Social Norms, Political Polarization, and Vaccination Attitudes: Evidence from a Survey Experiment in Turkey*

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Abstract

This paper examines vaccination as a descriptive social norm in the context of the Covid-19 pandemic. Using a large-scale survey experiment in Turkey, we first elicit respondents' vaccination attitudes and show that political affiliation is a strong predictor of it. We then use economic games to measure the extent of outgroup discrimination induced by respondents' attitudes towards vaccination. We find that while both pro- and anti-vaxxers discriminate against each other substantially, the pro-vaxxers discriminate more than the anti-vaxxers do. This polarization intensifies when pro- and anti-vaxxers perceive a political difference between them. Using randomized informational treatments, we show that a reminder or priming of external threats, appealing to a broadly shared social identity, might mitigate such outgroup discrimination.

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1 Introduction

Social norms have a significant impact on behavior in various economic and social domains. They play a crucial role in overcoming the coordination problem that arises within large groups of people by encouraging individuals to act in ways that are personally costly but socially beneficial (Cialdini et al., 1990; Bernheim, 1994; Bicchieri, 2005; Goette et al., 2006; Cooper and Weber, 2020).[1] Enforcement mechanisms such as exclusion and ostracism aim to ensure that individuals follow the social norms (Fehr and Gächter, 2000; Masclet et al., 2003; Balafoutas and Nikiforakis, 2012; Balafoutas et al., 2014). However, these mechanisms may fall short in enforcing social norms in polarized societies, e.g., with respect to political views, and when the polarized groups do not welcome each other (Herrmann et al., 2008; Gächter and Herrmann, 2011; Nikiforakis et al., 2012; Van Bavel and Packer, 2021; Grimalda et al., 2023).

In this paper, we study Covid-19 vaccination-related behavior in the polarized context of Turkey, investigate political determinants of being anti-vaxxer, and explore ways to mitigate outgroup discrimination based on vaccination attitudes with the ultimate goal of restoring vaccination as a social norm. In our diverse sample from Turkey, about 80% conform to the social norm of getting vaccinated – labelled *pro-vaxxers* here – and about 20% violate it – those we label *anti-vaxxers* here. We first study the socio-demographic and socio-economic characteristics of those who conform to the social norm and those who violate it. We then measure the outgroup bias between these two groups and explore how political affiliations are associated with conforming to the vaccination norm in a politically polarized setting such as Turkey. We show that the outgroup discrimination based on vaccination attitudes is larger for more pronounced perceived political differences. Finally, using randomized informational treatments, we show that making salient the scale of the pandemic and the proximity of the Russian-Ukrainian war, both appealing to a broadly shared social identity, might mitigate the outgroup discrimination based on vaccination attitudes.

We consider getting vaccinated as a social norm for two reasons. First, based on the World Health Organization and UNICEF's estimations of immunization coverages for well-known contagious diseases (such as polio and measles for which vaccines have been long available), vaccination emerges as a descriptive norm in Turkey as the typical vaccination rates against

[1] It is worth noting that there is a vast literature on the role of social norms in encouraging individuals to behave socially optimally, even when it is not necessarily in their best interest to do so. See, e.g., Kimbrough and Vostroknutov (2016), Fehr and Schurtenberger (2018), Bicchieri and Dimant (2022), and Bicchieri et al. (2022).

such contagious diseases range between 95-100%.[2] Second, Covid-19 vaccinations were no different in the sense that they had the utmost potential to largely benefit the society by halting the pandemic and hence saving lives with minimal risks on the vaccinated (Polack et al., 2020; Liu et al., 2021; Barro, 2022; Watson et al., 2022). Thus, it is not surprising that a vast majority of the population were also in favor of Covid-19 vaccines.[3] Nevertheless, although vaccination has been typically perceived as a descriptive social norm in Turkey, Covid-19 vaccination has still been the subject of a debate between anti- and pro-vaxxers within the politically polarized context of Turkey.

To investigate the Covid-19 vaccination as a social norm, the outgroup discrimination it generates, and the ways to overcome it, we conduct a large-scale online survey experiment on a national sample matching population benchmarks in key dimensions from Turkey. Turkey provides an ideal case study as the society is mainly divided into two political blocks, and voting shifts between the blocks are unlikely (Aydın-Düzgit and Balta, 2019; Somer, 2019).[4] In such polarized settings, previous work on norm enforcement suggests that it may be more challenging to enforce social norms (Herrmann et al., 2008; Van Bavel and Packer, 2021; Gelfand et al., 2022). Groups with divergent objectives may engage in behaviors that are harmful to the society, such as misinformation campaigns, or may have specific norms that justify poor treatment of perceived outgroups. This dynamic not only reduces trust, and undermines altruism and cooperation among individuals from different political affiliations (Dimant, 2023; Dimant et al., forthcoming), but also creates significant threats to social welfare in settings such as Covid-19 (Ruggeri et al., 2024). Therefore, it is crucial to analyze the magnitude of polarization and its links with norm-enforcing behavior.

Our study starts with the elicitation of Covid-19 vaccination attitudes of respondents, i.e., whether they identify themselves with the group of those who distrust and oppose the vaccines ("anti-vaxxers"), or of those who trust and support the vaccines ("pro-vaxxers"). We use one's attitude towards vaccination to create a natural group identity, which we refer to as the *vaccination group identity* (Charness et al., 2007). We use this group identity in the first part of the experiment where we ask each respondent to allocate 100 TL (Turkish Lira) between an anti- and pro-vaxxer person (100 TL corresponded to 3.75h of minimum wage at

[2]The immunization coverage profiles of countries, including Turkey, are available at https://data.unicef.org/resources/immunization-country-profiles/.

[3]The share of population that was in favor of Covid-19 vaccines was 80% as of June 2021 reported by (KONDA, 2022), one of the well-established research companies in Turkey.

[4]According to the Varieties of Democracy (V-Dem) dataset by Coppedge et al. (2023) and Pemstein et al. (2023), the political polarization score of Turkey is even higher than those of the most polarized countries in the European Union –Hungary and Poland– and that of the US. See Appendix A.1 for more information on the country setting.

the time of the experiment, or about USD 6.11).[5] Depending on the vaccination attitudes of the respondent, the difference between the allocated amounts to anti- and pro-vaxxer persons determines the outgroup bias of the respondent.

In the second part, using a between-subjects design, we compare a control group with the case where we randomly provide respondents with three different informational treatments about i) the economic costs of the pandemic, ii) the health burden of the pandemic, and iii) the threat of the Russia-Ukraine War to Turkey. All treatments are intended to test whether focusing on the large burden that the mentioned topics involve – posing threats to the society as a whole – could lead to less discrimination, with the idea that participants realize that cooperation at the society level is required to address these topics. The first two informational treatments aim to understand whether the outgroup discrimination is related to economic or health-related concerns. The third informational treatment, on the other hand, is designed to test whether a rally-around-the-flag intervention independent of the pandemic weakens other salient group identities such as vaccination group identity to a yet larger degree (Baker and Oneal, 2001). If the targeted topics are of different importance to the pro- and anti-vaxxers, heterogeneous effects may emerge. Ex-ante, it is also conceivable that these treatments increase discrimination: In the face of tragedy, it seems possible that many will revert to rather simplifying patterns of thought, or that, e.g., the pro-vaxxers will blame the anti-vaxxers for the increased economic burden and death toll. We thus pre-registered two-sided hypotheses for all informational treatments. To test the effectiveness of these informational treatments in altering outgroup discrimination, we measure outgroup bias once again using an income allocation task (of 100 TL) in the endline similar to the one in the first part.

We conclude the study with a comprehensive survey on the socio-demographic and socio-economic background of the respondents, political party preferences, trust levels, and stances on several salient policy issues. We use the information from this survey to understand the characteristics that predict identifying someone as anti-vaxxer, and analyze how political affiliations affect vaccine hesitancy and outgroup discrimination. The key characteristics that we investigate are partisanship; trust in medicine, pharmaceuticals, state, government, or strangers; education and income levels; and preferences in several salient policy issues.

In our sample, 20% of the respondents identify themselves as anti-vaxxer. Despite differing in their vaccination attitudes, anti-vaxxers are very similar to pro-vaxxers in terms of several characteristics. In fact, standard socio-economic and socio-demographic charac-

[5] On average, participants earned 72 TL or USD 4.4, which is the equivalent of 2.7h of minimum wage.

teristics do not differ between the two groups, and their preferences in several specific and significant policy issues are fully overlapping. This finding indicates that vaccine hesitancy does not stem from the existing social cleavages in the society. We note two differences, however. First, the more trust in medicine and pharmaceutical companies an individual has, the less likely they are an anti-vaxxer. Second, voters of the opposition block are more likely to be anti-vaxxers than incumbent block voters. This indicates that hesitancy towards Covid-19 vaccinations is at least partly driven by the current political polarization within the society.

Our findings on outgroup discrimination are consistent with the social contract interpretation of vaccination in previous studies (Korn et al., 2020; Weisel, 2021; Henkel et al., 2022; Bor et al., 2023). In line with the morality-as-cooperation framework (Curry et al., 2019), social contract theory suggests that vaccination would be considered morally good by the pro-vaxxers since this cooperative behavior protects the society at a small personal cost. As a result, two groups are formed around the vaccination decision; pro-vaxxers and anti-vaxxers. Pro-vaxxers naturally regard anti-vaxxers as free-riders, violating the social norm, who should be punished. Consequently, pro-vaxxers are expected to show particularly high outgroup bias against anti-vaxxers, and so they do.[6] Specifically, pro-vaxxers allocate on average 60 TL less to anti-vaxxers when asked to divide 100 TL between an anti- and pro-vaxxer (80 TL to pro- and 20 TL to anti-vaxxers, on average). Anti-vaxxers, on the other hand, allocate on average 40 TL less to pro-vaxxers (70 TL to anti- and 30 TL to pro-vaxxers, on average). In other words, pro-vaxxers – who comply with the social norm and are willing to vaccinate – punish anti-vaxxers – who violate the social contract – more harshly than anti-vaxxers discriminate against conforming pro-vaxxers. This finding supports the perception of vaccination as a social contract by pro-vaxxers.[7]

Furthermore, we find that a significant portion of both anti- and pro-vaxxers believe that members of the other group vote for a different political party from their preferred one. These “politicized" individuals exhibit significantly more outgroup bias, providing evidence that people conflate existing political cleavages with new polarizing dimensions, such as vaccination attitudes. This conflation, in turn, is conducive to more difficulties in dealing

[6]Discriminatory behavior of anti-vaxxers can be explained by not only their self-identification with their group but also by their reactance to the discriminatory and punitive attitudes of pro-vaxxers against them, as shown by Moore-Berg et al. (2020) and Dimant (2023) in other contexts and suggested by Henkel et al. (2022) regarding vaccine hesitancy.

[7]Importantly, both groups exhibit much less outgroup bias when the income allocation task is repeated with group identities formed based on birth months, i.e., based on minimal identity (Kranton et al., 2020). This ensures that what we measure as discrimination between anti- and pro-vaxxers is not the generic groupiness of respondents.

with discrimination and in restoring the social norm.

Finally, we find that priming individuals with the threat to society as a whole that both the Russian-Ukrainian War as well as the pandemic represent decreases the outgroup bias exhibited by the respondents. Our informational treatment about the Russia-Ukraine War leads to the largest reduction in the outgroup bias exhibited by pro-vaxxers against anti-vaxxers, while the other, pandemic-related treatments show a somewhat lower, effect, although more homogeneous across pro- and anti-vaxxers. These findings suggest that appealing to a more broadly shared social identity across groups might mitigate outgroup discrimination (related to a *rally-around-the-flag* effect, Baker and Oneal, 2001).

