with pandemic polarization and dismissed the severity of the coronavirus: Brazilian President Jair Bolsonaro and Mexican President Andrés Manuel López Obrador. These Presidents prove equally as effective endorsers as the national medical experts in our data. This may be because respondents find the vaccine recommendation more credible because these presidents were previously more skeptical. This divergent finding may also reflect our different sample (vaccine-hesitant versus the general population), and the higher levels of trust in and co-partisanship with the president among Mexicans and Brazilians, especially the vaccine-reluctant. Brazil and México present the highest levels of co-partisanship with the presidents in our sample, with 36% and 31% respectively, while average co-partisanship with the president across the other four countries in our study averages 11%.

We further find that trust in the messenger, and sharing the messenger's partisan or religious identity, increases individual responsiveness to endorsements, and can improve vaccine uptake *[10]*. This is consistent with existing studies, which reveal the deadly role that mistrust can play in exacerbating public health crises and the life-saving role of trust *[1, 3, 6, 35, 43, 55]*. This finding implies that, in addition to placing broadly-trusted public health professionals front and center in a national campaign, it may be advantageous to have political, religious, and media leaders publicize the vaccines directly to their voters, congregations, and readership respectively *[2, 18]*. This approach also seems the most promising way to move the most-vaccine hesitant to vaccinate (Supplementary Table 13) *[27]*.

Who distributes the vaccine on the ground also proves to somewhat influence intention to vaccinate. Relative to the state's public health system, we find negative effects on vaccine acceptance of civil society and the military distributing the vaccine, but these effects are small in magnitude. Distribution by civil society groups reduces the likelihood of taking a vaccine by 0.021 probability points (95% CI: -0.032 to -0.011) and distribution by the military reduces this likelihood by 0.017 probability points (95% CI: -0.027 to -0.006). Given weaker state capacity in developing country contexts, this finding indicates that all of these institutional hands on deck may be the most promising way to mass mobilize to inoculate in these settings.

Again, interesting heterogeneity emerges, specifically with respect to the military as a vaccine-distributor. The data suggests a significant negative effect of the armed forces as a vaccine distributor in Colombia and Chile. We interpret this result as reflecting the fact that, whereas all countries in our sample have a history of dictatorship and conflict, in these two countries in particular, the armed forces have been implicated in repression against peaceful protests in the past two years, sparking a backlash against this institution. Similar protests and military crackdowns have roiled other parts of the world, suggesting that armed forces' involvement in vaccine distribution could play a similarly dampening effect on vaccine acceptance in these contexts.

DISCUSSION

To end the global health crisis, it is necessary to ensure not only that everyone in the world has access to COVID-19 vaccines, but also that populations everywhere are willing to take them, and quickly enough to mitigate the risk of emergent vaccine-resistant mutations *[14]*. However, research on vaccine acceptance thus far has predominantly concentrated on the U.S. and Western

Europe. Following a systematic search of the peer-reviewed English survey literature on vaccine acceptance indexed in PubMed, scholars have concluded that studies of COVID-19 vaccine hesitancy are urgently needed in the developing world, including in South and Central America *[51]*. We contribute one such study.

Given that vaccine production concentrates in the Global North, governments in the Global South do not have their pick of vaccines. We find that vaccine hesitancy in Latin America is not uniform; rather, it proves highly responsive to which vaccine is on offer. We observe strong evidence that citizens privilege Western-produced vaccines. This is worrisome as many countries in this region are procuring a diverse portfolio of vaccines, including non-Western ones, to secure as many vaccines as quickly as possible. Governments of vaccine-recipient countries should be wary of viewing all vaccines as a panacea to the continued spread and devastation of COVID-19; instead, reluctance to take certain vaccines may hamper campaigns armed with such shots.

However, our evidence provides an actionable antidote to counter suspicions of non-Western vaccines: efficacy information. Albeit a double-edged sword, if the vaccines are effective, simple and clear facts highlighting these levels of efficacy as well as others' uptake of the vaccine—particularly if high—could significantly influence the decision to immunize.

In this sense, our results depart from public health studies that find little increase in vaccine acceptance due to dispelling myths and misinformation *[45, 46]*. Our data suggest, in an environment where citizens possess imprecise prior beliefs about issues of public health, a powerful ability of factual information about vaccine effectiveness to convince the hesitant to inoculate *[7, 9]*, although misinformation may still matter *[33]*. Hesitant citizens' responsiveness to efficacy

information suggests that, to ensure that uptake in the Global South crosses the threshold needed to realize the goal of global herd immunity, industrialized countries will need to provide not only a large quantity of vaccines to developing countries through initiatives such as the World Health Organization's COVAX, but also high-quality ones, and that developing countries, in turn, should seek to procure such high-efficacy shots *[37]*. While our study focused on the overall proven efficacy rates from Stage III trials, future research should seek to disaggregate these numbers to understand how hesitancy responds to vaccines' effectiveness against minor versus severe illness, hospitalization, and death, and against virus mutations. This may be especially important when considering the vaccines that are most effective against severe COVID-19.

Our results align with research underscoring the important role of national medical elite cues to promote vaccines in the Global North *[15, 18, 24, 29]*. This may seem surprising given the greater skepticism of science and elevated influence of alternative sources of authority in Latin America. At the same time, we find that, in a world of echo chambers, citizens appear most likely to listen to cues from in-group members *[13, 19]*. For ethical reasons, we considered only pro-vaccine elite cues. Caught in the real-world cacophony and cross-fire between vaccine endorsements and criticisms, citizens may respond differently to the messengers than in our controlled environment *[30]*.

Our study focused on the vaccine hesitant. However, it is possible that the campaign messaging could backfire among the vaccine acceptant. Based on Supplementary Figures 3 through 8, we posit that this is unlikely; among the general population, average trust levels-—particularly in China and in their national president—are higher than among the hesitant population, and can

therefore mitigate the negative effects of certain shots, messages, and messengers on vaccine acceptance.

Overall, our model of citizen vaccine demand in Latin America has significant implications for the design of unfolding mass campaigns aimed at inducing swift and broad public vaccine uptake to substantially reduce morbidity and mortality from COVID-19 in the region, and to end the pandemic globally.

MATERIALS AND METHODS

This study was approved by Columbia University's Institutional Review Board (protocol number IRB-AAAT5273). It complies with all relevant ethical regulations for work with human participants. Written informed consent was obtained. The design and core estimation strategies were registered in a pre-analysis plan deposited in the Social Science Registry (socialscienceregistry.org/trials/7080. All statistical analyses were implemented in R.

Recruitment. For our single-wave study, we recruited around 2,000 adults from large online panels in each of Argentina, Brazil, Chile, Colombia, México, and Perú. Respondents in each country were recruited via Netquest's online panels between January 11 and February 2, 2021. Netquest maintains large panels of survey respondents in most Latin American countries, including at least 125,000 panelists in all six countries in this study. Panelists are regularly invited to take surveys, although this is not their primary vocation. Netquest's dynamic enrollment updated invitations to ensure that the sample frame was nationally representative in terms of sex, age category, socioeconomic status, and region. Upon clicking a link to participate, respondents reached a Qualtrics (January 2021 version) landing page, where information about the academic study was provided

and consent to participate in the study was obtained. With the exception of lower socioeconomic status respondents in México and Perú, the marginal distribution of respondents that started the survey (i.e. reached our screening juncture) closely approximated the census distribution for most country-variables. Given the online nature of the survey, respondents may not be representative on other dimensions, such as urban/rural location or access to fast internet.

Screening. In addition to screening out respondents who were already willing to take a vaccine within less than 2 months of it becoming available, we also screened out respondents aged below 18 (n=9) or those who failed our attention check eleven questions into the main survey (by failing to correctly identify the capital city of their country; n=11). Given the limited screening of respondents, our sample of hesitant respondents is also likely to be broadly nationally representative of the vaccine hesitant subgroup. The median completed survey lasted 26 minutes; those that completed the survey were compensated with approximately 3 US dollars. Respondents who took less than 10 minutes to complete the survey (n=47) were excluded from the analysis.

Experimental Design. Within the conjoint experiment, each respondent was shown five scenarios, with feature assignments blocked by prior vaccine willingness and age group within each country. The unspecified category could be observed only in the first round, to prevent respondents from receiving an unspecified feature after being shown specific information on that dimension in a prior round. As described in the main text and Table 1, the experimental design varied five attributes of the distribution scenario: (1) the vaccine distributor; (2) the vaccine (including country of origin); (3) whether information was given about the efficacy rate; (4) an endorser of the vaccine; and (5)

levels of population uptake. Among these, the distributors and endorsers were country-specific organizations. Supplementary Table 1 presents the country-specific values of these different attributes.

Following each scenario, respondents were asked a series of questions that make up our outcome variables. These questions were: "If this vaccine were available to you, would you get it?" and "If the vaccine were available to you, how many months would you wait to get it?" Finally, in an effort to understand the underlying mechanisms, respondents were then asked "If this vaccine were available to you, to what extent do you agree with the following statements?" The list of statements included: The spread of Covid-19 will end quickly; it would be very unlikely that I would get Covid-19 if I get this vaccine; it would be very unlikely that I have a side-effect if I receive this vaccine; the government's vaccination program is meant to help its citizens.

Estimation. We estimate the average marginal component effect of each feature, relative to a baseline category within each dimension, by estimating the following pre-specified OLS regressions:

$$\begin{aligned} Y_{\text{irc}} = \alpha_{\text{brc}} + \beta_r Y_{\text{ic}}^{\text{pre}} + \gamma_i + \sum_{k=1}^{4} \tau_1^k \text{Producer k}_{\text{irc}} + \sum_{k=1}^{4} \tau_3^k \text{Producer k and efficacy}_{\text{irc}} \\ + \sum_{k=1}^{5} \tau_3^k \text{Endorser k}_{\text{irc}} + \sum_{k=1}^{2} \tau_4^k \text{Distributor k}_{\text{irc}} + \sum_{k=1}^{4} \tau_5^k \text{Takeup rate k}_{\text{irc}} + \varepsilon_{\text{irc}}, \quad (1) \end{aligned}$$

where Y_{irc} is an outcome in conjoint scenario round r for respondent i from country c, α_{brc} are block $\times$ round $\times$ country fixed effects, $Y_{\text{ic}}^{\text{pre}}$ measures pre-treatment immediacy of vaccine uptake (with an effect allowed to vary by round, wherever relevant, a lagged outcome), and γ_i are respondent fixed effects. Producer, take up rate, and efficacy all have a pure control condition, in which

no producer, efficacy, or take-up rate is specified. Distributor and endorser have no non-specific control attribute, so we estimate the effects of different distributors and endorsers relative to the medical sector as a baseline in both cases: the national health system as a distributor, and the national medical association as the endorser. All statistical inferences are derived from two-tailed t tests and 95% confidence intervals based on the regressions previously described. We include design-based inverse probability of treatment weights to account for differences in the probabilities of attribute assignment across round, which emerge as respondents can only be assigned an unspecified attribute in the first conjoint scenario, leading to a diminishing number of pure control scenarios as conjoint rounds progress. We cluster our standard errors at the individual level, to account for individual autocorrelation across response rounds.

