

**Pre-Analysis Plan:**  
Speaking Up For Their Rights: Reducing  
Anti-Transgender Discrimination in India

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# **1 Intro**

This project seeks to measure how anti-transgender discrimination is affected by information about transgender rights and group discussions about hiring transgenders.

## **2 Sample**

The total sample size will be approximately 3400. Participants will be recruited from up to 6 districts in Tamil Nadu. Participants in all treatment arms will be recruited in groups of 3. All members of a group will live in the same community, and be of the same gender. Same-gender groups make recruitment easier, and reduce the probability of a single (male) group member dominating a group discussion. The members of a group will carry out the survey simultaneously. Subjects will be recruited by enumerators using a number of strategies, including direct household canvassing and introductions from community leaders such as village panchayat heads and anganwadi center workers. Enumerators will be blind to treatment status while they are recruiting participants. The sample will include both men and women from urban areas, and will be limited to individuals who can read Tamil and are between the ages of 20 and 65.

## **3 Experimental design**

### **3.1 Methodology overview**

The main study takes place over the course of one session with the participant (the “main survey”). The purpose of the survey is to measure the effect of infor-

mation about transgender rights and participation in group discussions on the level of hiring discrimination against transgenders. To measure discrimination, participants will be shown a series of options for grocery deliveries that include a choice of worker. Their choice will determine which delivery option they receive for free in approximately 1 week's time. Approximately 1 week later, a member of the survey team will carry out this delivery and elicit a follow-up survey.

### 3.2 Treatments

There are two main treatment variations.

First, at the start of the main survey, participants are shown one of three different videos:

1. **Control video** - gives no information about transgender rights, and includes placebo information about voting rights in India
2. **Messaging video** - the participant is shown persuasive messaging, arguing that transgenders in India should have fundamental rights
3. **Law video** - the participant is shown a video that tells them that transgender people actually do have *legal* rights in India because of a Supreme Court ruling in 2014

All information is embedded in a longer video that discusses consumer and worker rights in the context of delivery services. This helps obfuscate the purpose of the video.

Then, participants take part in the first round of hiring ("Round 1"). In this round, they carry out a series of 4 incentivised choices over which delivery worker they would like to hire.

In round 1, participants are cross-randomised into one of two conditions:

1. **Discussion** - respondents take part in a discussion among their group of 3, in which they discuss which workers they prefer and why, and then make joint choices.
2. **No discussion** - round 1 is answered individually and in private.

In the main treatment arms, all participants in a group see the same video, yielding the following 6 arms, with approximately 300 individuals in each arm.

1. Control video + No Discussion
2. Messaging video + No Discussion
3. Law video + No Discussion
4. Control video + Discussion
5. Messaging video + Discussion
6. Law video + Discussion

After round 1 of hiring, participants carry out round 2 of hiring, in which they make 6 more choices of which delivery worker they would like to hire. Choices in round 2 are made individually and in private.

In total, across rounds 1 and 2, participants make 10 binary choices of delivery worker. Scratch-cards will be used to randomly select 1 of the 10 hiring choices to be implemented, so that the participant actually receives a delivery from the chosen worker 1 week later. To minimise risk to transgender workers, the randomisation will be designed so that choice pairs that include a transgender worker will be selected in less than 1% of cases. In the other cases, the randomisation will select pairs that include members of the team of enumerators as

workers.

**“High-stakes” condition.** For a subsample of 200 groups, approximately 50% of the sample in treatments 1-6 will be randomised into a “high-stakes” condition. In this condition, participants will be told that they will not only receive 1 delivery from their chosen worker, but instead will receive 3 deliveries from the same worker over the course of the following 3 months. This variation will be used to examine whether reducing the probability that participants engage in “cheap talk” or socially desirable behaviour affects the treatment effect size. For all main analyses that do not focus on this variation, I will pool the high-stakes and low-stakes conditions, and the subsample that was not randomised into either condition. I will separately analyse heterogeneity along these lines as a supplementary analysis.

**Stratification.** Randomization will be stratified by (i) participant gender, because because piloting demonstrated that gender was an important source of heterogeneity, and by (ii) the survey team that carries out the first survey. The survey team is used to stratify because it affects the hiring choices a participant sees. When a participant is making hiring choices, the pool of delivery workers she sees is composed of survey enumerators who will subsequently carry out the follow-up survey and delivery. To ensure impartiality, the enumerator conducting the initial survey will be excluded from the pool of potential delivery workers for that survey. Since the enumerator team that carries out the first survey affects the set of worker profiles the participant sees, the team is a source of heterogeneity and will therefore be used to stratify.