We make two key contributions to the literature. We first contribute to the literature on vaccine hesitancy and social norms by providing empirical evidence on the dynamics between vaccination attitudes, outgroup discrimination, and political polarization. Prior research has established that pro-vaxxers view vaccination as a social norm and discriminate against anti-vaxxers (Korn et al., 2020; Henkel et al., 2022; Bor et al., 2023; Angerer et al., forthcoming). Our contribution here is to document the role of political polarization both in predicting social norm compliance (being anti- or pro-vaxxer) and also in the resulting extent of outgroup discrimination. We show that pro-vaxxers discriminate more against anti-vaxxers when they perceive a political gap between them and less when they perceive a political similarity. It is precisely this politically polarized nature of vaccination that presents challenges in enforcing vaccination as a social norm, since it is not to be expected that standard mechanisms such as exclusion work when the polarized groups do not welcome each other (Herrmann et al., 2008; Gächter and Herrmann, 2011; Nikiforakis et al., 2012; Van Bavel and Packer, 2021; Grimalda et al., 2023). Documenting that the political polarization layer interacts with the polarization layer based on vaccination attitudes thus highlights the broad implications that political polarization may have on social norms and collective action in general. Other examples of phenomena that require compliance or coordination by large groups of people include environmental protection, public health measures, and social movements. In these contexts, political polarization may also influence people's attitudes and behaviors, and create challenges for achieving social norm compliance or enforcement. In this regard, our findings illustrate that political polarization needs to be taken into account to make progress in any of these domains.

Our second key contribution is that we demonstrate ways to lessen the observed outgroup discrimination even in a politically polarized setting (Dimant, 2023). Here we add a novel and succesful way, which is precisely the contrary of exclusion – namely appealing to a

social identity that is broadly shared across groups, such as national identity. Reminding participants of external threats that seriously challenge society as a whole and that can only be tackled by cooperation at the society level could decrease discrimination in our study. This may lead the way to a communication that is successful in overcoming polarization regarding a topic of controversy, even if the topic is additionally charged with political polarization.

2 Experimental Design

We conducted our experiment in May and June 2022 in collaboration with Twentify, a survey firm specialized in conducting survey studies in Turkey. 2815 participants were recruited matching Turkish population benchmarks with respect to age, socio-economic status, gender, and vaccination status.[8] The descriptive characteristics of the sample are reported in Table A.1. Participants completed the study online, which took 15 minutes on average, and they received a payment of 72 Turkish Liras (TL) on average (equivalent to $4.4 or 2.7 hours of minimum wage at the time). From all choice tasks, one random choice was implemented for payment with a 10% chance, that is, we implemented a choice for every tenth participant.

Vaccination and minimal group identity. Before any experimental game was played, we elicited participants' identification as anti- or pro-vaxxer. Specifically, we asked respondents to report whether they are in favor or against the vaccines developed for Covid-19 on a 4-item scale: *Strongly against, against, in favor,* and *strongly in favor*. We then coded those who are against or strongly against as anti-vaxxers, and those who are in favor or strongly in favor as pro-vaxxers.[9] Moreover, we also asked about participants' birth dates to be able to form additional groups based on a minimal identity – besides vaccination attitudes.

In our sample, the share of fully vaccinated (not fully vaccinated) is 81.7% (18.3%), while the share of respondents who identify themselves with pro-vaxxers (anti-vaxxers) is 80.3% (19.7%). This implies that, albeit being a minority, there exists people who are fully vaccinated and yet against Covid-19 vaccinations or vice versa. Specifically, the share of people who are fully vaccinated among anti-vaxxers is 38%, whereas it is 92% among pro-vaxxers. The fact that there exists anti-vaxxers who are fully vaccinated (38% of them) can be explained by the restrictions imposed by the government on the unvaccinated, such as mobility restrictions, ban from public transport, etc. On the other hand, vaccination

[8] In terms of vaccination status, we targeted the share of people with two doses of vaccination in the population (around 85%) as two doses were regarded as full vaccination at the time. The share of fully vaccinated in our sample (around 82%), however, is slightly smaller than the population average.

[9] See Appendix A.4.1 for the exact wording and the full pre-experimental survey.

decisions of pro-vaxxers who are not fully vaccinated (8% of them) might be attributed to a plethora of reasons including underlying health condition or even political affiliations as will be discussed in Section 3.1.

2.1 First Measurement of Outgroup Bias: Allocation Tasks

For the first measurement of outgroup bias, we implemented a sequence of four tasks. The first block of tasks comprises two third-party allocation tasks. In the first of these two tasks, participants had to allocate 100 TL, in steps of 20 TL, between an unknown participating person from the anti-vaxx group and an unknown participating person from the pro-vaxx group. In the second of these two tasks, the allocation had to be carried out between a person born in the same month as the participant and a person born in a different month than the participant. These two tasks build the first block of tasks. In the second block, participants were asked to allocate 100 TL, again in steps of 20 TL, once between themselves and an anonymous participant from the anti-vaxx group, and once between themselves and an anonymous participant from the pro-vaxx group.

We randomized the order in which the blocks were played, as well as the order in which the tasks within each block were played. The other persons in the allocation tasks were chosen from the same income group as the participant, which we communicated to participants, in order to rule out any welfare considerations by the respondents.

Using the first task of the first block, we measure outgroup discrimination by the difference between the allocated amounts to the ingroup and the outgroup participants, where the outgroup is from the anti-vaxx (pro-vaxx) group if the participant is from the pro-vaxx (anti-vaxx) group. Using a minimal group identity based on birth months, we construct an analoguous measure using the second task of the first block (same vs. different birth month).

The two tasks in the second block provide an alternative measure of outgroup discrimination with respect to vaccination attitudes. Each task asks respondents to allocate 100 TL between themselves and an ingroup or outgroup person. The difference between the allocated amounts to ingroup and outgroup participants in these two tasks yields an alternative measure of outgroup discrimination. However, in this alternative measure, self-interest is involved, while in the former – the third-party allocation task based on vaccination attitudes – self-interest plays no role. Ruling out the motive of self-interest enables us to detect outgroup discrimination that is otherwise masked by self-interest motives as a significant share of respondents can be expected to selfishly allocate all the income to themselves regardless of the identity of their matched partner. Yet, this measure adds to our measurement of

outgroup bias by adding a complementary angle; moreover, the measure provides a useful comparison for the task played last (described in Section 2.3).

By design, we have ruled out the possibility to allocate equal amounts of money to both persons in all allocation tasks. This forces participants to exhibit a preference for one of the partners or themselves – given that participants favor equal splits independently of any fairness concern (Güth et al., 2001), allowing such equal splits would result in blurring our measure of discrimination. Moreover, this design choice allows to abstract from social image concerns that would arguably push participants to choose the equal split.

2.2 Treatments to Alter Outgroup Bias

After the first measurement of outgroup bias, we administer three informational treatments plus one control treatment in a between-subject design. The treatments inform about (i) the death toll and health burden of the pandemic to the public (HEALTH INFO treatment),[10] (ii) the economic costs of the pandemic (ECONOMIC INFO treatment),[11] and (iii) the fatalities and displacements in the first weeks of the war following Russia's invasion of Ukraine (that took place in late February 2022, shortly before we conducted our study). Moreover, we included the information that Turkey implemented the Montreux Convention regarding the Straits (*the Montreux Convention*), thereby making salient how Turkey is affected by the conflict (WAR INFO treatment).[12] The Montreux Convention grants Turkey a full authority on regulating maritime traffic through the Turkish straits at times of war or when it feels itself threatened by a war.[13] Similar to the other two treatments, this last informational treatment allows us to study whether a rally-around-the-flag intervention weakens the existing salient group identities, such as vaccination or political identity (Baker and Oneal, 2001). Yet, it does so from an angle that is independent of the pandemic, which might be more effective in putting identities that are directly or indirectly linked to the pandemic in perspective. We describe the balance of the sample across treatment arms in Table A.3.

[10] Specifically, we wrote "According to official statistics, the Covid-19 pandemic has so far claimed the lives of nearly 100,000 Turkish citizens and sickened around 15 million people."

[11] The exact wording was "The Covid-19 pandemic is estimated to have reduced total production in Turkey by around 20 percent in the last two years and caused nearly 3 million people to lose their jobs."

[12] The wording that we used was "It is estimated that 15 thousand people lost their lives in the first three weeks of Russia's aggression against Ukraine and nearly 3 million people were forced to migrate to other countries. During this war, Turkey implemented the Montreux Straits Convention."

[13] One of the main issues that concerned the Turkish public during the war was the status of the Montreux Straits Convention, which regulates the passage of naval vessels through the straits. This is evident from the spike in Google searches for "Montreux Straits Convention" that occurred shortly before our study, right after the hostilities began.

All of these treatments could either reduce or aggravate outgroup discrimination (or be ineffective in changing discrimination levels). Should a treatment increase outgroup discrimination, it would suggest that the highlighted aspect might be a root cause of outgroup bias in the first place. In case outgroup discrimination is decreased by one of the first two treatments, it might suggest that making the burden salient to society might trigger the insight that the problem can only be overcome by a collective effort, appealing to a shared social identity, which in turn might help to unify society. Likewise, if the War Info treatment reduces outgroup discrimination, it suggests that promotion of a shared identity across groups is an effective way of mitigating outgroup discrimination – in this case in a manner completely independent from the pandemic.

2.3 Post-Treatment Measurement of Outgroup Bias: Pool Allocation Task

To test whether the informational treatments, implemented in a between-subject design, are effective in changing the outgroup discrimination, that is, in affecting polarization along vaccination attitudes, we again measure outgroup discrimination before concluding with the post-experimental survey. We employ two allocation tasks similar to the ones in the first part.[14] Participants are again matched with another participant in both tasks. In one of the two tasks, the other participant is (randomly selected) from the same group with respect to vaccination attitudes, and in the other one, the person is (randomly selected) from the other group. As in the allocation tasks in the first part, randomization is contingent on the income group, so that the partners are always from the same income group. The order of the tasks is randomized, and participants are made aware of their partner's group membership (pro- or anti-vaxxer).

The task is a modified public goods game: Both matched participants are endowed with 100 TL, and they can both send between 0 and 100 TL (in steps of 20 TL) to their partner, who is in one task from their ingroup, and in the other task from their outgroup. The share of the endowment that is not sent to the partner is kept for own payoff. The amount sent to the partner is doubled by us for the sake of simplicity in light of our sample from the general population. To keep individual contributions to the public good costly, there is no pooling of contributed resources that is finally equally divided (as would be the case in a

[14] To reduce the impact of cognitive biases on the respondents' judgments, we have implemented a slightly different task to the ones implemented before treatment. These biases include the desire for consistency or the anchoring effect, which can make the respondents' subsequent answers depend on their choice in the first task.

standard public goods game).[15] Instead, the then doubled amount is simply sent directly to the partner. With this modification, we restore the key characteristics of the public goods game with our simplified tasks (the total payout is maximized if both contributed everything; yet, free-riding is possible and deviation from this solution attractive; finally, if both partners contribute nothing, the total payout is minimized).

In case one of the partners is randomly selected for payout, and one of these two tasks is randomly determined as payout relevant, their partner receives double the amount that has been sent to them, while the senders themselves get the share that they have kept for them.[16]

The measure of outgroup discrimination resulting from these two tasks is obtained by subtracting the amount given to the outgroup partner from the amount given to the ingroup partner. We opt for a slightly different income allocation task from the one in the first part so as to rule out potential learning or consistency effects.

2.4 Post-Experimental Survey

The experiment concludes with a detailed survey on socio-demographic and socio-economic information, political party preferences, trust levels, and stances on several specific and salient policy issues. See Appendix A.4.2 for the full post-experimental questionnaire.

3 Results

In this section, we first explore the predictors of identifying with the group of anti-vaxxers. Second, we report our results regarding the outgroup bias based on vaccination group identity and how political polarization aggravates this bias. These two sections present our descriptive findings. Finally, through informational treatments, we investigate the malleability of the outgroup discrimination through different channels.

3.1 Predicting an anti-vaxxer group identity

We focus on four distinct sets of potential factors that might be predictive of identifying as anti-vaxxer. Specifically, we examine the role of i) socio-demographic and socio-economic characteristics of the respondent, ii) attitudes and preferences of the respondent in several

[15] Pooling would – with our simplistic parametrization – result in getting back all the money invested.

[16] We opted for this payout mechanism to keep a balance between the money received by pro-vaxxers and anti-vaxxers from this task in light of their unequal representation in our sample.

policy-relevant issues, iii) trust levels of the respondents (in medicine, pharmaceuticals, state, government, or strangers), and finally, iv) the preferred political party. In all regressions where we investigate the role of potential predictors, we control for regional fixed effects (at the NUTS-1 level[17]) and cluster the standard errors at the this level.

