Pre-Analysis Plan
Moral Mind: How the World Responds to Men and Women Falling Behind

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Contents

1 Background

In every society, some individuals fall behind in education and the labor market. This study investigates whether the gender of those falling behind influences people's beliefs about their effort levels, and whether they consider it important for the government to provide support.[1] Building on the experimental design of Cappelen, Falch, and Tungodden (2025), we implement a large-scale study with adult general population samples in 60 countries. This design enables us to examine these questions within each society and to analyze how responses vary across countries according to their characteristics.

2 Experimental design

2.1 Population and sample

We target 62,000 participants across 60 countries, recruited by Gallup as part of the 2022 Gallup World Poll. Our questions form a subset of the poll. The survey is administered in two modes: Face-to-face interviews in countries without sufficient internet coverage; web surveys in countries with adequate internet coverage.

In most countries, the target sample size is 1,000 adults (with oversampling in China). The target population is the full adult population within each country, though practical constraints (e.g., interviewer safety) restrict coverage in some regions. The unit of randomization is the individual respondent.

The face-to-face option (probability sampling) is applied in Bangladesh, Bolivia, Cambodia, Cameroon, Colombia, Egypt, Ethiopia, Ghana, India, Indonesia, Iraq, Jordan, Kazakhstan, Kenya, Morocco, Nigeria, Pakistan, Peru, Philippines, Russia, Senegal, South Africa, Sri Lanka, Tanzania, Thailand, Turkey, Uganda, Venezuela, Vietnam, Zambia, and Zimbabwe.

For the web survey, the survey provider invites participants that previously have agreed that they can be invited for surveys. The web survey option is applied in: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, South Korea, Spain, Sweden, Switzerland, Taiwan, United Kingdom, and the United States.

2.2 Outcomes

The survey experiment targets two primary outcomes:

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Y^e Belief that low effort is associated with falling behind in education and the labor market.

Y^s Support for government assistance to individuals falling behind in the labor market.

Both outcomes were originally measured on a five-point Likert scale: strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, strongly agree. We will recode these responses to numeric values (1–5) and standardize them using the pooled global mean and standard deviation. We will also construct a binary version, coded 1 for "somewhat agree" or "strongly agree" and 0 otherwise.

2.3 Interventions

The outcomes were measured in different randomized context which we take to be interventions:

Female Statements expressed with reference to females.

Male Statements expressed with reference to males.

Descriptive Low effort and falling behind related descriptively

Causal Low-effort and falling behind related causally

2.4 Arms

Randomization was at the individual level. Respondents were assigned to one of four arms, corresponding to the full factorial combination of gender (Female, Male) and relation type (Descriptive, Causal):

A **Female** and **Descriptive** context

B **Female** and **Causal** context

C **Male** and **Descriptive** context

D **Male** and **Causal** context

2.5 Questionnaire implementation of the arms

The arms were implemented in the following variants of Question 7:

> Using a scale of strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, or strongly agree, please tell me to what extent you agree with the following statements:

Q7A
1. Females who fall behind in education and in the labor market have exerted low effort.
2. It is very important that the government provides support to females who fall behind in education and in the labor market.

Q7B
1. When females fall behind in education and in the labor market, it is largely caused by their lack of effort.
2. It is very important that the government provides support to females who fall behind in education and in the labor market.

Q7C
1. Males who fall behind in education and in the labor market have exerted low effort.
2. It is very important that the government provides support to males who fall behind in education and in the labor market.

Q7D
1. When males fall behind in education and in the labor market, it is largely caused by their lack of effort.
2. It is very important that the government provides support to males who fall behind in education and in the labor market.

3 Hypotheses

We provide an overview of the hypotheses we intend to test and how we intend to do it.

3.1 Main hypotheses

Some of the main hypotheses are conditional on a set of control variables X, to be discussed below in the Empirical Strategy section.

Hypothesis 1. *Our first hypothesis, is in terms of* support*, that willingness to support those that fall behind in education and in the labour market is different for males and females falling behind. In the United States, Cappelen et al. (2025)*

found that people were more supportive of females falling behind, but this might differ in other countries. Null hypothesis:

$$E[Y^s|female, X] - E[Y^s|male, X] = 0.$$

We will test this at the global level, but also for each country.