Randomization will be stratified by team using IDs that are specific to a (team  $\times$  participant-gender) combination. IDs are pre-randomized into each condition. Teams will descend through the list of IDs in the order in which they carry out

surveys. The list will be divided into blocks of IDs that contain all the treatment groups. The order of treatments within each block is randomly assigned. As long as each team completes a whole number of blocks of IDs, the treatments will be balanced within a given team-gender combination. Even if they do not complete a whole number of blocks, the treatments will be approximately balanced within a team.

## 4 Outcomes

### 4.1 Primary outcome

**Discrimination.** After round 1, participants will take part in round 2 of hiring. In this round, they will be faced with 6 binary choice-pairs, in which they choose a combination of delivery worker and items. The number of items offered by each worker will be randomly varied; sometimes one worker in a pair will offer more items than the other. In each pair, the “Benchmark” choice is always male, while the “Comparator” choice can be male, female, or transgender. Anti-trans discrimination is measured as the reduction in the probability that the Comparator is chosen when the Comparator is transgender.

The main specification for person  $i$  and worker pair  $j$  is:

$$\begin{aligned}
ChooseComparator_{ij} = & \beta(Discuss_i \times Trans_{ij}) \\
& + \theta_1(LawVideo_i \times Trans_{ij}) + \theta_2(MessagingVideo_i \times Trans_{ij}) \\
& + \gamma_1 Trans_{ij} + \gamma_2 Discuss_i + \gamma_3 LawVideo_i + \gamma_4 MessagingVideo_i \\
& + \mathbf{X}'_{ij}\Gamma_0 + (\mathbf{X}'_{ij}\Gamma_1 \times Trans_{ij}) + \lambda ComparatorLeft_{ij} \\
& + \pi_{s(i)} + (\pi_{s(i)} \times Trans_{ij}) + r_j + \varepsilon_{ij}
\end{aligned} \tag{1}$$

where:

- $Trans_{ij} = 1$  if the pair  $j$  shown to  $i$  includes a transgender individual, and is 0 if the pair  $j$  only includes cis-men or cis-women
- $Discuss_i = 1$  if  $i$  is in a group discussion, and 0 otherwise
- $LawVideo_i = 1$  if  $i$  sees the Law Video, and 0 otherwise
- $MessagingVideo_i = 1$  if  $i$  sees the Messaging Video, and 0 otherwise
- $\mathbf{X}_{ij}$  is a vector of controls, chosen following the strategy in Section 5.1. In this specification they are interacted with  $Trans_{ij}$  in order to control for differences in discrimination driven by observables.
- $ComparatorLeft_{ij}$  takes the value 1 when the comparator appears on the left of the screen in pair  $j$  shown to  $i$ , and 0 if it appears on the right of the screen
- $\pi_{s(i)}$  are stratum fixed effects, which are interacted with  $Trans_{ij}$  in this specification in order to control for stratum level differences in discrimination across all treatment groups
- $r_j$  denote pair-order fixed effects

The main treatment effects are measured by the coefficients  $\{\beta, \theta_1, \theta_2\}$ , which describe the changes in discrimination caused by the treatments.  $\gamma$  describes the baseline level of discrimination against transgenders in the hiring choices in the (*Control video, No discussion*) group.

In the main specification, I will only use the choices from round 2, and not use any choices from round 1 in the analysis. For *No Discussion* participants, I will test whether there is a significant difference in treatment effects between round 1 and round 2 decisions.

Since there is only one primary outcome, I will not adjust for multiple hypothesis testing for the discrimination measure.

## 4.2 Secondary outcomes

### *Discrimination:*

1. **Follow-up discrimination.** In the follow-up survey, respondents will be asked to choose delivery options for 6 choice-pairs. Unlike in the main survey, this choice will be explicitly hypothetical. I will use an analogous specification (based on equation 1) to analyse whether changes in discrimination persist after 1 week. For this analysis, I will drop the small subset of individuals who actually receive a delivery from a transgender individual.

