Parent capability: A factorial survey experiment on the duration of parental leave

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Data
The data (the survey microdata and the syntax of multilevel models) that support the findings of our article is openly available in:
https://www.socialscienceregistry.org/trials/10946

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Abstract

We use Sen's capability approach to identify factors able to increase the effective freedom of working parents when deciding the length of their parental leave. We conducted a factorial survey experiment (FSE) with a Spanish sample of employees aged between 25 and 45. Respondents were asked to imagine that they were first time parents and several descriptions of hypothetical situations or vignettes (where aspects of the leave system, workplace and family environment were randomly varied) were presented to them. Our goal was to identify the causal effect of a number of dimensions on their hypothetical decisions about the total number of weeks they would be on parental leave. A longer statutory duration and a higher replacement rate (of the paid part of the leave), having job security, and a workplace with friendly practices and cultures, were found to have a significant positive impact on the duration of parental leave.

Keywords

Parental leave; capability; duration of leave; factorial survey experiment

1. Introduction

Parental leave is one of the main existing instruments to reconcile work and family life. The use of such leave has a positive effect on the well-being of parents and children

(Kaufman 2020, Ch. 2). In recent years there have been many reform processes of parental leave systems, in some cases to accommodate fathers and to promote mother-father co-responsibility in their use (Moss and Deven, 2020; Patnaik, 2019). Spain is an example of this. In January 2021, the paid leave of the father was fully equated with that of the mother. Now, the leave is referred to as “birth and childcare leave”. It is a statutory 16-week leave, fully remunerated and non-transferable, to which both parents have access (Meil et al., 2022; Moreno-Mínguez et al., 2023). Furthermore, as will be discussed later, in Spain there was already an unpaid leave of up to 3 years (unpaid childcare leave), to which the father and mother have equal access.

This new parental leave system already in place in Spain creates a good momentum for raising a number of policy questions. What leads eligible parents to take more or less (weeks) of parental leave (including both paid and unpaid leave)? Is there an agency gap between the time that parents ideally wish to be on parental leave and the actual time that they ultimately choose? Is this agency gap greater among fathers than among mothers? What are the main factors that explain this agency gap?

There is considerably active international and comparative research on parental leave, covering areas such as the development of leave policies (Moss and Deven, 2020), the inclusiveness (entitlements and eligibility) in the field of parental leave (Blum and Dobrotić, 2021), the use (leave-taking, length) of parental leave entitlements (Duvander and Johansson, 2012; Ekberg et al. 2013), and the consequences of use of parental leave (Almqvist and Duvander, 2014; Petts et al., 2021).

We intend to add to the empirical evidence in the field of use of parental leave. We use Sen's capability approach (Javornik and Kurowska, 2017) to address the question of

which factors can increase the effective freedom (or agency) of parents when deciding the length of parental leave. In this article, we propose that the use of the factorial survey experiment (FSE) methodology can be a good option to approach a study based on the capability approach.

Several descriptions of hypothetical situations (vignettes) in which the respondents would find themselves (where aspects of the design of the leave policy, the workplace and the family environment are varied) are presented to the respondents to elicit them to decide what total number of weeks of leave they would take in each of these scenarios. We construct the vignettes with seven dimensions, plus one more dimension in a between-respondent split. Our dependent variable is the answer (after examining each vignette) to the question: "What total number of weeks of leave would you take after having your first child?"

Since the disjuncture between policies and capabilities to exercise them can be particularly intense among fathers, we consider in our analysis the gender of the respondents as a fundamental variable. Furthermore, although the type of decision that respondents have to make is hypothetical, it is important that the sample of respondents have characteristics that bring it as close as possible to the contexts analyzed in our study. For this reason, we use a sample of wage earners (in Spain wage earners are fully eligible for all parental leave) with ages between 25 and 45 (which is the age range in which most parents have their children in Spain).

2. Leave policies in Spain

The structure of the parental leave system in Spain is basically twofold: paid parental leave of 16 weeks (birth and childcare leave) and unpaid parental leave of up to 3 years (unpaid childcare leave). In addition, there are a number of less significant benefits (Meil et al., 2020).

Birth and childcare leave is an individual and non-transferable leave that each of the two parents is entitled to. It protects the situations of birth, adoption and foster care. The length of leave is 16 weeks (from January 1, 2021, it has the same duration for fathers and mothers): six weeks are obligatory and must be taken (full time) following the birth. The 10 remaining weeks can be taken (full or part time) over the first year on a weekly basis. Payment is 100 per cent of earnings up to a ceiling of €4,070.10 per month.

Regarding the unpaid parental leave ("Excedencia por cuidado de hijos"), each parent is entitled to take this leave until three years after childbirth. It is an individual right. During the first year, return to the same job position is protected. After the first year, job protection is restricted to a job of the same category. By its very nature, salaried employees are eligible for this, while the self-employed are not (Meil et al., 2020).

It is possible to affirm that in Spain, mothers and fathers eligible for paid leave tend to have a high sense of entitlement for the use of this leave (the rates of use of this leave are very high), while the unpaid leave is considered as something optional and of minority use (primarily by mothers), with a high opportunity cost as a consequence of not being paid (Meil et al., 2020). For more information on the usage rates of these leaves and on the rest of the existing statutory (individual) benefits, see Section 1 in the Supplementary file.

3. The capability approach and the agency gap in the use of parental leave

Sen's capability approach (Sen, 1985) is a normative theory based on the assessment of individuals' capabilities. For Sen, the core issue is not only what individuals choose, but the choices that they would make if they had the capabilities to achieve the kind of lives that they have reason to value (Robeyns, 2005).

Sen's capability approach contains three fundamental elements (Javornik and Kurowska, 2017): capability, functionings and resources. Living may be seen as consisting of a set of interrelated functionings, made up of “beings” and “doings" (being adequately nourished, being able to read and write, being happy, etc.). Capability refers to the set of valuable functionings to which a person has effective access. Thus, a person’s capability represents the effective freedom (agency, or real opportunities) of an individual to choose between different functioning combinations. If this capability set is expanded, the well-being of the individual can be increased.

Resources (commodities, entitlements) are often essential requirements to access functionings. Resources include the characteristics of individuals, their resource endowments and their entitlements. There is a special type of resource: conversion factors (Sen, 1985). These are factors that allow a given resource to contribute to achieving a functioning. These conversion factors emphasize that it is not sufficient to know the resources a person owns or can use in order to be able to assess the well-being that she has achieved or could achieve; rather, we need to know much more about the

person and the circumstances in which she is living. Sen uses “capability” to refer to an opportunity made feasible and constrained by conversion factors.

This approach can be a useful theoretical framework for analyzing agency inequalities in work-family balance (Hobson and Fahlén, 2009; Drobnič and Rodríguez, 2011), and, more specifically, for the analysis of the agency gap in the use of parental leave (Javornik and Kurowska, 2017; Koslowski and Kadar-Satat, 2019; Reimer, 2020).

Following in part Javornik and Kurowska (2017), the conceptual framework for this research is expressed in Figure 1. On the one hand, the resource is the existing parental leave system. This resource can facilitate the achievement of three functionalities: The opportunity to stay in the job market while having a child; to care personally for a child; and child’s opportunity to be cared for by both parents. However, the fact that with this resource the parents have a real opportunity to achieve these functionings depends on the conversion factors. If these factors act in a favorable sense, the parents will feel that they have more capability to achieve those valued functionings; that is, they will feel more able to use parental leave as a way to achieve a better balance between childcare and job maintenance.

In the right part of the figure there is also an “observed functioning” (Robeyns, 2005; Javornik and Kurowska, 2017). This is where we observe what the person does or is, and it acts as a proxy variable of the three functionalities that have been indicated above. In the present case, the “observed functioning” is the duration of the leave. This duration captures the use of policy, which may be a result of either the real opportunities that parents have or their own choice. In this sense, the introduction in the analysis of the

conversion factors allows identifying the use of the policy that derives from the existence of real opportunities.

