Preferences over Relative Income within the Household: Pre-Analysis Plan*

Johannes Hermle Elena Herold

April 17, 2026

Abstract

This pre-analysis plan describes online surveys conducted in Germany to study preferences over relative income within couples. The surveys, implemented in partnership with Bilendi, consist of three distinct modules: (i) a *qualitative satisfaction survey* that studies the qualitative nature of partners' preferences over relative income, (ii) a *quantitative choice survey experiment* that identifies the magnitude of these preferences, and (iii) a *vignette-based beliefs survey experiment* that examines potential mechanisms underlying them. The plan pre-specifies the survey design, sampling procedures, exclusion restrictions, outcome measures, and estimation specifications.

*Hermle: j.hermle@berkeley.edu; Herold: herold@ifo.de.

1 Background and Motivation

In our working paper *Preferences over Relative Income within the Household*[1], we examine the existence, form, and underlying motives of preferences over relative income within couples. In particular, the paper studies whether partners derive utility not only from total household income but also from their relative income within the household, and whether these preferences differ systematically between women and men and in which magnitude.

Our present working paper studies these questions using administrative tax data, socio-economic survey data, and online survey experiments. The survey experiments in that paper were conducted via online convenience samples. The survey evidence suggests that preferences over relative income differ systematically by gender: women prefer equal earnings, whereas men prefer being the primary earner.

The surveys discussed in this pre-analysis plan build on this existing evidence and are designed to sharpen our understanding of relative income preferences and the mechanisms behind them. Specifically, the current project has two objectives. First, it reruns and replicates the original survey experiment in a representative German sample provided by Bilendi. Second, it extends the original design with additional survey components that help us understand the mechanisms underlying the results. To do so, we will field a set of representative online surveys in Germany through the survey provider Bilendi: (i) a *qualitative satisfaction survey* that studies the qualitative nature of partners' preferences over relative income, (ii) a *quantitative choice survey experiment* that identifies the magnitude of these preferences, and (iii) a *vignette-based beliefs survey experiment* that examines potential mechanisms underlying them. The present plan pre-specifies the survey design, sampling procedures, exclusion restrictions, outcome measures, and estimation specifications.

2 Recruitment, Sampling, and General Procedures

Sampling and Recruitment The surveys are conducted online in Germany through the survey provider Bilendi. The target sample sizes are:

- 1,500 respondents in the quantitative choice survey experiment,
- 750 respondents in the qualitative satisfaction survey,
- 750 respondents in the vignette-based beliefs survey experiment.

The study is designed to approximate the German population of interest (see paragraph Eligibility) using Bilendi recruitment targets informed by population moments from the SOEP for the respective population. In particular, the sampling targets are based on three age groups, four net household income groups, an indicator for holding an *Abitur* (highest high school degree), an indicator for having children, and marital status. The paper reports descriptive comparisons to population moments, but the prespecified regressions will be estimated without

[1] Working paper available here.

survey weights.

Eligibility Respondents must satisfy the survey eligibility criteria: the relevant target population for the study consists of employed individuals aged 18 and older who are in a relationship and live with their partner. In addition, the following survey-specific eligibility criteria apply:

- Quantitative choice survey: respondents must know their own annual gross income.
- Qualitative satisfaction survey: respondents must know both their own and their partner's annual gross income.
- Vignette-based beliefs survey: respondents may participate regardless of whether they know their own or their partner's annual gross income.

Respondents cannot skip survey items. Individuals who terminate the survey before completion are excluded from the analysis sample.

Socio-economic background questions In the first part of each survey, we elicit a battery of standard socio-economic background variables, such as age, gender, relationship status, cohabitation status, education, the presence of children and state of residence. These variables are used to implement the eligibility criteria, sample for representativeness, and to describe the final analysis samples. The information on respondents' own annual gross income and, where relevant, their partner's annual gross income, is used dynamically as an input to configure the subsequent hypothetical scenarios in the qualitative satisfaction survey and the quantitative choice survey.

Survey Assignment At survey start, respondents are randomly assigned to one of the three survey arms described below (survey respondents cannot participate in multiple survey arms):

- (i) Quantitative choice survey experiment,
- (ii) Qualitative satisfaction survey,
- (iii) Vignette-based beliefs survey.