Econometrically, to explore the role of socio-demographic and socio-economic characteristics – point i) above – we estimate the following specification using OLS:

$$\text{Anti-vaxxer}_i = \beta_0 + \beta_1 \cdot \text{Education}_i + \beta_2 \cdot \text{Income}_i + \beta_3 \cdot \text{Gender}_i + \beta_4 \cdot \text{Age}_i + \beta_5 \cdot \text{Region}_i + \epsilon_i. \quad (1)$$

Figure 1 reports the results. The coefficient estimates on education level variables indicate how likely or unlikely a respondent with the corresponding education level is an anti-vaxxer compared to a respondent with a college degree, which is the reference level of the education variable. Similarly, the reference level for the income variable is *Income: 0-4k*, indicating income levels up to 4000 TL monthly. Among several socio-demographic and socio-economic characteristics, we do not find any strong predictor of anti-vaxx group membership. The only statistically significant estimate is for the respondents with only primary school education. These respondents are 5% more likely to be an anti-vaxxer compared to respondents with a college degree.

We now turn to respondents' economic and social policy preferences, their trust levels, and their preferred political party as potential predictors of attitudes toward vaccination. Our common econometric specification for these analyses is:

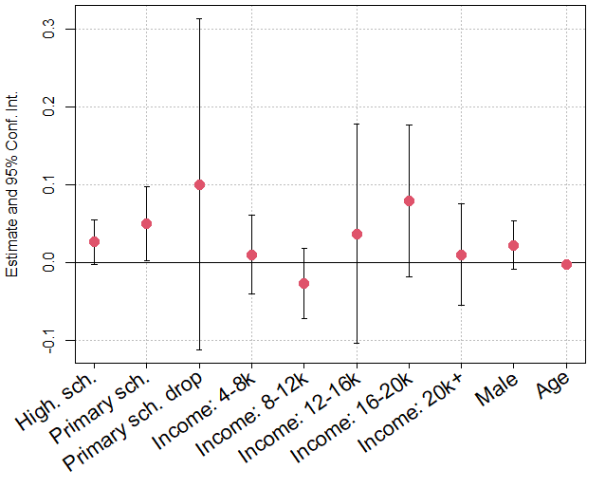
$$\text{Anti-vaxxer}_i = \beta_0 + \boldsymbol{\beta_1} \cdot \mathbf{X}_i + \boldsymbol{\beta_2} \cdot \mathbf{Z}_i + u_i, \quad (2)$$

where $\mathbf{X}_i$ is a vector capturing either respondents' economic policy preferences, their social policy preferences, their trust levels or their preferred political party, depending on the analysis. $\mathbf{Z}_i$ is a battery of controls including education, income level, gender, age, and region of residence.

Figure 2 reports whether respondents' preferences in several policy-relevant economic and social issues predict their attitudes towards vaccination. The policy issues we include in this analysis are typically the issues that polarize the electorate in Turkey. In Figure 2a, we investigate whether respondents' preferences over various types of government spending

[17]The Nomenclature of territorial units for statistics, abbreviated NUTS (from the French version Nomenclature des Unités territoriales statistiques) is a geographical nomenclature subdividing the economic territory within countries of the European Union (EU) into regions at three different levels, with NUTS-1 being the highest one.

Figure 1: Predictors of anti-vaxxers: socio-demographic and socio-economic characteristics



Notes: The figure reports the coefficient estimates obtained from the OLS regression of identifying with anti-vaxxer group on education, income, gender, age, and NUTS-1 fixed effects. The baseline levels for education and income variables are, respectively *College education* and *Income: 0-4k*. The 95% confidence intervals are based on the standard errors clustered at the NUTS-1 level.

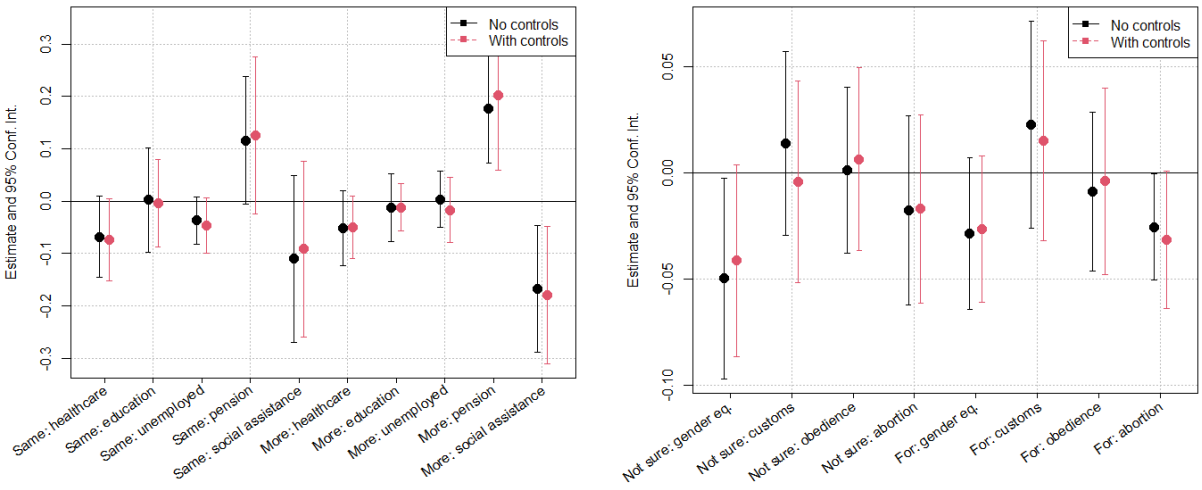
predict their vaccination attitudes. For example, we report whether preferring more or less government spending for the healthcare system than the current amount of spending is a predictor of vaccination attitudes compared to respondents who prefer the current level. The variables on other government spending types enter the analyses analogously.

Similarly, in Figure 2b, we focus on the role of social issues in predicting vaccination attitudes. For example, we investigate whether attitudes towards abortion are associated with vaccination attitudes. Specifically, we report whether respondents who are for or against abortion are more or less likely to be an anti-vaxxer compared to people who are indifferent about the abortion right.

Summarizing both analyses, we find that the majority of the variables are not statistically significant predictors of vaccination attitudes. The corresponding regressions with controls indicate that we have only one coefficient out of 18 that is statistically significant (coefficient on For: abortion, significant at 10% level), all other coefficients being statistically not significant. This finding suggests that the polarization in vaccination attitudes does not align with the existing political cleavages in the society but appears to be a rather new polarizing issue.[18]

[18]The results are largely similar when we change the reference levels of our variables of interest (see

Figure 2: Predictors of anti-vaxxers: economic and social policy preferences



(a) Government spending

(b) Social policies

Notes: Panel (a) and (b) plot the coefficients estimates obtained from the OLS regressions of identifying as anti-vaxxer on preferences in government spending in Panel (a) and preferences in social policies in Panel (b), controlling only for NUTS-1 fixed effects in the *No controls* specifications and controlling for education, income, gender, age, and NUTS-1 fixed effects in the *With controls* specifications. In Panel (a), the baseline level for each type of spending is *Less*. The levels with *Same:* and *More:* then indicate the contrasts with this reference level. In Panel (b), the baseline level for each policy preference is *Against*. The levels with *Not sure:* and *For:* then indicate the contrasts with this reference level. 95% confidence intervals are based on the standard errors clustered at the NUTS-1 level.

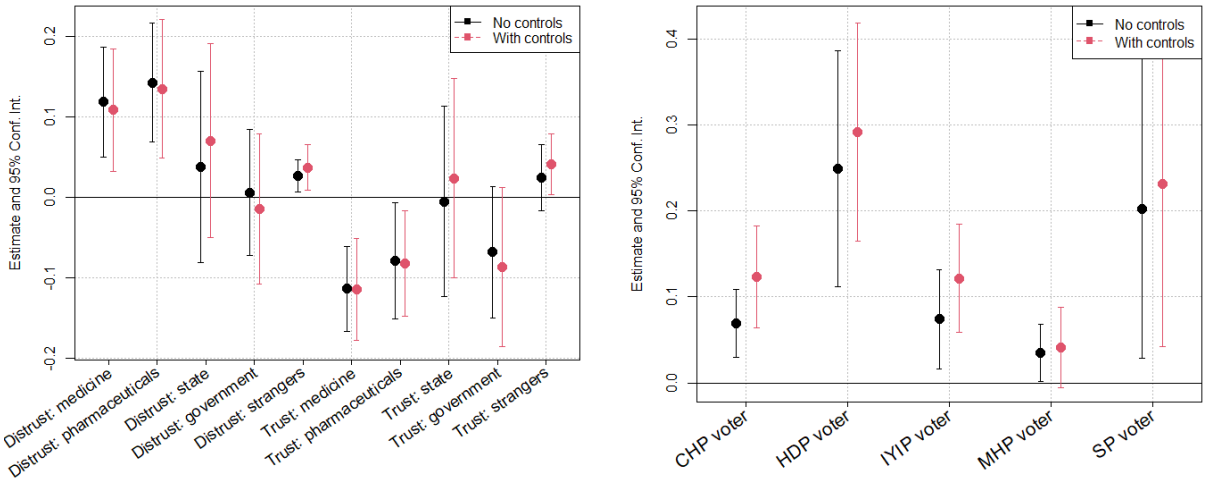
Finally, using Eq. (2), we investigate whether trust levels and the preferred political party of the respondents predict their anti-vaxx group identity. Figure 3a reports the estimates regarding the trust level of respondents in medicine, pharmaceuticals, state, government, and strangers. We report whether a respondent who distrusts or trusts in a certain institution is more or less likely to be an anti-vaxxer compared to a respondent who is indecisive. Perhaps not surprisingly, our results indicate that people who have distrust (trust) in medicine and pharmaceuticals are more (less) likely to be an anti-vaxxer compared to indecisive respondents. The corresponding coefficients range from -11% to 13%. Interestingly, we find that trust in the government or the state does not predict vaccination attitudes although the entire vaccination program has been implemented by the government using the state capacity.

Most interestingly perhaps, in Figure 3b, we document that respondents' preferred politi-

Figure A.4).

cal party has at least a comparable effect to that of distrust in medicine and pharmaceuticals. We find that opposition voters, such as CHP, HDP, IYIP and SP voters, are respectively 8%, 27%, 9%, and 24% more likely to be anti-vaxxer compared to an AKP voter (*Adalet ve Kalkınma Partisi,* Erdogan's incumbent party).[19] MHP (*Milliyetçi Hareket Partisi*, AKP's ally party) voters, on the other hand, do not differ from AKP voters in their vaccination attitudes in a statistical sense. These findings reveal the politicized nature of Covid-19 vaccination and illustrate that the successful enforcement of the social norm of vaccinating is challenged by the political polarization among the society.

Figure 3: Predictors of anti-vaxxers: trust levels and preferred political party



(a) Trust levels

(b) Preferred political party

Notes: Panel (a) and (b) plot the coefficients estimates obtained from the OLS regressions of identifying as anti-vaxxer on trust variables in Panel (a) and preferred political party in Panel (b), controlling only for NUTS-1 fixed effects in the *No controls* specifications and controlling for education, income, gender, age, and NUTS-1 fixed effects in the *With controls* specifications. In Panel (a), the baseline level for each trust variable is *Indecisive*. The levels with *Distrust:* and *Trust:* then indicate the contrast with this reference level. In Panel (b), the baseline level is *AKP*. The levels with *Against:* and *For:* then indicate the contrast with this reference level. 95% confidence intervals are based on the standard errors clustered at the NUTS-1 level.

[19]The voters who oppose the government represent a wide range of political views. CHP (*Cumhuriyet Halk Partisi*) represents more the secular part of Turkey. HDP (*Halkların Demokratik Partisi*) voters typically comprise of Kurdish people. IYIP (*İyi Parti*) represents the secular but also more nationalistic part of Turkey. Finally, SP (*Saadet partisi*) represent the more Islamic voters that are not aligned with AKP. The common denominator of these parties is their opposition to the AKP-MHP block.