Our estimates can be interpreted causally under the following assumptions: (i) the assignment of features is ignorable and independent across features; and (ii) the response of a respondent exhibits stability across scenarios and are not affected by prior scenarios *[21]*. Our independent randomization of attributes (within rounds) ensures that the assignment of each attribute is, in expectation, independent of potential outcomes and the assignment of other attributes. Suggesting that this assumption indeed holds, Supplementary Table 4 shows that the attributes within each dimension are generally uncorrelated with predetermined covariates that could influence the response to each post-treatment questions. The first assumption further requires that respondent attrition is orthogonal to the attributes presented in the scenario after which attrition occurs, which we provide empirical support for in Supplementary Table 5. The second assumption, which embeds the stable unit treatment value assumption (SUTVA), is supported by the results in Supplementary Table 8;

the table shows that the estimates from the first scenario that a respondent encountered are similar, if less precisely estimated, to the results that pool across scenarios.

Estimating and Interpreting Heterogeneous Effects of Respondent Traits on Uptake.

In this paper, we present heterogeneous treatment effects by trust as well as by other characteristics of respondents, including co-partisanship, religious denomination, education, and level of pre-treatment hesitancy. Here we present a generic equation for estimating heterogeneous effects, in which we use the variable $X\ k_i$ to capture a generic moderating variable. In-line with *[31]*, we interpret all heterogeneous effects as indicative of differences in the magnitude of the treatment effect across the subgroups described in the conditioning variable, and not indicative of descriptive differences in preferences of one sub-group relative to another.

$$
\begin{aligned}
Y_{\text{irc}} = \alpha_{\text{brc}} + \beta_r Y_{\text{ic}}^{\text{pre}} + \gamma_i + \sum_{k=1}^{4} \tau_1^k \text{Producer k}_{\text{irc}} + \\
\sum_{k=1}^{4} \tau_3^k \text{Producer k and efficacy}_{\text{irc}} + \sum_{k=1}^{5} \tau_3^k \text{Endorser k}_{\text{irc}} + \\
\sum_{k=1}^{2} \tau_4^k \text{Distributor k}_{\text{irc}} + \sum_{k=1}^{4} \tau_5^k \text{Takeup rate k}_{\text{irc}} + \\
\sum_{k=1}^{4} \tau_1^k \text{Producer k}_{\text{irc}} \times X\ k_{\text{i}} + \\
\sum_{k=1}^{4} \tau_3^k \text{Producer k and efficacy}_{\text{irc}} \times X\ k_{\text{i}} + \\
\sum_{k=1}^{5} \tau_3^k \text{Endorser k}_{\text{irc}} \times X\ k_{\text{i}} + \\
\sum_{k=1}^{2} \tau_4^k \text{Distributor k}_{\text{irc}} \times X\ k_{\text{i}} + \\
\sum_{k=1}^{4} \tau_5^k \text{Takeup rate k}_{\text{irc}} \times X\ k_{\text{i}} + \varepsilon_{\text{irc}}. \qquad (2)
\end{aligned}
$$

As in equation (1), Y_{irc} is the outcome in conjoint scenario round *r* for respondent i from country *c*, and α_{bcr} are block × round × country fixed effects, $Y_{\text{ic}}^{\text{pre}}$ measures the pre-treatment hesitancy of vaccine uptake (with an effect allowed to vary by round, wherever relevant, a lagged outcome), and γ_i are respondent fixed effects. We again include inverse probability of treatment weights to account for the differences in the probabilities of treatment across rounds, as in the main estimation, and we cluster our standard errors at the individual level, to account for individual autocorrelation across response rounds.

For the analysis in Supplementary Table 9 and Figure 3, *COVARIATE* takes on the value of a respondents' trust in the corresponding conjoint attribute (Producer, Endorser, and Distributor) there are no interactions on *Producer k and efficacy* or *Takeup rate* elements of the conjoint. All

trust measures are drawn directly from pre-treatment questions which quantify trust on a four point scale from very low to very high trust.

Data availability. The data used in this study is available at https://github.com/sarahzdaly/Vaccine-Acceptance-in-Latin-America. The Spanish language survey instrument is provided there; the Portuguese version is available upon request from the authors.

Code availability. The code developed for this study is available at https://github.com/sarahzdaly/Vaccine-Acceptance-in-Latin-America.

Tables.

Table 1: Features of mass vaccination scenario, by dimension

Figures.

Figure 1: How features of a mass vaccination scenario affect willingness to take the vaccine in the scenario

Notes: Figure 1 plots coefficient estimates for the full conjoint design with the outcome of respondent willingness to take the vaccine, with a binary measure of vaccine willingness. We use 95% confidence intervals, with standard errors clustered at the respondent level. The baseline categories, which are shown by the dots fixed at zero, include: national health system (distributor); national medical association (endorser); and unspecified for vaccine, efficacy, and uptake.

Figure 2: How features of a mass vaccination scenario affect how long a respondent would wait to take the the vaccine in the scenario

Notes: Figure 2 plots coefficient estimates for the full conjoint design for the reported months that participants would wait prior to taking the vaccine. We use 95% confidence intervals with standard errors clustered at the respondent level. The baseline categories, which are shown by the dots fixed at zero, include: national health system (distributor); national medical association (endorser); and unspecified for vaccine, efficacy, and uptake. Months variable is reversed so that positive coefficients imply greater willingness.

Figure 3: Heterogeneous Effects of Trust in Endorsers, Producers and Distributors

Notes: Figure 3 plots coefficient estimates indicators of trust in the respective producer, endorser, and distributor for each element of the conjoint experiment. We use 95% confidence intervals with standard errors clustered at the respondent level. Trust measures in each category range on a scale from 1 (low trust) to 4 (high trust). Coefficients should be interpreted as the change in the effect of a given endorser, distributor, or producer for a *one unit* increase in trust in the actor.

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Supplementary Materials for

The Shot, The Message and the Messenger: COVID-19 Vaccine Acceptance in Latin America

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Supplementary Materials

Supplementary Table 1: Country-Specific Attributes of Mass-Vaccination Campaigns

Category	*Argentina*	*Brazil*	*Chile*
National Medical Association	Asociación Médica Argentina	Conselho Federal de Medicina	Colegio Médico de Chile
President	Alberto Fernández	Jair Bolsonaro	Sebastián Piñera
Mayor	Intendente	Prefeito	Alcalde
Catholic Authority	Cardenal Mario Aurelio Pol	Cardeal Sérgio da Rocha	Arzobispo Celestino Aós
Evangelical Authority	Alianza Cristiana de Iglesias Evangélicas de la República de Argentina	Aliança Cristã Evangélica Brasileira	Mesa Ampliada - Unión Nacional Evangélica
Left-Leaning Newspaper	El Clarín	Folha de Sao Paolo	La Tercera
Right-Leaning Newspaper	La Nación	O Globo	El Mercurio
	Colombia	*Mexico*	*Peru*
National Medical Association	Federación Médica Colombaina	Academia Nacional de Medicina	Colegio Médico del Perú
President	Iván Duque	Andrés Manuel López Obrador	Francisco Sagasti
Mayor	Alcalde	Alcalde	Alcalde
Catholic Authority	Arzobispo Luis José Rueda	Arzobispo Carlos Aguiar Retes	Arzobispo Carlos Castillo Mattasoglio
Evangelical Authority	Confederación Evangélica de Colombia (CEDECOL)	Confraternidad Evangélica de México (CONEMEX)	Unión Nacional de Iglesias Cristianas Evangélicas del Perú (UNICEP)
Left-Leaning Newspaper	El Espectador	La Jornada	La República
Right-Leaning Newspaper	El Tiempo	Reforma	El Comercio

Per-Country Hesitancy and Demographic Information of the Hesitant and Non-Hesitant

Countries in our sample varied in their per-country hesitancy level. The most hesitant country in our sample was Chile with 50% willingness at the time of our survey. Argentina (56%), Colombia (58%), México (66%), and Perú (51%) displayed intermediate levels of hesitancy. Brazil was the most vaccine acceptant, with 68% willingness at the time of our survey. Here we display descriptive data on traits of our vaccine hesitant, in comparison with a smaller set of data collected about traits of non-hesitant respondents.

Supplementary Table 2: Demographic Information for Hesitant and Non-Hesitant Populations

	Demographic Characteristics					
	Hesitant		**Accepting**		**Survey Total**	
	No.	*Percent*	*No.*	*Percent*	*No.*	*Percent*
Age (Years)						
18-29	2524	0.33	1315	0.24	3839	0.30
30-44	2305	0.3	1473	0.27	3778	0. 29
45-59	1777	0.23	1382	0.25	3159	0.25
60+	1130	0.15	969	0.18	2099	0.16
Sex						
Male	3558	0.46	3084	0.57	6642	0.49
Female	4193	0.54	2759	0.51	6952	0.51
Educational Attainment						
None	157	0.02	82	0.02	239	0.02
Primary	529	0.07	305	0.06	834	0.06
Secondary	3567	0.45	2127	0.39	5694	0.44
University	2150	0.28	1755	0.32	3905	0.30
Other Higher Degree	1433	0.19	768	0.14	2201	0.17
SES						
Low	2853	0.37	1697	0.31	4550	0.35
Middle	4224	0.55	3078	0.57	7302	0.55
High	655	0.08	656	0.12	1311	0.10

Supplementary Table 3: Descriptive Information of the Hesitant

	Demographic Characteristics	
	Hesitant	
	No.	*Percent*
Religion		
Catholic	4289	0.55
Evangelical	965	0.12
None	1189	0.15
Other	1293	0.17
Ideology		
Left	1130	0.15
Center	5092	0.66
Right	1162	0.15
Vote Intention		
Incumbent	1328	0.17
Opposition	2188	0.28
Wouldn't vote	2421	0.31
Doesn't know	1422	0.18
General Vaccine Acceptance		
Has rejected vaccines for a child	1262	0.16
Thinks Covid is serious		
Yes	6569	0.85
No	1167	0.15
Covid Diagnosis		
Yes	1002	0.13
No	6734	0.87
Risk Factors		
Has one or more comorbidities	2289	0.3
No comorbidities	5447	0.7

Balance Across Conjoint Randomization

We conduct balance tests to ensure that the randomization in the conjoint experiment yielded a balance across treatment conditions. The largely insignificant differences across treatment conditions, as shown in Table 4, indicate that the groups exposed to different treatment conditions were not systematically different.

