Provision of Information on Gender Inequality and Policy Preferences
Pre-Analysis Plan

Alessandra Casarico, Jana Schuetz and Silke Uebelmesser

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1 Introduction/ Motivation

Gender gaps in the labor market are widespread and they persist through old-age, with women receiving lower pensions compared to men, and being at higher risk of poverty. Though the policy debate on strengthening female empowerment has gained momentum in the last decade, policy changes have been slow, often focused on compensatory measures, and in disregard of how gender inequality develops over the life cycle. Part of policy inaction can stem from limited information about the extent of gender inequality, the long-term effect of low labor market participation and the persistence of inequality over the life course. It can also depend on different exposure to gender inequality as an individual or different historical experiences as a society.

Through two different, though related survey experiments, our goal is to evaluate the effect of information provision regarding the gender pay gap and the gender pension gap on participants' preferences towards labor market and pension reform measures, and on the intertwining between the two sets of reforms. The first experiment focuses on information provision on the two gaps for Germany. The second experiment is about information provision on the two gaps for East Germany and West Germany, separately.

To explore the role of cultural background, we analyze whether the effect of information provision differs when focusing on participants who currently reside either in East Germany or in West Germany. Alternatively, we distinguish between West German and East German socialization measured by the place of residence of the participants (if born before 1990) and/or their parents at the time of German reunification. We are particularly interested in inquiring whether the effect of information provision differs if the information is about the gaps for East Germany and West Germany, or about the gaps for the whole of Germany.

2 Study Design

In the following, we will introduce the details of our experimental design for the two experiments, which each consists of four stages.

2.1 Elicitation of prior beliefs

First stage:
We elicit prior beliefs of our participants about the gender pay gap and the gender pension gap for Germany (Experiment 1) and for East and West Germany separately (Experiment 2).

The wording of our question related to the gender pay gap is:
Take an average male worker in Germany [East Germany, West Germany]. For every 100 euros this man earns gross per year, how much does an average female worker earn gross per year?

For the gender pension gap, the wording is:
Now, take an average male retiree in Germany [East Germany, West Germany] who has acquired entitlements under the statutory pension scheme. For every 100 euros this man receives in retirement pension per year, how much pension does an average female retiree receive per year?

2.2 Treatment arms

Second stage:
We provide random subsets of respondents with true information about the gender pay gap and/or the gender pension gap for Germany, or for East and West Germany separately, depending on the experiment.

Information provision in Experiment 1 (Germany):

- C1: No information provision
- T1a: Information provided about the gender pay gap
- T1b: Information provided about the gender pension gap
- T1c: Information provided about both the gender pay gap and the gender pension gap

Information provision in Experiment 2 (East/ West):

- C2: No information provision
- T2a: Information provided about the gender pay gap
- T2b: Information provided about the gender pension gap

For both gaps, we use the unadjusted/raw measures on an annual basis, which capture differences in hourly wages as well as labor supply.
The pay gaps (treatment arms T1a, T1c, T2a) are calculated based on the official statistics provided by the Federal Statistical Office (2021) as the ratio of female gross annual labor income relative to male gross annual labor income in all types of jobs (i.e. full-time, part-time and marginally employed) in the industry and service sector. We then turn this ratio into euro differences, such that an average female worker in Germany earns 66 euros for every 100 euros, which an average male worker earns. The numbers are, respectively, 65 euros for West Germany and 82 euros for East Germany.
The pension gaps (treatment arms T1b, T1c, T2b) are calculated based on the official statistics provided by the German Pension Insurance (2021) as the ratio of female old-age payments from the statutory pension scheme relative to male old-age payments. We then turn this ratio into euro differences, such that an average female retiree in Germany receives 63 euros for every 100 euros received by a male retiree. The numbers are, respectively, 58 euros for West Germany and 82 euros for East Germany.

2.3 Outcome Variables

Third stage:
Overall, we have eight outcome variables. The first two measure individual preferences, attitudes and views on gender inequality:

- It is important to reduce inequality between men and women. (11 point scale from 0 "strongly disagree" to 10 "strongly agree")
- Where do you think the main responsibility for reducing inequality between men and women lies? The state, the companies, the family, or social norms ? (ranking from 1 to 4, where 1 is the option with the most responsibility)

The other six focus on policy measures to address gender inequality and can be sorted into two groups. All of them are evaluated on an 11-point scale from 0 "strongly disagree" to 10 "strongly agree".