We will refer to these treatment effects as ΔS, and we will subscript these with country (c), ΔS_c.

Hypothesis 2. *People have beliefs about how low effort and falling behind is correlated, and these beliefs might be conditional on gender. Based on Cappelen et al. (2025), we expect people to believe that falling behind is to a greater extent caused by lack of effort among males. We have three sub-hypotheses with variations of this, the nulls are formulated:*

2a. *We expect people to believe that falling behind is to a greater extent correlated with lack of effort among males. Null hypothesis:*

$$E[Y^e|female,descriptive, X] - E[Y^e|male,descriptive, X] = 0.$$

2b. *We expect that the belief that low effort causes falling behind is conditional on gender. Null hypotheses:*

$$E[Y^e|female,causal, X] - E[Y^e|male,causal, X] = 0.$$

2c. *We don't expect there to be differences in gender treatment effects by whether beliefs are measured in a descriptive or causal language. Null hypothesis:*

$$\begin{aligned} E[Y^e|female,descriptive, X] - E[Y^e|male,descriptive, X] \\ = E[Y^e|female,causal, X] - E[Y^e|male,causal, X]. \end{aligned}$$

We will test this at the global level, but also for each country.

Unless there are large differences between using a causal and a descriptive frame, we will pool data from the descriptive and the causal frame. We will refer to these treatment effects as ΔB, and we will subscript these with country (c), ΔB_c.

We want to test whether there are heterogeneous effects across demographic and socioeconomic groups of participants. We intend to test Hypothesis 1 and Hypothesis 2 by these different subgroups of respondents:

- High vs. below median age

- Male vs. female respondents
- High vs. below median education
- High vs. below median household income

All the comparisons to medians refer to within-country medians. Household income will be standardized by household size using the more recent OECD approach (dividing by the square root of household size). Because of the limited sample sizes in each country, we do not aim to test for heterogeneity within each country.

Hypothesis 3. *We will examine the relationship between the support for people falling behind and the belief in the role of effort at the individual level. We start by estimating the following regression model,*

$$Y_i^s = \alpha_c + \beta_T male_i + \beta_e Y_i^e + \delta X_i + \epsilon_i.$$

We will test whether there is a main effect of belief on support (null: $\beta_e = 0$), and also whether $\beta_T = 0$ when controlling for Y_i^e. We will then consider adding heterogeneity in β_e. Based on a subgroup membership indicator G, we will test for heterogeneity in the effect of belief (β_e) on support with the following model:

$$\begin{aligned} Y_i^s = {} & \alpha_c + \beta_T male_i + \beta_G G_i + \beta_{GM}(G_i \times male_i) \\ & + \gamma_0 Y_i^e + \gamma_1 (G_i \times Y_i^e) + \gamma_2 (\text{male}_i \times Y_i^e) + \gamma_3 (G_i \times \text{male}_i \times Y_i^e) + \delta X_i + \epsilon_i. \end{aligned}$$

3a. We will test whether membership in the group has a direct effect (null: $\beta_G = 0$) and whether it moderates the treatment effect (null: $\gamma_1 = 0$).

3b. We will test whether there is a difference in how males and females are given support conditional on effort belief (null: $\gamma_2 = 0$).

3c. We will test whether group membership moderates the gender-based support (null: $\gamma_3 = 0$).

Testing (a) and (b), we will also restrict other heterogeneity to zero. Our primary subgroup hypothesis concern is the gender of the respondent; we will consider other subgroup testing to be exploratory.

We now move to cross-country analysis, in particular we want to study whether the cross-country variation in treatment effects on support can be explained by beliefs.

Hypothesis 4. *We expect the gender effect in support, ΔS_c, be positively related to the gender effect in beliefs, ΔB_c. We will use the regression model*

$$\Delta S_c = \alpha + \beta \Delta B_c + \epsilon_c,$$

and the null hypothesis is that $\beta = 0$, while the alternative hypothesis is that $\beta > 0$.