3 Survey Designs and Analyses

This section describes the survey design for each survey arm and the corresponding analysis specifications. Analyses that replicate those in the original working paper follow the same specifications.[2]

3.1 Qualitative Satisfaction Survey

Design In the qualitative satisfaction survey, we elicit preferences over relative income through a battery of qualitative satisfaction questions. Each respondent evaluates 11 hypothetical income configurations. Total household income is set equal to the combined annual income of the

[2]Working paper available here.

respondent and their partner, as reported in the background survey. For each hypothetical situation, respondents are asked how satisfied they would be on a 7-point Likert scale ranging from 1 (not at all satisfied) to 7 (very satisfied). The respondent's own relative income share is varied over the set

$$p \in \{0.3, 0.4, 0.45, 0.47, 0.49, 0.5, 0.51, 0.53, 0.55, 0.6, 0.7\}.$$

We oversample values near $p = 0.5$ to obtain a granular picture of the structural form of preferences at the point of income equality. The qualitative survey, therefore, provides a non-parametric measure of respondents' satisfaction with different within-couple income configurations while holding total material resources fixed.

Outcomes The main outcome in the qualitative satisfaction survey is stated satisfaction with each hypothetical relative income split. Following the existing analysis in the working paper (see Figure 5 in the working paper), we standardize the satisfaction measure and study standardized satisfaction as a function of the respondent's own share in household income. The core reported objects are gender-specific mean levels of standardized satisfaction at each hypothetical income share.

Planned Analysis The primary qualitative evidence will be presented graphically by plotting mean standardized satisfaction as a function of the respondent's own share in household income, separately for women and men (see Figure 5 in the working paper). This graphical analysis is designed to assess the shape of stated preferences around the 50 percent threshold and, in particular, whether satisfaction is consistent with a kinked pattern at income equality.

Hypotheses The qualitative satisfaction survey is designed to distinguish the form of preferences over relative income for women and men. Consistent with the working paper, we expect women to exhibit inequality aversion, that is, satisfaction should decline in the absolute distance from a 50%–50% income split. For men, we expect satisfaction to increase with their own relative income share up to the point of equality and to flatten thereafter, consistent with a preference for being the primary earner.

3.2 Quantitative Choice Survey

Design The quantitative choice survey elicits preferences over relative income using quantitative choice questions. Each item presents respondents with two hypothetical situations that differ both in the distribution of income within the household and in total household income. Situation A always involves an unequal split of household income, while Situation B always involves a 50%–50% split. Survey respondents are asked to choose whether they would pick situation A or B. By comparing choices across items, the survey allows us to infer respondents' willingness to trade off total household income against their relative income position within the couple.

add information on set income of partner equal

For each respondent, the hypothetical scenarios are constructed using the respondent's reported own annual gross income and the reported annual gross income of their partner. Let H_A denote the total household income in Situation A which is set equal to the respondent's reported total household income. In Situation A, the respondent's own relative income share varies over $p \in \{0.2, 0.3, 0.4, 0.45, 0.55, 0.6, 0.7, 0.8\}$, while in Situation B both partners receive 50% of household income ($p = 0.5$). The level of total household income in Situation B varies over

$$H_B \in \{0.85H_A, 0.9H_A, 0.95H_A, H_A, 1.05H_A, 1.1H_A, 1.15H_A\}.$$

To limit the number of questions, for p each respondent is randomly assigned two unequal income shares from the set of eight possible values and then evaluates all seven corresponding values of H_B. As a result, each respondent completes 14 binary choice items in total. The order of the items is randomized. If a respondent does not know the partner's annual gross income, partner income is set equal to own income when configuring the hypothetical scenarios.

Treatment Arms Respondents in the quantitative choice survey are randomly assigned to one of four treatment arms:

- **Main** (50%): respondents receive only the baseline survey instructions.
- **Ceteris paribus treatment** (16.7%): before being presented the choice items, respondents are instructed to assume that all other factors are identical across the two situations, including job characteristics, working hours, leisure, and general life circumstances, and to base their decision exclusively on income.
- **Positive demand treatment** (16.7%): before being presented the choice items, respondents are told that the researchers expect men on average to prefer situations in which they earn more than their partner, whereas women on average prefer situations in which both partners earn about the same.

is this the same in the survey description?