Regarding the conversion factors that favor (or limit) a parent feeling with more capability to achieve the valued functionings (which, according to our model, translates into longer leave duration), the literature indicates a series of determinants of the use and duration of the various types of leave that can be grouped into the factors that appear in the figure.

First, the design of the leave policy itself can have a major impact on the person's feeling of having the capability to take longer leave. Empirical evidence shows that statutory, paid leave with a high replacement rate tend to generate a high leave uptake (Dearing 2016). In addition, to encourage the use of leave by fathers, it is very important that they are non-transferable (individualized) rights, which if not used by the individual, are lost (Castro and Pazos, 2016). This statutory, individual and well-paid leave not only gives rise to an economic-rational incentive for their use, but also tend to generate what is called a “sense of entitlement”, understood as a series of beliefs or feelings about having rights to something based on what is understood as fair and equitable (Brandth and Kvande, 2019). In this sense, an increase in the statutory duration of these types of leave usually give rise to a significant response in terms of their effective duration.

Second, having job security (the feeling of having stable work status; for example, having an indefinite contract and certain seniority in the company) can be an important factor that enables parent's agency (capability) in the use of the parental leave (Reich 2010). This can be particularly important in the Spanish labor market, characterized by the

existence of high structural unemployment and high rates of temporary and precarious employment (Lapuerta el al., 2011).

Third, workplace practices and cultures can also be an important conversion factor (Koslowski and Kadar-Satat, 2019). The feeling that being on leave will not harm colleagues (good substitution policy), nor will it endanger future professional promotion; the fact that there are role models in the use of leave, and, in general, all those practices that contribute to the worker feeling supported by their company when taking leave, seem to be relevant determinants of leave uptake and leave duration (Brandth and Kvande, 2019; Samtleben et al., 2019).

Fourth, the use of parental leave is marked by gender norms. Gender is a “personal conversion factor” (Javornik and Kurowska, 2017), along with class, race/ethnicity, age, and health. The influence of traditional gender norms is still reflected in the gendered parenting role attitudes (Knoester et al., 2021), in the interaction and in the division of paid/unpaid work within heterosexual and cisgender couples (Kaufman and Almqvist 2017), and in the culture of companies and other organizations (Haas and Hwang, 2019). The disjuncture between norms/values and practices and between policies and capabilities to exercise them (Koslowski and Kadar-Satat, 2019) is particularly intense among fathers, who use on average shorter leave periods.

Finally, the decision on the use or duration of leave is often made jointly by the two members of the couple (Kaufman and Almqvist, 2017). The personal and work characteristics of the partner, relative to those of the worker (for example, the wage gap between the two) influences the gender division of labor and the worker's ability to exercise their Rights.

[**Figure 1** here]

4. Current study and hypothesis

In this research we use a factorial survey experiment (FSE), also called a vignette experiment. An FSE consists of the use of a multidimensional experimental design within a survey. An FSE involves showing different hypothetical situations (vignettes) to the respondents to elicit them to form judgments about these scenarios (Steiner et al. 2016). The levels of the dimensions are experimentally varied across the vignettes so that the impact of those levels on the respondents' judgments can be estimated (Auspurg and Hinz, 2015, p. 5). When administered within a questionnaire, FSEs enable the use of larger and more representative samples than are used in classical controlled experiments and the introduction of many more dimensions. FSEs allow the internal validity of controlled experiments to be combined with the external validity of surveys.

Controlled experiments have been used to study how people who use leave are perceived and penalized (Allen et al., 1994; Wayne and Cordeiro, 2003; Rudman and Mescher, 2013). Regarding the specific use of FSEs, Petts et al. (2021) conducted an FSE to study how American parents who take longer periods of leave are considered less committed to their companies. For the case of Spain, Fernández-Lozano et al. (2019) performed an FSE to analyze how Spanish employers might disfavor parents who work part-time (flexibility stigma). However, in all these cases the perspective adopted is that of the employer, and not that of the employee. Instead, our research constitutes one of the first FSE applied to the field of leave policies that adopts the perspective of employees, who have to decide how many weeks of leave they would take in different

hypothetical contexts. The only precedents similar to ours are Van Breeschoten et al. (2018), who carried out an FSE applied to the decision to use a reduction of working hours, and Thébaud and Pedulla (2022), who used a survey experiment to examine the respondents' intentions to use work-family policies (flextime and a parental leave offered by their employer). Our research differs from these last two in that it fully develops the analysis of the determinants of the duration of parental leave.

As table 1 shows, in our research we consider eight dimensions, the first with three levels and the other seven with two levels. We focus on the effects of each of these dimensions on our dependent variable -the total number of weeks of parental leave that the participant would take. We also pay attention to all possible interactions between dimensions.

[**Table 1** here]

The first dimension (Duration) was assigned in a between-respondent split: a third of the sample were given a questionnaire with a cover story indicating that individual, paid parental leave lasted for 17 weeks (about 4 months), for another third the duration was 22 weeks (about 5 months), and for the last third the duration was 26 weeks (about 6 months). For the first level we chose 17 weeks, and not 16 or 18, because we did not want this figure to coincide with the real figure in Spain (birth and childcare leave lasts 16 weeks; and if we add the two weeks of "breastfeeding leave", it is 18). Based on the aforementioned fact that the existence of statutory, paid and non-transferable leave, usually gives rise to a high degree of “sense of entitlement” in their use, we consider that the decisions of the respondents on how many weeks stay on parental leave (including both paid and unpaid leave) will be quite close to the duration established by

law for paid parental leave. Moreover, this concentration around legal duration may be reinforced by an anchoring effect (Furnham and Boo, 2011). As these two effects can be quite strong, we preferred that this vignette dimension vary between respondents, so that the effect of this dimension does not undermine the effect of the other seven dimensions. We formulate the following hypotheses.

> Hypothesis 1. Respondents' decisions about how many weeks of parental leave they would take will tend to be highly concentrated around the number of weeks established by law for paid parental leave (17, 22 or 26).

While the first dimension varies between respondents, the other seven dimensions vary within respondents (the same respondent is exposed to these seven conditions). From several of these other dimensions, we are going to formulate four more hypotheses, based on the literature on conversion factors reviewed previously. These four hypotheses point to four factors that tend to increase the person's feeling of having capability to take longer parental leave.

> Hypothesis 2. The fact that the paid part of the parental leave has a replacement rate of 100% (and not 60%) increases the average number of weeks of (total) parental leave that respondents would take. (Dimension: “High replacement rate”).

> Hypothesis 3. The fact of having an indefinite contract and a stable employment situation increases the average number of weeks of parental leave that respondents would take. (Dimension: “Job security”).

> Hypothesis 4. Working in an organization where being on leave is not a detriment to co-workers or to one's professional career increases the average number of

weeks of parental leave that respondents would take. (Dimensions: “Does not harm colleagues” and “Does not harm promotion”).

Hypothesis 5. Working in an organization where it is common for coworkers of the same gender to use long parental leaves increases the average number of weeks of parental leave that respondents would take. (Dimension: "Peers role model").

“Lower income than my partner” tries to capture the degree to which having a lower income than his/her partner causes the respondent to take more weeks of leave (compared to the opposite case). “Easy application” tries to capture the effect of working in an organization that has a friendly attitude towards workers who apply for leave (with respect to an organization that is not). These two dimensions are included in the analysis on an exploratory basis (we do not formulate hypotheses for them). Furthermore, these two dimensions serve to mask the theoretically relevant effect of the previous dimension and to give more coherence to the vignette as a whole.

In addition, as the FSEs involve conducting a survey, when analyzing the determinants of the dependent variable (number of weeks of parental leave that respondents would take), we also include a series of variables that measure the personal characteristics or attitudes of the respondents. We are particularly interested in gender. As mentioned above, there is still a significant gender gap in the use of parental leave, being the disjuncture between policies and the capability to access them particularly pronounced for fathers. Therefore, we formulate a sixth hypothesis:

Hypothesis 6. As a consequence of the persistence of traditional gender norms, male respondents would take a lower average number of weeks of leave than female respondents.