Supplementary Table 4: Covariate Balance in the First Round of the Conjoint Experiment

	Dependent variable:				
	Age Bin	Gender	Education	Pre-Treatment Hesitancy	Pre-Treatment Months
	(1)	(2)	(3)	(4)	(5)
Distributor: Civil Society	0.042	−0.030*	0.002	0.078*	−0.033
	(0.054)	(0.017)	(0.033)	(0.043)	(0.032)
Distributor: Armed Forces	−0.037	0.018	−0.070**	−0.049	−0.047
	(0.054)	(0.017)	(0.033)	(0.043)	(0.032)
Endorser: Religious Leader	0.021	−0.023	0.093**	−0.017	−0.023
	(0.077)	(0.024)	(0.047)	(0.061)	(0.046)
Endorser: Mayor	0.058	−0.018	−0.013	−0.015	−0.111**
	(0.075)	(0.023)	(0.046)	(0.060)	(0.045)
Endorser: President	−0.010	0.009	0.016	−0.014	−0.032
	(0.076)	(0.023)	(0.046)	(0.060)	(0.045)
Endorser: Right Newspaper	0.101	0.050**	0.001	0.038	−0.028
	(0.075)	(0.023)	(0.046)	(0.060)	(0.045)
Endorser: Left Newspaper	−0.124	0.037	0.016	0.025	0.024
	(0.076)	(0.024)	(0.046)	(0.060)	(0.045)
Producer: Sinovac	0.001	−0.047	0.067	−0.068	0.016
	(0.108)	(0.033)	(0.065)	(0.085)	(0.064)
Producer: Astrazeneca	0.023	−0.031	0.039	−0.032	−0.074
	(0.110)	(0.034)	(0.067)	(0.087)	(0.065)
Producer: Pfizer	0.076	−0.008	0.149**	−0.030	−0.061
	(0.108)	(0.033)	(0.066)	(0.086)	(0.064)
Producer: Gamaleya	0.051	−0.020	0.076	−0.042	0.046
	(0.108)	(0.033)	(0.066)	(0.086)	(0.064)
1% Uptake	−0.026	−0.052**	0.076*	−0.029	−0.043
	(0.071)	(0.022)	(0.043)	(0.056)	(0.042)
25% Uptake	−0.058	−0.025	0.028	−0.039	−0.056
	(0.069)	(0.021)	(0.042)	(0.055)	(0.041)
50% Uptake	0.027	−0.009	−0.026	−0.038	−0.096**
	(0.070)	(0.022)	(0.042)	(0.055)	(0.042)
75% Uptake	−0.030	−0.064***	0.053	0.006	−0.076*
	(0.070)	(0.022)	(0.043)	(0.056)	(0.042)
Efficacy Concern	−0.071	−0.029	0.015	0.009	−0.068
	(0.105)	(0.032)	(0.064)	(0.083)	(0.063)
50% Efficacy	−0.063	−0.013	0.002	0.014	0.087
	(0.106)	(0.033)	(0.064)	(0.084)	(0.063)
70% Efficacy	0.229	0.172***	−0.130	−0.175	−0.006
	(0.203)	(0.063)	(0.123)	(0.161)	(0.121)
78% Efficacy	−0.024	−0.039	−0.137**	−0.043	−0.023
	(0.105)	(0.033)	(0.064)	(0.084)	(0.063)
91% Efficacy	−0.063	−0.024	−0.157**	0.074	0.025
	(0.104)	(0.032)	(0.063)	(0.083)	(0.062)
Fixed Effects	Yes	Yes	Yes	Yes	Yes
Outcome Range	1-6	0-1	1-5	1-5	-0.96-1.732
Control Mean	2.932	0.525	3.627	3.034	0.633
Control SD	1.639	0.504	1.081	1.402	0.971
Observations	5,317	5,317	5,317	5,317	5,317
R^2	0.018	0.015	0.083	0.032	0.024
Note:					*p<0.1; **p<0.05; ***p<0.01

In some experimental designs, non-random attrition of study participants can generate a threat to experimental validity. In this study, we assign treatment independently across rounds. Differential attrition across the course of the conjoint rounds thus does not represent a challenge to the validity of our experiment. In Supplementary Table 5, we test whether the outcome in a given round k of the conjoint is missing as a function of the attributes in round k. We find that non-response

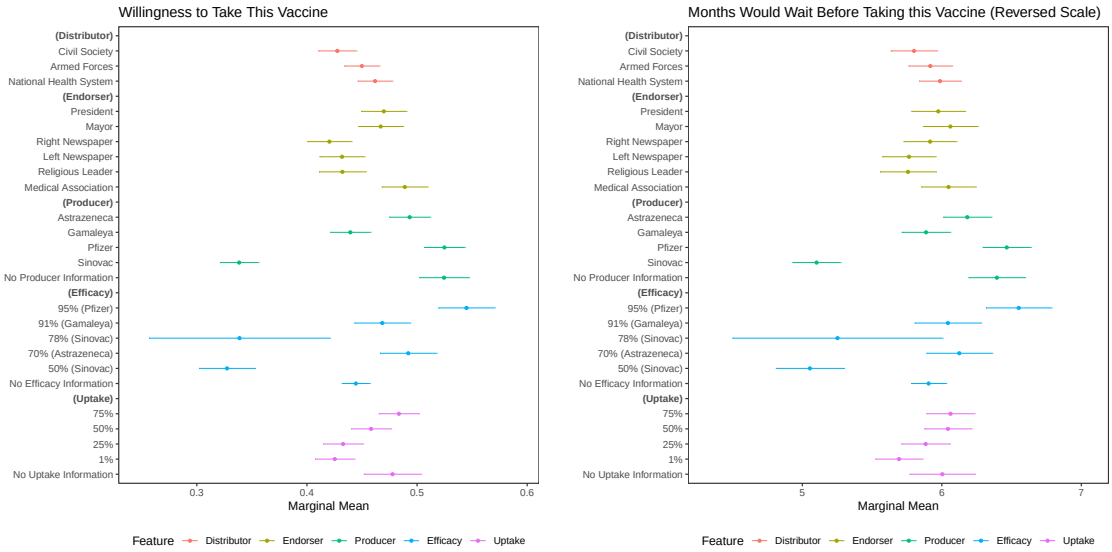
is slightly more likely when respondents are exposed to the endorsement of a mayor relative to a health professional, but in no other condition is attrition significantly different from in our baseline categories.

Supplementary Table 5: Testing for Differential Attrition Across Conjoint Conditions

	Dependent variable:	
	Attrition - Willing	Attrition - Months
	(1)	(2)
Distributor: Civil Society	0.0002	0.0002
	(0.001)	(0.001)
Distributor: Armed Forces	0.0003	0.0003
	(0.001)	(0.001)
Endorser: Religious Leader	0.0003	0.0003
	(0.002)	(0.002)
Endorser: Mayor	0.004**	0.004**
	(0.002)	(0.002)
Endorser: President	−0.001	−0.001
	(0.002)	(0.002)
Endorser: Right Newspaper	0.003	0.003
	(0.002)	(0.002)
Endorser: Left Newspaper	0.004	0.004
	(0.002)	(0.002)
Producer: Sinovac	0.005	0.005
	(0.003)	(0.003)
Producer: Astrazeneca	0.003	0.003
	(0.003)	(0.003)
Producer: Pfizer	0.001	0.001
	(0.003)	(0.003)
Producer: Gamaleya	0.003	0.003
	(0.003)	(0.003)
1% Uptake	0.0004	0.0004
	(0.003)	(0.003)
25% Uptake	−0.0003	−0.0003
	(0.003)	(0.003)
50% Uptake	0.0001	0.0001
	(0.003)	(0.003)
75% Uptake	0.0003	0.0003
	(0.003)	(0.003)
Efficacy Concern	−0.001	−0.001
	(0.002)	(0.002)
50% Efficacy	−0.0003	−0.0003
	(0.002)	(0.002)
70% Efficacy	−0.005	−0.005
	(0.004)	(0.004)
78% Efficacy	0.002	0.002
	(0.002)	(0.002)
91% Efficacy	0.001	0.001
	(0.003)	(0.003)
Fixed Effects	Yes	Yes
Outcome Range	0-1	0-1
Control Mean	0.02	0.02
Control SD	0.141	0.141
Observations	32,017	32,017
R^2	0.565	0.565
Note:		*p<0.1; **p<0.05; ***p<0.01

Results of Basic Conjoint Experiment

In this section we present the estimated marginal means plots for our conjoint treatment condition, as suggested by *[31]*, as well as the regression output associated with our main conjoint tables in the body of the paper. Estimated marginal means offer the benefit of an estimate that is not defined relative to a baseline category. For this reason, however, the estimated marginal means do not test the causal effect of a given conjoint attribute relative to a baseline. To yield a more complete understanding of descriptive differences in our results, we present the estimated marginal means here as a complement to the AMCEs presented in the main text. Supplementary Figure 1 presents the estimated marginal means for our conjoint treatment condition.



Supplementary Figure 1: Estimated Marginal Means

The results presented in Supplementary Table 6 follow Equation 1, the estimator underlying our figures 1 and 2 in the main text, but with distinct Y_{irc} in each column. Columns 1 and 2 present our core outcome measures, willingness to take the vaccine and months to vaccination (reversed for ease of interpretation) respectively. Columns (3)-(6) are post-conjoint questions about mechanisms which may shift hesitancy. These columns include: (3) The propagation of COVID-19 will stop quickly; (4) It's unlikely that I will get COVID-19 if I get this vaccine; (5) It's unlikely that I will suffer harm from getting this vaccine; (6) The government's purpose for this vaccination campaign is to help people. Answers to these mechanism questions fall on a five point scale, from strongly disagree to strongly agree.