3.2 Outgroup discrimination and political polarization

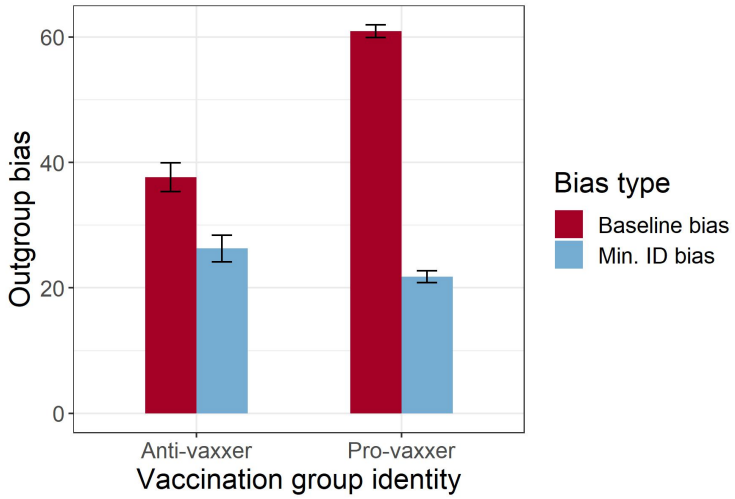
In this section, we first report our results regarding the outgroup bias of the pro- and anti-vaxxer groups against each other. The social contract interpretation of vaccination implies that pro-vaxxers regard anti-vaxxers as violators or free-riders, which results in a "punishment" of the anti-vaxxers and a potential backlash by anti-vaxxers (Korn et al., 2020; Weisel, 2021; Henkel et al., 2022; Bor et al., 2023). To quantify this, we first measure the outgroup bias by asking respondents to allocate 100 TL between an anti- and pro-vaxxer participant. The difference between the allocated amounts in this third-party allocation task is the outgroup bias of the respondent, and the bias displayed by the pro-vaxxers is expected to be in line with the social contract interpretation of vaccinations.

Figure 4 reports the outgroup bias of the two groups against the other. Consistent with a social contract interpretation of the Covid-19 vaccinations, we find that pro-vaxxers allocate on average 60 TL less to anti-vaxxers when they are asked to allocate 100 TL between an anti- and pro-vaxxer. This means that on average pro-vaxxers allocate 80 TL to another pro-vaxxer, but only 20 TL to an anti-vaxxer. The outgroup bias of anti-vaxxers against pro-vaxxers on the other hand is smaller but still substantial. They allocate on average 40 TL less to pro-vaxxers when they are asked to divide 100 TL between an anti- and pro-vaxxer, thus they allocate on average 70 TL to anti-vaxxers, and 30 TL to pro-vaxxers. The outgroup biases displayed by each group against the other (Figure 4) are statistically different from each other (at the 1% significance level). The outgroup bias of anti-vaxxers against pro-vaxxers can be explained by the backlash against poor treatment by pro-vaxxers and the restrictions imposed by the government on the unvaccinated and the actual and perceived[20] discriminatory attitude by pro-vaxxers (Moore-Berg et al., 2020; Henkel et al., 2022; Dimant, 2023). Overall, we find that both groups exhibit substantial amounts of outgroup bias against each other even in times when the effects of the pandemic were relatively mild.

The outgroup bias that we measure is not solely driven by general groupy tendencies of the respondents (Kranton et al., 2020). As Figure 4 shows, the outgroup bias based on vaccination attitudes is significantly larger than the outgroup bias based on minimal identity, i.e., the identity based on birth month (t-tests, p-values < 0.001). We also find that pro-vaxxers display more outgroup bias in vaccination attitudes than anti-vaxxers (difference

[20] As part of the endline survey, we ask both groups about their perceptions on what a pro/anti-vaccine person would send them. The control group's answers indicate that anti-vaxxers believe that pro-vaxxer respondents would send 7.3 TL less than what anti-vaxxer respondents would send them (33.22 TLs vs 40.51 TLs), which is broadly in line with the actual allocations. Therefore, our sample also contains – what Dimant (2023) calls – "grim expectations" about outgroup's behavior.

Figure 4: Outgroup bias based on vaccination attitudes and minimal identity



Notes: The figure depicts (i) the outgroup bias shown by anti-vaxxers (pro-vaxxers) against pro-vaxxers (anti-vaxxers) measured using a third-party money allocation task where anti- and pro-vaxxers allocate 100 TL between an anti- and a pro-vaxxer, and (ii) the minimal identity bias displayed by each group measured using a third-party money allocation task where respondents allocate 100 TL between a person who has the same birth month as themselves and a person who has a different birth month. The brackets correspond to the standard errors.

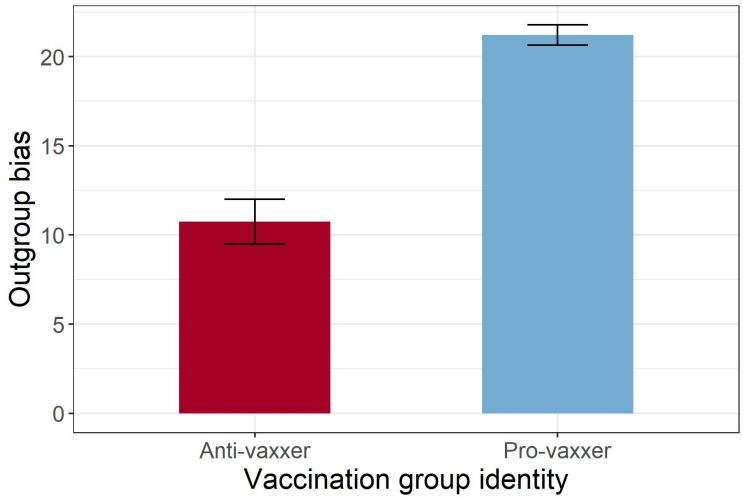
being statistically significant at the 1% level in a t-test) and somewhat less outgroup bias in minimal identity than anti-vaxxers (difference being much smaller but statistically significant at the 10% level in a t-test). Moreover, we test the relationship between outgroup bias based on vaccination attitudes and that based on minimal identity in a regression (see Appendix Table A.5): A 10 TL increase in the outgroup bias in minimal identity is associated with a 0.6 TL increase in the outgroup bias in vaccination attitudes. Although this association is statistically significant, as groupy tendencies obviously matter, it cannot explain even the smallest bias due to vaccination attitudes (40 TL) that we report: The highest possible outgroup bias in the minimal identity treatment is 100 TL, which would result in a predicted 6 TL higher outgroup bias in vaccination attitudes according to the estimated regression. This concludes that what we measure as outgroup bias in vaccination attitudes is distinct from the general groupy tendencies of the respondents.

We also measure outgroup bias in vaccination attitudes using the two income allocation tasks that include self-interest: self vs. anti-vaxxer and self vs. pro-vaxxer. The difference between the amounts that the respondents kept to themselves yields another measure of outgroup bias. Figure 5 reports the outgroup bias generated by this measure. Consistently with the first outgroup bias measure, we find that pro-vaxxers exhibit more outgroup bias

than anti-vaxxers. However, average outgroup bias levels are substantially lower in this case because the respondents' incentive to keep the money for themselves masks their outgroup bias, which is evident from the first outgroup bias measure.

Table A.2 provides summary statistics for our outgroup bias measures. The outgroup bias with the first measure displays both the strongest bias but importantly the highest variation, too. The outgroup bias measured by the alternative measure is even smaller than the outgroup bias measure with minimal identity, both in terms of magnitude and the amount of variation. This illustrates the role of selfishness on this measure, and it is the main reason for our focus on the first measure of outgroup bias in the following analysis regarding the political polarization and outgroup bias based on vaccination attitudes. Admittedly, our (only) measure for the endline bias is subject to selfishness, too. As this is not a threat to internal validity of the results regarding the effects of randomized treatments (between subject comparison where we rely on this measure only), we believe that our analysis provides conservative estimates for the effectiveness of these informational treatments reported in Section 3.3. We accepted the risk inherent to using such a conservative measure, as our desire to present a new, unfamiliar task for post-experimental measurement to participants in order to avoid anchoring or consistency bias has prevailed.

Figure 5: Outgroup bias based on vaccination attitudes: alternative measure



Notes: The figure depicts the outgroup bias shown by anti-vaxxers (pro-vaxxers) against pro-vaxxers (anti-vaxxers) measured using two allocation tasks, in which the respondents allocate 100 TL between themselves and either an anti- or a pro-vaxxer. The brackets correspond to the standard errors.

Political Polarization. Finally, we investigate how this observed political polarization

is associated with different levels of outgroup bias among the respondents. To do so, we use the beliefs of respondents about the political party their outgroup votes for. In other words, we ask anti-vaxxers which party they think the pro-vaxxers vote for and vice versa. Using this information, we identify polarized individuals in two ways. First, we consider any respondent who thinks that their outgroup votes for a different political party from their own as polarized. We call this *weak polarization* as voters are not uniformly and equally against all the other political parties – they might actually be sympathetic towards some. Second, we consider any respondent who votes for the ruling AKP and who believes that their outgroup votes for the main opposition party, CHP, and vice versa, as polarized. We call it *strong polarization*, as this is the main polarizing dimension in Turkey.

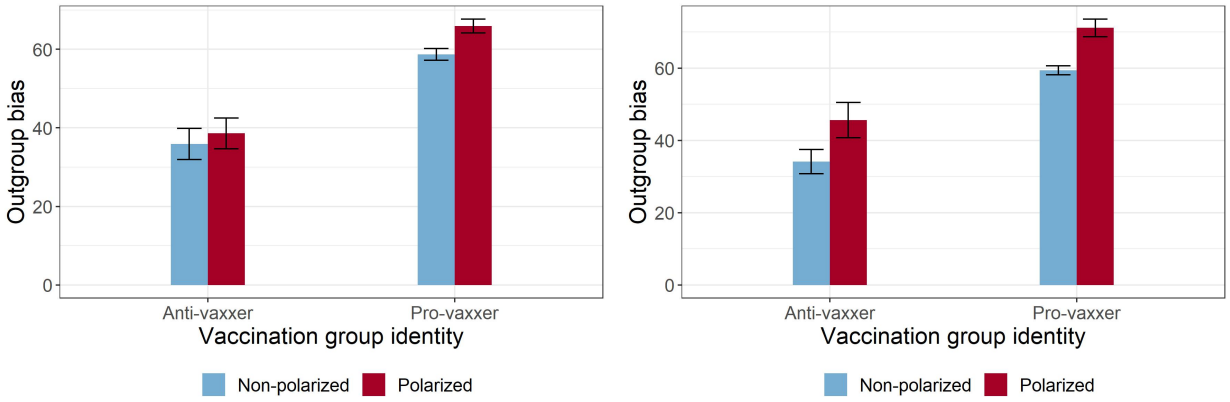
Figure 6 reports the associations between political polarization and outgroup bias based on vaccination attitudes. Under the weak polarization definition, we find that polarized pro-vaxxers, i.e., the pro-vaxxers who think that anti-vaxxers vote for a political party different from their preferred one, exhibit 12% more outgroup bias than non-polarized pro-vaxxers (right-hand side of Figure 6a, p-value of a comparison using t-test is 0.002). Polarized anti-vaxxers, on the other hand, do not statistically differ from non-polarized anti-vaxxers, although they exhibit 8% more outgroup bias than non-polarized anti-vaxxers (left-hand side of Figure 6a, p-value of a comparison using t-test is 0.62). The results get much stronger when the degree of political polarization increases due to focusing on the voters of the two major competing parties: AKP vs. CHP. Figure 6b shows that polarized pro-vaxxers exhibit 20% more outgroup bias than non-polarized pro-vaxxers (p-value of a comparison using t-test is < 0.001), while polarized anti-vaxxers show 33% more outgroup bias than non-polarized anti-vaxxers (p-value of a comparison using t-test is 0.055).

Overall, these findings corraborate the politicized nature of the Covid-19 pandemic, suggesting that political polarization adds another layer to the polarization layer based on vaccination attitudes. This combination however makes it difficult to overcome polarization evoked by the Covid-19 vaccine, which we investigate in the next section.

