

## Signals We Give: Gender, Feedback, and Competition

### Pre-Analysis Plan

#### Primary Outcome Variables

Our primary outcome variables are:

1. Managers' choice of feedback to be sent to their Worker [*FeedbackSent*]
2. Worker's choice of payment scheme [*ChoiceTournament*]

#### Secondary Outcome Variables

Our secondary outcome variables are:

1. Manager's prior and posterior beliefs about the Worker's performance [*BeliefWorkerPrior*; *BeliefWorkerPosterior*]
2. Worker's prior and posterior beliefs about their own performance [*BeliefPrior*; *BeliefPosterior*]

#### Statistical Model Specification

1. Pairwise treatment comparisons: As a test of our hypotheses, we plan to conduct parametric (e.g., z-test and t-test) and non-parametric tests (e.g., Kolmogorov-Smirnov test, Fisher's exact test, Wilcoxon rank-sum test, Wilcoxon signed-rank test) to check for differences in the outcome variables across the treatments.
2. Regression analyses: Both as a test of our hypotheses and for robustness checks, we plan to run ordered probit/logit regressions, probit regressions, and OLS. We will consider models both with and without control variables.

#### Main Treatment Variables

Our experiment features treatment variations along three dimensions ( $2 \times 2 \times 2$  between-subject design):

1. Worker's gender: Manager is matched to either a male Worker or a female Worker. [*WorkerGenderFemale* = 1, 0]
  - Some Workers may identify themselves as Trans/Intersex/Other. These Workers will be coded separately but not considered in the main analysis given that they are likely to make up a small proportion of the sample.
2. Timing of Manager's feedback: whether Manager's feedback is instrumental or non-instrumental will depend on whether the Worker observes the feedback before or after they make their competition decision. [*TreatInstrumental* = 1 or 0]
3. Manager's signal of Worker's performance: each Manager will receive either a precise or a moderate signal about their Worker's performance. [*SignalStrength* = 2, 1].
  - A very small proportion of Managers will be given a vague signal, which implies that they will have no decision to be made. Hence, their decisions will be excluded from the main analysis.

## **Main Independent Variables**

1. Feedback received from Manager [*Feedback*]
2. Signal content about Worker's performance [*Signal*]

## **List of Control Variables**

*Below we include the full list of controls that we plan to use in different regression models.*

### Both Managers and Workers

- Gender [*OwnGenderFemale*]
- Prior belief about own performance [*BeliefOwnPrior*]
- Year of birth [*BirthYear*]
- Highest education qualification attained [*Education*]
- Household annual income [*Income*]
- Political leaning on social issues [*PoliticsSocial*]
- Affiliation to US political party [*PoliticalParty*]

### For Managers only

- Implicit association test score [*IATManager*]
- Beliefs about Worker's confidence in their own performance [*BeliefConfidenceWorker*]
- Beliefs about Worker's competitive decisions [*BeliefWorkerChoice*]

### For Workers only

- Posterior belief about own performance given Manager's feedback [*BeliefOwnPosterior*]
- Belief about the signal Manager received [*BeliefSignalManager*]
- Absolute performance [*TaskScore*]

## **Heterogeneous Treatment Effects**

### Manager Behavior

We plan to investigate heterogeneous treatment effects across these subgroups:

1. Manager's gender
2. Manager's prior beliefs about the Worker's performance
3. Manager's implicit association test score
4. Manager's political leaning/partisanship

### Worker Behavior

We plan to investigate heterogeneous treatment effects across these subgroups:

1. Worker's gender
2. Worker's prior beliefs
3. Worker's belief about the signal received by Manager

**Robustness**

Worker's gender will be revealed to Manager through a CV constructed using their responses in the pre-experimental questionnaire. We will ask each Manager to recall their Worker's characteristics and conduct a treatment manipulation test at the end of the experiment. Hence, as a robustness check, we will restrict the analysis to Managers who have passed the manipulation checks.

**Testable Predictions**

Our hypotheses are formulated based on two assumptions. First, Managers care about Workers' belief utility. Second, Managers care about Workers' instrumental utility (material payoff).

Based on these assumptions, we will test the following predictions in our experiment.

1. Managers are more likely to obscure feedback (i.e., by sending feedback that is vaguer than the signals they received) if they receive a bad signal about their Worker's performance, as compared to if they receive a good signal.
2. Managers are less likely to obscure feedback on average if feedback is instrumental as compared to if feedback is non-instrumental feedback.
3. There are no differences in Manager's feedback provision with respect to the Worker's gender.

The Workers' behavior will be contingent on Managers' feedback. Our main prediction is as follows.

4. Workers are less likely to choose the tournament payment scheme if feedback is bad (as compared to if feedback is good).
5. Workers will make more sub-optimal payment decisions if they receive vague feedback (as opposed to precise feedback).