Furthermore, in an exploratory way, we are interested in knowing if the gender of the respondents moderates the effect of the different dimensions of our experiment on the dependent variable. Therefore, our model will later be estimated for the subsamples of male and female respondents.

In our analysis we added as a control variables six more personal variables that had some statistically significant effect on the dependent variable. These variables, corresponding to four personal characteristic and two attitudes of the respondent, will be set out in the data and methods section.

5. Data and methods

Vignette and experimental design

In our design, after asking respondents to imagine that they have a satisfying (salaried) job, that they have a partner, and that they are going to have a first child, they are presented with eight hypothetical situations (vignettes), for each of which they will have to decide what total number of weeks of parental leave they would take. These vignettes are formed from the dimensions listed in table 1.

As mentioned above, in a first stage, the total sample of respondents was randomly divided into three parts. Each of them was assigned a cover story indicating that in Spain the individual, paid parental leave had a duration, respectively, of 17, 22 or 26 weeks

(this is the first dimension "Statutory length of paid leave"). In a second stage, for each third of the sample, the remaining seven dimensions were assigned through the vignettes, as described below. Since they are seven dimensions of two levels each, there are 128 (2x2x2x2x2x2x2) possible hypothetical situations (vignette population). Since this is not a large number, we decided to use the vignette universe in its totality. As it is impossible to expose each respondent to 128 hypothetical situations (without overwhelming them), it was necessary to reduce the number of vignettes presented to each person while still allowing the main effects of each dimension and their cross effects to be identified. We used the SAS macro "%MktBlock" to allocate the 128 vignettes to 16 different questionnaire versions (decks), each consisting of eight vignettes, providing a 100% D-efficient design (see Table S2 in Supplementary file). Once these 16 decks had been designed, each respondent was randomly presented with only one deck, so each respondent had to make the decision on how many weeks of parental leave to take in only eight hypothetical situations. According to Auspurg and Hinz (2015, p. 48), methodological research has suggested that with vignettes that contain the ideal number of seven (plus or minus two) variable dimensions, one should use no more than approximately 10 vignettes per respondent). Furthermore, the order of presentation of the eight vignettes was randomized within each deck.

Questionnaire

The questionnaire had two parts (see the questionnaire in Supplementary file): the first on the FSE and the second on gathering information on demographics and attitudes from the respondents. At the beginning of the questionnaire, the respondents read the following cover story: "In this research we want to analyze what would be the intentions

of workers to reconcile work and family life, through the use of parental leave". Then, in the first part, after a brief explanation about the different types of leave existing in Spain (basically paid and unpaid leave), the respondents were asked to imagine that they had a paid job according to their expectations, that they had a partner (who also had a paid job), that their first child was about to be born (instead of adding an additional dimension with the number of offspring, we chose the first-time parent scenario to simplify the experimental design and to maximize the causal effects of the eight dimensions considered in the experiment), and that they had the right to take non-transferable paid leave of 17/22/26 weeks, a period that could be extended using unpaid parental leave. This information served to standardize the respondent's framing and interpretation of the vignette (Auspurg and Hinz, 2015, p. 81) and to try to satisfy as much as possible the assumption of information equivalence (Dafoe et al., 2018). After that, each respondent was shown the eight vignettes consecutively on the screen (corresponding to the deck randomly assigned, out of the 16 possible decks). An example of a vignette is shown in Figure 2. Under each vignette, each respondent had to answer the question that constitutes the dependent variable of our research: "What total number of weeks of leave would you take after having your first child? (Response scale in number of weeks, from 0 to 53 (one year or more))".

[**Figure 2** here]

In the second part of the questionnaire the respondents were asked to provide certain information about themselves: age, gender and other demographic information. As previously mentioned, several of these variables were used in our analysis. "Woman" (1="yes"; 0="no"); "Age" (age in years); "Main supporter" (1="yes"; 0="no"), from the

question: "Are you the main supporter of your household? (The person who contributes the most to your household budget)"; “Public sector employee” (1=“yes”; 0=“no”); “Primacy of work”, a subscale of the validated “Conformity to Masculine Norms Inventory-22” (Burns and Mahalik, 2008), containing these two items answered on a 6-point Likert scale (1=“strongly disagree” to 6=“strongly agree”): “My work is the most important part of my life” and “I don’t like giving all my attention to work (inverted)”; “Favorable to equating leave”, (0="totally against equating paternity leave with maternity leave" to 10="totally in favor…"); and “Non-heterosexual” (1=“yes”; 0=“no”), which includes the categories "homosexual", "bisexual" and "other".

Sample

Data for this study were obtained from a non-probability online-panel survey of 962 respondents in May 2021 through the web platform tickStat (www.tickstat.com), which in Spain sells the data of the Cint Platform (www.cint.com). Cint hosts a large network of market research panels operating in 150 countries. These panels are also used to obtain samples for social research (Moss et al., 2023).

From the group of panelists who were wage earners, aged between 25 and 45 years and residing in Spain, we drew a quota sample of 962 respondents. In order to ensure that our sample had some representativeness with this population group, 42 panelist quotas were imposed based on the combination of seven regions (NUTS1) of residence, two genders and three educational levels. These quotas were selected to obtain a sample distribution similar to that of the Economically Active Population Survey (EPA), which is a representative survey produced by the National Institute of Statistics.

To obtain a sample with the appropriate quality in the responses, the completion and sending of the questionnaires (by the panelist) was subject to the following restrictions: (1) belonging to any of the quotas mentioned above; (2) answering all the questions; and (3) minimum response times were required: minimum of 15 seconds to read the first screen with the basic instructions.

Once our sample of 962 respondents had been obtained, we performed a data cleansing process (Meade and Craig, 2012). Sixteen questionnaires were detected exhibiting inconsistent responses. We excluded these cases, so that the final sample was n=946 respondents.

52.0% of respondents were female; average age was 36.0; 86.1% had a stable partner; 56.0% had young children; 46.1% had university studies; 79.6% were salaried from the private sector and the 20.4% salaried from the public sector. For more information on the sample, see sections 3 and 4 in the Supplementary file.

Analytical strategy

As our experimental design is 100% D-efficient with random respondent assignment to each deck, there is no correlation between the dimensions and the heterogeneity of the respondents (observed and unobserved); i.e. the covariates are uncorrelated with the error terms (Auspurg and Hinz, 2015, pp. 91-92). Each respondent evaluates eight vignettes. This allows us to control for unobservable cross-sectional (respondent) heterogeneity between individuals by using multilevel random effects models. The first level of the model is the vignette level, where the total number of weeks of leave is affected by the combination of the seven dimensions that appear in each vignette. The

second level of the model is the individual one. This second level captures the effect of respondent heterogeneity on the total number of weeks of leave through individual observed covariates and unobserved individual random effects. This respondent heterogeneity affects both the intercept term and also the slopes (factors coefficients) of the first level (see Section 6 in the Supplementary file).

One of the advantages of the FSEs is that they allow assessing how the experimental dimensions may interact with one another to shape the responses of the respondents. We tested for all possible interactions across all manipulations, and only included in our model those that turned out to be statistically significant.

6. Results

Table 2 shows the average number of weeks of leave (dependent variable) that the respondents would choose for each of the levels of each dimension. In all cases, except one (Lower income than my partner), a statistically significant result is obtained with the expected sign (Table S5 of the Supplementary file expands this table by including the rest of the independent variables). Table S6 of the Supplementary file offers the correlations between all variables in the model. The correlations equal to zero obtained between each of the seven within-respondent dimensions and the rest of the variables show that the randomization of decks was done correctly.

[**Table 2** here]

Table 3 shows the estimated results of three specifications of our multilevel model: model M1 only includes the main effects of the eight vignette dimensions; model M2

adds the individual variables corresponding to the respondents' characteristics; model M3 adds four interactions between vignette dimensions that turned out to be statistically significant. In order to visualize the differences in effect-sizes, Figure 3 shows the b-coefficients of the different vignette dimensions and of the respondents' characteristics (M2 model of table 3).