Supplementary Table 6: Results of the Conjoint Experiment (All Rounds)

	Dependent variable:					
	Willing	Months (Rev)	Stop Propagation	Not Get COVID	Wouldn't Harm	Gov Help
	(1)	(2)	(3)	(4)	(5)	(6)
Distributor: Civil Society	−0.021***	−0.127***	−0.011	−0.020*	−0.024**	−0.018
	(0.005)	(0.037)	(0.012)	(0.012)	(0.011)	(0.011)
Distributor: Armed Forces	−0.017***	−0.053	−0.011	−0.006	−0.015	0.003
	(0.005)	(0.038)	(0.012)	(0.012)	(0.011)	(0.011)
Endorser: Religious Leader	−0.068***	−0.326***	−0.092***	−0.086***	−0.074***	−0.076***
	(0.008)	(0.053)	(0.017)	(0.018)	(0.017)	(0.016)
Endorser: Mayor	−0.026***	−0.114**	−0.055***	−0.006	−0.018	−0.010
	(0.007)	(0.052)	(0.016)	(0.017)	(0.016)	(0.015)
Endorser: President	−0.037***	−0.225***	−0.071***	−0.038**	−0.045***	−0.031**
	(0.007)	(0.052)	(0.017)	(0.017)	(0.016)	(0.014)
Endorser: Right Newspaper	−0.065***	−0.267***	−0.089***	−0.063***	−0.056***	−0.060***
	(0.008)	(0.052)	(0.016)	(0.017)	(0.016)	(0.015)
Endorser: Left Newspaper	−0.060***	−0.291***	−0.096***	−0.049***	−0.049***	−0.050***
	(0.007)	(0.051)	(0.016)	(0.017)	(0.016)	(0.015)
Producer: Sinovac	−0.107***	−0.698***	−0.151***	−0.114***	−0.130***	−0.129***
	(0.011)	(0.080)	(0.026)	(0.026)	(0.026)	(0.024)
Producer: Astrazeneca	0.021*	0.182**	0.043	0.021	0.016	0.060**
	(0.011)	(0.074)	(0.026)	(0.026)	(0.026)	(0.023)
Producer: Pfizer	0.024**	0.265***	0.031	0.060**	0.036	0.009
	(0.011)	(0.073)	(0.026)	(0.026)	(0.026)	(0.024)
Producer: Gamaleya	−0.054***	−0.291***	−0.027	−0.034	−0.049*	−0.035
	(0.011)	(0.077)	(0.026)	(0.026)	(0.026)	(0.024)
1% Uptake	−0.027**	−0.145*	−0.026	−0.022	−0.015	−0.004
	(0.011)	(0.079)	(0.026)	(0.027)	(0.026)	(0.023)
25% Uptake	0.002	0.147*	0.036	0.021	0.023	0.038*
	(0.011)	(0.077)	(0.026)	(0.027)	(0.025)	(0.022)
50% Uptake	0.031***	0.311***	0.084***	0.045*	0.046*	0.060**
	(0.011)	(0.078)	(0.027)	(0.028)	(0.025)	(0.023)
75% Uptake	0.053***	0.352***	0.090***	0.069**	0.053**	0.071***
	(0.011)	(0.078)	(0.026)	(0.027)	(0.026)	(0.023)
50% Efficacy	−0.038***	−0.301***	−0.133***	−0.128***	−0.040*	−0.051***
	(0.009)	(0.071)	(0.022)	(0.022)	(0.021)	(0.019)
70% Efficacy	−0.010	−0.094	−0.007	−0.013	0.018	−0.023
	(0.009)	(0.058)	(0.020)	(0.019)	(0.019)	(0.017)
78% Efficacy	−0.023	−0.080	−0.057	−0.046	−0.006	0.057
	(0.025)	(0.178)	(0.057)	(0.046)	(0.048)	(0.048)
91% Efficacy	0.075***	0.409***	0.090***	0.112***	0.094***	0.085***
	(0.009)	(0.063)	(0.019)	(0.020)	(0.018)	(0.017)
95% Efficacy	0.058***	0.319***	0.125***	0.084***	0.051***	0.083***
	(0.009)	(0.061)	(0.020)	(0.020)	(0.019)	(0.018)
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Outcome Range	0-1	0-12	1-5	1-5	1-5	1-5
Control Mean	0.507	5.521	2.849	2.959	2.945	3.315
Control SD	0.503	4.463	1.186	1.16	1.246	1.212
Observations	31,574	31,574	31,574	31,574	31,574	31,574
R^2	0.703	0.833	0.718	0.680	0.678	0.768

Note: *p<0.1; **p<0.05; ***p<0.01

We also present the confidence intervals around point estimates of conjoint component effects, as referenced in the body of the text.

Supplementary Table 7: Conjoint Results (Confidence Intervals)

	Dependent variable:					
	Willing	Months (Rev)	Stop Propagation	Not Get COVID	Wouldn't Harm	Gov Help
	(1)	(2)	(3)	(4)	(5)	(6)
Distributor: Civil Society	-0.021^{***}	-0.127^{***}	-0.011	-0.020^{*}	-0.024^{**}	-0.018
	$(-0.032, -0.011)$	$(-0.198, -0.055)$	$(-0.034, 0.013)$	$(-0.045, 0.004)$	$(-0.047, -0.002)$	$(-0.038, 0.003)$
Distributor: Armed Forces	-0.017^{***}	-0.053	-0.011	-0.006	-0.015	0.003
	$(-0.027, -0.006)$	$(-0.127, 0.021)$	$(-0.035, 0.012)$	$(-0.029, 0.018)$	$(-0.037, 0.007)$	$(-0.018, 0.024)$
Endorser: Religious Leader	-0.068^{***}	-0.326^{***}	-0.092^{***}	-0.086^{***}	-0.074^{***}	-0.076^{***}
	$(-0.083, -0.053)$	$(-0.430, -0.222)$	$(-0.126, -0.059)$	$(-0.122, -0.051)$	$(-0.108, -0.040)$	$(-0.106, -0.045)$
Endorser: Mayor	-0.026^{***}	-0.114^{**}	-0.055^{***}	-0.006	-0.018	-0.010
	$(-0.041, -0.012)$	$(-0.215, -0.013)$	$(-0.087, -0.023)$	$(-0.039, 0.026)$	$(-0.049, 0.014)$	$(-0.039, 0.020)$
Endorser: President	-0.037^{***}	-0.225^{***}	-0.071^{***}	-0.038^{**}	-0.045^{***}	-0.031^{**}
	$(-0.052, -0.023)$	$(-0.328, -0.122)$	$(-0.104, -0.039)$	$(-0.071, -0.004)$	$(-0.076, -0.013)$	$(-0.059, -0.003)$
Endorser: Right Newspaper	-0.065^{***}	-0.267^{***}	-0.089^{***}	-0.063^{***}	-0.056^{***}	-0.060^{***}
	$(-0.080, -0.051)$	$(-0.369, -0.166)$	$(-0.121, -0.057)$	$(-0.096, -0.030)$	$(-0.087, -0.026)$	$(-0.089, -0.030)$
Endorser: Left Newspaper	-0.060^{***}	-0.291^{***}	-0.096^{***}	-0.049^{***}	-0.049^{***}	-0.050^{***}
	$(-0.075, -0.046)$	$(-0.390, -0.191)$	$(-0.128, -0.064)$	$(-0.082, -0.015)$	$(-0.080, -0.017)$	$(-0.079, -0.022)$
Producer: Sinovac	-0.107^{***}	-0.698^{***}	-0.151^{***}	-0.114^{***}	-0.130^{***}	-0.129^{***}
	$(-0.130, -0.085)$	$(-0.855, -0.542)$	$(-0.202, -0.099)$	$(-0.166, -0.062)$	$(-0.181, -0.079)$	$(-0.175, -0.083)$
Producer: Astrazeneca	0.021^{*}	0.182^{**}	0.043	0.021	0.016	0.060^{**}
	$(-0.001, 0.043)$	$(0.037, 0.328)$	$(-0.009, 0.095)$	$(-0.030, 0.072)$	$(-0.034, 0.066)$	$(0.014, 0.106)$
Producer: Pfizer	0.024^{**}	0.265^{***}	0.031	0.060^{**}	0.036	0.009
	$(0.002, 0.046)$	$(0.122, 0.409)$	$(-0.020, 0.082)$	$(0.009, 0.112)$	$(-0.014, 0.087)$	$(-0.037, 0.055)$
Producer: Gamaleya	-0.054^{***}	-0.291^{***}	-0.027	-0.034	-0.049^{*}	-0.035
	$(-0.077, -0.032)$	$(-0.441, -0.141)$	$(-0.079, 0.024)$	$(-0.085, 0.018)$	$(-0.099, 0.001)$	$(-0.081, 0.011)$
1% Uptake	-0.027^{**}	-0.145^{*}	-0.026	-0.022	-0.015	-0.004
	$(-0.049, -0.005)$	$(-0.300, 0.010)$	$(-0.077, 0.026)$	$(-0.075, 0.031)$	$(-0.065, 0.036)$	$(-0.049, 0.041)$
25% Uptake	0.002	0.147^{*}	0.036	0.021	0.023	0.038^{*}
	$(-0.020, 0.024)$	$(-0.003, 0.297)$	$(-0.016, 0.087)$	$(-0.033, 0.074)$	$(-0.026, 0.073)$	$(-0.006, 0.082)$
50% Uptake	0.031^{***}	0.311^{***}	0.084^{***}	0.045^{*}	0.046^{*}	0.060^{**}
	$(0.009, 0.053)$	$(0.158, 0.464)$	$(0.032, 0.136)$	$(-0.008, 0.099)$	$(-0.003, 0.095)$	$(0.014, 0.105)$
75% Uptake	0.053^{***}	0.352^{***}	0.090^{***}	0.069^{**}	0.053^{**}	0.071^{***}
	$(0.031, 0.075)$	$(0.199, 0.506)$	$(0.038, 0.142)$	$(0.016, 0.123)$	$(0.003, 0.103)$	$(0.027, 0.115)$
50% Efficacy	-0.038^{***}	-0.301^{***}	-0.133^{***}	-0.128^{***}	-0.040^{*}	-0.051^{***}
	$(-0.056, -0.019)$	$(-0.440, -0.162)$	$(-0.175, -0.090)$	$(-0.171, -0.086)$	$(-0.082, 0.001)$	$(-0.088, -0.014)$
70% Efficacy	-0.010	-0.094	-0.007	-0.013	0.018	-0.023
	$(-0.028, 0.007)$	$(-0.206, 0.019)$	$(-0.046, 0.031)$	$(-0.050, 0.025)$	$(-0.019, 0.054)$	$(-0.056, 0.010)$
78% Efficacy	-0.023	-0.080	-0.057	-0.046	-0.006	0.057
	$(-0.073, 0.027)$	$(-0.429, 0.270)$	$(-0.168, 0.054)$	$(-0.135, 0.043)$	$(-0.099, 0.087)$	$(-0.036, 0.151)$
91% Efficacy	0.075^{***}	0.409^{***}	0.090^{***}	0.112^{***}	0.094^{***}	0.085^{***}
	$(0.057, 0.092)$	$(0.286, 0.532)$	$(0.053, 0.128)$	$(0.074, 0.151)$	$(0.058, 0.130)$	$(0.052, 0.118)$
95% Efficacy	0.058^{***}	0.319^{***}	0.125^{***}	0.084^{***}	0.051^{***}	0.083^{***}
	$(0.041, 0.076)$	$(0.200, 0.438)$	$(0.086, 0.164)$	$(0.044, 0.124)$	$(0.013, 0.089)$	$(0.048, 0.119)$
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Outcome Range	0-1	0-12	1-5	1-5	1-5	1-5
Control Mean	0.507	5.521	2.849	2.959	2.945	3.315
Control SD	0.503	4.463	1.186	1.16	1.246	1.212
Observations	31,574	31,574	31,574	31,574	31,574	31,574
R^2	0.703	0.833	0.718	0.680	0.678	0.768

Note: *p<0.1; **p<0.05; ***p<0.01

Results of the Basic Conjoint - First Round Only

The results in Table 8 show only the first-round conjoint responses, corresponding to (3). This estimator is identical to the estimator for our main analyses, except removing the individual fixed effects as we restrict our analysis to the first round from each respondent.

$$Y_{\text{irc}} = \alpha_{\text{brc}} + \beta_r Y_{\text{ic}}^{\text{pre}} + \sum_{k=1}^{4} \tau_1^k \text{Producer k}_{\text{irc}} + \sum_{k=1}^{4} \tau_3^k \text{Producer k and efficacy}_{\text{irc}} + \sum_{k=1}^{5} \tau_3^k \text{Endorser k}_{\text{irc}} + \sum_{k=1}^{2} \tau_4^k \text{Distributor k}_{\text{irc}} + \sum_{k=1}^{4} \tau_5^k \text{Takeup k}_{\text{irc}} + \varepsilon_{\text{irc}}, \quad (3)$$

This robustness check addresses concerns that respondents may become distracted and fail to update their responses over multiple rounds of treatments. Reassuringly, we find little difference in our point estimates as compared to the full results presented in Table 6, but as expected our estimates are less precise and therefore fewer of the estimates are statistically significant.