### *Attitudes:*

1. **List experiment.** I will measure the proportion of people who agree with the statement “I would not want to have a conversation with a transgender person” using a double list experiment. Enumerators will read out two lists (A and B) that contain 6 non-sensitive statements about a participant’s preferences. The statement about transgenders will be randomly added to either list A or list B. Whether list A or list B is read first will also be randomised. For each list, enumerators ask how many statements in the list they agree with. I will analyse treatment effects using an OLS regression of the number of statements participants agree with on the interaction between treatment-dummies and a dummy indicating whether the trans statement is included in the list, controlling for list and list-order fixed effects, or individual fixed effects in an alternative specification.



I will test for the validity of the list experiment responses across the whole sample and only include the list experiment as a secondary outcome if the pattern of responses passes a validation check that makes use of the *double* list experiment set-up. Because there are two lists, I can calculate two separate estimates of the proportion of people who agree with the statement about transgenders: one for list A, and one for list B (Chuang et al., 2021). The results will be deemed invalid and not used as a secondary outcome if there are significant differences between the estimates from list A and list B.

2. **Disapproval of discrimination.** Participants will be presented with two scenarios depicting instances of discrimination against transgender individuals and will be asked to evaluate whether the discriminator's actions are acceptable or wrong. The first scenario will involve an employer rejecting a transgender applicant for employment, while the second scenario will involve a woman avoiding a transgender individual on the street. I will analyse the effects of the treatments using an OLS regression, using an indicator of whether the respondent said the choice was wrong as an outcome variable, using treatment dummies (one for each of the treatments) as explanatory variables, and controlling for scenario fixed effects.

*Norms:*

1. **Predicted choices (community).** Participants will make incentivised predictions of others' hiring choices. For 3 delivery option pairs, they will be told that 20 other people in their locality were shown those delivery-option pairs, and they have to estimate how many of those 20 picked one of the options (the option asked in the question is randomly selected from the pair). If they make the closest guess on average across all 3 pairs,

they will have a chance of winning a prize hamper. 2 of the 3 pairs will be male-to-male comparisons; the third pair will compare a male and a transgender. For analysis, the outcome variable will be the estimated proportion of the 20 individuals who selected the option on the side that the transgender worker appears, and the explanatory variable will be an interaction of the treatment dummies (one for each of the treatments) with a dummy indicating that the pair includes a transgender worker. I will control for whether the transgender worker appears on the left or right.

2. **Predicted choices (own group).** Participants will also make incentivised predictions of the hiring choices of the two other people in their group. For each of the two other group members, they will be asked to predict which option they chose for two choice-pairs. One choice-pair per person will compare a male and a transgender. If they correctly guess all 4 combinations they will be entered into a lottery to win a separate prize. For analysis, the outcome is whether they predict that their group member will choose the *Comparator* (as defined above), and the explanatory variables are treatment dummies (one for each of the treatments) interacted with whether the *Comparator* is transgender.

*Beliefs:*

1. **Beliefs about the law.** I will analyse whether three measures of people's beliefs about the law regarding transgenders are affected by the information videos:
  - (a) *Knowledge of law:* whether they say that they know about a law in India that relates to transgenders *and* correctly describe the rights they were given

- (b) *Discrimination is breaking the law*: whether they say that someone that hires a man over a better-qualified transgender individual is breaking the law

These will be combined into an index of beliefs about the law. This index will be regressed on treatment dummies for analysis.

*Discussion dynamics* (only for treatment groups 4-7, i.e., those with *Discussion*)

1. **Discussion discrimination.** In round 1, participants will make collective choices for who to hire in their groups of 3. As a primary analysis, I will analyse the treatment effects on these group choices using a specification analogous to equation 1. As a secondary analysis, I will also compare the round 1 choices in the discussion conditions to those in the non-discussion conditions by regressing round 1 choices on the interaction between  $Trans_{ij}$  and the full set of treatment dummies 1-7.
2. **Probability of endorsing.** Group discussions will be recorded and transcribed. Only recordings with sufficiently high data quality will be kept for the analysis; recordings with a high proportion of inaudible speech will be dropped. An enumerator will record who speaks at each time during the discussion, so that each person's statements can be attributed to them. Research assistants will code a binary variable in the transcript,  $Endorse_{aijt}$ , that indicates that the participant  $i$  made a statement at time  $t$  in the discussion advocating that the group choose candidate  $a$  when deciding over a pair  $j$ . This will include both unjustified endorsements of candidate  $a$  (e.g., "I think we should pick A"), and positive justifications for choosing  $a$  (e.g., "A appears to be better qualified").

The main reduced-form analysis will test whether the treatments impact

the probability of a person endorsing a transgender candidate at least once during the discussion.

