Pre-Registration: "Counterfactual" experiments

Shallow Meritocracy

(previously: Redistributive Behavior When Circumstances Shape Choices)

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1 Background

The existing evidence in this project shows that individuals accept inequalities caused by the "choice effect of circumstances", even though they typically reject circumstances' direct effect on payment inequality. In other words, even though unequal circumstances are typically considered as unfair, the unequal outcomes they generate through their effect on choices are evaluated as fair. Put simply, choices "launder" circumstances, and *unfair* unequal opportunities can result in *fair* unequal outcomes. I also show that individuals are aware of and anticipate the choice effect of circumstances.

This suggests that either individuals are not willing to compensate disadvantaged workers for the choice effect of circumstances or they are cognitively not capable to do so. Indeed, a compensation requires to deduce what the two workers would have done in an identical situation. This form of counterfactual reasoning is cognitively demanding and could be an obstacle that prevents individuals from compensating for the choice effect of circumstances.

Therefore, I plan to run an additional tailored experiment that sheds light on the role of counterfactual reasoning. In the experiment, I provide credible and reliable information on the counterfactual effort choice of the disadvantaged worker.

2 Experimental design

Workers Workers are randomly assigned either a piece-rate of \$0.50 or \$0.10. Before they learn which piece-rate they earn, they decide how many tasks they would complete for each piece-rate. Their decisions are incentivized. Subsequently, they learn which piece-rate they have been assigned and complete the number of tasks they committed to do.

Effort scenarios As before, each spectator decides whether and how to redistribute the earnings in 8 different scenarios. The scenarios vary how many tasks worker A and worker B (would have) completed and, hence, how much effort each worker (would have) exerted. This means that spectators redistribute earnings conditional on the (counterfactual) effort choices of workers.

Experimental condition: Baseline The baseline condition equals *Treatment 4* of the existing pre-analysis plan except for minor changes in the instructions. In the baseline condition, worker A is randomly assigned a piece-rate of \$0.50, and worker B is randomly assigned a piece-rate of \$0.10. Spectators are only informed about the workers' choices for their respective piece-rate but NOT about what workers would have done had they earned a different piece-rate.

Experimental conditions: Counterfactual low/high These conditions build on the baseline condition but additionally provide respondents with information about what the disadvantaged worker would have done if he/she had also earned a high piece-rate of \$0.50.

- **Counterfactual low**: In the first three scenarios, the disadvantaged worker B **would not have changed his/her effort provision** even for a high piece-rate.
- **Counterfactual high**: In the first three scenarios, the disadvantaged worker B **would have exerted as much effort as worker A** if he/she had earned a high piece-rate.

In scenarios 4-7 of both conditions, a random draw determines to what extent worker B would have changed his/her effort provision.

Randomization method Randomization done by a computer in an online survey.

Randomization unit Individual.

Was the treatment clustered? No.

3 Research question and hypotheses

Does the provision of counterfactual information change the redistributive behavior of spectators? If the complexity of counterfactual reasoning prevented participants from compensating for the choice effect of circumstances, one would expect more redistribution towards the disadvantaged worker in condition *Counterfactual high* than *Baseline*. Moreover, if a higher counterfactual effort choice and hence a stronger choice effect of circumstances matters for spectators' redistributive behavior, one would expect more redistribution towards the disadvantaged worker in condition *Counterfactual high* than *Counterfactual low*.

4 Main outcome variable

The main outcome variable is the difference in the shares p that are distributed to the workers: $\Delta_s p = \frac{p_A - p_B}{p_A + p_B}$, where Δ_s means "share difference". The focus is on spectators' redistribution decisions in the first three scenarios.[1]

A scenario can be described by $\Delta_s e = \frac{e_A - e_B}{e_A + e_B}$, the difference in the shares of completed tasks, and $\Delta_s \theta = \frac{e_A - \theta_B}{e_A + \theta_B}$, the difference in counterfactual shares of completed tasks if both workers had earned a high piece-rate. θ_B denotes the counterfactual effort choice of worker B in the high piece-rate environment.

I denote the redistribution behavior of respondent i in treatment t and effort scenario e by $\Delta_s p_{ite} = \Delta_s p_{it}(\Delta_s e, \Delta_s \theta)$.

5 Statistical tests

To test for the equality of redistributive behavior across treatments, I plan to run the following regression:

$$\begin{aligned} \Delta_s p_{ite} &= \boldsymbol{\beta} \times \mathbf{1}\{i, t, e\} + \varepsilon_{ite} \\ &= \left(\beta_{te}\right)_{t \in T,\ e \in E} \times (1_{ite})_{t \in T,\ e \in E} + \varepsilon_{ite} \end{aligned}$$

where i is an individual, t is a treatment (and T the set of all treatments), e denotes the different effort share levels $\Delta_s e$ (and E the set of all effort share levels), and 1_{ite} is an indicator function that takes the value one only if observation ite is for treatment t and effort share level e. Standard errors are clustered on the respondent level.

To analyze the difference in redistributive behavior across two treatments t and t', I then test two hypotheses with F-tests and t-tests:

$$\beta_{te} = \beta_{t'e} \quad \text{jointly for all } e \tag{1}$$

$$\beta_{te} = \beta_{t'e} \quad \text{separately for each } e \tag{2}$$

The joint test (1) provides a highly powered joint assessment of differences between the treatments. As a complement, the separate tests (2) provide a more detailed assessment of treatment differences and allow assessing the magnitude and direction of the effects. They are two-sided, and their p-values will be adjusted for multiple hypothesis testing, using the Benjamini-Hochberg procedure to control the false discovery rate.

Additionally, I calculate the mean redistribution decision of each participant across the first three effort scenarios and test whether they differ across treatments.

[1] A comparison of redistribution behavior in scenarios 4-7 where the counterfactual effort decision of worker B is randomized also allows to test t he hypotheses.

6 Sampling

Sample size About 900 respondents (300 per treatment). The sample ought to be representative of the US general population in terms of gender, age, income, and region. If required, a few additional observations may be collected to improve the match to US census data. This can happen if, for instance, the initial sample contains too few female respondents.

Intervention dates I plan to collect the data from the 14th of January, 2021 (right after the pre-analysis plan has been uploaded) to 29th of January, 2021.

7 Exclusion criteria

Survey responses will be excluded from the analysis if the respondent

- does not complete the first 7 redistribution decisions
- has already participated in the study
- spends to little time on reading the experimental instructions in part 1 before the treatment variation is introduced (drop respondents with less than 30 seconds reading time)

8 Experimental instructions

I uploaded the full experimental instructions under *Supporting Documents and Materials*.