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Pre-analysis Plan: Job Amenities and Misallocation of Talent

Experimental Design:

In this experiment, we first recruit participants to complete a baseline task, and then we assess their preferences for follow-up work contracts that vary in terms of scheduling (when the task needs to be completed) and advance notice. Together, we refer to these two components as flexibility.

Participants will begin by watching a news clip and answering questions about it and compose a short summary of the content. The time taken to complete this task and the quality of the output will be used as measures of baseline productivity.

Next, participants will be asked whether they are interested in follow-up work (Yes/No). For those who express interest, we will randomize participants into one of two groups offering: i) a "job" with a single 10 minute task or ii) a "job" with weekly two-hour tasks over the course of five weeks.

In both groups, participants are told that they make binary decisions whether they would accept a series of contracts with varying conditions and that one choice will be randomly selected and their decision implemented. Using this BDM mechanism ensures that decisions are incentive-compatible. We also emphasize that participants will receive the same payment for completing the current survey regardless of their responses.

After introducing these job details, we will present participants with several contracts, each differing across two flexibility dimensions: i) within or outside typical working hours (9am-5pm), ii) advance notice for task scheduling (or no notice). The four possible combinations of contract types will be shown in random order. For each type, the first contract offered will be at a medium wage level (hourly wage of $7) and participants will indicate their interest by responding Yes/No. Depending on their answer we will adjust the wage level upward or downward. In total, they make three binary decisions for each contract type, followed by a question about the specific reservation wage. Afterwards, they complete the same set of decisions for the other three contract types.

After completing responses to the last of the four contract types, they are presented with four more contracts of a different length—i.e. those randomly assigned to the short contracts are asked about five-week contracts and vice versa. We will hold the wage at the medium level and ask about their interest for each of the four flexibility combinations.

After making their contract choices, participants will provide demographic information, including age, gender, family structure, marital status , educational attainment, flexibility in managing work time, and uncertainty aversion. We will also ask respondents about barriers that make accepting flexible contracts difficult. Following this, they will complete an assessment component that

captures productivity measures such as processing speed, numerical reasoning, and fluid intelligence.

Within two days after contract choices are made, participants will be informed of the randomized follow-up contract details, including contract length, wage, advance notice, and whether the task falls within or outside working hours. Participants in Treatment 1 and Treatment 2 will receive more detailed information specifying that the task will need to be completed during a specific day approximately 3 days later and when the task needs to be completed (within working hours for Treatment 1 and outside working hours for Treatment 2). If they expressed no interest in the randomly chosen contract, they are informed that there is no follow-up work opportunity.

Treatments 3 and 4 will involve no advance notice. All participants will receive instructions and a task link at the time of the task, with completion times inside or outside working hours, respectively. For treatment 1 and 2 this will be in the form of an email reminding them of these details once the task is active to avoid any differences between groups due to the reminder.

For those who complete the follow-up task, we will have data on worker effort and output quality. After completing the task, participants will also complete a short survey about their interest in similar future opportunities (worker retention), their job satisfaction, and questions related to the difficulty of the task. We will also collect self-reported information on the changes participants had to make to accommodate participation in our task.

Randomization Method:

Randomization occurs at two stages in the experiment.

First stage: participants are randomly assigned by Qualtrics to view one of two contract menus:

- **Long-term contract menu**: 12 contracts for a five-week job (varied across 3 wages × 4 flexibility types), followed by 4 short-term contracts (medium wage only, varied by flexibility).

- **Short-term contract menu**: 12 contracts for a 10-minute task (3 wages × 4 flexibility types), followed by 4 long-term contracts (medium wage only, varied by flexibility).

This initial assignment is determined at the time of survey programming.

Second stage: for participants who express interest in follow-up work, we will assign one contract to be implemented. This follow-up assignment will be conducted in Stata, stratified by **gender and flexibility**, and based on the **order in which participants complete the survey**. Participants will be assigned to one of three follow-up groups:

1. **Long-term follow-up group (0.6% of the total sample)**: Participants are offered a contract involving weekly two-hour tasks over the course of five weeks.

2. **Medium-wage short-term follow-up group (~49.7% of the sample)**: Participants are assigned to one of the four short-term contracts at the medium wage, corresponding to the four flexibility combinations. Participants from both contract view groups are eligible, as all participants are shown these four contracts.

3. **Remaining short-term follow-up group (~49.7% of the sample)**: Participants are assigned to one of the eight remaining short-term contracts (low and high wage × 4 flexibility types). Only participants from the short-term view group are eligible for this assignment, as they are the only ones exposed to these specific contracts.

Clustering -
For outcomes such as contract choices, for which we have multiple observations for each participant, we will cluster standard errors at the individual level. For other outcomes, we will not cluster standard errors.