[**Table 3** here]

[**Figure 3** here]

Regarding hypothesis 1, the results obtained confirm that the respondents' decisions as to how many weeks to take are highly concentrated around the number of weeks established by law for paid parental leave. This is reflected by the coefficients obtained by the 22-Weeks and 26-Weeks variables in the three models that appear in table 3. In addition, Figure 4 shows the histograms corresponding to the three hypothetical scenarios in which paid leave lasts respectively 17, 22 and 26 weeks. As can be seen, in each of these three cases, the mode has a value, respectively, of 17, 22 and 26. In short, it seems that the duration of the statutory paid leave acts as a reference, or policy anchor, in the decision-making on the duration of the leave.

[**Figure 4** here]

The results also confirm the fulfilment of hypotheses 2, 3, 4 and 5. Model M2 (from table 3) and figure 3 show that the "High replacement rate" dimension has a positive and statistically significant effect ($b=2.214$, $p<0.001$) on the dependent variable (Duration of leave). The value obtained for this unstandardized coefficient b indicates that when the paid part of the parental leave is paid at 100% (and not at 60%) the period of (total)

parental leave chosen increases by 2.2 weeks. Having job security leads to a greater increase in the number of weeks of parental leave (b=3.280, p<0.001). The results obtained for "Does not harm colleagues" (b=1.172, p<0.001) and "Does not harm promotion" (b=1.214, p<0.001) show that working in an organization where being on leave is not a detriment to co-workers or to one's professional career increases the average number of weeks of parental leave that respondents would take. The same happens with “Peers role model" (b=0.675, p<0.001), although with less intensity than in the previous dimensions. Furthermore, the four interactions collected in the M3 model show that the positive effects of the dimensions 22-Weeks, 26-Weeks, “High replacement rate” and “Does not harm colleagues” are intensified when the respondents have job security (see Figure 5).

[**Figure 5** here]

To test hypothesis 6 (reflecting the persistence of traditional gender norms, male respondents will take a lower average number of weeks of leave than female respondents) we introduced the variable Woman in the M2 and M3 models of table 3. In both cases, the conclusion is that being a woman significantly increases the average number of weeks that the participant would take (globally). For the M2 model, the coefficient (b=5.962, p<0.001) indicates that being a woman increases the duration of leave by six weeks.

On the other hand, the other variables incorporated in our model that collects the personal characteristics and attitudes of the respondents (Age, Main supporter, etc.) gave rise to the expected results (for example, "Primacy of work" was negatively associated with the dependent variable).

To determine if the gender of the respondents moderates the effect of the different dimensions of our experiment on the dependent variable, models M1-M3 were estimated for the subsamples of male and female respondents (tables S9-S11 in the Supplementary file). The results, for models M2 and M3, are shown in table 4. For most dimensions, no statistically significant differences were obtained between the estimated coefficients for men and women (see also figure 6). However, statistically significant differences were obtained for the dimensions “Does not harm promotion” and “Peers role model”, with the corresponding coefficients for women being greater than those for men; i.e., women were more sensitive to these two factors than men. Likewise, the effects of the interactions (with Job security) were more important for the subsample of males. For the coefficients corresponding to personal characteristics and attitudes of the respondents, some interesting differences were obtained. For example, the coefficient obtained for the variable "Favorable to equating leave" was only statistically significant (with a positive sign) for males.

[**Table 4** here]

[**Figure 6** here]

Finally, we use the predictions of the M1 model to build Figure 7, which shows how the number of weeks of leave the respondent would take varies as the context (the vignette dimensions) becomes more favorable. We are going to call that graph "capability-curve". The more favorable vignette dimensions are added, the greater the respondent's capability (agency or effective freedom) to achieve the valued functionings (to care personally for a child, etc.), which translates into the choice of more weeks of leave (the

observed functioning). This same result, broken down by gender, is shown in Figure S2 in the Supplementary file.

[**Figure 7** here]

7. Discussion

Our experimental research shows that different parental leave contexts (where different aspects of the design of the leave system, the workplace and the family environment are varied) can lead to very different lengths of leave. Several descriptions of hypothetical situations (vignettes) were presented to the respondents to elicit them to decide what total number of weeks of leave (that included both paid and unpaid leave) they would take in each of these scenarios. With the results obtained in this artificial setting we provide evidence about several (conversion) factors that can affect the effective freedom (or agency) of parents when deciding the length of parental leave.

With our research design we offer an alternative way of operationalizing Sen's capabilities approach. As mentioned above, “for Sen, the core issue is not only what individuals choose, but the choices that they would make if they had the capabilities to achieve the kind of lives that they have reason to value”. We have tried to capture “the choices that they would make” with the hypothetical choices that we posed in the FSE, and we have tried to capture “if they had the capabilities to achieve” with the 8 experimental dimensions included in our experiment.

The global average number of weeks of leave that respondents would take was 19. However, that average number ranged from 11.7 weeks (when all the vignettes

dimensions contributed to define a context of low capability for taking leave) to 29 weeks (when all of them contributed to defining a situation of high capability).

Through our factorial survey experiment (FSE) we confirmed that the design of the parental leave policy has a significant impact on the average length of time that eligible people decide to be on leave (our "observed functioning"). First, respondents tended to concentrate their decisions on the duration of leave around the number of weeks established (hypothetically) by law for the (non-transferable) paid parental leave (17, 22 or 26). This result may indicate that in Spanish society the laws that protect workers often give rise to an important "sense of entitlement". In addition, these statutory durations can act as references or policy anchors that guide the decisions of the respondents, in something similar to what Bilz and Nadler (2009) call "the law as a moral anchor". Second, the respondents responded by lengthening the parental leave by an average of 2.2 weeks when the paid part of the leave had a replacement rate of 100%, and not 60%. The literature (Castro and Pazos, 2016; Thébaud and Pedulla, 2022) suggests that men are more sensitive to a high replacement rate than women. In our case, when the replacement rate was 100% (and not 60%), the male respondents lengthened the parental leave by 2.48 weeks, while the female respondents lengthened it by 1.97 weeks. This result is consistent with that evidence. However, that difference was not statistically significant.

The increasing level of precariousness in employment relations that is taking place on a global scale is particularly important in the case of Spain, whose labor market has high levels of unemployment, temporary employment and informality (Sánchez-Mira, 2019). That means that job stability is highly valued socially, and that such stability should make

respondents feel more capability to use the weeks of leave that they have reason to value. This fact may be reflected in our results, since the vignette dimension “Job security” is one of the variables that has had the strongest impact on the decisions of the respondents –they responded by lengthening the parental leave by an average of 3.3 weeks when they hypothetically had a situation of job security. Another aspect that highlights the importance of this dimension is that having job security moderated (intensified) the positive impact of four other dimensions. For example, and especially in the case of men, the fact of having a longer statutory paid leave (from 17 to 22 weeks; or from 17 to 26 weeks) generated a greater positive impact when respondents were hypothetically in an environment with job stability.

For workplace practices and cultures, simultaneously having the feeling that being on parental leave is not going to harm colleagues (because the company has a good substitution policy) and that future career advancement is not jeopardized encourages respondents to take an additional 2.4 weeks of leave. In their FSE, van Breeschoten et al. (2018) examined which considerations were most important in men and women's decision-making whether to scale back (reducing working hours) following childbirth. Their results indicate that men found career consequences most important, while women focused more on collegial support. For a different dependent variable (duration of leave), our results show that women found career consequences most important, not obtaining statistically significant differences for collegial support.

Two other vignette dimensions having to do with the workplace environment, “Peers role model” and “Easy application”, also had the expected effect of increasing (statistically significantly) the average number of weeks of leave that respondents would

take, although in these two cases the effect sizes were lower than those of the previous vignette dimensions. Dahl et al. (2014) obtained evidence of positive peer effects in paid paternity leave in Norway. We have obtained evidence in this sense also for the case of women (in fact, for our sample of women there is a greater effect than that obtained for men).

