

# Pre-Analysis Plan: Willingness-to-Pay for Attributes of High-Profile Jobs (UPDATE)\*

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# 1 Introduction

## 1.1 Abstract

In this pre-analysis plan, we describe an extension of AEARCTR-0011352. AEARCTR-0011352 describes a choice experiment that induces exogenous variation in the attributes of high-profile jobs. We conducted the experiment and, in accordance with the pre-analysis plan, devoted special attention to gender differences in the WTP for job attributes. Importantly, we did not find any such differences across the attributes we study, with the exception of a higher WTP among women for gender diversity among high-profile co-workers. The extension is meant to shed light on the reasons for the absence of gender differences where previous literature suggests such differences should occur. Our main focus will be on selection on preferences (risk preferences, willingness to compete, family-related preferences). For that purpose, we will run similar choice experiments as the one described in AEARCTR-0011352 in a sample of Ph.D. students and a sample of university students (i.e., of highly educated individuals before selection into high-profile jobs has taken place).

## 2 Study Populations

We aim at eliciting the WTP for attributes of high-profile jobs among Ph.D. students and university students. The key idea is to study highly educated populations before selection into high-profile jobs has taken place. All data will be collected from students enrolled at German universities. To collect data on Ph.D. students, we plan to partner with several universities that have expressed their willingness to invite their Ph.D. students to our survey. The mode of invitation will either be via newsletters, or via email. The data on university students (Bachelor and Master level) will be collected at the University of Erlangen-Nuremberg.

## 3 Experimental Design

The experimental design will be very similar to the one described in AEARCTR-0011352. We will only cover the main differences to the original design here.

### 3.1 Survey

Before participating in the experiments, each respondent answers a survey. We elicit the following:

- age (4 categories)
- gender
- field of study (social sciences, law, natural sciences, engineering, economics and business, medicine)
- taking into account private and family situation: flexibility in choosing a place of residence (9-point Likert scale)<sup>1</sup>
- willingness to compete (9-point Likert scale)
- general risk preferences (9-point Likert scale)
- willingness to take risks in job-related decisions (9-point Likert scale)<sup>2</sup>
- expected children at age of 35 (none, 1, 2, 3 or more).<sup>3</sup>
- self-confidence (9-point Likert scale)
- expected year of completion of Ph.D.<sup>4</sup>
- family preferences: importance of having a job that leaves enough time for family (9-point Likert scale)
- likelihood that career will lead to a job in science (slider, 1 - 100)
- career ambition: importance of advancing in job to the top (slider, 1 - 100)

### 3.2 Experiment

After the survey, we administer a series of ten stated-preference experiments to each survey respondent. In each of these experiments, survey respondents are asked to select between two job offers, each defined by a partially varying set of non-wage job characteristics and the job's monetary compensation. To minimize

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<sup>1</sup>We might not include this item in the student sample.

<sup>2</sup>We might not include this item in the student sample.

<sup>3</sup>If respondent is 35 years of age or older, the question asks for actual number of children.

<sup>4</sup>In the student sample, we will ask for expected year of graduation.

the risk of differential perceptions regarding unspecified job characteristics, we instruct respondents to assume that any job attributes not mentioned are identical across offers.

The job offers' monetary compensations comprise two components. The first component is a fixed base pay. For a given participant, this base pay in the experiment does not vary between job offers and is the same across all 10 experiments. The second component is the bonus. We leverage this bonus to induce random variation in monetary compensations. Denoting the mean bonus by  $m$ , the random variation in the bonus is achieved by setting the bonuses of Offer A and Offer B as  $\theta_A m$  and  $\theta_B m$ , respectively, where  $\theta_A$  and  $\theta_B$  follow a  $N \sim (1, 0.075)$  distribution.<sup>5</sup> As in the original experiment, we truncate both weights to lie between 0.5 and 1.5 and round the bonus values to full Euro amounts. If (after rounding)  $\theta_A$  and  $\theta_B$  take on the same value, we re-draw both weights.

The offers' non-wage characteristics vary freely. We consider the following characteristics:

- Mobility requirements, measured by whether or not the job's location is within commuting distance of the preferred place of residence for the respondent and her family
- Number of office days per week (none, 1 - 2, 3 - 4).<sup>6</sup>
- Child care options, measured by whether or not the university offers guaranteed placement in a child care facility
- Share of women among same-level co-workers (10%, 25%, or 40%)
- Performance-related pay, measured by whether or not the job features a bonus that is contingent on the job holder reaching certain pre-defined goals
- Option to negotiate further pay increases, measured by whether or not there is an option to negotiate about a further bonus of max. 800 Euros

We implement two blocks. In one block, respondents choose between jobs in science (professorships). In the other block, they choose between private sector

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<sup>5</sup>As in the original experiment, we implement a limited amount of variation in base pay, and let  $m$  depend on the respondent's discipline (field of study): € 800 in social sciences, € 1000 in law, € 1250 in natural sciences, and € 1550 in engineering, economics/business, and medicine.