3.3 Randomized informational treatment

We finally explore the malleability of the outgroup discrimination based on vaccination attitudes using three informational treatments. Using a within-subject design, we randomly inform respondents about either (i) the death toll and health burden of the pandemic to the public (Health Info treatment), or (ii) the economic costs of the pandemic (Economic Info treatment), or (iii) the fatalities and displacements due to Russia's aggression against

Figure 6: Outgroup bias based on vaccination identity and political polarization



(a) Weak polarization

(b) Strong Polarization

Notes: The figure depicts the outgroup bias shown by anti-vaxxers (pro-vaxxers) against pro-vaxxers (anti-vaxxers) measured using a third-party money allocation task, in which anti- and pro-vaxxers allocate 100 TL between an anti- and a pro-vaxxer. Panel (a) and (b) report breakdowns of outgroup bias by anti- and pro-vaxxers, respectively, based on their status in weakly- and strongly-defined polarization. Weakly-polarized indicates the respondents who believe their outgroup vote for a different political party from theirs. Strongly-polarized indicates the respondents who believe their outgroup votes for *AKP* (*CHP*) if they voted for *CHP* (*AKP*). The brackets correspond to the standard errors.

Ukraine, mentioning that Turkey implemented the Montreux Straits Convention to communicate how Turkey is affected by the conflict (War Info treatment). We report the balance table for covariates and regression results regarding whether the covariates predict the treatment arms, respectively, in Table A.3 and A.4.

We measure post-treatment outgroup bias in vaccination attitudes using two modified public goods games (see Section 2.3). The difference between the allocated amounts to anti- and pro-vaxxers in the two games yields the post-treatment outgrup bias in vaccination attitudes. To estimate the effects of informational treatment on outgroup bias, we compare respondents who receive informational treatment to a control group that has not been treated with any kind of information. Econometrically, we estimate the following specification:

$$\text{Post-treatment outgroup bias} = \beta_0 + \beta_1 \cdot D_i + \beta_2 \cdot \mathbf{Z}_i + \psi_i, \tag{3}$$

where D_i indicates the type of informational treatment received by participant i. The reference level of this variable is chosen as the control group. $\mathbf{Z}_i$ is again a battery of controls including education and income level of the respondents, and their gender and age. The first two models in Table 1 present the main treatment effect. In the last two models, we

interact the treatment variable D_i with the pro-vaxxer indicator to investigate heterogeneous treatment effects. In all regressions, we control for regional fixed effects (NUTS-1 level) and also cluster the standard errors at this regional level. To account for multiple hypothesis testing, we adjust the p-values by computing the sharpened False Discovery Rate (FDR) q-values (Anderson, 2008).

Our results indicate that all of our treatments have a statistically significant effect on the endline bias. More specifically, all of our treatments reduce endline outgroup bias significantly, with the War Info treatment being slightly more effective. Subjects who are reminded of Russia's aggression against Ukraine and its implied effect on Turkey have a significantly lower endline outgroup bias, 5.6 TL or 26% less compared to the control group. The Economic and Health Info treatments also reduce the endline outgroup bias, albeit to a slightly smaller extent. The finding that the latter treatments also reduce the endline bias strengthens the view that a reminder of the presence of an external threat (be it conflict between states or a pandemic) might mitigate outgroup discrimination based on vaccination attitudes.[21]

Table 1: OLS estimates of treatment effects on endline bias

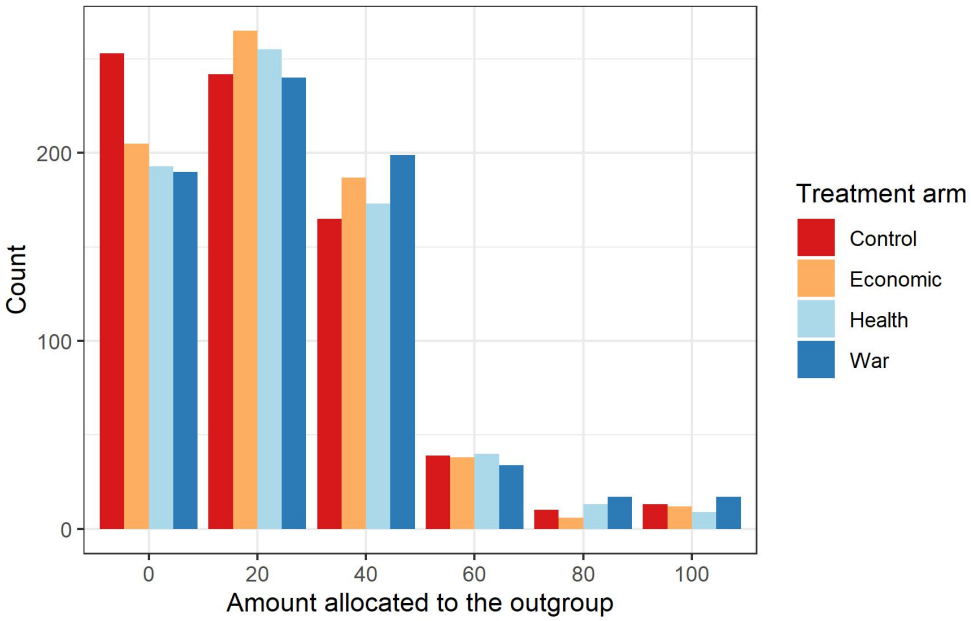
	Dept. Var.: Endline bias			
	Model 1	Model 2	Model 3	Model 4
Economic	−3.080*	−3.022*	−2.723*	−2.641*
	(1.540)	(1.475)	(1.463)	(1.379)
Health	−3.589***	−3.288***	−3.068**	−2.776**
	(1.112)	(0.976)	(1.258)	(1.129)
War	−4.557***	−4.359***	−5.155***	−4.991***
	(1.371)	(1.383)	(1.284)	(1.208)
Economic*Anti-vaxxer			0.843	0.551
			(3.855)	(3.780)
Health*Anti-vaxxer			−0.659	−0.898
			(3.822)	(3.984)
War*Anti-vaxxer			5.745**	5.638*
			(2.560)	(2.677)
Control mean	21.75	21.75	21.75	21.75
Controls	No	Yes	No	Yes
Num.Obs.	2815	2815	2815	2815

Notes: The table reports the estimates from OLS regressions of the endline bias. *Economic, Health*, and *War* are indicator variables for the different treatment arms. Control variables include education level, income, sex, and age. All regressions control for the regional fixed effects. The standard errors are clustered at the regional level. P-values are corrected for multiple testing and indicate sharpened False Discovery Rate (FDR) q-values. The missing values of control variables are imputed using predictive mean matching. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

[21] Our treatments could actually have induced other effects besides that of a reminder of large-scale external threats as well. For example, they could have triggered thinking about societal inequalities more generally, or have led to a reduction of the salience of the pandemic in the case of the War Info treatment.

Next, we zoom in on the allocated amounts to outgroup and ingroup members in the endline experimental task. Figures 7 and A.5 show the histogram of amounts allocated, respectively, to outgroups and ingroups, across treatment arms. Figure 7 suggests that, compared to the control group, treated respondents are more likely to allocate 20 or 40 TL rather than 0 TL to their outgroup. Therefore, the reported treatment effects likely differ on the intensive margin rather than the extensive margin. Figure A.5 in the Appendix shows that the treatments do not shift allocations to ingroups as much.

Figure 7: Histogram of allocation to the outgroup in the endline task



Notes: The histograms show the amounts allocated to the outgroup members conditional on treatment arms in the endline experimental task.

We finally investigate whether the treatment effects are heterogreneous across two groups: anti- and pro-vaxxers. Our regression results show that pro-vaxxers are more responsive to the War Info treatment compared to anti-vaxxers (Model 3 in Table 1). In other words, pro-vaxxers that are treated with War Info display an on average 5.7 TL lower reaction to the treatment in reducing their outgroup bias compared to anti-vaxxers treated with the same information. This illustrates that the main effect is driven predominantly by the pro-vaxxers, who seem to "reduce the punishment" of the anti-vaxxers in light of an independent threat to the society as a whole; anti-vaxxers, in turn, do not react much to the War Info treatment. We do not find any heterogeneous effects for the other two treatments. The

corresponding interaction estimates are comparably small and statistically not significant. Interestingly, though, and perhaps in line with intuition is that the coefficient for the anti-vaxxers is largest in the HEALTH INFO treatment, meaning that they reduce their outgroup discrimination by the largest degree when reminded of the massive health burden that the pandemic caused. Yet, as differences are not significant, we do not want to overintrepret this aspect.

Overall, these results show that outgroup bias is malleable through informational treatments. The reported treatment effects suggest that a reminder or priming of external threats which appeal to a social identity that is broadly shared across groups – independently of the pandemic as in the WAR INFO treatment or related to it as in the ECONOMIC and HEALTH INFO treatments – might be effective ways to mitigate outgroup discrimination.

4 Conclusion

The Covid-19 pandemic has posed unprecedented challenges for public health and social cohesion around the world. While vaccines offer a promising solution to end the crisis, their effectiveness depends on the willingness of people to get vaccinated. Yet, vaccination decisions are not only influenced by individual health considerations but also by social norms and political factors. In this paper, we have investigated how political affiliation and polarization predict vaccination attitudes and vaccination-related discriminatory behavior in a large-scale survey experiment with a national sample matching population benchmarks in key dimensions in Turkey. To interpret our results, we have used a social norm framework for vaccination attitudes, which focused on the conformers (pro-vaxxers) and violators (anti-vaxxers) of the social norm, and the interaction between the two groups.

We have first identified the characteristics of pro- and anti-vaxxers in our sample and have shown that political affiliation is a strong predictor of vaccination intentions even after controlling for other socio-demographic variables. We have then used standard economic games to measure the extent of outgroup discrimination between the two groups. We have found that pro- and anti-vaxxers discriminate against each other substantially, and the former even more than the latter. Moreover, we have shown that this polarization is larger when pro- and anti-vaxxers perceive a political difference between them and smaller when they perceive a political similarity. These results suggest that social norms regarding vaccination and their enforcement are linked to political affiliations and polarization even during a health crisis as severe as Covid-19.

Finally, we have explored the potential of informational treatments to mitigate the outgroup bias caused by the vaccines. We have randomly exposed our respondents to messages that remind of external threats through either a war or a pandemic, appealing to a common social identity, before measuring outgroup discrimination for the second time. We have found that this promotion of a common social identity reduces the outgroup bias between pro- and anti-vaxxers to the largest degree when done in a way independent of the pandemic, while the information on the public health burden of the pandemic has milder effects. Yet, the strong effect of the War Info treatment is driven mainly by the pro-vaxxers, who reduce their punishment strongest in that case, while the other two treatments have homogeneous effects for both groups. These results suggest that fostering a sense of shared belonging and solidarity is a promising avenue for overcoming the polarization in vaccination attitudes and behaviors. Of course, other mechanisms might have been at play as well, such as a reduction of the salience of the pandemic in the case of the War Info treatment. Moreover, further work is required on the strength of various mechanisms at play as such an intervention might also reduce the effectiveness of vaccination as a social norm. Hence, it would require further work on the strength of the potentially conflicting mechanisms to evaluate whether emphasizing shared identities from the start would increase vaccination rates. One path in this regard is to disentangle the reasons behind positive vs hesitant behavior with respect to vaccines. Would pro-vaxxers still be vaccinated if they did not perceive vaccination as a norm? Would anti-vaxxers behave less groupy and be willing to consider being vaccinated if they felt less threatened by the norm status (and the related retaliation) of vaccines? Teasing out such isolated effects necessitates a careful design of hypothetical scenarios and interventions, but has the promise of unraveling the dynamics of this complex setting for the benefit of the society.

Our findings have important implications for designing effective public health campaigns and promoting social harmony in the context of a global pandemic. Our paper contributes to the literature on social norms, political polarization, and vaccination behavior by providing novel evidence from a large-scale survey experiment in a politically polarized setting. We hope that our paper will stimulate further research on the social and political aspects of vaccination decisions and encourage policy makers to adopt strategies that leverage social norms and identities to increase vaccine uptake and reduce polarization.

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A Appendix

A.1 Background and Institutional Setting

The waves of the pandemic in Turkey displayed patterns similar to those across the European Union, but at slightly lower magnitudes due to Turkey's relatively younger population (see Appendix Figures A.2 and A.3).[22] Counter-measures of the government ranged from local curfews to national level lock-downs in response to different waves of the pandemic, again, similar to the varying degree of strictness of the measures for example in Germany, as Figure A.1 shows.[23] As vaccination became nationally available in Summer 2021, social distancing measures were gradually relaxed and by May 2022 when we started our survey, 85 percent of the adult population had received their second shots of vaccination (KONDA, 2022) and the restrictions were mostly removed (Associated Press, 2022). As such, the life had almost returned to normal by the time our survey was conducted.