These results obtained with the eight dimensions can have relevant policy implication. Figures 3 and 6, which show the unstandardized coefficients of the multilevel regressions for the duration of leave, could serve to measure the effect sizes of each dimension. From these results it can be concluded that some policies, such as a labor reform that would promote greater job security, could have an important impact on increasing the capability of men and women to use existing leave benefits.

Regarding the main effect of the variable "gender", it is important to highlight the noticeable impact of this variable –being a woman increases the duration of leave by six weeks. This may be evidencing the persistence of traditional gender norms that manifest themselves simultaneously in two ways: on the one hand, many mothers continue to assume most of the care of young children (Ziegler and Bamieh, 2023; Knoester et al., 2021); and, on the other hand, for many men those norms may be acting as a conversion factor that reduces their sense of legitimacy and freedom to personally care for a child, which translates into less capability to take longer leave.

As for the effect of the rest of the characteristics/attitudes of the respondents collected in our model, due to space limitations we are only going to comment on two of them. First, it seems that men located in certain environments where sense of entitlement is perceived to a greater extent (public sector employees), or who have more advanced

attitudes towards caring masculinities (they present a high score in the variable "Favorable to equating leave") tend, globally, to take more weeks of leave. Second, for both men and women, having a relatively work-oriented attitude (obtaining a high score in “Primacy of work”) tends globally to reduce the length of leave.

The present research exhibits some limitations. The first is the use of hypothetical and unreal situations. In this regard, Auspurg and Hinz (2015, p. 117) did an analysis on the consistency between the behavioral intentions observed by FSE studies and the behaviors measured by observational studies, field studies and population surveys, and concluded that the results were somewhat mixed, not rejecting the external validity of the FSE. Second, as a way to implement an attention check we excluded from the sample those who spent less than 15 seconds reading the basic instructions. This threshold may be too low, so that the sample may contain some respondents who performed the test too quickly. This could lead to some cases of "recency effects" (the respondent bases her answer mainly on the last option she has read; Auspurg and Jäckle, 2017; Düval and Hinz, 2020). Third, the vignette dimension “Lower income than my partner” did not produce any statistically significant effect, probably as a consequence of the inadequate wording and fit of this variable. For future research, the intrafamily relationships and the division of labor within the couple deserve a specific and differentiated experimental design. Furthermore, with this same methodology other dependent variables can be considered. It would be interesting to know what conversion factors affect the ability to use the paid parental leave full or part-time, all at once or in separate periods, prioritizing work or care, etc.

In this research, which combines the capability approach with the methodology of factorial survey experiments, we have provided empirical evidence on some of the main questions studied in the research on parental leave policies (Pizarro and Gartzia, 2024; Moss and Deven, 2020). Our results aim to contribute to the correct formulation of a leave policy that helps to minimize the agency gap between the time that parents (and especially fathers) would ideally wish to be on parental leave and the effective time that they finally choose.

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Figure 1. Outline of the capability approach applied to the use of parental leave

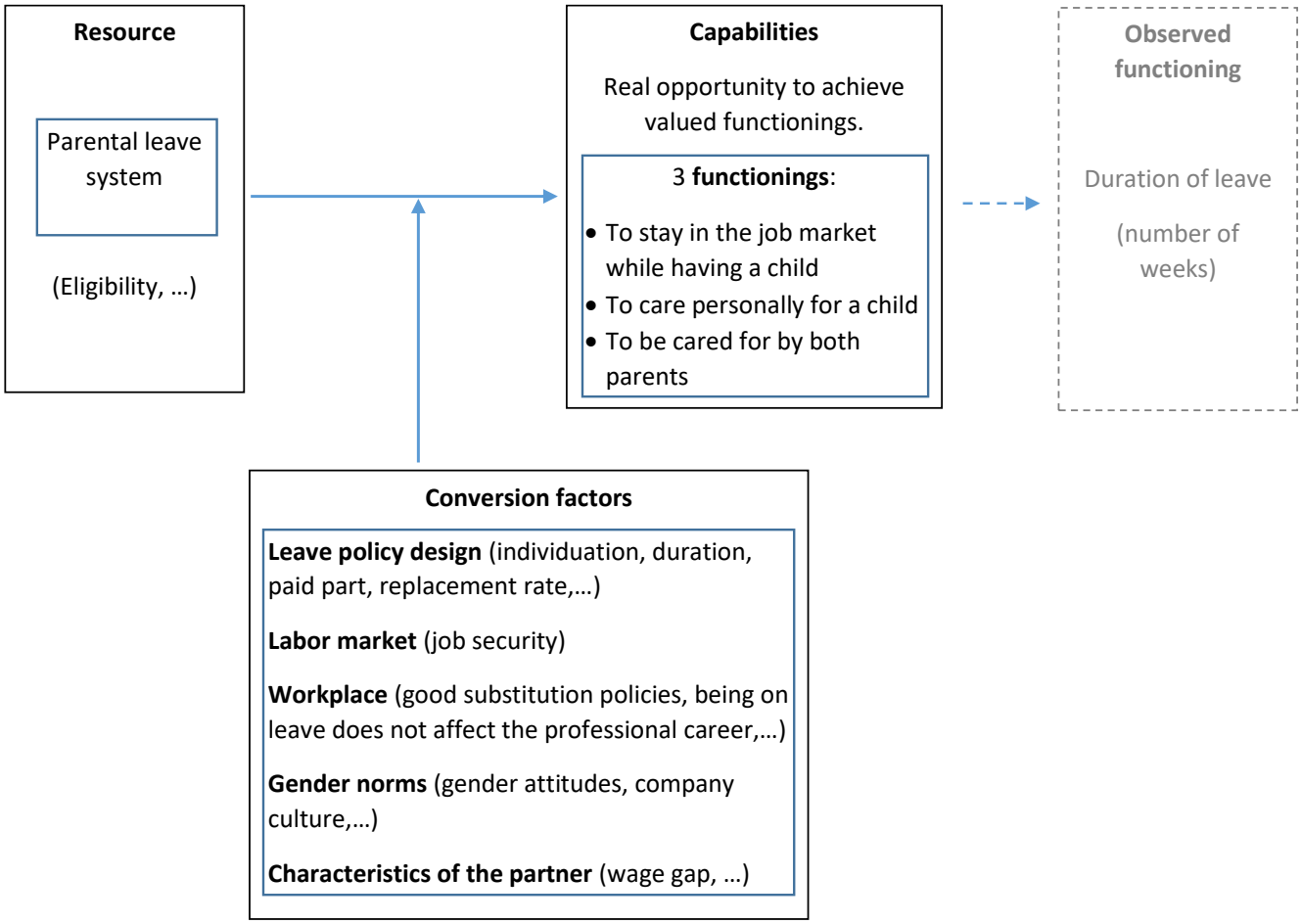


Table 1. Vignette dimensions and levels

Dimension	Levels		
Statutory length of paid leave	Paid parental leave lasts for **26** weeks	Paid parental leave lasts for **22** weeks	Paid parental leave lasts for **17** weeks
High replacement rate	The weeks of paid parental leave are paid the equivalent of 100% of your salary	The weeks of paid parental leave are paid the equivalent of 60% of your salary	
Job security	You have an indefinite contract and the feeling of having job security	You have a temporary contract and the feeling of having very low job security	
Lower income than my partner	Your income is less than your partner's	Your income is higher than your partner's	
Does not harm colleagues	Regarding your work environment, you have the feeling that you will not harm your co-workers by taking the leave (your company has a good replacement policy for those who are on leave and your colleagues will not have more workload while you are on parental leave)	Regarding your work environment, you have the feeling that you will harm your co-workers by taking leave (your colleagues will have more workload while you are on parental leave)	
Does not harm promotion	Based on the way things work in your company, you have the feeling that spending a certain time off the job does not represent any problems regarding your career advancement possibilities.	Based on the way things work in your company, you have the feeling that that being away from work for some time clearly negative affect your chances of career advancement	
Peers role model	In your company it is very frequent that men/women who have a baby are on leave for long periods of time	In your company it is very rare for men/women who have a baby to be on leave for long periods of time	
Easy application	From an organizational and legal point of view, the procedure to be able to use the leave is very simple: you only have to notify your company of the dates of use.	From an organizational and legal point of view, in order to use the leave, you have to negotiate and reach an agreement with your bosses on the dates and duration of it.	

