Pre-specification of Analyses for Risk Management and Effort Fungibility Experiment

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History

Version	Date	Notes
1.0	September 20th, 2021	Initial pre-analysis plan

1 Introduction

This document describes an analysis plan for a study on the effects of effort fungibility on risk management take-up among the online workforce. This study considers the interaction of risk management with the labor decisions of individuals. Specifically, it analyzes whether individuals who can set their work schedules autonomously are more likely to exercise risk management. When writing this document, we have only observed data from a pilot study of n=10, which is used to validate the study design.

We may perform additional analyses in the study; when analyses were not prespecified in this document, we will note that fact.

There are two goals of the study. The first goal is to enrich the understanding of the interplay of work decisions and risk management decisions. The second goal is to understand how people integrate decisions in different domains such as labor supply and risk management. Thus, the study aims to offer a potential explanation for the low adoption of risk management in certain areas.

The study's target enrollment will be 500 workers. This number is based on a power calculation indicating that an increase in risk management demand of 5 pp will have a statistical significance of 5% with a probability of 80%.

Participants are randomized to one of two study groups, with an equal probability of enrollment in each arm. Randomization is conducted within the Qualtrics survey design. Enrollment is described as below:

- **Group 1: Control group.** These workers will not be able to allocate effort over two task batches fungibly.

- **Group 2: Treatment group.** These workers will be able to allocate effort over two task batches fungibly.

Within each group, there will be four subgroups which differ in the price charged for risk management. These subgroups are introduced to determine demand curves for risk management.

The study institutes an Amazon Mechanical Turk (MTurk) labor task. For a fixed wage, subjects transcribe lines from two batches of scanned receipts. The two batches vary in the average length of receipts and, thus, in the number of tasks. The number of tasks to be transcribed is determined by a lottery. Subjects can exercise costly risk management before their work, ensuring a specific number of tasks with certainty. That is, subjects can exercise risk management to receive receipts from the shorter batch with certainty. Treatment varies the autonomy by which subjects can allocate transcriptions across the two batches.

2 Identification of the Study Sample and Randomization

2.1 Eligibility Criteria

Recruitment will be conducted via MTurk, which is widely used for experimental research. The MTurk registration only allows workers who are at least 18 years old and provide U.S. tax status information. In addition, an MTurk worker must have previous experience with task performance and be based in the U.S. to be eligible to work on the task.

2.2 Randomization

We use simple random assignment to sort study participants to treatment groups. Randomization will be conducted using the Qualtrics randomization feature.

3 Overview

Here we provide details on the types of analyses we will perform, including specifications of the regression models we will use to estimate treatment effects. We also discuss the sets of control variables we will use in our analyses.

3.1 Univariate analysis

In analyzing the main treatment effect, we will assess the difference in the risk management take-up between the control and treatment groups using the Fisher's Exact Test.

3.2 Multivariate regression

We will consider the effect of different risk management price levels in a multivariate analysis. The performed Linear Probability Model will be of the form:

$$Y_i = \beta_1 + \beta_2 Treatment_i + \beta_3 Price_i + \delta X_i + \varepsilon_i$$

Here, Y_i is the risk management take-up and i indexes individual workers. $Treatment_i$ is an indicator variable for being assigned to the treatment group. $Price_i$ indicates the risk management price presented to the individual worker. To improve statistical power, we include X_i, a vector of individual characteristics (control variables). For robustness, we will also estimate a non-linear specification, which will be included in the Appendix.

Additionally, we will use the data to calculate demand curves for the risk management technology and statistically test differences in the willingness-to-pay for risk management with bootstrap methods.

From the risk management take-up in the Control group and the task allocation in the Treatment group, we can calculate hypothetical willingness-to-pay in the treatment situation and compare it with the actual willingness-to-pay. The outcome of this analysis will be the dgree to which subjects react to fungibility, when purchasing risk management.

3.3 Control Variables

Our randomization should result in a balance of observable characteristics. However, we will run specifications that employ control variables to improve the precision of our point estimates.

Specifically, we will include the following specifications:

1. No controls,
2. Basic controls.

The basic controls are specified as follows:

- Quality,
- Pre-risk management efficiency,
- Weekend indicator,
- Daytime.

4 Study Outcomes

The outcome will be risk management take-up.