Sample size -
While we have a target sample size of around 1,500.

Based on preliminary power calculations and assuming minimum detectable effects in the range of 0.1 - 1.5, we anticipate about 1,200 survey participants.

Recruitment and Inclusion Criteria:
We will recruit participants via Cloud Research. Our sample will have a roughly equal share of women and men and be restricted to people residing in the U.S. between the age of 28 and 42.

In order to ensure high data quality, we will include “bot checks” and attention checks. In addition, we will ask about a contract that pays a very low hourly wage of $0.30. In our analysis we will focus on participants who do not accept this very low wages and others will not be invited to complete the follow-up task.

Analysis Plan

In what follows, we will describe our analysis plan. We divide it into a set of primary analysis specifications with a small number of main outcomes and moderators to test our main hypotheses. We will also list more exploratory specifications and outcomes.

I. **Primary Analysis**
The following specifications summarize our primary analysis for our main hypotheses.

A. Preference for Flexibility

a. Main specification

We first investigate how contract choices vary across flexibility levels and wage levels pooled across contract length. Specifically, we estimate the following regression:

(1) $y_{ic} = \alpha + \beta_1 \ Female_i + \beta_2 \ T2 + \beta_3 T3 \ + \beta_4 T4 + \delta X^*_i \ + r_c + \ \varepsilon_{ic}$

Next, we test if preferences over contracts vary by gender (pooled across contract length). Specifically, we estimate the following regression :

(2) $y_{ic} = \alpha + \beta_1 \ Fem_i + \beta_2 \ T2 + \beta_3 T3 \ + \beta_4 T4 + \beta_5 \ T2 * Fem_i + \beta_6 T3 * Fem_i \ + \beta_7 T4 * Fem_i + r_c + \ \delta X^*_i \ + \ \varepsilon_{ic}$

Details on variables :

- Our main outcome of interest y_{ic} is the preference for follow up work contract "c" by participant i. Our preferred specification uses the reservation wage as the outcome. Specifically, we first ask for binary choices about contracts to narrow the reservation wage range. For participants that switch responses, we ask for the exact reservation wage between the wage levels they accepted and declined. (As a secondary measure, we will use the midpoint.) For those who accept or reject all wage levels, we ask for the specific reservation wage. We will test for robustness to winsorizing these reported reservation wages.
- $Female_i$ is an indicator equal to one if the participant is a female
- $T2$ is an indicator equal to one if participant i is assigned to a contract with advance notice that falls outside of work hours
- $T3$ is an indicator equal to one if participant i is assigned to a contract with no advance notice but which falls within work hours
- $T4$ is an indicator equal to one if participant i is assigned to a contract with no advance notice and which falls outside of work hours
- $T1$ is the comparison group and consists of participants who are assigned to a contract with advance notice and that falls within work hours
- X_i is the covariate vector X. .
- r_c are a set of dummies that measure the order in which the contracts were presented
- Standard errors $\varepsilon_{ic}$are clustered at the participant level.

  We will estimate the regression with and without controlling for the covariate vector X.

  The main coefficient of interest β_1, β_5, β_6, and β_7 measure whether preferences for varying levels of flexibility differ between female and male participants.

b. Analysis by wage level

In addition to pooling the sample, as a secondary analysis, we will also estimate how these coefficients of interest vary across wage levels. We will split the sample by wage levels and estimate regression (1) and (2) with a binary variable of accepting the contract or not as the dependent variable. This analysis will investigate whether (gender) differences in effects of job flexibility vary by the wage level.

c. Effect of contract length

We will also estimate regression (1) and (2) separately for the sample randomly assigned to the short and long contract length. We will employ tests of equal coefficients to test if the coefficients of interest described above vary across short vs long contracts.

B. Worker Productivity and Preference for Flexibility

We next investigate how preference for flexibility interacts with measures of worker productivity. This will shed light on the question of whether more/ less productive workers are deterred by demands for flexibility and whether this relationship varies by gender. Specifically, we estimate the following regression:

(3) $$y_{ic} = \alpha + \beta_1 \ Prod_i + \beta_2 \ T2 + \beta_3 T3 \ + \beta_4 T4 + \beta_5 \ T2 * Prod_i + \beta_6 T3 * Prod_i \ + \beta_7 T4 * Prod_i + r_c + \ \delta X^*{}_i \ + \varepsilon_i$$

Details on variables :

- Dependent variable y_{ic} measures the reservation wage as described above.
- $Prod_i$ measures the (baseline) productivity level of worker i. All productivity measures are standardized within the baseline sample.
    - We will use the follow three variables as our primary productivity measure and create an aggregate standardized productivity index.
        - Test score (SAT/ACT)
        - Fluid intelligence score (aggregate Raven Matrice performance)
        - Task rating score of baseline task performance (quality rating of writing on a 0-10 scale)
- We also have these secondary productivity measures:
    - Verbal fluency score (number of correctly spelt words)
    - Factual question score that test knowledge of factual details presented in the video)
    - Amount of time spent on writing (winsorized).
- Other variables follow the description above.