4a. We expect the relationship between the gender difference in support to be stronger in countries with more meritocrats and will use a modified regression model,

$$\Delta S_c = \alpha + \beta_0 \lambda_c^M + \beta_0 \Delta B_c + \beta_{MB}(\lambda_c^M \times \Delta B_c) + \epsilon_c,$$

in which λ_c^M is the estimated share of meritocrats in country c from a different study of fairness ideals with respect to 15-year-olds.[2] *Our null hypothesis is that $\beta_{MB} = 0$, and our alternative hypothesis is that $\beta_{MB} > 0$.*

We expect there to be differences between countries that depend on the gender equality. We plan to measure gender equality with the UN Gender Inequality Level Index (GII). The GII is a composite metric of gender inequality using three dimensions: reproductive health, empowerment and the labour market.

Gender equality in a country may have opposing effects on the treatment, and we have no prior on the average direction. In fact the gender equality effect may work differently across countries—if we find a systematic effect for of gender equality for S (Support), then we also expect to find a systematic effect of gender equality for B (Beliefs).

Hypothesis 5. *We expect the gender effect on support for those falling behind (ΔS_c) to differ by the degree of gender unequal societies (*GII*). We will use the regression model*

$$\Delta S_c = \alpha + \beta^S \text{GII}_c + \epsilon_c,$$

and the null hypothesis is that $\beta^S = 0$.

Hypothesis 6. *We expect the gender effect on beliefs (ΔB_c) to differ by the degree of gender unequal societies (*GII*). We will use the regression model*

$$\Delta B_c = \alpha + \beta^B \text{GII}_c + \epsilon_c,$$

and the null hypothesis is that $\beta^B = 0$.

[2]These shares of fairness ideals are estimated on questions from a different module on the same 2022 Gallup World Poll.

Our main focus for testing hypothesis 5 and 6 is on specifications without other controls, since we expect these to be highly correlated; but for completeness we will also report regressions where we control for GDP, Inequality, and country average Education, and Age.

Hypothesis 7. *We expect the effects of gender unequal societies on support and on beliefs to have the same sign; the corresponding null hypothesis is that the signs are different,* $\text{sgn}(\beta^S) \neq \text{sgn}(\beta^B)$*, and we plan to implement this test with a stacked regression of the formulations in hypotheses 5 and 6, testing the null that* $\beta^S \beta^B < 0$ *(a one-sided test).*

3.2 Explorative analyses

We will compare how country level estimates of the treatment effects suggested by the hypotheses 1 and 2 above (ΔS_c and ΔB_c) and relate these to:

- The income level of the countries (gross domestic product)
- The average education level of the countries

The attitude of people to gender differences in labor markets might depend on ideas about gender formed by people in their youth. We will want to explore whether the age interaction in the individual level responses can be related to historical values of the GII reflecting labour market conditions in their youth (the GII is provided going back to 1990).

4 Empirical strategy

We will test the hypotheses outlined above using linear regressions with post-stratification weights. We will use the population weights provided to post-stratify to national representativeness on observables to the extent that it is possible with the weights supplied by Gallup and to the extent that it contributes to establish comparable estimates across countries. The poststratification weights supplied by Gallup will, when relevant, be rescaled such that the weights sum to the same number in each country. Standard errors will, when appropriate, be clustered at the level of the primary sampling unit in the face-to-face countries (in these cases each observation will be considered a cluster of its own in web-countries).

The vector of background variables, referenced as X in the section on hypotheses will consist of characteristics of the respondent and the household of the respondent: gender, age, marital status, education, employment status, whether they are first generation immigrants, number of children in household, household income (scaled by the square root of household size and measured in rank within

country), and urbanicity. For the main within-country hypotheses tests, country fixed-effects are also included in X. Should there be many missing observations on any of these variables, this variable will be dropped from the list of controls.

References

Cappelen, Alexander W., Ranveig Falch, and Bertil Tungodden (2025). "Experimental evidence on the acceptance of males falling behind," *Journal of the European Economic Association*: jvaf016.