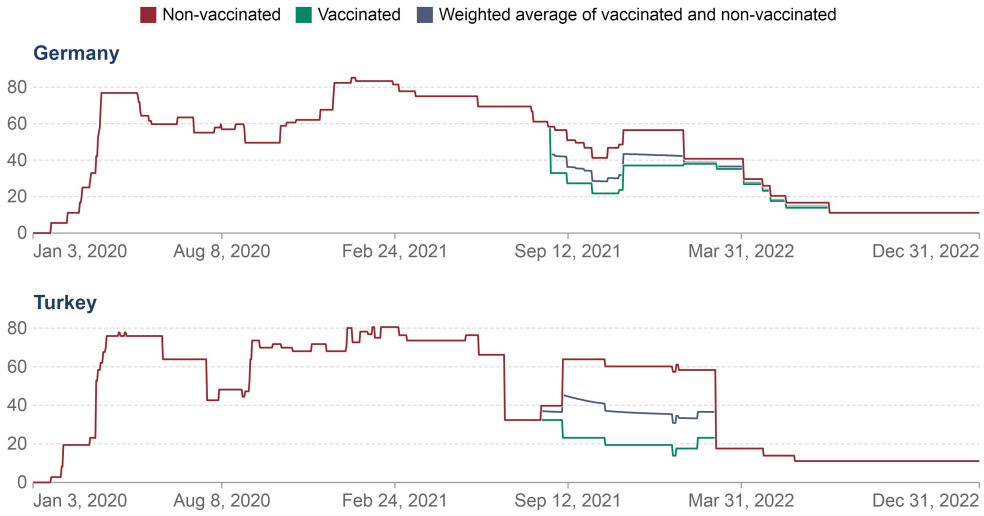
The pandemic hit the Turkish economy when it was already experiencing a slowdown, resulting in a sharp contraction worsened by subsequent lockdown measures. The employment rate dropped to a 10-year low of 40.4 percent in April 2020, and domestic production shrank by 10.3 percent in the second quarter of that year. To mitigate the economic impact, the government introduced an economic stimulus package focused on supporting firms through tax breaks, financial aid, and employment-related measures. With the help of the national vaccination program and loose monetary policies, the economy experienced a strong recovery. Annual growth rates were 1.8 percent in 2020, 11 percent in 2021, and 5.6 percent in 2022, but inflation reached a record high of 73.6 percent in May 2022. Unemployment also decreased from its peak of 14.2 percent in July 2020 to an average of 10.4 percent in June 2022 (Turkish Statistical Institute, 2023). Therefore, the negative economic effects of the pandemic were already partly mitigated when we have run our survey experiment.

In terms of political polarization, Turkey is recognized as one of the most politically and socially polarized countries, with polarization evident in political parties, voter preferences, and social distrust (Erdoğan, 2016; Erdoğan and Semerci, 2018; Aydın-Düzgit and Balta,

[22] There have been suspicions regarding a possible under-reporting of the cases in official numbers from the very beginning (see for example Adiguzel et al., 2020; Laebens and Öztürk, 2022), however the alternative measures, such as excess deaths in Istanbul, have shown similar characteristics in terms of the timing of the waves of the pandemic.

[23] During the first wave from March to June 2020, the government closed schools, restricted travel, and imposed a curfew on weekends. In the second wave, which occurred between November 2020 and March 2021, the government implemented a partial curfew and restricted intercity travel. During the third wave from April to July 2021, the government implemented a full national-level lockdown, closing non-essential businesses and instituting a curfew.

Figure A.1: Stringency Index of Covid-19 Measures, Turkey and Germany, 2020-2022



Notes: The stringency index is a composite measure based on nine response indicators including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100 (100 = strictest) (Hale et al., 2021).

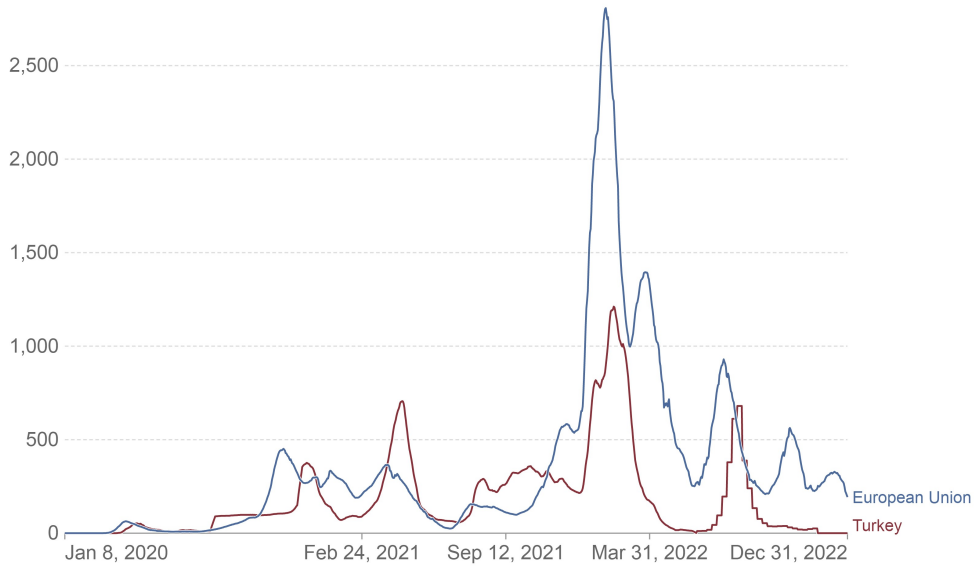
2019).[24]

Regarding the COVID-19 pandemic though, the Turkish government acted in a rather technocratic way, avoiding any attempts to politicize the crisis or frame it within populist narratives. Analyzing President Erdogan's speeches throughout the pandemic, Laebens and Öztürk (2022) shows that he refrained from linking the pandemic to any perceived conflicts as some other populist leaders, such as Bolsonaro, did. Instead, Erdogan framed it as a global health crisis, acknowledging it as "the biggest crisis humankind was faced with in modern times". This approach, coupled with a narrative of success, initially boosted Erdogan's approval ratings. Although these ratings decreased later as the government's handling of the crisis became inconsistent, many Turkish citizens, including some in the opposition, still considered the government's COVID-19 policies successful by the end of 2021 (Laebens and Öztürk, 2022).

[24]In 2015, Turkish politics was the most polarized among the thirty-eight countries included in the Comparative Study of Electoral Systems (CSES) data (Erdoğan and Semerci, 2018). More recently, Erdoğan (2016) and Laebens and Öztürk (2021) suggest alarming levels of polarization in 2016 and 2018, respectively. V-Dem dataset also lists Turkey as one of the most politically polarized countries (Coppedge et al., 2023; Pemstein et al., 2023).

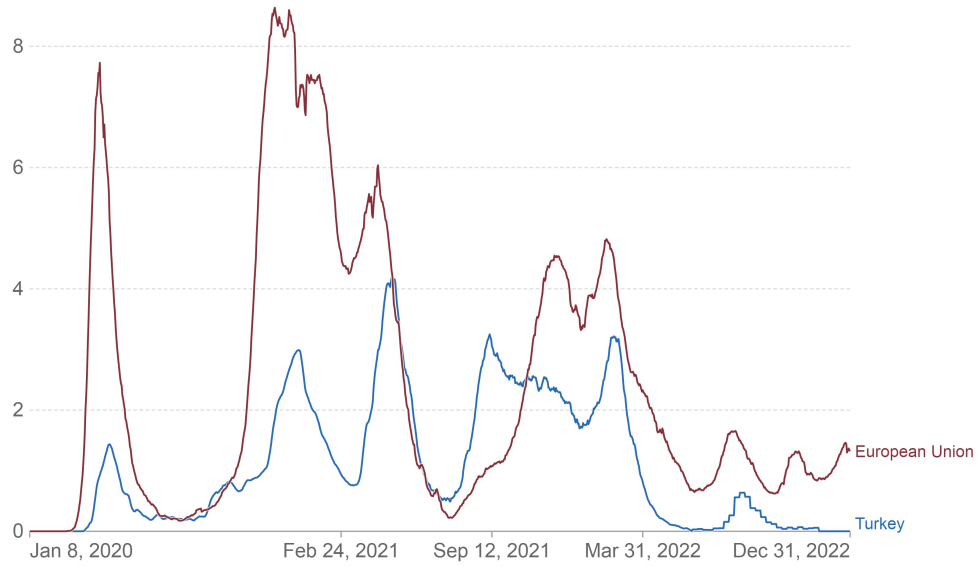
A.2 Figures

Figure A.2: Daily New Confirmed Covid-19 Cases (per million people, 7-day rolling average), Turkey and European Union, 2020-2022



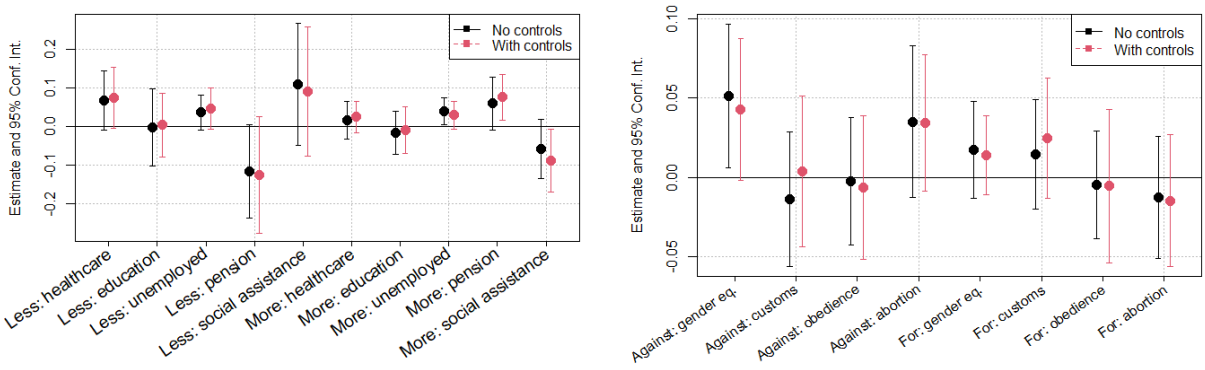
Source: World Health Organization, 2023.

Figure A.3: Daily New Confirmed Covid-19 Deaths (per million people, 7-day rolling average), Turkey and European Union, 2020-2022



Source: World Health Organization, 2023.

Figure A.4: Predictors of anti-vaxxers: economic and social policy preferences

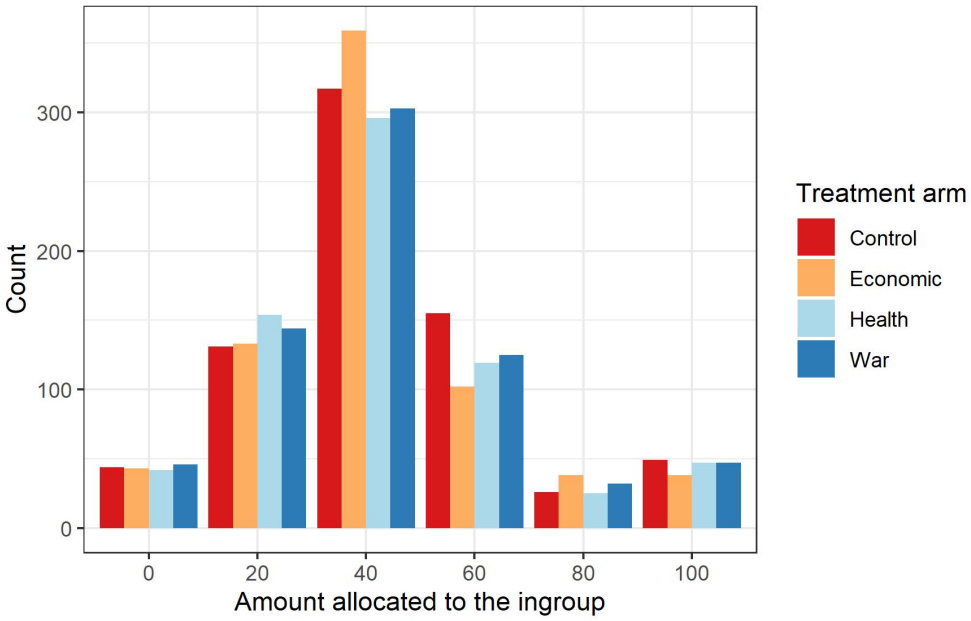


(a) Government spending

(b) Social policies

Notes: Panel (a) and (b) plot the coefficients estimates obtained from the OLS regressions of identifying with anti-vaxxer on preferences in government spending in Panel (a) and preferences in social policies in Panel (b), controlling only for NUTS-1 fixed effects in the *No controls* specifications and controlling for education, income, gender, age, and NUTS-1 fixed effects in the *With controls* specifications. In Panel (a), the baseline level for each type of spending is *Same as now*. The levels with *Less:* and *More:* then indicate the contrasts with this reference level. In Panel (b), the baseline level for each policy preference is indifference. The levels with *Against:* and *For:* then indicate the contrasts with this reference level. 95% confidence intervals are based on the standard errors clustered at the NUTS-1 level.