3. **Enumerator observations.** I will analyse changes in the discussion dynamics by measuring whether there are treatment effects on enumerator observations of the discussion dynamics, and the differential effects on discussions of choice-pairs that include transgenders. The outcomes will include: whether the word “transgender” was mentioned, whether someone said something positive or negative about transgenders, how much discussion occurred (both for a given choice-pair and overall).

## 5 Empirical specification

### 5.1 Controls

For all regressions, I will use double LASSO (Belloni et al., 2014) to select the controls included in the specification. The list of potential controls include:

- *Individual covariates*, measured before exposure to information treatments: religion, education, marital status, employment status, landlord status, whether participant has a child in the household, whether participant has employed someone, household size, per capita food expenditure, Crowne and Marlowe (1960) social desirability score, whether they have used an app or website to order a taxi/motorbike/auto, whether they have used an app or website to order food/drink/groceries, whether they have used an app or website to order other goods, whether they normally receive groceries themselves, self-reported willingness to pay for delivery charges.
- *Group-level covariates*: For each of the individual covariates, I will use the mean for the other two members of the participant group as a possible

control. In addition, possible controls will be added for the relationship between the group members.

- *Worker profile covariates*: the difference between the number of items offered by the *Comparator* and the number of items offered by the *Benchmark*; the worker-training score shown for the *Benchmark* worker; the difference between the worker-training score for the *Comparator* worker and the *Benchmark* worker; the number of quality signals included in the worker profile (where applicable); the values of the additional quality signals included in the worker profile (where applicable); whether the *Comparator* is a woman.

For specifications based on interaction effects, such as the specification in equation 1, I will also include the interaction between  $Trans_{ij}$  and the above controls in the list of potential controls.

*Experimental design covariates*: Where applicable, specifications will include fixed effects to account for features of the experimental design, including order fixed effects. These are specified in Section 4.2 where applicable. These will be included in the specification, rather than being selected by the LASSO process.

## 5.2 Inference

**Standard errors** on regressions will be clustered at the group-of-3 level. I will perform randomization inference as a robustness check.

**Multiple hypothesis testing.** I will correct for multiple hypothesis testing by additionally reporting the q-values adjusted for the false discovery rate, following the procedure in Anderson (2008). I will apply the correction within the following sets of secondary outcomes on the main specification reported:

- *Attitudes*: {List experiment, disapproval of discrimination}
- *Norms*: {Predicted choices (community), predicted choices (own group)}

As noted above, I will not test for multiple hypothesis testing for the discrimination outcome since it is the only primary outcome. If the IAT or list experiment outcomes fail the validation checks described above and are therefore excluded from the main analysis, they will also be excluded from the multiple hypothesis testing correction.

## 6 Heterogeneity analyses

I will run a number of heterogeneity analyses along the following dimensions in order to understand the mechanisms behind my results:

1. *High-stakes condition*, i.e. whether participant was randomised into the high-stakes condition with additional deliveries from the same worker.
2. *Worker quality signals*, i.e. whether anti-transgender discrimination is reduced when the worker profile includes more details indicating the quality of the workers (namely, their score in a training task, whether they speak English, the number of years of experience), and the values of those details
3. *Number of items offered*. Does the level of anti-trans discrimination change when the transgender option is offering 1 or 2 additional grocery items, rather than the same number of grocery items?
4. *Social desirability bias score*, as measured by an index elicited before treatment based on the Crowne and Marlowe (1960) social desirability index.
5. *Baseline progressive attitudes*, as proxied by an index elicited before treat-

ment that asks about progressive social attitudes

6. *Perceived purpose of the experiment*, i.e., whether participants correctly guess that the study's purpose is to measure anti-transgender discrimination.

7. *Demographic characteristics*, including:

- Participant gender, which may be correlated with baseline attitudes and the dynamics of group discussions
- Religion, since transgenders have a specific cultural role in Hinduism that may exacerbate or mitigate discrimination
- Whether the participant is a landlord, in order to examine whether discrimination is common among those who would be in a position to provide transgenders with housing
- Whether the participant has children in the household, to explore whether those with children fear exposure to transgenders more
- Socioeconomic status (SES), proxied by household per capita food expenditure and education level: discrimination may be less severe among low-SES people if the cost of sacrificing more grocery items in order to discriminate is greater, but it may be more severe if low SES is correlated with less progressive attitudes

## 7 Supplementary analyses

I will run a number of supplementary analyses.