<sup>6</sup>This characteristic replaces the characteristic 'academic reputation' in the original experiment.

jobs. We randomize the order of the blocks. All other details of the experimental design are identical to the original choice experiment. We also include a slightly adjusted version of the trick question from the original experiment.

### 3.3 Sampling

As described before, we plan to recruit a sample of Ph.D. students. In order to test to what extent our sample will be representative of the population of Ph.D. students in Germany, we plan to compare sample characteristics to population characteristics obtained from the German Statistical Agency. Regarding the student sample, we will invite students enrolled at the University of Erlangen-Nuremberg (FAU) to the choice experiment. The experimental data can be linked to registry data, allowing us to describe selection into survey participation.

### 3.4 Exclusions

After data collection, we will restrict the sample to subjects who completed the online survey and the entire experiment. We might exclude subjects beyond a certain age threshold (Ph.D. students: 35 or older; university students: 30 or older).

We will also exclude from the sample all subjects that provided data that do not pass basic plausibility and quality checks (for instance, due to speeding). Based on responses to the trick question, we will furthermore define “inattentive” subjects (all subjects who do not pass the attention check). We plan to report as main results the findings from the full sample (subject to the exclusions described before), and results excluding inattentive subjects as robustness checks. However, in case we find evidence suggesting that noise induced by inattentive subjects dilutes the WTP estimates in the full sample, we might report the WTP estimates excluding inattentive subjects as main results. In that case, we will report the result for the full sample in an online appendix or online document unrelated to the paper.

### 3.5 Incentives

In the Ph.D. sample, we will run a lottery among all participants. The prizes will be 5 tablet computers worth about € 400. We have not yet decided how to incentivize subjects in the student sample. We might also run a lottery, or pay subjects a small fixed participation fee.

In order to participate in the lottery, subjects have to report their names and email addresses. This information will be collected in a separate survey after the online experiment. To protect the subjects' privacy, we make sure that the identifying information collected in the second survey cannot be linked to the data collected in the experiment, and we inform participants accordingly.

### **3.6 Planned Sample Size**

We do not know the exact number of Ph.-D. students at our partner universities. All individuals on the respective mailing lists will be invited. However, we lack a benchmark to predict the subjects' willingness to participate in online surveys. We, therefore, abstain from providing exact planned sample sizes. However, we are confident that we will be able to collect a sample that will be sufficiently large to allow for precise WTP estimates. Regarding the student sample, we do not know the response rate in case we offer a lottery, and therefore abstain from predicting the planned sample size. Again, we are confident that we will be able to collect a sample that will be sufficiently large to allow for precise WTP estimates.

### **3.7 Minimum Detectable Effects**

We do not have any baseline data and thus cannot provide minimum detectable effect sizes. However, based on previous literature using similar methods [[Maestas et al., 2018](#); [Nagler et al., 2022a,b](#)] and the data from the original choice experiment, we are confident that we will be able to detect relatively small effects.

## **4 Empirical Analysis**

### **4.1 Estimation Approach**

The estimation approach will be identical to the one applied to the data obtained from the original experiment.

### **4.2 Types of Analyses**

Our main focus will be on (intended) selection into high-profile jobs, measured by career ambition. Most importantly, we would like to understand to what extent gender differences in the valuation of different job options depend on am-

bition. Since we did not find any such differences across the main attributes we studied in the original experiment, the extension described in this pre-analysis plan will study selection on preferences that likely correlate with ambition (risk preferences, willingness to compete, family-related preferences). To shed light on the selection process, we will analyze in detail the following two main questions:

- To what extent are gender differences in the WTP for attributes of high-profile jobs heterogeneous with respect to the respondents' career ambition, or with the respondents' stated likelihood of having a career in science?
- To what extent are gender differences in risk preferences, the willingness to compete, and family-related preferences heterogeneous with respect to the respondents' career ambition, or with the respondents' stated likelihood of having a career in science?

We expect gender differences in the WTP for high-profile job attributes and in preferences to vary particularly with respect to career ambitions. Specifically, we expect gender differences to be present if we do not condition on high levels of ambition, with the signs of the gender difference in accordance with key findings from the literature (higher WTP to avoid commuting, negotiations, and performance-based pay among women, and higher WTP for work-from-home options; stronger risk aversion, lower willingness to compete, and stronger family-related preferences among women). Inspired by the findings from our original experiment, we will test if such differences (if present) are diminished if we focus on subjects with high career ambitions. As described above, we will also consider if gender differences in the WTP differ depending on whether subjects choose between science or non-science jobs. This will inform us to what extent the absence of gender differences in the WTP in the original experiment was due to the fact that we considered a specific sample (only science workers).

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