Figure A.5: Histogram of allocation to the ingroups in the endline task



Notes: The histograms show the amounts allocated to the ingroup members conditional on treatment arms in the endline experimental task.

A.3 Tables

Table A.1: Descriptive statistics

Variable	N	Mean	Median	Sd	Min	Max
Vaccination attitudes	2815					
... Anti-vaxxer	554	0.2				
... Pro-vaxxer	2261	0.8				
At least 2 doses of vacc.	2815	0.82	1	0.39	0	1
Female	2815	0.51	1	0.5	0	1
Age	2815	35	34	12	18	89
Education	2784					
... college or above	1356	0.49				
... high school	1142	0.41				
... primary school	270	0.1				
... primary school drop	16	0.01				
Monthly income	2494					
... 0-4000TL	923	0.37				
... 4000-8000TL	1057	0.42				
... 8000-12000TL	332	0.13				
... 12000-16000TL	90	0.04				
... 16000-20000TL	40	0.02				
... 20000TL+	52	0.02				
Party voted	2182					
... AKP	764	0.35				
... CHP	814	0.37				
... HDP	77	0.04				
... IYIP	313	0.14				
... MHP	165	0.08				
... SP	49	0.02				
Region (NUTS1)	2815					
... Akdeniz	376	0.13				
... Bati Anadolu	314	0.11				
... Bati Karadeniz	153	0.05				
... Bati Marmara	128	0.05				
... Dogu Karadeniz	77	0.03				
... Dogu Marmara	276	0.1				
... Ege	386	0.14				
... Guneydogu Anadolu	235	0.08				
... Istanbul	521	0.19				
... Kuzeydogu Anadolu	60	0.02				
... Orta Anadolu	150	0.05				
... Ortadogu Anadolu	139	0.05				

Notes: The reported statistics describe the study sample in terms of socio-economic and -demographic characteristics. *NUTS1* corresponds to the *Nomenclature of Territorial Units for Statistics*.

Table A.2: Summary Statistics of outcomes

Variable	Mean	Median	Sd	Min	Max
Outgroup bias	56	60	50	-100	100
Minimal ID bias	23	20	46	-100	100
Outgroup bias (alternative measure)	19	20	28	-100	100
Endline bias	19	20	26	-100	100

Notes: The table reports the summary statistics of our outcome variables. The construction of these outcomes are described in Section 2.

Table A.3: Balance table

Treatment arm	Control			Econ.			Health			War		
Variable	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Vaccination attitudes	722			713			683			697		
... Anti-vaxxer	118	16%		150	21%		133	19%		153	22%	
... Pro-vaxxer	604	84%		563	79%		550	81%		544	78%	
At least 2 doses of vacc.	722	0.85	0.35	713	0.81	0.39	683	0.8	0.4	697	0.79	0.41
Female	722	0.5	0.5	713	0.51	0.5	683	0.52	0.5	697	0.5	0.5
Age	722	35	12	713	35	12	683	34	12	697	34	12
Education	715			705			679			685		
... college or above	359	50%		332	47%		338	50%		327	48%	
... high school	278	39%		286	41%		274	40%		304	44%	
... primary school	74	10%		82	12%		63	9%		51	7%	
... primary school drop	4	1%		5	1%		4	1%		3	0%	
Monthly income	641			642			596			615		
... 0-4000TL	232	36%		245	38%		224	38%		222	36%	
... 4000-8000TL	264	41%		253	39%		277	46%		263	43%	
... 8000-12000TL	96	15%		95	15%		55	9%		86	14%	
... 12000-16000TL	26	4%		24	4%		20	3%		20	3%	
... 16000-20000TL	9	1%		13	2%		9	2%		9	1%	
... 20000TL+	14	2%		12	2%		11	2%		15	2%	
Party voted	556			558			525			543		
... AKP	181	33%		207	37%		191	36%		185	34%	
... CHP	205	37%		206	37%		184	35%		219	40%	
... HDP	24	4%		18	3%		22	4%		13	2%	
... IYIP	80	14%		73	13%		81	15%		79	15%	
... MHP	58	10%		40	7%		34	6%		33	6%	
... SP	8	1%		14	3%		13	2%		14	3%	
Region (NUTS1)	722			713			683			697		
... Akdeniz	96	13%		83	12%		106	16%		91	13%	
... Bati Anadolu	87	12%		77	11%		72	11%		78	11%	
... Bati Karadeniz	29	4%		40	6%		43	6%		41	6%	
... Bati Marmara	38	5%		25	4%		38	6%		27	4%	
... Dogu Karadeniz	20	3%		21	3%		14	2%		22	3%	
... Dogu Marmara	82	11%		60	8%		62	9%		72	10%	
... Ege	84	12%		110	15%		103	15%		89	13%	
... Guneydogu Anadolu	64	9%		55	8%		54	8%		62	9%	
... Istanbul	128	18%		133	19%		125	18%		135	19%	
... Kuzeydogu Anadolu	20	3%		21	3%		11	2%		8	1%	
... Orta Anadolu	38	5%		45	6%		29	4%		38	5%	
... Ortadogu Anadolu	36	5%		43	6%		26	4%		34	5%	

Notes: The reported statistics describe the study sample in terms of socio-economic and -demographic characteristics across treatment arms. *NUTS1* corresponds to the *Nomenclature of Territorial Units for Statistics*.

Table A.4: Balance regression

	Treatment arm			
	Control	Economic	Health	War
At least 2 doses of vacc.	0.069**	−0.004	−0.031	−0.034
	(0.028)	(0.028)	(0.027)	(0.028)
Female	−0.004	0.005	0.014	−0.015
	(0.020)	(0.020)	(0.020)	(0.020)
Age	0.001	0.001	−0.001	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)
CHP voter	0.024	−0.026	−0.024	0.027
	(0.024)	(0.024)	(0.023)	(0.024)
HDP voter	0.081	−0.050	0.063	−0.094
	(0.058)	(0.058)	(0.056)	(0.057)
IYIP voter	0.023	−0.062**	0.014	0.026
	(0.031)	(0.032)	(0.031)	(0.031)
MHP voter	0.111***	−0.063	−0.014	−0.033
	(0.040)	(0.041)	(0.039)	(0.040)
SP voter	−0.052	0.020	0.043	−0.011
	(0.068)	(0.069)	(0.067)	(0.068)
Region FE	Yes	Yes	Yes	Yes
Num.Obs.	1937	1937	1937	1937
R2	0.020	0.011	0.017	0.017
F	1.457	0.779	1.191	1.204

Notes: The table reports the results obtained from the OLS regression of treatment arm indicator on covariates. All models control for regional fixed effects. The F row reports the F-statistic of the models and stars indicate the statistical significance of the corresponding F-statistic. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.5: Relationship between outgroup bias based on minimal identity and vaccination attitudes

	Outgroup bias (in vaccination attitudes)	
	(1)	(2)
Outgroup bias (minimal ID)	0.062**	0.068**
	(0.023)	(0.025)
Controls	No	Yes
Num.Obs.	2809	2478
R2	0.011	0.028

Notes: The table reports the results obtained from the OLS regression of outgroup bias in vaccination attitudes, measured by a third-party money allocation task in which anti- and pro-vaxxers allocate 100 TL between an anti- and a pro-vaxxer, on outgroup bias with minimal identity based on birth month. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

A.4 Questionnaire

A.4.1 Pre-Treatment Questionnaire (Translated from Turkish)

- How safe do you think vaccines against Covid-19 are? [4 options from "absolutely not safe" to "absolutely safe"; no opinion]
- We define people in the community who distrust and oppose the vaccines developed against Covid-19 as **anti-vaxxer**, and those who trust and support the vaccines as **pro-vaxxer**.

  According to this definition, which of the following describes you best? [4 options from "I am strongly anti-vaccine" to "I am definitely in favor of vaccination"; no opinion]
- What is your Covid-19 vaccination status? ["I have not been vaccinated", "1 dose", ..., "5 doses", "I don't want to answer"]
- [If vaccinated] Which of the following was your first [second, third, ..., fifth] dose of vaccine? ["CoronaVac (Sinovac)", "Pfizer-BioNTech", "TURKOVAC"]
- [If vaccinated] When did you receive your first dose of vaccine? [January 2021, February 2021, ..., April 2022]
- How much do you think the Covid-19 pandemic will affect life in Turkey next fall and winter? [4 options from "will not affect life at all" to "very large degree"; no opinion]
- Please mark the month you were born [January, ..., December]

A.4.2 Post-Experimental Questionnaire (Translated from Turkish)

Please indicate how much you trust or do not trust the following organizations or persons.

- Modern medicine [4 options from "I absolutely do not trust" to "I completely trust"; no opinion]
- Pharmaceutical industry [4 options from "I absolutely do not trust" to "I completely trust"; no opinion]
- The state [4 options from "I absolutely do not trust" to "I completely trust"; no opinion]
- The government [4 options from "I absolutely do not trust" to "I completely trust"; no opinion]

- People I don't know [4 options from "I absolutely do not trust" to "I completely trust"; no opinion]

- [If (strongly) anti-vaccine] Which of the following best explains why you oppose vaccines against Covid-19? ["Distrust of modern medicine", "Not trusting the state", "Not trusting the government", "Concerns about long-term side effects of vaccines", "Religious reasons"," Ongoing health problems", No opinion]

- [If (strongly) anti-vaccine] Most pro-vaccine people ["Extremely conservative", "Conservative", "Secular", "Extremely secular", No opinion]

- [If (strongly) anti-vaccine] Most pro-vaccine people are [AKP voters, CHP voters, HDP voters, Good Party voters, MHP voters, Saadet Party voters, Other, No opinion]

- [If (strongly) anti-vaccine] Most pro-vaccine people are [Well educated, Educated, Uneducated, No opinion]

- [If (strongly) anti-vaccine] Most pro-vaccine people [Very trusting in the state, Trusting in the state, Do not trust the state, Anti-state, No opinion]

- [If (strongly) pro-vaccine] Which of the following best describes your views about people who oppose vaccines against Covid-19? ["I think these people are not educated enough", "I am afraid that these people will infect me or my loved ones", "I think that these people have prolonged the pandemic and delayed the return to normal life", "I think that these people's distrust of Covid-19 vaccines should be considered within the scope of personal freedoms", No opinion]

- [If (strongly) pro-vaccine] Most anti-vaccine people ["Extremely conservative", "Conservative", "Secular", "Extremely secular", No opinion]

- [If (strongly) pro-vaccine] Most anti-vaccine people [AKP voters, CHP voters, HDP voters, Good Party voters, MHP voters, Saadet Party voters, Other, No opinion]

- [If (strongly) pro-vaccine] Most anti-vaccine people [Well educated, Educated, Uneducated, No opinion]

- [If (strongly) pr-vaccine] Most anti-vaccine people [Very trusting in the state, Trusting in the state, Do not trust the state, Anti-state, No opinion]

In this part of the survey, we will ask for your opinions on daily events and the government's policies on these events.

- The Covid-19 pandemic has posed a very serious threat to human health. [5 options from "Strongly disagree" to "Strongly agree"]
- The Covid-19 pandemic has hit the country's economy very hard. [5 options from "Strongly disagree" to "Strongly agree"]
- The Russian-Ukrainian war has created a very serious danger for Turkey and other neighboring countries. [5 options from "Strongly disagree" to "Strongly agree"]
- What do you think about the government's health policies during the pandemic? [5 options from "Absolutely successful" to "Absolutely unsuccessful"]
- What do you think about the government's economic policies against the economic impact of the pandemic? [5 options from "Absolutely successful" to "Absolutely unsuccessful"]
- What do you think about the government's foreign policy regarding the Russia-Ukraine war? [5 options from "Absolutely successful" to "Absolutely unsuccessful"]

Public Policy Choices: In this section, we will ask you whether you would prefer to increase or decrease some public expenditures.
We would like to point out that an increase in public spending is covered by an increase in tax rates. On the other hand, a decrease in public expenditure means a decrease in the quantity or quality of public services provided to you.