Supplementary Table 8: Results of the Conjoint Experiment (First Round Only)

	Dependent variable:					
	Willing	Months (Rev)	Stop Propagation	Not Get COVID	Wouldn't Harm	Gov Help
	(1)	(2)	(3)	(4)	(5)	(6)
Distributor: Civil Society	−0.034*	−0.137	0.005	−0.056	−0.008	−0.029
	(0.018)	(0.120)	(0.042)	(0.041)	(0.038)	(0.041)
Distributor: Armed Forces	−0.001	−0.049	0.023	−0.030	−0.040	0.038
	(0.017)	(0.123)	(0.043)	(0.042)	(0.039)	(0.041)
Endorser: Religious Leader	−0.055**	−0.312*	−0.035	−0.082	−0.013	0.006
	(0.025)	(0.181)	(0.061)	(0.059)	(0.055)	(0.059)
Endorser: Mayor	−0.042*	−0.394**	−0.066	−0.040	−0.047	0.080
	(0.024)	(0.165)	(0.060)	(0.058)	(0.054)	(0.056)
Endorser: President	0.004	−0.201	−0.018	0.033	0.030	0.081
	(0.024)	(0.184)	(0.062)	(0.059)	(0.056)	(0.056)
Endorser: Right Newspaper	−0.068***	−0.299*	−0.086	−0.043	−0.027	−0.011
	(0.023)	(0.167)	(0.058)	(0.055)	(0.052)	(0.053)
Endorser: Left Newspaper	−0.049**	−0.180	−0.031	−0.084	−0.037	0.048
	(0.024)	(0.167)	(0.062)	(0.059)	(0.055)	(0.058)
Producer: Sinovac	−0.123***	−0.917***	−0.083	−0.161***	−0.166***	−0.165***
	(0.023)	(0.166)	(0.058)	(0.057)	(0.054)	(0.058)
Producer: Astrazeneca	0.032	0.333**	0.024	0.015	0.049	0.047
	(0.024)	(0.169)	(0.062)	(0.056)	(0.056)	(0.061)
Producer: Pfizer	0.008	0.250	−0.009	0.062	0.035	−0.014
	(0.023)	(0.165)	(0.061)	(0.057)	(0.057)	(0.057)
Producer: Gamaleya	−0.048**	−0.026	0.009	0.019	−0.042	0.034
	(0.023)	(0.152)	(0.059)	(0.055)	(0.053)	(0.055)
1% Uptake	0.021	0.016	0.047	0.059	0.056	−0.034
	(0.020)	(0.146)	(0.049)	(0.048)	(0.046)	(0.048)
25% Uptake	−0.006	0.086	0.023	0.028	0.019	0.019
	(0.020)	(0.136)	(0.049)	(0.047)	(0.043)	(0.047)
50% Uptake	0.005	0.281*	0.061	0.065	0.024	−0.003
	(0.020)	(0.147)	(0.050)	(0.046)	(0.044)	(0.047)
75% Uptake	0.034*	0.084	0.005	−0.016	−0.060	−0.008
	(0.020)	(0.144)	(0.050)	(0.049)	(0.046)	(0.046)
50% Efficacy	−0.049	−0.321	−0.149**	−0.045	0.034	0.029
	(0.031)	(0.238)	(0.076)	(0.074)	(0.068)	(0.073)
70% Efficacy	−0.009	−0.314	0.099	0.026	0.067	0.035
	(0.030)	(0.209)	(0.076)	(0.071)	(0.070)	(0.075)
78% Efficacy	−0.045	−0.221	−0.175	−0.005	0.176	0.403***
	(0.066)	(0.527)	(0.144)	(0.125)	(0.153)	(0.155)
91% Efficacy	0.029	−0.170	0.001	0.018	0.046	0.003
	(0.030)	(0.207)	(0.076)	(0.072)	(0.069)	(0.071)
95% Efficacy	0.043	0.087	0.077	0.003	−0.017	0.031
	(0.030)	(0.208)	(0.077)	(0.072)	(0.069)	(0.072)
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Outcome Range	0-1	0-12	1-5	1-5	1-5	1-5
Control Mean	0.507	5.521	2.849	2.959	2.945	3.315
Control SD	0.503	4.463	1.186	1.16	1.246	1.212
Observations	6,489	6,489	6,489	6,489	6,489	6,489
R^2	0.350	0.598	0.171	0.167	0.165	0.200

Note: *p<0.1; **p<0.05; ***p<0.01

Heterogeneous Effects of Trust on Vaccine Uptake

Supplementary Table 9 plots the trust interactions which underlay Figure 3, as estimated by equation (2).

Supplementary Table 9

	Dependent variable:	
	Willing	Months (Rev)
	(1)	(2)
Civil Society × Trust	0.001	0.048
	(0.006)	(0.044)
Armed Forces × Trust	−0.007	0.030
	(0.005)	(0.039)
Religious Leader × Trust	0.015**	0.138***
	(0.007)	(0.041)
Mayor × Trust	0.020***	0.120***
	(0.006)	(0.040)
President × Trust	0.040***	0.251***
	(0.005)	(0.039)
Right-Wing Newspaper × Trust	0.018***	0.063
	(0.006)	(0.044)
Left-Wing Newspaper × Trust	0.020***	0.040
	(0.007)	(0.046)
Sinovac × Trust in China	0.047***	0.414***
	(0.007)	(0.051)
Astrazenica × Trust in UK	0.041***	0.285***
	(0.006)	(0.046)
Pfizer × Trust in Biden	0.030***	0.183***
	(0.006)	(0.044)
Pfizer× Trust in Trump	0.048***	0.307***
	(0.007)	(0.047)
Gamaleya × Trust in Russia	0.077***	0.576***
	(0.006)	(0.045)
Fixed Effects	Yes	Yes
Outcome Range	0-1	0-12
Control Mean	0.52	5.796
Control SD	0.502	4.486
Observations	31,574	31,574
R^2	0.708	0.836
Note:	*p<0.1; **p<0.05; ***p<0.01	

Effects of Political Endorsements Among Co-Partisans

Here we test the effect of political endorsements interacted with the co-partisanship of respondents. We find that co-partisans of both mayors and presidents are more positively responsive to their endorsements than non co-partisants are.

We use a special case of estimator (2) in which we interact an indicator for whether the respondent is a co-partisan of the endorser for the mayor with the mayoral endorsement, and an indicator for whether the respondent is a co-partisan of the president with the presidential endorsement. Both of these variables are drawn from pre-treatment covariates on future vote choice as reported by the respondents.

Supplementary Table 10: Effects of Political Endorsements Among Co-Partisans

	Dependent variable:	
	Willing	Months (Rev)
	(1)	(2)
Endorser: Mayor	-0.024^{***}	-0.096^{*}
	(0.008)	(0.054)
Endorser: President	-0.045^{***}	-0.282^{***}
	(0.008)	(0.055)
Vote Mayor × Mayor Endorse	0.040^{***}	0.168^{*}
	(0.013)	(0.093)
Vote President × President Endorse	0.102^{***}	0.605^{***}
	(0.015)	(0.110)
Fixed Effects	Yes	Yes
Outcome Range	0-1	0-12
Control Mean	0.507	6.109
Control SD	0.501	4.404
Observations	31,574	31,574
R^2	0.703	0.833
Note:	*p<0.1; **p<0.05; ***p<0.01	

Effects of Religious Endorsements Among the Religious

In one subset of our analysis, we study the effect of co-religious endorsers on vaccine uptake by co-religionists. Selecting the relevant endorser for Catholics was fairly straightforward, and we selected the Archbishop for each country in our sample. Given the more diffuse structure of evangelical churches, we consulted with local experts in religious authority within the countries in our sample. Triangulating between this and the volume of social media followers and national news coverage surrounding organizations as national-level authorities, we selected the leading national umbrella organization for evangelical groups in each country. Even so, we interpret the evangelical endorser as an in-group messenger, rather than an authority figure given nature of the church. We acknowledge that the respondent may not see the Evangelical association as their leader, but should view it as a co-religious endorser: in-group pressure versus vertical pressure.

Here we examine two subsets of religious respondents, Catholics and Evangelicals, display their sub-sample responsiveness to religious endorsers, as well as the interaction of their religious identity with religious endorsement. We find that Catholics are no more responsive to religious endorsements than the broader population. Evangelicals, on the other hand, are equally responsive to religious endorsements as to medical endorsements, and are more responsive to religious endorsements than the general population are.

We use the basic conjoint specification, equation 1 in columns (1), (2), (5), and (6), and report only the coefficient estimate for the religious leader as an endorser. In columns (3), (4), (5), and (6), we use a special case of estimator (2) in which we interact trust the religious endorser with an indicator which takes on a value of 1 if the respondent is a co-religionist of the endorser.