- Labor market related measures
  - Women's labor market participation should be increased. For example, by expanding childcare options or reforming the tax system (e.g., spousal splitting).
  - The career advancement of women in companies should be promoted. For example, by introducing gender quotas or transparent salaries.
  - The choice of less gender-typical professions should be supported. For example, by helping girls find their interest in mathematics and science (STEM) professions or by creating incentives for men to choose typical female professions.
- Pension system related measures
  - It should be made more attractive for women to work more. For example, by providing more incentives for full-time work or more incentives for later retirement.

- Socially relevant activities outside the labor market should be given greater consideration in the statutory pension insurance system. For example, through more pension points for childcare, caring for relatives or voluntary work.
- Additional savings should be made more attractive for women. For example, through greater support for private pension insurance or company pension plans.

2.4 Elicitation of posterior beliefs

Fourth stage:
At the very end of our survey, we elicit posterior beliefs, i.e. we ask participants about the values of both the gender pay gap and the gender pension gap. In Experiment 1, all participants are asked about their beliefs on both gaps for Germany, and in Experiment 2, all are asked about beliefs on both gaps for East and West Germany, separately. This allows us to see whether participants updated their priors after receiving the information, but also to investigate whether cross-learning took place and participants also updated their beliefs for the information they did not receive.

2.5 Hypotheses

We first introduce our hypotheses for Experiment 1, and then for Experiment 2. At the end, we also discuss hypotheses relative to both experiments.
The hypotheses are formulated under the expectation that participants underestimate the size of each gap, i.e. they declare them to be smaller than the true ones.
Furthermore, we formulate the hypotheses under the assumption that individuals derive a higher utility from their self-interest rather than from the group they belong to (defined gender-wise or residence-wise) or from society as a whole. Information about attitudes towards gender inequality and how individuals feel to be personally affected will help us to better understand what drives the overall utility of individuals and whether our assumption holds.

Experiment 1: Germany

(H1a) For the full sample, we expect that participants in the treatment groups compared to those in the control group have stronger preferences for the adoption of labor-market and pension reforms. Further, we expect that those who only receive information about the gender pay gap have a stronger preference for labor-market related reform measures and that those who only receive information about the gender pension gap have a stronger preference for pension related reform measures. We expect that participants who receive information on both gaps should be more in favor of policy options, which reinforce female labor force participation rather than compensatory measures or measures related to savings.

(H1b) We expect that a greater extent of underestimation of the true values of the gaps will lead to larger effects of information provision.

As to subsamples, we expect that men and women as well as residents of East and West Germany will react differently to the information as explained in the following.

(H1c) Women and men:
Similarly to the full sample, we expect treated women to be more in favor of the reform measures than women in the control group; we also expect treated men to be more in favor (or indifferent) of the reform measures than men in the control group.
When comparing male and female participants, we expect that the effect of our treatments is stronger for female participants, i.e. they are more in favor of the proposed policy measures than male participants are. We have assumed that all individuals give more weight to their own utility. Since women are the disadvantaged ones compared to men, we expect them to change their preferences more strongly. Related to the full sample, the overall effect is more likely to be driven by female reactions.

(H1d) Residents of East and West Germany:
For both residents of East and West Germany, we expect that treated individuals are more in favor of the reform measures than untreated individuals are.
When comparing residents of East and West Germany, we expect that information provision does not have a smaller effect for those residing in West Germany than for those residing in East Germany. We expect a larger effect for West German residents if the treatment effect on policy preferences is mediated by prior knowledge of differences in gender inequality between East and West Germany, with the East being more equal than the West. If participants do not have prior knowledge, we expect the same effect for residents of West and East Germany. We will only be indirectly able to assess whether the resulting preferences are due to the assumed prior knowledge. We will put this assumption to a test when we consider Experiment 2 (see below).

Experiment 2: East / West Germany

(H2a) and (H2b) Related to the full sample, we have the same hypotheses as above (see (H1a) and (H1b)).

As to the subsamples, we expect the following reactions to information provision.

(H2c) Women and men:
Also this hypothesis is the same as above (see (H1c)

(H2d) Residents of East and West Germany
We expect that information provision will have a larger effect for the treated individuals in West Germany than for the untreated and, analogously, for the treated individuals in East Germany relative to the untreated ones.
Comparing those residing in West Germany with those residing in East Germany, we expect a stronger effect of information provision for residents of West Germany, as the West German gaps are larger. Differently from Experiment 1, we do not need to build our hypothesis on

assumptions about prior knowledge of the different gaps for East and West Germany, as we provide this regionalized information in the experiment.