(You can go to the next screen in 5 seconds).

- Amount of public spending on a **free health system** compared to what is currently being spent [5 options from "Should be much more" to "Should be much less"]
- Amount of public spending on **free education** compared to what is currently being spent [5 options from "Should be much more" to "Should be much less"]
- Amount of public spending on **unemployment benefit** compared to what is currently being spent [5 options from "Should be much more" to "Should be much less"]
- Amount of public spending on **pensions** compared to what is currently being spent [5 options from "Should be much more" to "Should be much less"]

- Amount of public spending on **social assistance for the elderly, disabled and poor citizens** compared to what is currently being spent [5 options from "Should be much more" to "Should be much less"]
- Please indicate which of the following different views you are closer to.
  - [5 options from "The welfare of the people is the responsibility of the state." to "People are responsible for their own well-being."]
  - [5 options from "Income inequality should be reduced." to "Income inequality can be justified."]
- Many people consider both **their personal freedoms** – the freedom to live, believe and speak as they wish – and their **personal security** to be very important.

  If you had to choose between freedoms and security, which would you consider more important? [Security, Freedoms]
- "Men make **better managers** than women." [5 options from "Strongly agree" to "Strongly disagree"]
- "It is a good thing for a country **if everyone** in it **shares the same traditions and customs**." [5 options from "Strongly agree" to "Strongly disagree"]
- How important do you think **obedience** is as a characteristic of a child? [5 options from "Very important" to "Not important at all"]
- Which of the following best describes your views on **homosexuality**? [5 options from "Absolutely unacceptable" to "Definitely within the scope of freedoms"]
- Which of the following best describes your views on **abortion**? [5 options from "Absolutely unacceptable" to "Definitely within the scope of freedoms"]
- Do you think the state should have the right to **monitor people in public spaces with surveillance cameras**? [4 options from "Absolutely must" to "Absolutely not"]

In this last part of our survey, we will ask you some questions about your demographic and socio-economic status.
As in the other sections, the information you provide in this section will always remain anonymous and will only be used in scientific studies. You can still leave the questions you are uncomfortable answering blank and move on to the next question.

- What is your birth year?
- What is your gender? [Male, woman, other]
- What is your marriage status? [Married, single]
- In which province do you reside? [81 provinces in Turkey]
- How many dependents do you have? [0, 1, 2, more than 2]
- How many elderly people do you care for? [0, 1, 2, more than 2]
- Which of the following is the last level of education you completed? [Primary school dropout, primary school, middle school, high school, university undergraduate, university master's degree, university doctorate]
- What is your current employment status? [Full-time employee, part-time employee, self-employed, unemployed and looking for work, student, unemployed but not looking for a job, retired]
- What is your mother tongue? [Turkish, Kurdish, Arabic, Laz, Zazaki, Greek, English, German]
- Which of the following is your monthly net income? [Less than 4000 TL, 4000 TL to 8000 TL, 8000 TL - 12000 TL, 12000 TL - 16000 TL, 16000 TL - 20000 TL, more than 20000]
- Which of the following reflects your religious view? [Muslim - Sunni, Muslim - Alevi, Muslim - Shia, Muslim - Alawite, Christian - Orthodox, Christian - Catholic, Christian - Protestant, Atheist, Deist, Agnostic]
- How religious do you consider yourself? ["Very religious", "Somewhat religious", "I am not religious at all"]
- Which of the following ethnic groups do you belong to? [Turk, Kurdish, Arab, Zaza, Laz, Circassian, Georgian, Bosniak]
- If there was an election next Sunday, which of the following political parties would you vote for? [Justice and Development Party (AKP), Republican People's Party (CHP), Peoples' Democratic Party (HDP), Nationalist Movement Party (MHP), Good Party (İYİP), Turkish Labor Party (TİP), Felicity Party (SP), Hometown Party (Muharrem

Ince), Democratic Party (DP), Zafer Party (Ümit Özdağ), Grand Union Party (BBP), Democracy and Progress Party (DEVA), Future Party, Motherland Party (ANAP), Democratic Left Party (DSP), Independent Turkey Party (BTP), Vatan Party (VP)]

- How interested are you in politics? ["I am very interested", "I'm a little interested", "Not interested", "Not interested at all"]

A.5 Instructions (Translated from Turkish) and Sequence of the Study

Consent Form

This survey is conducted jointly by researchers from Boğaziçi University and the Max Planck Institute (MPI) in Bonn as part of a scientific research project funded by the MPI.

In this study you will be asked some questions about your political views, preferences, religious beliefs, ethnicity and socio-economic status. The data collected will be anonymized and used only in this way in a scientific study of human behavior. The researchers conducting the study will not have access to any other information about you other than the information you provide in this questionnaire. The data collected in this study can only be published anonymously on a public platform. You can withdraw your consent to participate in this study at any time by contacting the Max Planck Institute. You may receive some monetary rewards in this study. The amount of your reward depends on the choices you and other participants make in this survey. Both this study and the resources that fund it are dedicated to basic science.

- I accept
- I do not accept

Basic Instructions

In this questionnaire, we will ask you about your preferences for different public policies, your opinion on vaccines against the Covid-19 (Corona) virus and some socio-demographic questions. In addition, we will provide you with brief information about the Covid-19 pandemic or some current events. You will also take part in some small games where you can earn money. When you reach the relevant part of the survey, you will be given detailed information about the rules for earning money.

The information you provide in this survey will always remain anonymous and will only be used for scientific studies. Nevertheless, you can leave the questions you are uncomfortable answering blank and move on to the next question.

Pre-Experimental Questionnaire

See the previous Section A.4.1 for the Pre-Experimental Questionnaire.

Information about the monetary rewards that can be won from the allocation questions

In this survey, there are **6 allocation questions for which you can win a cash prize in addition to your usual participation fee**. You will answer four of these questions after you have passed this screen. The other two allocation questions with monetary rewards will appear later in the survey.

Information about the reward you may win in addition to the survey participation fee for answering these cash prize questions is provided on the next page, please read it carefully.

(You can move to the next screen in 10 seconds).

At the end of the survey, a lottery will be held among the participants and **1 out of every 10 participants will be selected for the additional monetary reward**. In other words, there is a 10% chance that you will be selected.

In this survey you have two different ways to win this extra cash prize:

- If you are selected by lottery, one of the allocation questions you have answered will be randomly selected and **you will be paid the amount resulting from your decision on this question as an additional reward.**
- Some questions involve paying money to randomly selected participants other than yourself.

If one of your matched partners in these questions is selected by lottery and that person's randomly selected decision requires a payment to you, that payment will be made to you in the amount resulting from the decision made by your partner.

You have the same chance of being selected as a result of the lottery as the person you are matched with.

So when making decisions on allocation questions, please remember that these decisions are likely to be implemented and try to make decisions that you would be happy to see implemented.

(You can move to the next screen in 10 seconds).

Pre-treatment allocation tasks

The next 4 questions ask you to divide 100 TL between two people you do not know, or between yourself and one person you do not know. You will also indicate **whether** the people you do not know are **pro- or anti-vaccine**. These people will be randomly selected from other people participating in this study who are in the same income group as you.

As with the rest of the survey, we would like to remind you that there are no right or wrong answers in this section. What is important for us is that you answer the questions according to your personal views and preferences.

You can allocate the 100 TL that will be given to you for each question as you wish. Remember that this amount is allocated to you separately for each question.

- How would you divide 100 TL between **a person you do not know** who participated in this study and **was born in [participant's birth month]** and **a person you do not know** who participated in this study and was **born in another month**?

  Options: [100 TL - 0 TL], [80 TL - 20 TL], [60 TL - 40 TL], [40 TL - 60 TL], [20 TL - 80 TL], [0 TL - 100 TL]

- How would you divide 100 TL between an **anti-vaccine person** you do not know who participated in this study and a **pro-vaccine person** you do not know?

  Options: [100 TL - 0 TL], [80 TL - 20 TL], [60 TL - 40 TL], [40 TL - 60 TL], [20 TL - 80 TL], [0 TL - 100 TL]

- How would you split 100 TL between **yourself and a pro-vaccine person** who participated in this study but whom you do not know?

  Options: [100 TL - 0 TL], [80 TL - 20 TL], [60 TL - 40 TL], [40 TL - 60 TL], [20 TL - 80 TL], [0 TL - 100 TL]

- How would you divide 100 TL between **yourself and an anti-vaccine person** who participated in this study but whom you do not know?

  Options: [100 TL - 0 TL], [80 TL - 20 TL], [60 TL - 40 TL], [40 TL - 60 TL], [20 TL - 80 TL], [0 TL - 100 TL]

Treatments

- **Community Health Impacts of the Covid-19 Pandemic**

  According to official statistics, the Covid-19 pandemic has so far claimed the lives of nearly 100,000 Turkish citizens and sickened around 15 million people.

  (You can go to the next screen in 5 seconds).

- **Economic Impacts of the Covid-19 Pandemic**

  The Covid-19 pandemic is estimated to have reduced total production in Turkey by around 20 percent in the last two years and caused nearly 3 million people to lose their jobs.

  (You can move to the next screen in 5 seconds).

- **Russia-Ukraine War:**

  It is estimated that 15 thousand people lost their lives in the first three weeks of Russia's aggression against Ukraine and nearly 3 million people were forced to migrate to other countries. During this war, Turkey implemented the Montreux Straits Convention.

  (You can move to the next screen in 5 seconds).

Post-Treatment Allocation Tasks

For the 2 questions in this section, you will be divided into groups of 2 people. **In one question you will be paired with an anti-vaccine person and in the other with a pro-vaccine person**. These people will be randomly selected from other people participating in this study whom you do not know, but who are in the same income group as you. The other person in your group will only be told whether you are **anti-vaccine or pro-vaccine**.

For each question, both participants in the group will be given 100 TL each and **you can send** any amount of this money **to the other person in your group**.

The amount you send will be multiplied by 2 by us and paid to the other person you are grouped with. The part of 100 TL that you do not send will remain with you.

The person you are grouped with will also decide how much of their 100 TL to send to you. This can be any amount between 0 and 100 TL. The amount sent to you will be multiplied by 2 by us and paid to you.

Therefore, your total earnings will be the sum of these two amounts: The amount you didn't send to your groupmate + 2 times the amount your groupmate sent to you.

(You can move to the next screen in 10 seconds).

Information about the monetary rewards that can be earned in the allocation questions:

As we mentioned earlier, once the survey is over, a lottery will be played out among the participants and **1 out of every 10 people who took the survey will be selected for the additional cash prize.** In other words, you have a 10% chance of being selected.

In this survey you have two different ways to win this extra cash prize:

- If you are selected by lottery, one of the allocation questions you have answered will be randomly selected and **you will be paid the amount resulting from your decision on this question as an additional reward.**
- Some questions involve paying money to randomly selected participants other than yourself.

If one of your matched partners in these questions is selected by lottery and that person's randomly selected decision requires a payment to you, that payment will be made to you in the amount resulting from the decision made by your partner.

You have the same chance of being selected as a result of the lottery as the person you are matched with.

So when making decisions on allocation questions, please remember that these decisions are likely to be implemented and try to make decisions that you would be happy to see implemented.

(You can move to the next screen in 10 seconds).

- In this question, your group consists of **you and a pro-vaccine person**.

  How much of your 100 TL would you like to send to this person?

- In the previous question you were paired with a **pro-vaccine person**.

  How much of your 100 TL do you think this **pro-vaccine** person sent you?

- In this question, your group consists of **you and an anti-vaccine person**.

  How much of your 100 TL would you like to send to this person?

- In the previous question you were paired with an **anti-vaccine person**.

  How much of your 100 TL do you think this **anti-vaccine** person sent to you?

Post-Experimental Questionnaire

See the previous Section A.4.2 for the Post-Experimental Questionnaire.