Supplementary Table 11: Religious Subset Analysis and Heterogeneous Effects of Co-Religious Endorsers

	Dependent variable:							
	Willing	Months (Rev)	Willing	Months (Rev)	Willing	Months (Rev)	Willing	Months (Rev)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Endorser: Religious Leader	−0.075***	−0.271***	−0.071***	−0.366***	0.009	0.110	−0.071***	−0.351***
	(0.010)	(0.071)	(0.010)	(0.072)	(0.024)	(0.157)	(0.008)	(0.054)
Catholic X Co-Religious Endorser			0.005	0.069				
			(0.012)	(0.083)				
Evangelical X Co-Religious Endorser							0.045**	0.350**
							(0.022)	(0.142)
Sample	Catholics	Catholics	Full	Full	Evangelicals	Evangelicals	Full	Full
Full Conjoint Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Outcome Range	0-1	0-12	0-1	0-12	0-1	0-12	0-1	0-12
Control Mean	0.559	5.412	0.516	5.768	0.429	6.071	0.481	6.076
Control SD	0.504	4.356	0.502	4.447	0.514	5.106	0.502	4.404
Observations	17,540	17,540	31,574	31,574	3,759	3,759	31,574	31,574
R^2	0.696	0.822	0.703	0.833	0.723	0.844	0.703	0.833

Note: *p<0.1; **p<0.05; ***p<0.01

Heterogeneous Effects - Education

Here we present heterogeneous effects of different conjoint treatment conditions by the respondents' reported education. We find that the more educated are less responsive to religious and presidential endorsements, and more responsive to higher uptake and efficacy. For these heterogeneous effects, as well as those displayed in Supplementary Table 13, we use equation 2, with education as the pre-treatment covariate.

Supplementary Table 12: Heterogeneous Effects - Education

	Dependent variable:	
	Willing	Months (Rev)
	(1)	(2)
Education x Dist.: Civil Society	−0.001	−0.020
	(0.005)	(0.036)
Education x Dist.: Armed Forces	0.002	0.029
	(0.005)	(0.038)
Education x End.: Religious Leader	−0.023***	0.004
	(0.007)	(0.053)
Education x End.: Mayor	−0.010	0.020
	(0.007)	(0.051)
Education x End.: President	−0.022***	−0.066
	(0.007)	(0.053)
Education x End.: Right Newspaper	0.0003	0.035
	(0.007)	(0.051)
Education x End.: Left Newspaper	−0.002	0.046
	(0.007)	(0.050)
Education x Prod.: Sinovac	−0.006	−0.077
	(0.010)	(0.070)
Education x Prod.: Astrazeneca	0.011	0.040
	(0.009)	(0.062)
Education x Prod.: Pfizer	0.014	−0.032
	(0.009)	(0.061)
Education x Prod.: Gamaleya	−0.009	−0.092
	(0.010)	(0.068)
Education x 1% Uptake	0.015	0.107*
	(0.009)	(0.065)
Education x 25% Uptake	0.014	0.118*
	(0.010)	(0.063)
Education x 50% Uptake	0.011	0.047
	(0.009)	(0.063)
Education x 75% Uptake	0.020**	0.185***
	(0.010)	(0.063)
Education x 50% Efficacy	−0.0003	−0.004
	(0.009)	(0.071)
Education x 70% Efficacy	0.006	−0.003
	(0.008)	(0.058)
Education x 78% Efficacy	−0.028	−0.122
	(0.026)	(0.160)
Education x 91% Efficacy	0.016*	0.067
	(0.009)	(0.065)
Education x 95% Efficacy	0.016*	0.094
	(0.009)	(0.058)
Fixed Effects	Yes	Yes
Outcome Range	0-1	0-12
Control Mean	0.507	5.521
Control SD	0.503	4.463
Observations	31,574	31,574
R^2	0.704	0.833
Note:	*p<0.1; **p<0.05; ***p<0.01	

Heterogeneous Effects - Most Hesitant Respondents

In this analysis, we define "most hesitant" as respondents who that they would wait 12 or more months prior to vaccination in the pre-treatment hesitancy questionnaire. These 'most hesitant' respondents represent 33.8% of our hesitant sample. We conduct sub-group analysis, splitting our experimental sample into the "most hesitant", as defined above, and the "less hesitant" (or respondents who would wait between 3 and 11 months to vaccinate). These results use equation 1, but subsets of the main data frame: "most hesitant" in columns (1) and (2), and "less hesitant" in columns (3) and (4).

We find that these respondents are more responsive to non-medical endorsements and lower levels of uptake, more responsive to specific than generic vaccines, and less convinced by information about higher efficacy. This table reveal that the most hesitant respondents still prefer distribution and endorsements by healthcare professionals, although this preference is less pronounced than among the less hesitant. These most hesitant respondents are indifferent across vaccines with an exception of a lower acceptance of the Sinovac vaccine, although this effect is smaller than for the less hesitant sub-population. The most hesitant are not significantly responsive to levels of community uptake. Finally, the most hesitant respond to very high levels of efficacy, but are less responsive to these efficacy levels than the less hesitant. These results indicate that endorsements by health care professionals and information about very high efficacy may somewhat reduce hesitancy among the most hesitant respondents.

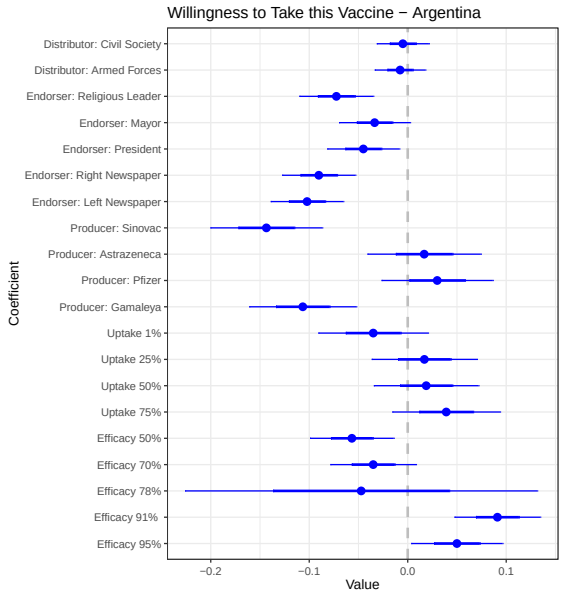
Supplementary Table 13: Sub-group Analysis of Most and Less Hesitant Populations

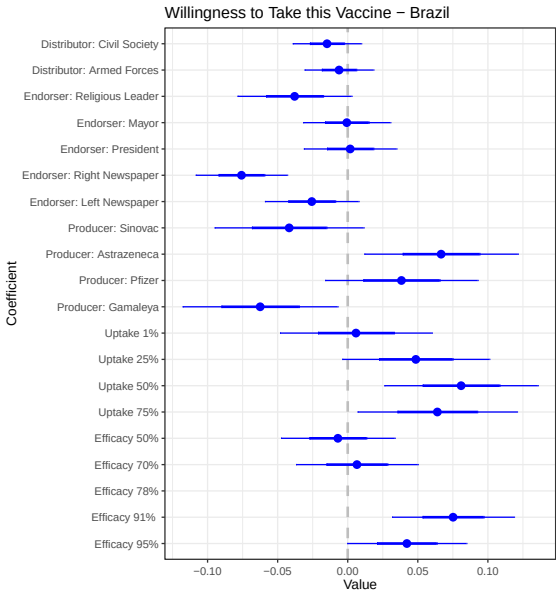
	Dependent variable:			
	Willing	Months (Rev)	Willing	Months (Rev)
	(1)	(2)	(3)	(4)
Distributor: Civil Society	−0.012*	−0.029	−0.026***	−0.180***
	(0.007)	(0.056)	(0.007)	(0.047)
Distributor: Armed Forces	−0.007	−0.042	−0.021***	−0.056
	(0.007)	(0.057)	(0.007)	(0.048)
Endorser: Religious Leader	−0.030***	−0.130*	−0.088***	−0.429***
	(0.010)	(0.075)	(0.010)	(0.069)
Endorser: Mayor	−0.012	−0.021	−0.034***	−0.160**
	(0.010)	(0.077)	(0.010)	(0.066)
Endorser: President	−0.018*	−0.067	−0.048***	−0.310***
	(0.010)	(0.081)	(0.010)	(0.067)
Endorser: Right Newspaper	−0.030***	−0.103	−0.082***	−0.340***
	(0.010)	(0.077)	(0.010)	(0.067)
Endorser: Left Newspaper	−0.035***	−0.158**	−0.074***	−0.354***
	(0.010)	(0.076)	(0.010)	(0.065)
Producer: Sinovac	−0.044***	−0.357***	−0.143***	−0.900***
	(0.015)	(0.116)	(0.015)	(0.104)
Producer: Astrazeneca	0.025	0.053	0.015	0.226**
	(0.016)	(0.119)	(0.015)	(0.093)
Producer: Pfizer	0.013	0.058	0.025*	0.346***
	(0.016)	(0.119)	(0.015)	(0.090)
Producer: Gamaleya	−0.002	−0.020	−0.083***	−0.441***
	(0.016)	(0.118)	(0.015)	(0.097)
1% Uptake	−0.016	−0.135	−0.033**	−0.152
	(0.016)	(0.120)	(0.015)	(0.101)
25% Uptake	0.006	0.061	−0.001	0.186*
	(0.015)	(0.115)	(0.015)	(0.098)
50% Uptake	0.020	0.137	0.035**	0.392***
	(0.016)	(0.121)	(0.015)	(0.099)
75% Uptake	0.020	0.110	0.069***	0.463***
	(0.016)	(0.118)	(0.015)	(0.100)
50% Efficacy	−0.007	−0.154*	−0.051***	−0.367***
	(0.011)	(0.093)	(0.013)	(0.095
70% Efficacy	−0.015	−0.143	−0.007	−0.058
	(0.013)	(0.092)	(0.012)	(0.072)
78% Efficacy	−0.016	0.158	−0.027	−0.196
	(0.027)	(0.181)	(0.036)	(0.251)
91% Efficacy	0.022*	0.125	0.101***	0.551***
	(0.012)	(0.093)	(0.012)	(0.081)
95% Efficacy	0.036***	0.198**	0.069***	0.377***
	(0.013)	(0.101)	(0.012)	(0.074)
Population	Most Hesitant	Most Hesitant	Less Hesitant	Less Hesitant
Fixed Effects	Yes	Yes	Yes	Yes
Outcome Range	0-1	0-12	0-1	0-12
Control Mean	0.172	1.483	0.727	8.182
Control SD	0.384	2.811	0.451	3.157
Observations	10,700	10,700	20,874	20,874
R^2	0.690	0.786	0.655	0.693

