Pre-Analysis Plan:

THE IMPACT OF DESCRIPTIVE SOCIAL NORMS ON PARENTAL LEAVE TAKE-UP AMONG MOTHERS

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Introduction

Across the world mothers take the majority and fathers only a small share of parental leave (PL) after individuals become parents. Especially during the first year of a child, mothers spend more time with the child, while fathers continue to work. It is well-documented that this creates gender inequalities in the labor market and affects children's outcomes, and these effects tend to persist also in the long-term. Therefore, it is important to understand what factors influence this gender difference in responsibility after childbirth.

Potential important factors that can affect the gender difference in parents' PL plans include to what extent there exist a system for parental allowance (and how it is constructed), gender inequalities in income from work, gender barriers in the labor market, culture and norms (Duvander 2014; Wall and Arnold 2007; Lappegård et al. 2020; Dahl et al. 2014).The current project investigates the role of norms. Norms can be divided into two types (Cialdini et al. 1991). Injunctive social norms are norms about what an individual *ought* to do. Hence, it is about moral approval (or disapproval) of others. A descriptive social norm is what other people do. In this project, we will conduct a survey experiment to investigate to what extent descriptive social norms – specifically, the number of days other mothers stay home with their children during the first year after childbirth – influence the number of days a particular mother stays home. The rationale for focusing on mothers is that they have received less attention than fathers in the discussion of how to achieve a more gender balanced parental leave take-up (see, e.g., Farre and Gonzalez 2017 and Dahl et al. 2014) although mothers´ behavior also could be important. Norms could play an essential role for mothers and constitute a barrier that hinders mothers from reducing their take-up (which in turn could constrain the father in a couple from increasing his take-up).

The survey experiment

This survey experiment will be conducted using Prolific (https://www.prolific.co). The participants will be females aged 25-35 holding a UK citizenship. They will answer the following question: "If you become a mother, how many days (0-365) would you stay at home taking care of the child during the first year after childbirth?". Before being presented with the question, the participants will see the norm manipulation in the experiment, which constitutes different information about how many days other mothers in the UK stay at home taking care of the child during the first year after childbirth. Using a between-subjects design, the participants will be randomly assigned to one of three groups:

- Control group: No explicit information about how many days mothers in the UK stay at home taking care of the child during the first year after childbirth.
- Treatment group 1: Information indicating that the number of days is high
- Treatment group 2: Information indicating that the number of days is low

The information given to participants in the high versus low treatment groups is based on a pilot study. In the pilot study, we targeted the same population (N=150) and asked participants "How many days do you think mothers in the UK on average stay at home to take care of the child during the first year (365 days) after childbirth?". The respondents thought that mothers´ stay at home approximately 236 days on average. We decided to use 290 and 180 as the high and low descriptive norm, respectively. The full material and all survey questions are presented to the participants is found in the appendix.

Outcome
The outcome in the survey experiment is the number of days the participant plan to stay at home taking care of the child during the first year after childbirth. It is measured as a continuous variable by the answer to the following question:

- If you become a mother, how many days (0-365) would you stay at home taking care of the child during the first year after childbirth?

Manipulation check
At the end of the survey we include a memory item to check if the participants have read and remembered the norm information.

Background variables
The questionnaire contains a set of questions about background characteristics of the participants (see the appendix). Prolific also provides other background information of the respondents.

Hypotheses
Based on previous theoretical and empirical research showing that descriptive social norms influence a wide range of outcomes (Gerber and Rogers 2011; Allcot 2011; Coffman et al.

2017; Goldstein et al. 2008; Shang and Croson 2009; Agerström et al. 2016), our first hypothesis is:

H1: The planned number of days staying at home taking care of the child during the first year after childbirth should be higher for those treated with the high staying-home-with-children norm compared to those in the control group

The high staying-home-with-children norm treatment includes information about the number of days mothers stay home which should be higher than the expectation in the baseline condition. Therefore, we expect the average outcome in this treatment group to be higher compared to the control group. Although no explicit norm information is provided for those in the control group, participants likely consult some norm reference value based on their own assumptions about how many days mothers stay home on average. That was the rationale for conducting the pilot study. Specifically, it helped us assess the perceived norm in the same population on which the experiment is conducted. Our high norm treatment was then designed to convey a norm that is substantially higher than this baseline. Note that the pilot study was not performed to assess the perceived norm with extremely high precision. Rather the goal was to get a rough idea about what the perceived norm is, so that we would be able to create two treatments that signal norms substantially higher and lower than this reference value.

Our second hypothesis is analogues to the first, but concern a low treatment norm. Formally stated, our second hypothesis is:

H2: The planned number of days staying at home taking care of the child during the first year after childbirth should be lower for those treated with the low staying-home-with-children norm compared to those in the control group

Finally, we expect career versus family oriented personal values to moderate the effect of social norms. As a proxy for career vs. family orientation we use level of education. Our final hypothesis states:

H3: The social norm effect should be stronger for highly educated individuals

H1 and H2 are the main hypotheses, whereas H3 is a secondary hypothesis.

Population, sample and data collection

The population consists of female UK citizens aged 25-35. We will draw a random sample of 1,000 participants from the Prolific platform (https://www.prolific.co; see power calculations below). The survey experiment will be conducted through an online survey using the Qualtrics survey software. Participants that fail the manipulation check at the end of the survey and those who complete the survey in less than 30 seconds will be excluded.