Figure 2. Example of a vignette.

HYPOTHETICAL SITUATION

- The weeks of paid parental leave are paid the equivalent of 100% of your salary
- You have an indefinite contract and the feeling of having job security
- Your income is higher than your partner's
- Regarding your work environment, you have the feeling that you will harm your co-workers by taking leave (your colleagues will have more workload while you are on parental leave)
- Based on the way things work in your company, you have the feeling that spending a certain time off the job does not represent any problems regarding your career advancement possibilities
- In your company it is very rare for men/women who have a baby to be on leave for long periods of time
- From an organizational and legal point of view, the procedure to be able to use the leave is very simple: you only have to notify your company of the dates of use

Table 2. Average length of (total) leave according to the levels of the vignette dimensions

Variable	Level	N	Mean	Std Dev	Ratio[a,b]	
Dimensions						
Statutory length of paid leave	26	2528	21,7	11,6	133,8%	***
	22	2568	18,9	10,4	115,0%	
	17	2472	16,2	9,9		
High replacement rate	100%	3784	20,1	11,2	112,4%	***
	60%	3784	17,9	10,5		
Job security	High job security	3784	20,6	11,2	118,9%	***
	Low job security	3784	17,3	10,4		
Lower income than my partner	Lower than partner	3784	19,0	11,1	100,3%	
	Higher than partner	3784	18,9	10,7		
Does not harm colleagues	Does not harm colleagues	3784	19,6	11,1	106,4%	***
	Harm colleagues	3784	18,4	10,6		
Does not harm promotion	Does not harm promotion	3784	19,6	11,1	106,6%	***
	Harm promotion	3784	18,4	10,6		
Peers role model	Role models	3784	19,3	11,0	103,6%	*
	No role models	3784	18,6	10,8		
Easy application	Easy application	3784	19,2	11,0	102,9%	*
	Complicated application	3784	18,7	10,7		

Note. [a] Ratios are calculated as the mean value of the first level divided by the mean value of the second level for each variable. [b] For Statutory length of paid leave, ratios calculated with respect to 17 weeks. Man-Whitney U test for differences between distributions (Kruskal Wallis test for Statutory length of paid leave). *p<0.05; **p<0.01; ***p<0.001.

Table 3. Multilevel regressions for the duration of leave (number of weeks)

	M1		M2		M3	
FIXED EFFECTS	**b**	**SE**	**b**	**SE**	**B**	**SE**
Vignette dimensions						
High replacement rate	**2.214** ***	(0.158)	**2.214** ***	(0.158)	**1.760** ***	(0.194)
Job security	**3.280** ***	(0.185)	**3.280** ***	(0.185)	**1.589** ***	(0.339)
Lower income than my partner	0.059	(0.127)	0.059	(0.127)	0.058	(0.126)
Does not harm colleagues	**1.172** ***	(0.124)	**1.172** ***	(0.124)	**0.739** ***	(0.165)
Does not harm promotion	**1.214** ***	(0.139)	**1.214** ***	(0.139)	**1.214** ***	(0.139)
Peers role model	**0.675** ***	(0.122)	**0.675** ***	(0.122)	**0.677** ***	(0.122)
Easy application	**0.549** ***	(0.117)	**0.549** ***	(0.117)	**0.549** ***	(0.117)
22-Weeks	**2.133** ***	(0.642)	**2.106** ***	(0.583)	**1.670** **	(0.601)
26-Weeks	**5.201** ***	(0.708)	**5.226** ***	(0.648)	**4.845** ***	(0.683)
Respondent characteristics						
Woman			**5.962** ***	(0.518)	**5.966** ***	(0.518)
Age			0.054	(0.044)	0.053	(0.044)
Main supporter			**-1.016** *	(0.517)	-1.012†	(0.517)
Public sector employee			0.676	(0.628)	0.673	(0.627)
Primacy of work			**-0.927** ***	(0.232)	**-0.932** ***	(0.232)
Favorable to equating leaves			**0.403** ***	(0.117)	**0.405** ***	(0.117)
Non-heterosexual			-1.555	(0.951)	-1.559	(0.953)
Interactions						
Job security x 22-Weeks					**1.356** **	(0.445)
Job security x 26-Weeks					**1.030** *	(0.438)
Job security x High replacement rate					**0.909** ***	(0.250)
Job security x Does not harm colleagues					**0.866** ***	(0.243)
Constant	**11.941** ***	(0.492)	**6.783** ***	(2.041)	**7.507** ***	(2.045)
RANDOM EFFECTS	**σ^2 estimates**	**LRT**	**σ^2 estimates**	**LRT**	**σ^2 estimates**	**LRT**
Respondent Random intercept						
$\sigma^2_{intercept}$	58.062***	1406.06	48.781***	1138.84	48.989***	1152.24
Respondent Random slopes						
$\sigma^2_{26\text{-}Weeks}$	33.493**	21.32	40.332**	20.26	69.509**	19.74
$\sigma^2_{High\ replacement\ rate}$	9.802***	126.83	9.803***	130.68	9.861***	133.68
$\sigma^2_{Job\ security}$	18.503***	335.50	18.503***	333.24	18.229***	327.50
$\sigma^2_{Lower\ income\ than\ my\ partner}$	1.328**	19.23	1.329**	16.70	1.177**	14.99
$\sigma^2_{Does\ not\ harm\ promotion}$	4.422***	48.81	4.423***	44.65	4.481***	44.61
Residuals						
$\sigma^2_{residuals}$	27.841		27.841		27.726	
Conditional ICC	0.687		0.585		0.583	
Conditional R^2	0.765		0.765		0.766	
LR test for global significance (P-value)	6471.1 (<0.001)		6641.5 (<0.001)		6677.1 (<0.001)	
LR test for global respondent random-effects (P-value)	5816.1 (<0.001)		5068 (<0.001)		5084.3 (<0.001)	
LR test for global respondent characteristics significance	-		170.4 (<0.001)		170.51 (<0.001)	
LR test for global cross-level factors significance	-		-		35.593 (<0.001)	
N Vignettes (N Respondents)	7568 (946)		7568 (946)		7568 (946)	

Note. b=unstandardized regression coefficients. Models estimated using robust restricted maximum likelihood method. ICC=Intraclass Correlation. LRT=likelihood ratio test. †p<0.10; *p<0.05; **p<0.01; ***p<0.001. (For more information, see table S8 in Supplementary file).