The main coefficient of interest β_1, β_5, β_6, and β_7 measure how preferences for flexibility (measured through reservation wages) differ across worker productivity.

We will estimate regression (3) across worker gender and perform tests of equal coefficients to explore whether selection on worker productivity differs for female and male workers. We will also explore how these relationships vary across contract length.

C. Mechanisms: Subgroup analysis

To explore mechanisms that may explain the overall treatment effects on the main outcomes and how they vary across worker gender, we conduct subgroup analysis on key moderators.

Specifically, we estimate the following regression :

$$(4)\ y_{ic} = \alpha + \beta_1 Sub_i + \beta_2 T2 + \beta_3 T3 + \beta_4 T4 + \beta_5 T2 * Sub_i + \beta_6 T3 * Sub_i + \beta_7 T4 * Sub_i + r_c + \delta X^*{}_i + \varepsilon_i$$

Details on variables :

- Dependent variable y_{ic} measures the reservation wage as described above.
- Sub_i measures the subgroup indicator. We use the following subgroups which are linked to specific mechanisms of interest:
  - Primary Moderators:
    - Household Responsibilities - above vs below median number of hours in housework
    - Children (yes/no).
    - Flexibility - Indicator variable for individuals who do not have regular working hours in current job
  - Exploratory Analysis - Explore mechanisms using the following sub-group indicators:
    - Household members upset

These moderators may have different effects across worker gender. For example, women may be more constrained by household responsibilities such as childcare or home chores.. We will therefore estimate regression (4) across worker gender and perform tests of equal coefficients to explore whether selection differs for female and male workers.

II. Secondary Analysis

The following specifications summarize our secondary analysis. The analytical sample only includes those who complete the follow up tasks. The sample size is therefore smaller and may suffer from selection bias.

D. Work completion

Once we assign workers to a single contract and execute their stated preference for that contract, we will measure whether they complete this contract.

$$(5)\ y_i = \alpha + \beta_1 Fem_i + \beta_2 T2 + \beta_3 T3 + \beta_4 T4 + \beta_5 T2 * Fem_i + \beta_6 T3 * Fem_i + \beta_7 T4 * Fem_i + \delta X^*{}_i + Wage_c + \varepsilon_i$$

Details on variables :

- y_i is a binary variable measuring if a worker completes the contract.
  One concern is that some express no interest in a given contract which would lead to selection effects for this outcome. To address this concern, our preferred outcome is to measure non-interest as a zero for the contract completion measure.
- Other variables follow the description above.
- We will estimate with and without controlling for covariate vector X.
- *Wage* measures the randomly selected wage level

We will again estimate regression (5) both in the pooled sample and separately by wage levels.

E. Work quality and effort

Conditional on workers completing their follow-up task, we will explore how the quality and effort vary across treatments.

$$(6)\ y_i = \alpha + \beta_1 Fem_i + \beta_2 T2 + \beta_3 T3 + \beta_4 T4 + \beta_5 T2 * Fem_i + \beta_6 T3 * Fem_i + \beta_7 T4 * Fem_i + \delta X^*{}_i + Wage_c + \varepsilon_i$$

Details on variables :

- y_i is a measure of task quality and effort. Specifically, we use:
  i) Time spent to complete the task (winsorized at the 95% level)
  ii) Quality rating of writing (scale 1-10)
- Other variables follow the description above.
- We will estimate with and without controlling for covariate vector X.

- We will also estimate equation (5) while controlling for baseline measure of task quality and effort

We will again estimate regression (6) both in the pooled sample and separately by wage levels.

F. Mechanisms: Behavior Changes

Conditional on workers completing their follow-up task, we will administer a survey in which we ask about other mechanisms that may explain treatment effects for work quality and effort. We focus on behavior changes that could be mediators for treatment effects.

$$(7)\ y_i = \alpha + \beta_1 Fem_i + \beta_2 T2 + \beta_3 T3 + \beta_4 T4 + \beta_5 T2 * Fem_i + \beta_6 T3 * Fem_i + \beta_7 T4 * Fem_i + \delta X^*{}_i + wage_c + \varepsilon_i$$

Details on variables :

- y_i is a mediator. Specifically, we use:
  i) Did people need to make special arrangements (we also have the type of changes that they made)
  ii) Did completing the task cause stress or dissatisfaction
- iii) How much did they enjoy completing the task
- iv) Are they interested in future work opportunities like this