Statistical analysis

We will estimate treatment effects in a regression framework using ordinary least squares with robust standard errors. If the distribution of the outcome in the experiment is skewed to the right (as hinted by the pilot), we will use the logarithm of the outcome as the dependent variable. To test H1 and H2 we will run the following regression on the planned number of days staying at home taking care of the child during the first year after childbirth:

$$y_i = \alpha + \beta_H NORM_i^H + \beta_L NORM_i^L + \varepsilon_i \tag{1}$$

where y_i is the outcome for individual i, $NORM^H$ is a dummy variable equal to 1 if treated by the high staying-home-with-children norm (else 0), and $NORM^L$ is a dummy variable equal to 1 if treated by the low staying-home-with-children norm (else 0). Hypothesis H1 implies $\beta_H > 0$ and hypothesis H2 implies $\beta_L \leq 0$.

To test H3, we will estimate the following regression

$$y_i = \alpha + \beta_H NORM_i^H + \beta_L NORM_i^L + \beta_F EDUCATION_i + \\ + \beta_{HE} NORM_i^H * EDUCATION_i + \beta_{LE} NORM_i^L * EDUCATION_i + \varepsilon_i \tag{2}$$

in which $EDUCATION_i$ is a category variable (0/1) around the median level of education in the sample. H3 implies $\beta_{HE} > 0$ and $\beta_{LE} < 0$.

Balance checks

We will examine balance across age (measured as a continuous variable), employment (indicators for type of employment), education (indicators for level of education), student status (binary variable), and if the respondent has a child (binary variable). We will test balance using two regressions – with either $NORM_i^H$ or $NORM_i^L$ as the dependent variable – and using age,

employment, education, student status, and if the respondent has a child as explanatory variables. We will test the explanatory variables for joint significance.

Robustness checks

We will present results with control variables if the balance checks fail.

Treatment heterogeneity

We have no pre-specified hypotheses on treatment heterogeneity (except H3). Thus, if conducted, all treatment heterogeneity analyses will be explorative. We will make this clear in the paper.

Statistical power

We have calculated the statistical power of detecting H1 and H2 (the main hypotheses) simultaneously as outlined at the EGAP webpage (http://egap.org/content/power-analysis-simulations-r). Based on the pilot study described above, we assume that women plan to stay home 230 days on average with a child during the first year after childbirth. We assume that the standard deviation is 60. Next, we assume that the effect of the high and low treatments is -23 and +23, respectively, which corresponds to a 10% decrease/increase in the number of days that women plan to stay home with their child the first year after childbirth. Given these assumptions, the power simulations show that we need about 450 respondents to have 80% percent power to detect that two main treatment effects simultaneously. In the end, we decided to sample 1,000 respondents.

Missing data

We will examine whether a missing outcome is correlated with treatment. We will use the treatment effect equation to conduct the test, but with the main outcome replaced with a missing outcome indicator. If treatment status correlates with missing outcome we will calculate extreme bounds and trimming bounds for the treatment effect for the always-reporters (see Gerber and Green 2012: 226ff).

Respondents with missing background information will be included in the analysis. This is only relevant for analyses that contain background variables according to this pre-analysis plan (see, e.g., robustness checks). For category variables we will use missing indicators in the regressions. For continuous variables we will impute the mean value and use a missing indicator.

Ethical considerations

In the survey, we will present fictitious statistical information to the participants about the average number of days that mothers stay home with their children during the first year after childbirth. Although this implies deception, the risks involved for the participants should be small. The reason we use deception is that this research question is difficult to investigate otherwise. We will debrief the participants after the survey experiment has been conducted. In the debriefing we will underline that the presented number of days that mothers stay home with their children was not accurate.

The cost of conducting the experiment associated with deception should be weighed against the benefits to society. The main benefit to the society is that the results can help with policy recommendation for creating a more gender equal parental leave take-up. This could be important for child development as research suggest spending time with both parents is crucial in terms of child development (Tanaka and Waldfogel 2007, Dahl et al. 2014, Farre and Gonzalez 2017). Our results could also change policies in a way that increase gender equality in the labor market, limiting the negative impacts having children often has on the careers of female workers (Farre and Gonzalez 2017).

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APPENDIX: SURVEY QUESTIONS

Q1. How old are you? (15-75)

Q2. What is the highest level of education you have completed (or plan to complete if you are a student)?

> *Less than high school*
> *High school graduate*
> *Some college*
> *Bachelor's degree*
> *Postgraduate degree (including master and professional degrees)*
> *Doctorate*

Q3. Do you have children? (Y-N).
> *Q3.a. If no, do you want/plan to have children? (Y-N)*

Q4. Consider a couple consisting of a man and a woman who are expecting their first child. After birth the mother and/or father usually take time out from work to stay at home for a period to take care of the child.

[INSERT ONLY IF TREATED: Mothers in the UK on average stay at home [INSERT 230 IF HIGH NORM; INSERT 180 IF LOW NORM] days to take care of the child during the first year (365 days) after childbirth.]

If you become a mother, how many days (0-365) would you stay at home taking care of the child during the first year after childbirth? [0-365]

Q5. How many parental leave days do mothers in the UK take on average in the first year of their child? (Multiple choice) [MEMORY ITEM]