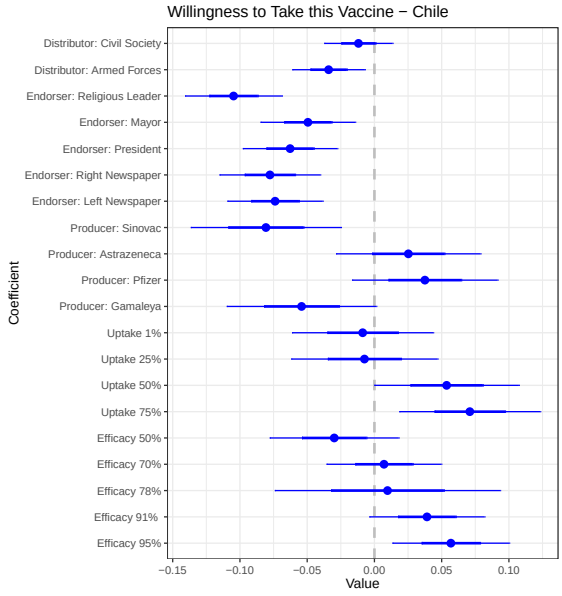
Note: *p<0.1; **p<0.05; ***p<0.01

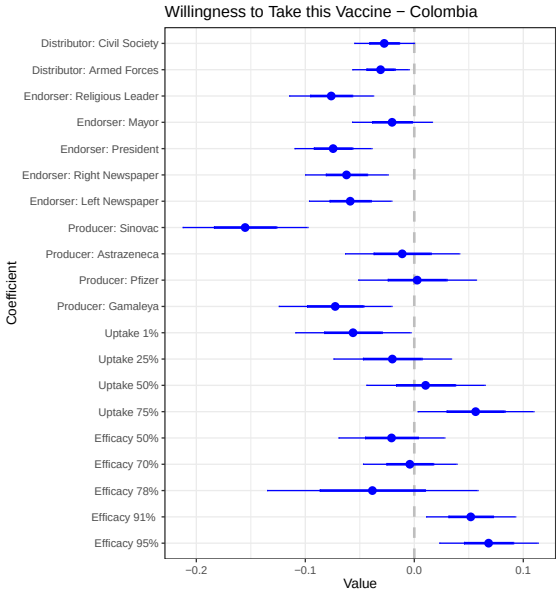
By Country Conjoint Results

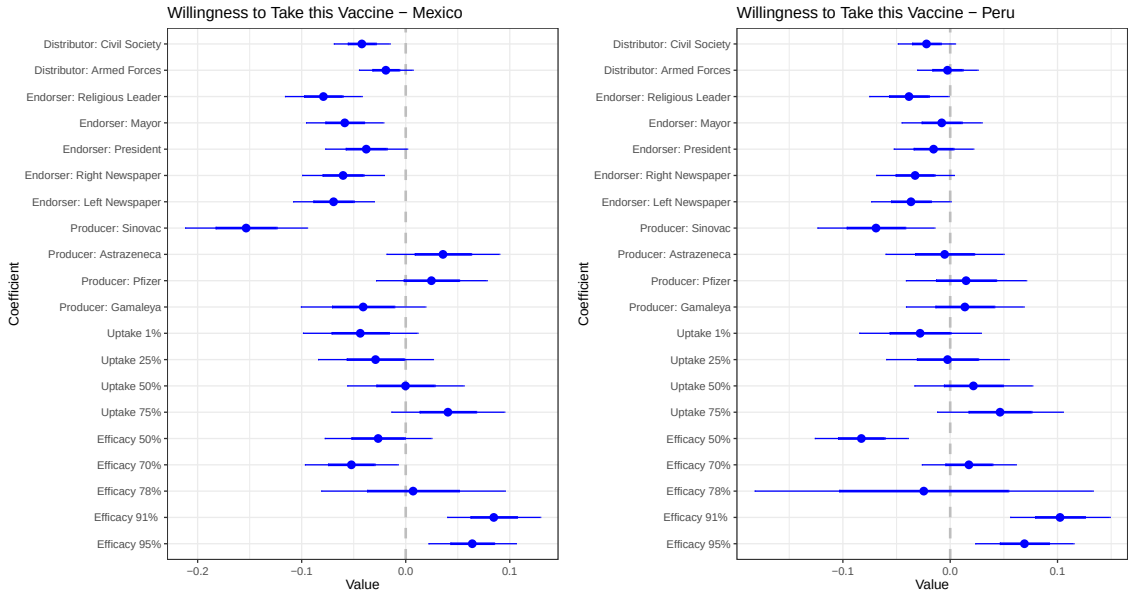
This section plots the results of our conjoint analysis subset by country. These outcome measure for these plots is willingness to vaccinate.









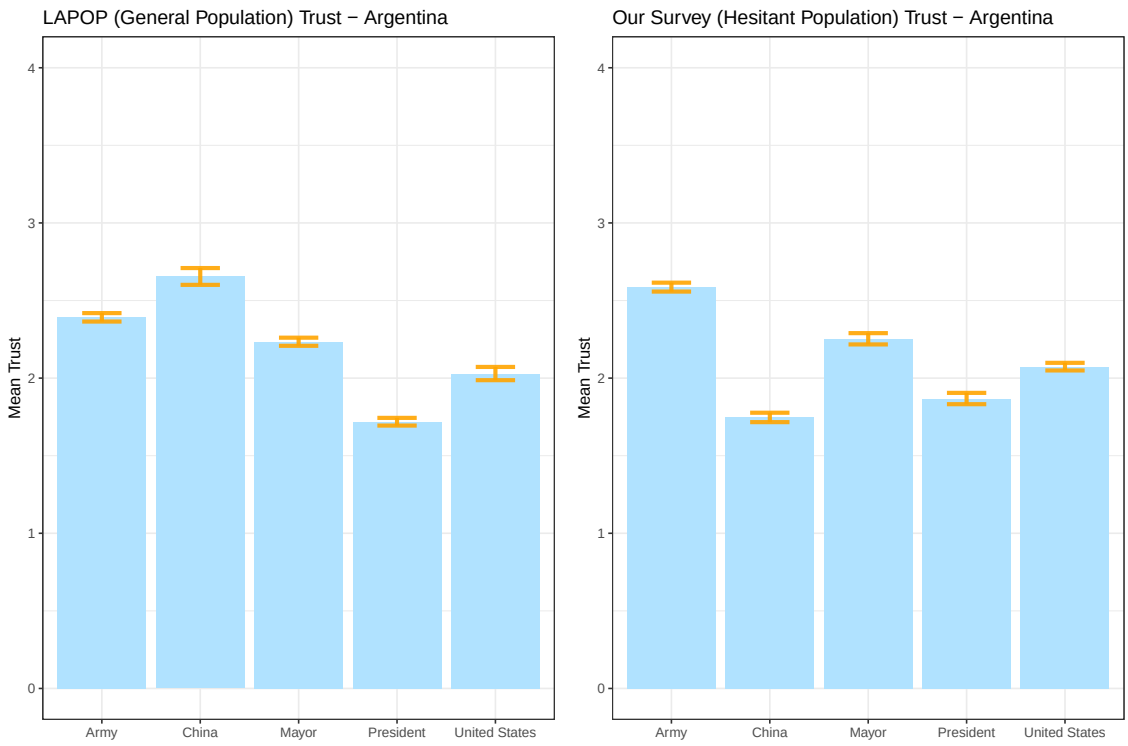


Supplementary Figure 2: By-Country Conjoint Results

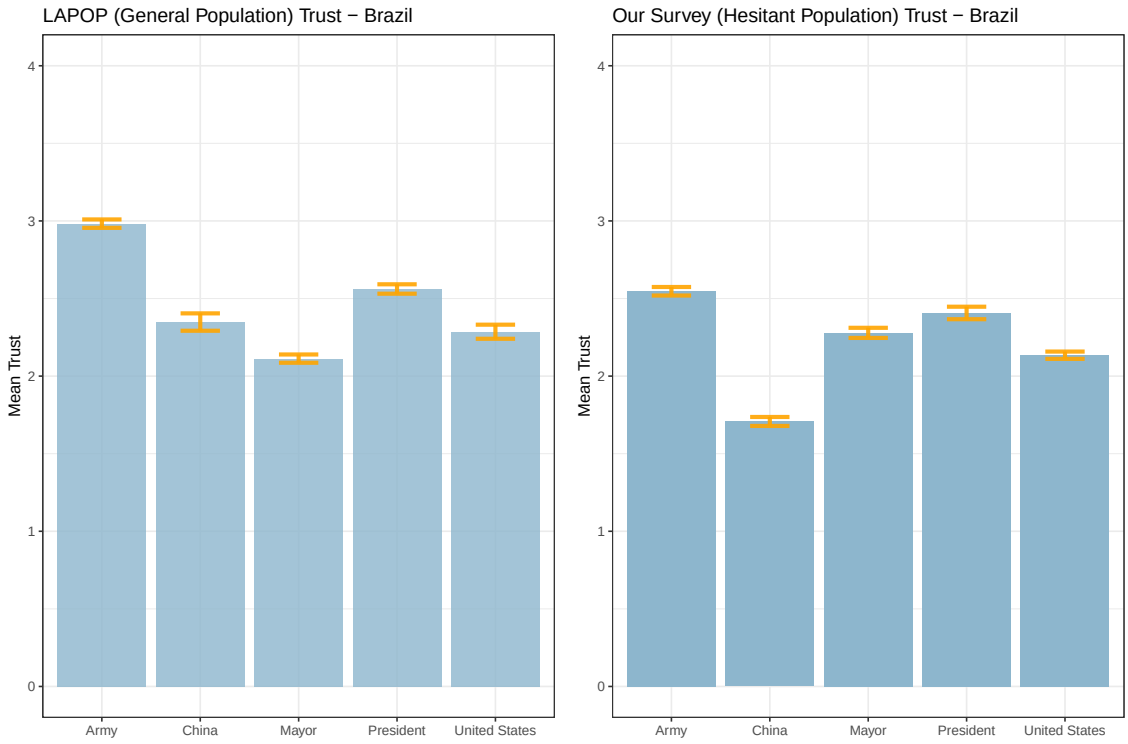
By Country Trust Measures

Finally, in this section we present survey data and data from our sample exploring differences in trust across producers, distributors, and endorsers in our sample, relative to survey evidence about trust in the same in the broader population. We draw data on population-level trust from LAPOP (2020), which include nationally representative panels in each of our survey countries. Due to limitations of the LAPOP questionnaire relative to the questions we ask on trust, we only present data on questions from our survey which have an analogous question on LAPOP. We re-scale the LAPOP trust measures, which run from 1-7, to a scale of 1-4 to correspond with our questionnaire.