Using the main sample, I will analyse:

1. *Salience*. Do the treatments increase the salience of transgenders as mea-

sured by a participants' ability to recall the word transgender from a list of words (conditioning on their overall recall level for the list of words)?

2. *Effect on choosing women.* I will analyse whether the information treatments and group discussion have an effect on a participant's propensity to choose a woman over a man, in addition to changing the propensity to choose a transgender over a man. A positive spillover effect of this kind would indicate that discussions and information about fundamental rights can lead to *generalised* reductions in discrimination, even when those discussions and information do not pertain to the group in question. Including women as worker options also helps obfuscate the purpose of the study and reduces the risk of experimenter demand effects.
3. *Effect on perceived reliability.* Do the information treatments and group discussion have an effect on the perceived reliability of transgender individuals, as measured by the question: "If this person were chosen to deliver the items, how likely do you think this person would be to complete the delivery?"

## 8 Phase 2

Phase 1 of data collection will occur from March to April 2023. In this phase, approximately 600 people will be allocated to each of the arms *Discussion* and *No discussion*, with both arms being cross-randomised with the video treatments. Phase 2 of data collection will be carried out from June 2023 onwards. In this phase, the remaining 300 people for each discussion type will be collected.

Furthermore, in phase 2, two treatment arms will be added:

1. **Pairwise discussion** ( $N \approx 600$ ). In a group of 3, 2 people are designated



to take part in a discussion in round 1, while the third is the “*Listener*”. The Listener does not take part in the discussion, but observes what the others say and choose, and then makes new private choices afterwards for both Round 1 and Round 2.

2. *Public choices* ( $N \approx 600$ ). In round 1, the group of 3 is brought together. All participants silently choose which options they prefer, in a way that cannot be observed by the other participants. They do not discuss their choices. However, they are told beforehand that their choices will be announced to the entire group later on. For 2 of the 3 participants, the others’ choices will be announced to them before they make round 2 choices. For the 3rd participant, the others’ choices will be announced to them only after they make round 2 choices.

An additional 400 participants will be added to the *No discussion* group, totalling 700 participants in phase 2. All the specified treatment arms will continue to be cross-randomised with the information video treatments.

## 8.1 Analysis

For Phase 2 comparisons, I will pool across video treatments and focuses on the differences between the different discussion modalities. This leaves me with 6 relevant comparison groups:

A. *No discussion*

B1. *Public choices (announced after)*, i.e. those whose round 2 choices are *not* influenced by the announcement of the choices of others in their group

B2. *Public choices (announced before)*, i.e. those whose round 2 choices *are* influenced by the announcement of the choices of others in their group

C1. *Pairwise discussion (listener)*, i.e. those who observe and hear the discussion of the others, but do not take part

C2. *Pairwise discussion (discussants)*, i.e. the 2 people per group who take part in the discussion

D. *Discussion*, i.e. those who take part in a 3-person discussion

I will run two analyses of the differences in discrimination between these groups using a specification analogous to equation 1. These are summarised in Figure 1.

*Round 1 choices:* To test whether knowing that one's choices will be public affects discrimination, and how this compares to the effects on choices of the full discussion, I will examine choices in round 1 and analyse differences between groups A, B, C2 and D. Since groups C2 and D take part in similar activities (both groups are part of a group discussion), I will pool these two groups if there is no significant difference in their choices. Group C1 is excluded because their round 1 choices are made in private. B1 and B2 are pooled since they receive identical information up until and during round 1; the only difference between them is the timing of the announcement of others' choices which is made after round 1.

*Round 2 choices:* To test how the different treatments affect subsequent private choices, all participants from phase 2 will be included in a regression on round 2 choices.

- Neither group A nor group B1 is exposed to any information about their neighbours' preferences before making their round 2 choices. I will therefore pool across A and B1 if there is no significant difference between

the two groups.<sup>1</sup>

- The comparison of B2 with A measures the effect of learning about another participants' choices.
- The comparison of C1 with A measures the effect of hearing two other participants discuss and justify their choices, along with learning about their choices.
- As above, I will pool C2 and D if there is no significant difference between their choices, since both groups take part in similar activities. Comparing (C2+D) to A is the effect of taking part in a discussion about one's choices.