Figure 3. Multilevel regression for the duration of leave. Model 2. Unstandardized coefficients

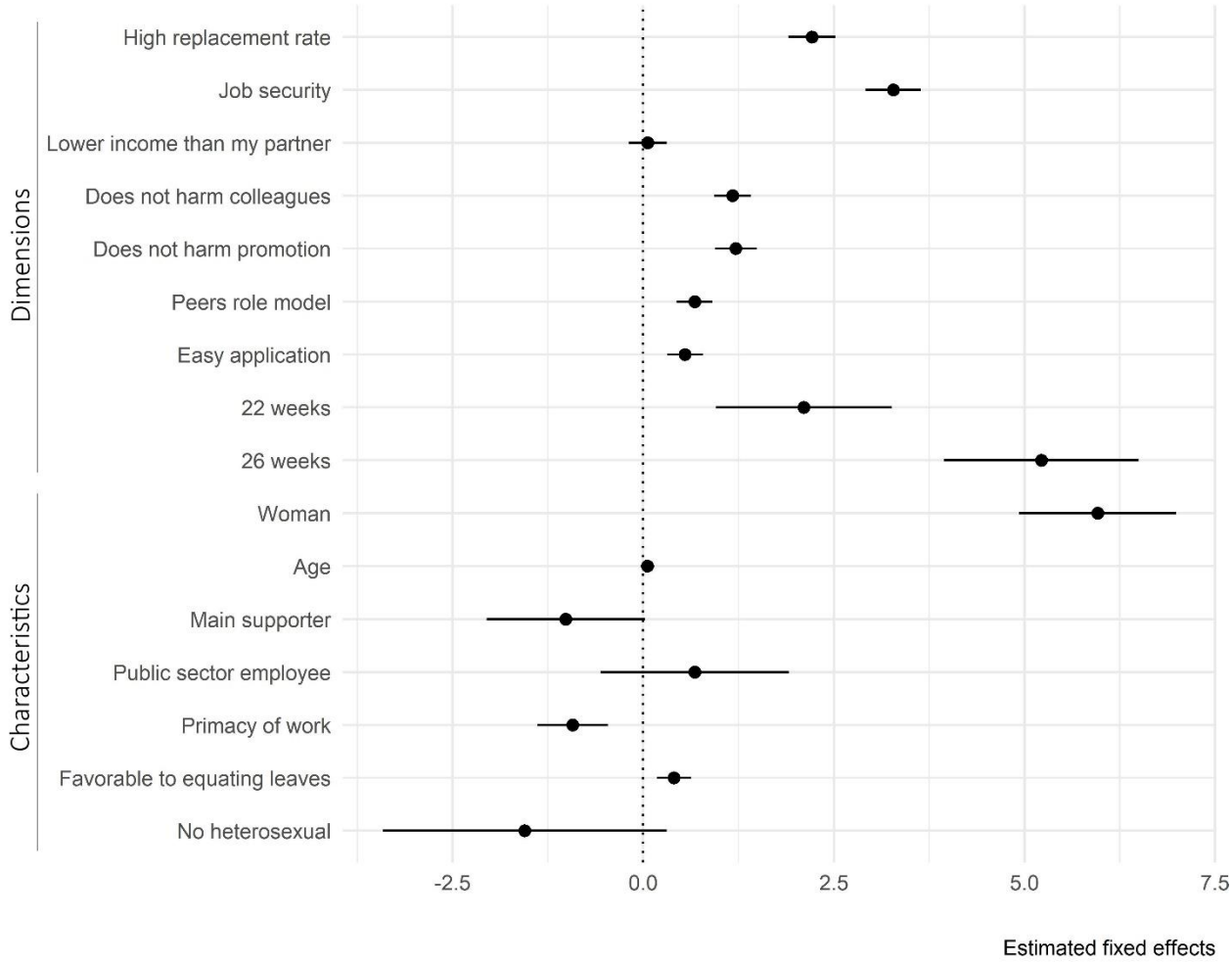


Figure 4. Histograms for three hypothetical statutory durations of the paid leave

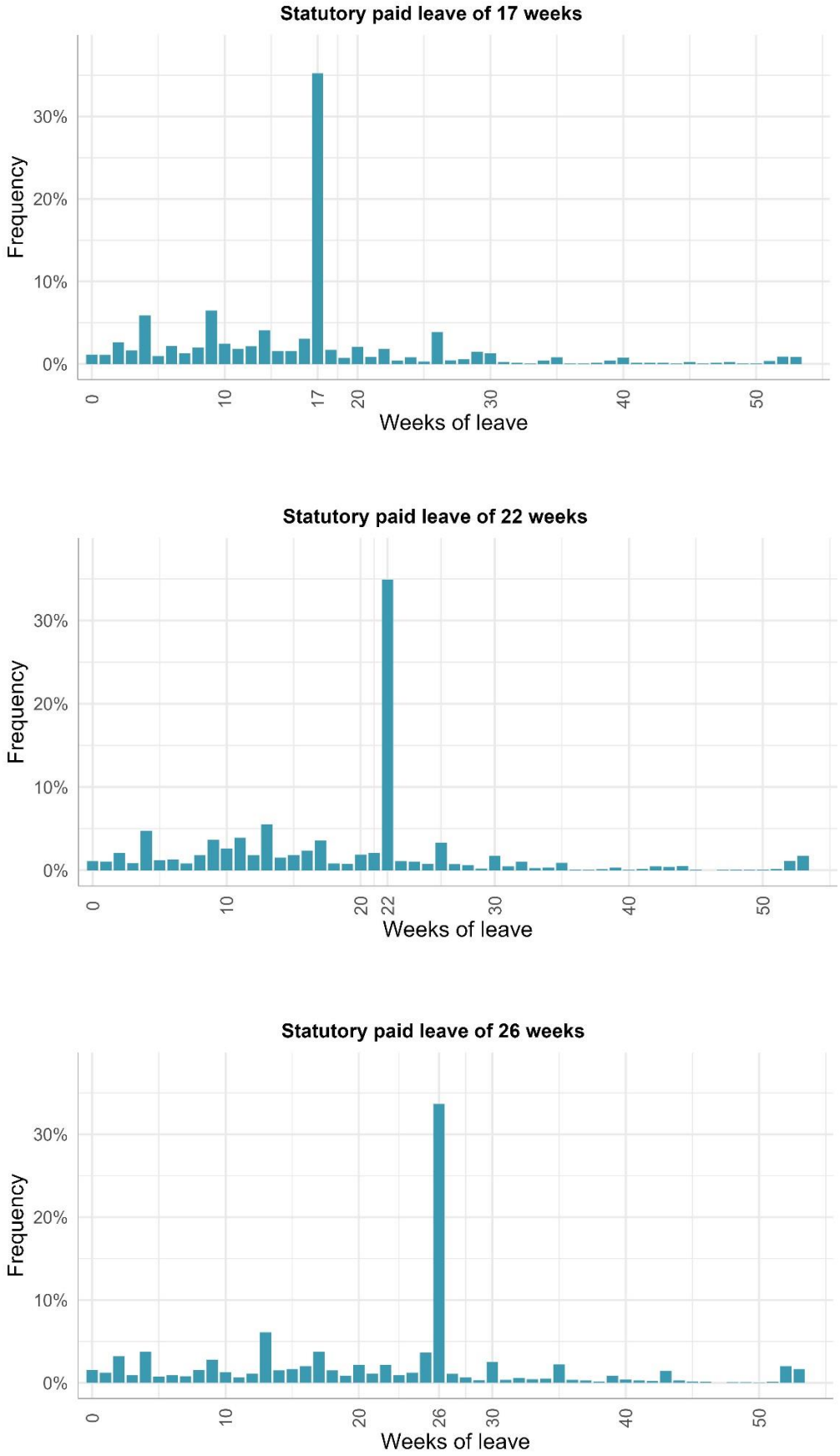
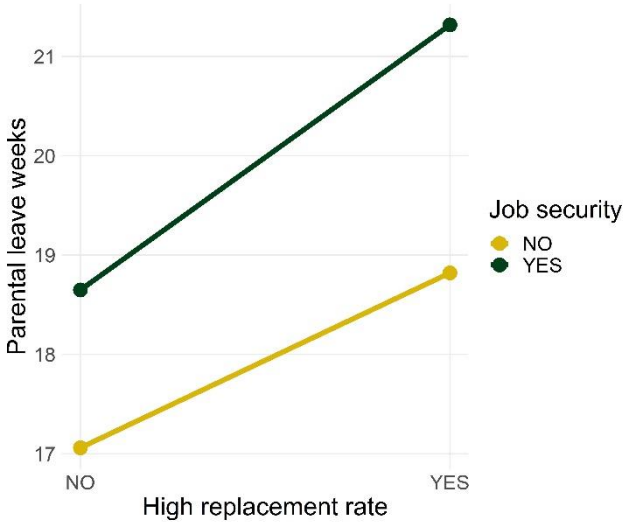
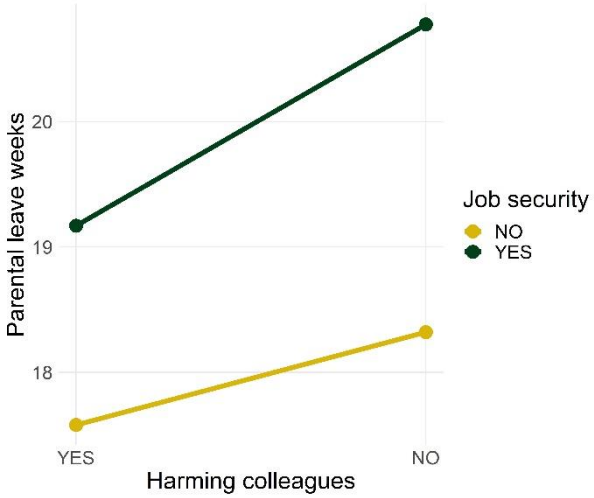