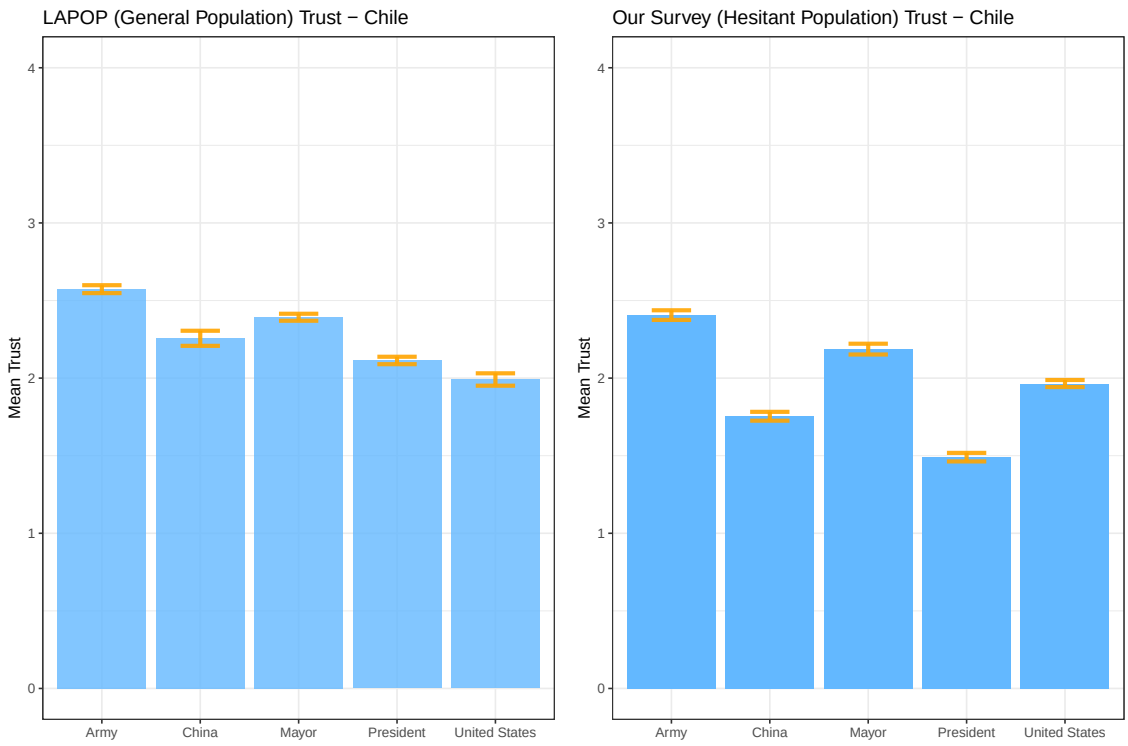
We find some differences cross-nationally in trust levels, as well as differences within-country comparing the vaccine hesitant population (our sample) to the broader population surveyed by LAPOP. We find that, overall, the vaccine hesitant population is less trusting of the Chinese government across all countries. We also find that in all countries except for Argentina and Peru, the vaccine hesitant are less trustful of the president of the country than the general population. Overall, cross-national variation in trust may help explain some of the variation in national level responses. Variation in trust across hesitant and non-hesitant populations may also help understand some of the pre-treatment determinants of hesitancy.



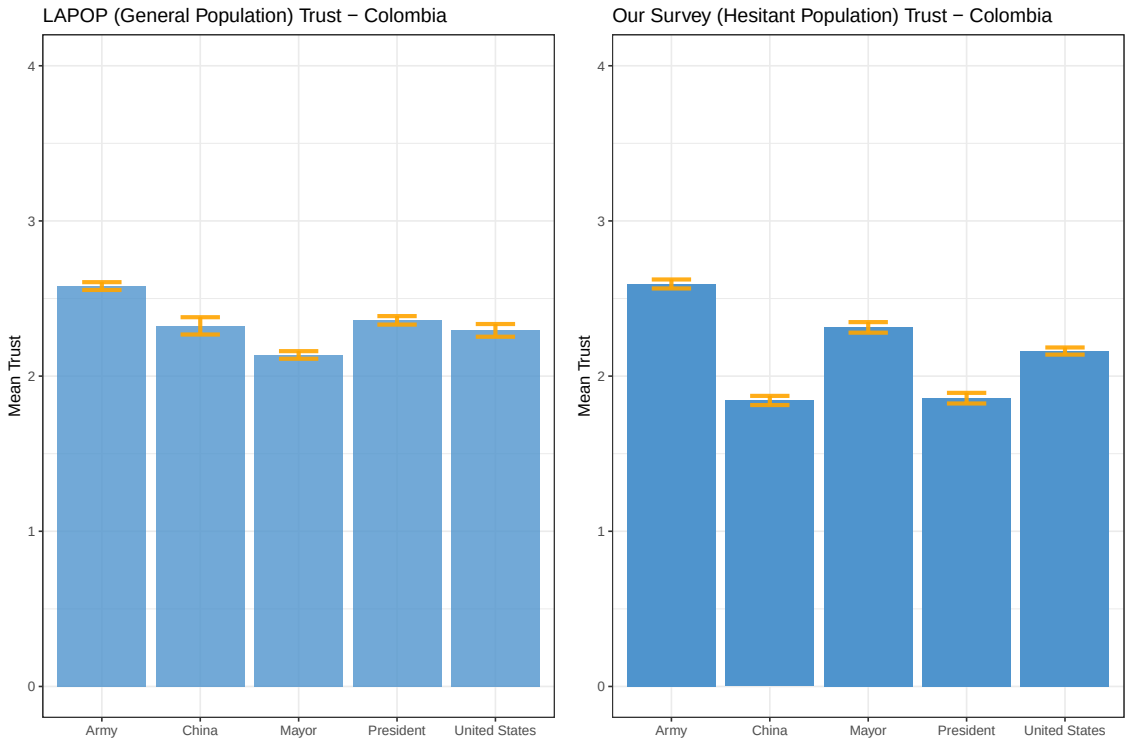
Supplementary Figure 3: Trust Measures in Argentina



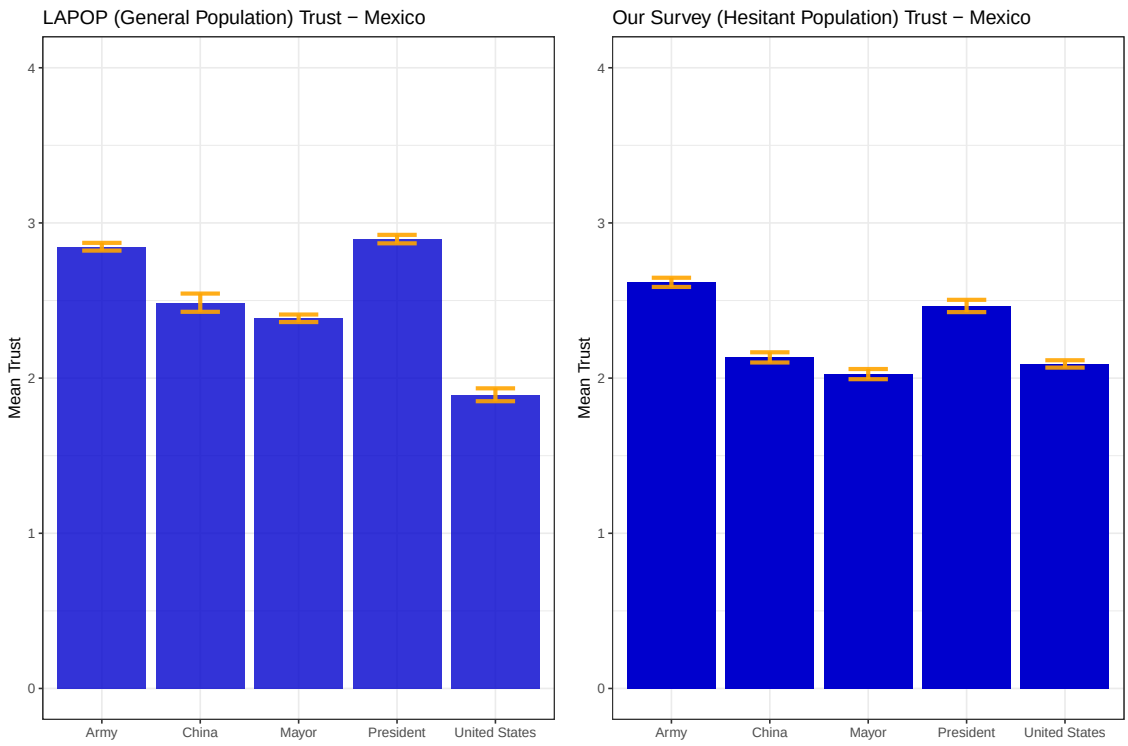
Supplementary Figure 4: Trust Measures in Brazil



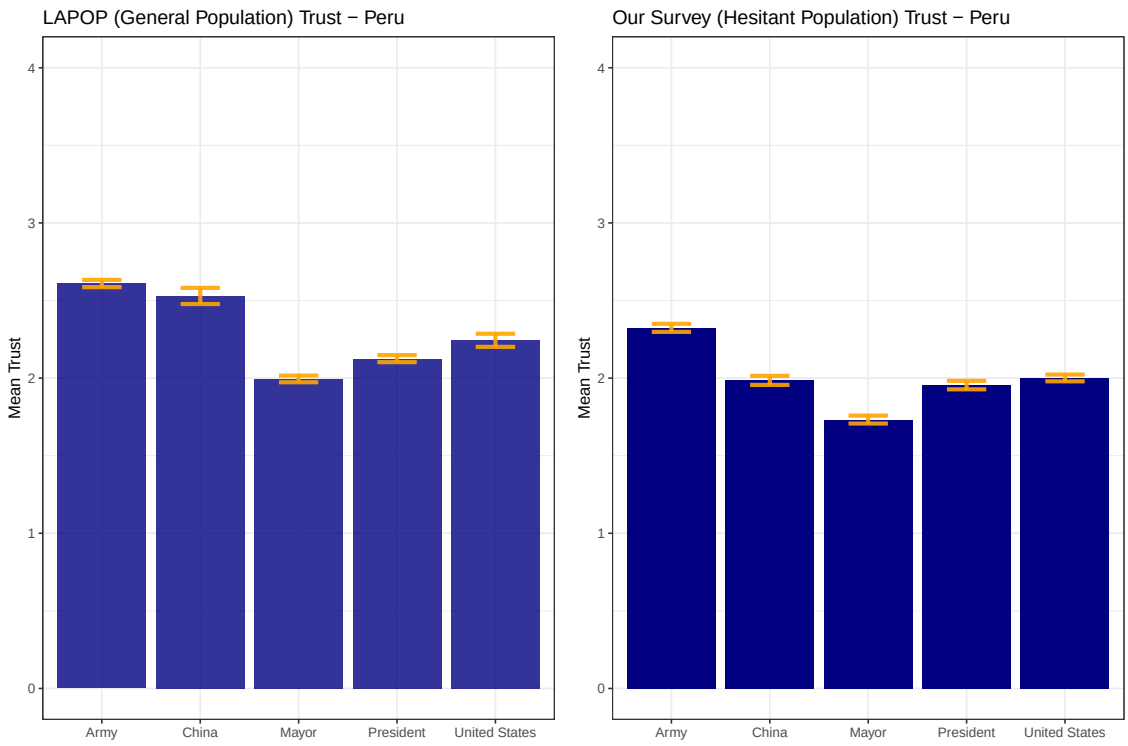
Supplementary Figure 5: Trust Measures in Chile



Supplementary Figure 6: Trust Measures in Colombia



Supplementary Figure 7: Trust Measures in Mexico



Supplementary Figure 8: Trust Measures in Peru