- **Negative demand treatment** (16.7%): before being presented the choice items, respondents are told that the researchers expect women on average to prefer situations in which they earn more than their partner, whereas men on average prefer situations in which both partners earn about the same.

The "Main" arm serves as the baseline treatment arm. The other arms are designed to test for the underlying mechanisms. First, the ceteris paribus treatment is designed to assess whether stated preferences reflect associations between relative income and other valued outcomes. Second, the two demand treatments are designed to test whether stated preferences are malleable and responsive to external demand.

Outcomes The main outcome in the quantitative choice survey is a binary indicator for choosing Situation B, that is, the equal-split option. From respondents' switching behavior across items, this allows us to estimate the extent to which they value total household income

and the extent to which they value relative income when they are the secondary earner or the primary earner. The core reported coefficients are:

- the estimated coefficient on total household income (δ below),
- the estimated coefficient on relative income when the respondent is the secondary earner (α_{behind} below),
- the estimated coefficient on relative income when the respondent is the primary earner (α_{ahead} below),

Estimation Following the framework in the paper, the main estimating equation is

$$\text{Choose B}_{ij} = \delta(H_{B,ij} - H_{A,ij}) + \alpha_{\text{behind}}(0.5 - p_{A,ij})\mathbf{1}(p_{A,ij} \leq 0.5) + \alpha_{\text{ahead}}(0.5 - p_{A,ij})\mathbf{1}(p_{A,ij} > 0.5) + \varepsilon_{ij},$$

where Choose B_{ij} is an indicator for whether respondent i chooses the equal-split option in item j. The main specification is estimated by a logit regression at the choice-item level with standard errors clustered at the respondent level. We will report two specifications: one specification includes a constant term to allow for a focal preference for exact equality; one specification will omit a constant, which imposes continuity at the 50 percent threshold. Estimates will be reported separately for women and men and pooled.

Treatment Analysis To study treatment effects, the "Main" arm will be the primary arm for estimation and reporting of baseline effects whereas the other treatment arms will be used to study mechanisms. To do so, we will (i) estimate and report estimates separately for each of the other treatment arms (Ceteris paribus treatment, Positive demand treatment, Negative demand treatment), and (ii) estimate a pooled specification across arms that interacts the main regression with treatment indicators.

$$\begin{aligned}\text{Choose B}_{ij} = {} & \delta(H_{B,ij} - H_{A,ij}) + \alpha_{\text{behind}}(0.5 - p_{A,ij})\mathbf{1}(p_{A,ij} \leq 0.5) + \alpha_{\text{ahead}}(0.5 - p_{A,ij})\mathbf{1}(p_{A,ij} > 0.5) \\ & + \sum_{t \in \mathcal{T}} D_i^t \Big[\delta_t(H_{B,ij} - H_{A,ij}) + \alpha_{\text{behind},t}(0.5 - p_{A,ij})\mathbf{1}(p_{A,ij} \leq 0.5) + \alpha_{\text{ahead},t}(0.5 - p_{A,ij})\mathbf{1}(p_{A,ij} > 0.5) \Big] \\ & + \varepsilon_{ij},\end{aligned}$$

where D_i^t is an indicator for assignment of respondent i to treatment arm $t \in \mathcal{T}$, and $\mathcal{T}$ includes the Ceteris paribus, Positive demand, and Negative demand treatments, with the "Main" arm as the omitted category. In this specification, the baseline coefficients δ, α_{behind}, and α_{ahead} capture preferences in the "Main" arm, while the interaction coefficients capture how these preference parameters differ across treatment arms. We will again estimate specifications with constant (and baseline treatment indicator) and without. Standard errors will be clustered at the respondent level.

As manipulation checks, the quantitative choice survey also includes sets of follow-up belief questions after the choice questions. First, respondents are asked what they believe the researchers expect to find in the study, separately for female and male respondents. We will use these questions descriptively as manipulation checks to assess whether the treatments shift respondents' beliefs about the study goals. In particular, we will examine whether respondents are more likely to report that the researchers intend to find gender-specific income preferences in the direction as indicated by the treatment text. Second, respondents are asked about their perceptions of prevailing gender norms regarding the relative earnings of wives and husbands. We will assess these perceptions descriptively and whether the treatments shift beliefs about prevailing gender norms.