## 8.2 Additional mechanisms

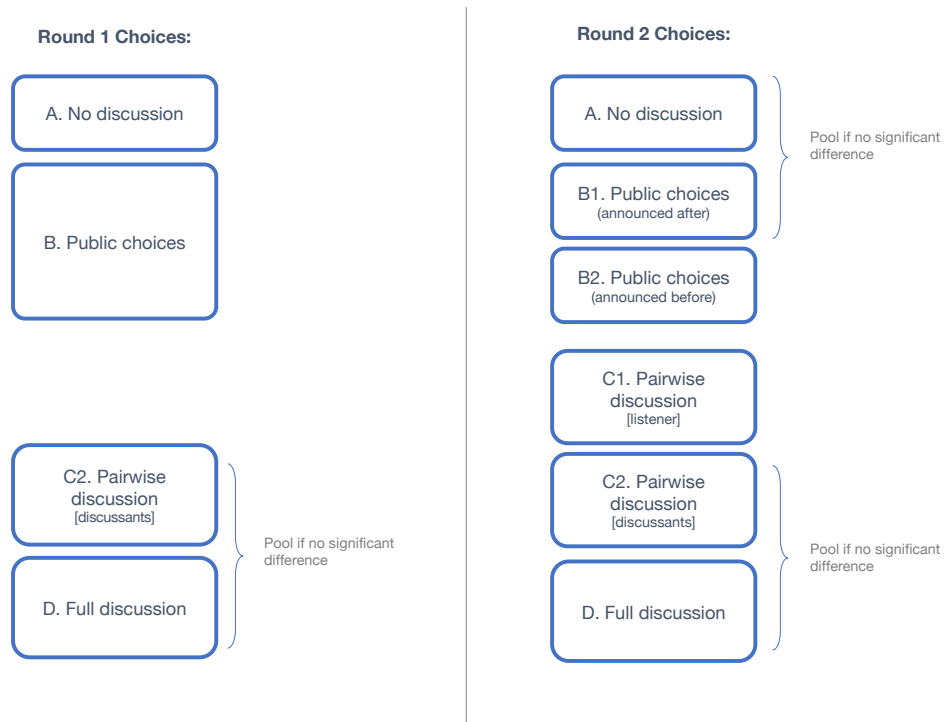
In Phase 2 of data collection, I will elicit 4 additional mechanism measures:

- *Group composition.* I will measure how socially close the neighbours in a group are, and whether participants perceive other group members to have qualities associated with persuasiveness and leadership. I will combine these into indices and analyse whether the treatment effects are larger or smaller for groups that are socially close or contain leaders.
- *Detailed reasons for choices.* I will ask participants to explain their reasons for their round 2 choices. I will examine whether the reasons that were cited in the round 1 group discussions are also used to justify round 2 choices.
- *Anonymous choices.* I will elicit an incentivised choice for a grocery pick-up.

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<sup>1</sup>There may be a difference between the groups if, for example, B1 are induced to discriminate less in round 1 because they know their choices will be public, and if they have a desire to make choices in round 2 that are consistent with their earlier choices.

Figure 1: Summary of comparisons for Phase 2



Participants will be told that they have a chance to win a voucher worth 5000 Rs, and that they will have to pick up groceries from their selected worker if they win. This outcome is designed to be more anonymous than the primary outcome variable, since the delivery person will not come to their home and therefore their neighbours will have no way of knowing who they chose. In addition, for this outcome, the participant will be given a tablet and will respond themselves, without the enumerator being able to see the responses they give. Participants will be make 4 choices for 4 pairs of delivery workers. I will examine treatment effects on this outcome using a specification analogous to equation 1.

- *Memory of choices.* To check whether participants pay attention to the choices of other group members, I will measure how well participants in groups B and C1 remember the choices of others. To benchmark this measurement, I will also measure how well people remember their own choices in groups A, C2, and D. Participants will be asked to recall the choices made earlier, and I will use the proportion of correct responses as a dependent variable in a regression of all the treatment dummies.

I will also carry out an additional heterogeneity analysis on the round 2 choices in phase 2. To analyse how participants are affected by observing the choices of others in their group, I will analyse heterogeneity with respect to the round 1 choices that people saw. For a main analysis, I will define a variable  $NTransR1_i$  as the number of times  $i$  observes another person selecting a transgender worker in round 1, and analyse heterogeneity in the treatment effect on (i) B2 the listeners in the public choice arm who heard the announcement of others' choices before making their round 2 choices, and (ii) C1 the listeners in the pairwise discussion.

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