(H2e) Men/Women and East/West
Furthermore, we expect that the effect difference between men and women is larger for West Germans than for East Germans. The effect size is expected to depend on the size of the underestimation.

Comparing both experiments

(H3): When comparing both experiments with each other, we expect that the reaction of West German residents to information on German gaps and on gaps for East and West Germany differ little, since the West German gaps are quite similar to the German gaps. This would hold in particular when individuals have prior knowledge of differences between the East and the West (see the discussion after H1d above). However, for East German residents, we expect a stronger reaction to the German gaps than to the gaps for East and West Germany, separately. This would not hold only in the case in which there is prior knowledge of differences between East and West, with the East being more equal.

3 Data Collection and Sources of Data

Our information provision experiment is embedded into a representative online survey of 7000 individuals in Germany. This sample is representative with respect to age, gender, educational background, and residence in East or West Germany. The survey field phase starts in September 2021; the survey is distributed to respondents by a professional survey company via an online panel. The online panel provider recruits and incentivizes respondents for their participation in our survey. Participation in our survey is voluntary and based on a consented sign-up of respondents for the sampling pool of the provider.
Randomization is done at the individual level by a computer.

4 Analysis

4.1 Experimental balance

We conduct tests for experimental balance between groups, separately for each experiment and for both experiments combined. In these balance tests we analyze whether there are differences in the following pre-treatment variables:

- age
- gender
- educational background
- residence in East/ West Germany
- employment status

- household size
- marital status
- children
- prior beliefs about the gender pay gap
- prior beliefs about the gender pension gap
- distributional preferences

4.2 Determinants and updating of prior beliefs

As a first step, we explore which respondents' characteristics are associated with biased beliefs about gender pay gap and/or gender pension gap. For that purpose, we estimate the following equation:

$$b_i = \delta_0 + \delta^T X_i + \varepsilon_i \tag{1}$$

where b_i represents biases in beliefs about the two gaps, respectively, X_i contains socio-demographic and attitudinal controls from the balance tests, and ε_i is the error term.
We also investigate whether respondents who receive information on one or both gaps update their beliefs after the receipt of information. Specifically, we compare their prior and posterior beliefs by means of within-subject t-tests and we analyze whether cross-learning took place, i.e. whether participants who received information about one gap have also updated their beliefs about the other gap for which they have not received any information.

4.3 Main Specification

In order to analyze the effects of our information treatment, we estimate equation (2) for Experiment 1 and equation (3) for Experiment 2, which compare our outcome variables across treatment arms:

$$y_i = \gamma_0 + \gamma_1 T1_i + \gamma_2 T2_i + \gamma_3 T3_i + \gamma^T X_i + \varepsilon_i \tag{2}$$

$$y_i = \gamma_0 + \gamma_1 T1_i + \gamma_2 T2_i + \gamma^T X_i + \varepsilon_i \tag{3}$$

In both equations y_i denotes the outcome variables capturing preferences towards the previously mentioned labor market and pension reforms. $T1_i$, $T2_i$ and $T3_i$ are treatment indicators for the different treatment arms in the two experiments, and ε_i is the error term.
X_i contains the control variables. In the baseline scenario, we include socio-demographic and attitudinal controls from the balance tests (see Section 4.1). If it improves the precision of our estimate, we will include further control variables. We also estimate the raw treatment effect in the absence of any control variables.

4.4 Further points for analysis

Multiple hypotheses testing

In order to account for multiple hypotheses testing, we are going to follow the standard methods. This includes, but is not limited to, constructing indices for our outcome measures related to the labor market and the pension system.

Pooling of treatments

In addition to the previously explained steps of analysis, we might also pool some of the treatments (e.g. those related to the gender pay gap for Germany and those for East and West separately) if this seems suitable.

Follow-up survey

In addition to the main survey round, we will conduct a follow-up survey of 50 percent of the original sample size to investigate the development of beliefs and policy preferences over time . We hence expect a follow-up sample size of about 3500 individuals. The analysis for the follow-up survey will be based on that for the main survey data.

References

Federal Statistical Office (2021). *Verdienste und Arbeitskosten: Arbeitnehmerveridenste.*

German Pension Insurance (2021). *Statistik der Deutschen Rentenversicherung Rente 2020: Rentenzugang, Rentenwegfall, Rentenänderung und Rentenbestand.*