Hypotheses The quantitative choice survey is designed to identify and quantify gender differences in preferences over relative income. Consistent with the existing working paper, in the "Main" survey arm we expect women to exhibit inequality aversion; that is, similar willingness to trade off household income for increases in relative income when below 50 percent and for decreases in relative income when above 50 percent (i.e. $|\alpha_{\text{behind}}| \approx |\alpha_{\text{ahead}}|$). For men, we expect a preference for being the primary earner, implying a stronger concern for relative income when being the secondary earner than when being the primary earner (i.e. $|\alpha_{\text{behind}}| > |\alpha_{\text{ahead}}|$).

The additional treatment arms (Ceteris paribus treatment, Positive demand treatment, Negative demand treatment) are designed to test for possible mechanisms underlying the stated preferences.

First, the Ceteris paribus treatment is designed to test whether stated preferences over relative income reflect intrinsic motives or whether they are, at least in part, extrinsically motivated, specifically for women. In the case of intrinsic motives, women have a true preference for equality in earnings. In the case of extrinsic motives, women prefer equality in earnings not necessarily on its own, but because they associate a female primary-earner role with costs such as higher housework burdens or a higher risk of divorce. These two interpretations may generate similar observed choices, even though the underlying motives differ. The Ceteris paribus treatment is designed to provide evidence on the extent to which stated preferences are reduced once respondents are instructed to hold other relevant factors constant, i.e. eliminating extrinsic factors:

- If relative income preferences are intrinsic, we would expect the estimated relative income coefficients in the Ceteris paribus treatment to be similar to those in the "Main" treatment (i.e. $|\alpha^{CP}_{\text{behind}}| \approx |\alpha^{Main}_{\text{behind}}|$ and $|\alpha^{CP}_{\text{ahead}}| \approx |\alpha^{Main}_{\text{ahead}}|$).
- If instead, they are (at least partly) extrinsically motivated, we would expect the estimated relative income coefficients from the Ceteris Paribus treatment to quantitatively differ from the "Main" treatment (i.e. $|\alpha^{CP}_{\text{behind}}| \neq |\alpha^{Main}_{\text{behind}}|$ and $|\alpha^{CP}_{\text{ahead}}| \neq |\alpha^{Main}_{\text{ahead}}|$). eingeben

Second, as a complementary mechanisms experiment, the demand treatments are designed to assess whether stated preferences are responsive to external demand; specifically, whether individuals report preferences they believe align with societal or the experimenter's expectations. If men's and women's expressed preferences are responsive to external demand, we should observe: eingeben

- a stronger expression of observed preference in the case of the positive demand treatment, i.e., an increase in the absolute magnitude of the relative-income coefficients relative to the "Main" treatment, and/or,
- a weaker expression in the case of the negative demand treatment, i.e., a decrease in the absolute magnitude of the relative-income coefficients relative to the "Main" treatment.

These comparisons allow us to assess whether the expression of relative-income preferences is stable or responsive to external demand consistent with adaptation to social roles.

3.3 Vignette-based Beliefs Survey

Design The vignette beliefs survey experiment is designed to study the beliefs respondents hold about the secondary impacts and costs of different within-couple relative income configurations. This survey is a further mechanism experiment to shed additional light on whether women's relative income preferences are intrinsically or extrinsically motivated.

As stated before, in the case of intrinsic motives, women have a true preference for equality in earnings. In the case of extrinsic motives, women prefer equality in earnings not necessarily on its own, but rather because they expect that there are costs associated with a female primary earner role, such as more housework, more childcare, less leisure, lower marital satisfaction, or higher divorce risk.

To test for this mechanism, respondents are presented with eight independently randomized descriptions of hypothetical couples. The vignettes vary a range of observable couple characteristics, including region in Germany, urban vs. rural residence, age, marriage duration, presence of children, household income, the female and male income shares, occupation, education, and housing situation. For each vignette, respondents are asked to provide predictions for a set of household outcomes.

Answers are incentivized as respondents can earn an additional payment based on the accuracy of their predictions. Respondents are informed that some of their predictions can be compared with population averages from external data sources. Prediction accuracy will be scored relative to available population statistics from the German Socio-economic Panel. Respondents receive one point if their answer is within 10% of the corresponding population average or within 10 percentage points for probability questions. Points are summed across all incentivized questions. The 25 respondents with the highest total number of points will each receive an additional payment of 10 Euros. In the event of ties, recipients will be selected at random.

Outcomes All couple characteristics that respondents are required to provide predictions on are outcomes for the planned analysis. Specifically, these are:

- the female share of housework,
- the female share of childcare (for vignettes with children)
- joint leisure time,
- the wife's marital satisfaction,
- the husband's marital satisfaction,
- divorce risk within the next five years.

These outcomes are intended to capture the main channels through which preferences could operate extrinsically, that is, whether respondents associate female breadwinning or equal earnings with different secondary household or personal costs and benefits.

Estimation The main explanatory variable in the vignette analysis is the female share of household income in the vignette. The regression is estimated at the vignette level with respondent fixed effects and standard errors clustered at the respondent level. All specifications below are estimated and reported separately for women and men.

For each outcome Y_{iv}, where i indexes respondents and v indexes vignettes, we begin with the following linear specification:

$$Y_{iv} = \beta p_{iv} + X'_{iv}\lambda + \mu_i + \varepsilon_{iv},$$

where p_{iv} denotes the female share of household income in vignette v, X_{iv} denotes the vector of vignette characteristics, μ_i denotes respondent fixed effects, and ε_{iv} is an idiosyncratic error term.

To assess whether beliefs change once the wife becomes the primary earner, we estimate specifications that allow the relationship between the female income share and the outcome to differ at the 50 percent threshold. In particular, we estimate a piecewise-linear specification with a kink at the 50 percent threshold:

$$Y_{iv} = \beta p_{iv} + \theta(p_{iv} - 0.5)\mathbf{1}(p_{iv} > 0.5) + X'_{iv}\lambda + \mu_i + \varepsilon_{iv}.$$

We additionally estimate a specification that allows for a discrete jump at the 50 percent threshold:

$$Y_{iv} = \beta p_{iv} + \gamma\mathbf{1}(p_{iv} > 0.5) + X'_{iv}\lambda + \mu_i + \varepsilon_{iv}.$$

Finally, we estimate specifications that combine a kink and a discrete jump at the 50 percent threshold:

$$Y_{iv} = \beta p_{iv} + \theta(p_{iv} - 0.5)\mathbf{1}(p_{iv} > 0.5) + \gamma\mathbf{1}(p_{iv} > 0.5) + X'_{iv}\lambda + \mu_i + \varepsilon_{iv}.$$

We estimate each specification both with and without the vector of vignette controls X_{iv}. The control set includes the randomized vignette characteristics, namely region, urbanicity, age band, marriage duration, presence of children, household income, occupation, education, and housing situation.

Hypotheses The vignette beliefs survey experiment is designed to test whether respondents hold systematically different beliefs about household and personal outcomes across different within-couple relative income

configurations, and in particular whether these beliefs exhibit a kink at the point where the wife becomes the primary earner. The primary objective is to assess whether female respondents view female breadwinning as carrying secondary personal, household, or relationship costs that could help explain women's observed preference for equal earnings.

something about expected hh?

If women's observed preference for equal earnings is at least partly driven by extrinsic considerations, we would expect female respondents to hold beliefs that female breadwinning is associated with less favorable personal or household outcomes, such as a higher female share of housework or childcare, less joint leisure, lower marital satisfaction, or higher divorce risk. We would further expect these belief patterns to display a kinked form around the 50 percent threshold, mirroring the nonlinearity observed in stated relative income preferences.

By contrast, if female respondents do not hold beliefs that female breadwinning is associated with systematically worse secondary outcomes, or if these beliefs do not exhibit a corresponding kink at the 50 percent threshold, this would provide less support for an extrinsic interpretation of women's relative income preferences, and point towards preferences over relative income being intrinsically motivated.