Figure 5. Interactions: Job security moderates the effect of various dimensions

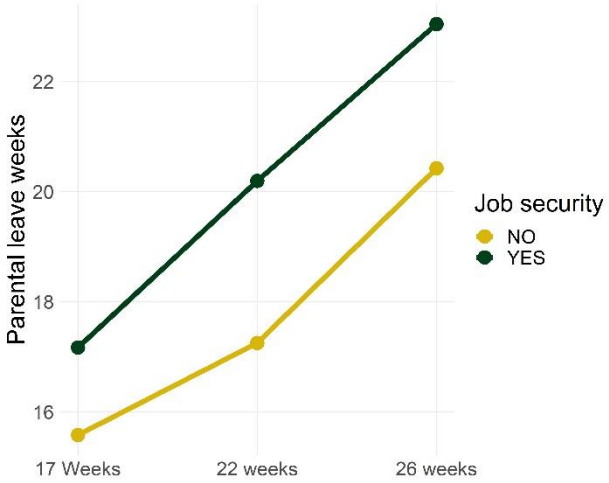
5.1



5.2



5.3



Note: dependant variable estimated at means.

Table 4. Multilevel regressions for the duration of leave (number of weeks). Subsamples of men and women. Models 2 and 3.

	M2					M3				
	Women		Men		DIF	Women		Men		DIF
FIXED EFFECTS	b	SE	b	SE	D=W-M	b	SE	b	SE	D=W-M
Vignette dimensions										
High replacement rate	**1.973** ***	(0.203)	**2.476** ***	(0.246)	-0.503	**1.633** ***	(0.267)	**1.903** ***	(0.281)	-0.271
Job security	**3.220** ***	(0.254)	**3.346** ***	(0.270)	-0.126	**2.029** ***	(0.508)	**1.126** *	(0.439)	0.903
Lower income than my partner	0.148	(0.180)	-0.037	(0.179)	0.185	0.148	(0.179)	-0.040	(0.176)	0.188
Does not harm colleagues	**1.186** ***	(0.170)	**1.156** ***	(0.183)	0.030	**0.713** ***	(0.216)	**0.787** **	(0.256)	-0.074
Does not harm promotion	**1.488** ***	(0.200)	**0.916** ***	(0.192)	**0.572***	**1.488** ***	(0.200)	**0.916** ***	(0.192)	**0.572***
Peers role model	**0.906** ***	(0.165)	**0.424** *	(0.182)	**0.482***	**0.889** ***	(0.163)	**0.442** *	(0.183)	0.447†
Easy application	**0.425** **	(0.165)	**0.683** ***	(0.166)	-0.258	**0.425** **	(0.165)	**0.683** ***	(0.166)	-0.258
22-Weeks	1.573	(0.825)	**2.806** ***	(0.782)	-1.233	1.341	(0.837)	**1.991** *	(0.847)	-0.650
26-Weeks	**5.522** ***	(0.856)	**5.063** ***	(0.927)	0.459	**5.611** ***	(0.877)	**3.907** ***	(1.010)	1.704
Respondent characteristics										
Age	**0.182** **	(0.060)	-0.094	(0.062)	**0.275*****	**0.180** **	(0.060)	-0.093	(0.062)	**0.273*****
Main supporter	**-1.960** **	(0.704)	0.720	(0.721)	**-2.680***	**-1.959** **	(0.704)	0.723	(0.722)	**-2.682***
Public sector employee	0.069	(0.777)	**2.218** *	(1.030)	-2.149	0.063	(0.778)	**2.231** *	(1.030)	-2.169†
Primacy of work	**-1.095** ***	(0.324)	-0.606	(0.328)	-0.488	**-1.103** ***	(0.325)	-0.619†	(0.328)	-0.485
Favorable to equating leaves	0.173	(0.141)	**0.850** ***	(0.161)	**-0.677*****	0.176	(0.141)	**0.852** ***	(0.161)	**-0.676*****
Non-heterosexual	-0.566	(1.706)	**-2.671** **	(0.890)	2.105	-0.555	(1.711)	**-2.702** **	(0.893)	2.147
Interactions										
Job security x 22-Weeks						1.121†	(0.635)	**1.611** **	(0.614)	-0.490
Job security x 26-Weeks						-0.002	(0.606)	**2.173** ***	(0.627)	**-2.175***
Job security x High replacement rate						0.681†	(0.353)	**1.145** **	(0.349)	-0.464
Job security x Does not harm colleagues						**0.946** **	(0.326)	**0.739** *	(0.365)	0.207
Constant	**11.126** ***	(2.596)	**5.884** *	(2.821)	5.243	**11.694** ***	(2.609)	6.994 *	(2.816)	4.701
RANDOM EFFECTS	σ^2 estimates	LRT	σ^2 estimates	LRT		σ^2 estimates	LRT	σ^2 estimates	LRT	
Respondent Random intercept										
$\sigma^2_{intercept}$	45.054***	582.52	54.854***	536.32		45.277***	586.54	54.925***	546.06	
Respondent Random slopes										
$\sigma^2_{26\text{-}Weeks}$	24.977	4.39	222.886**	21.43		10.99	4.45	238.586**	20.53	
$\sigma^2_{High\ replacement\ rate}$	6.646***	46.51	13.232***	94.19		6.713***	46.91	13.326***	95.19	
$\sigma^2_{Job\ security}$	18.211***	188.32	18.971***	160.46		18.069***	186.33	18.329***	152.93	
$\sigma^2_{Lower\ income\ than\ my\ partner}$	2.363**	20.53	0.5	10.47		2.339**	20.35	0.426	9.08	
$\sigma^2_{Does\ not\ harm\ promotion}$	6.044***	47.40	2.624	10.98		6.11***	47.77	2.717†	11.06	
Residuals										
$\sigma^2_{residuals}$	27.216		28.345			27.084		28.159		
Conditional ICC	0.628		0.605			0.627		0.602		
Conditional R^2	0.752		0.740			0.753		0.741		
LR test for global significance (P-value)	3252.4 (<0.001)		2819.4 (<0.001)			3268.7 (<0.001)		2845.6 (<0.001)		
LR test for global respondent random-effects (P-value)	2689.2 (<0.001)		2315.6 (<0.001)			2695.2 (<0.001)		2325.1 (<0.001)		
LR test for global respondent characteristics significance	30.42 (<0.001)		39.037 (<0.001)			30.433 (<0.001)		39.365 (<0.001)		
LR test for global cross-level factors significance	-		-			16.299 (0.003)		26.207 (<0.001)		
N Vignettes (N Respondents)	3936 (492)		3632 (454)			3936 (492)		3632 (454)		

Note. b=unstandardized regression coefficients. Models estimated using robust restricted maximum likelihood method. ICC=Intraclass Correlation. LRT=likelihood ratio test. †p<0.10; *p<0.05; **p<0.01; ***p<0.001. (For more information, see tables S9-S11 in Supplementary file).

Figure 6. Multilevel regressions for the duration of leave. Model 2. Unstandardized coefficients. Subsamples of men and women

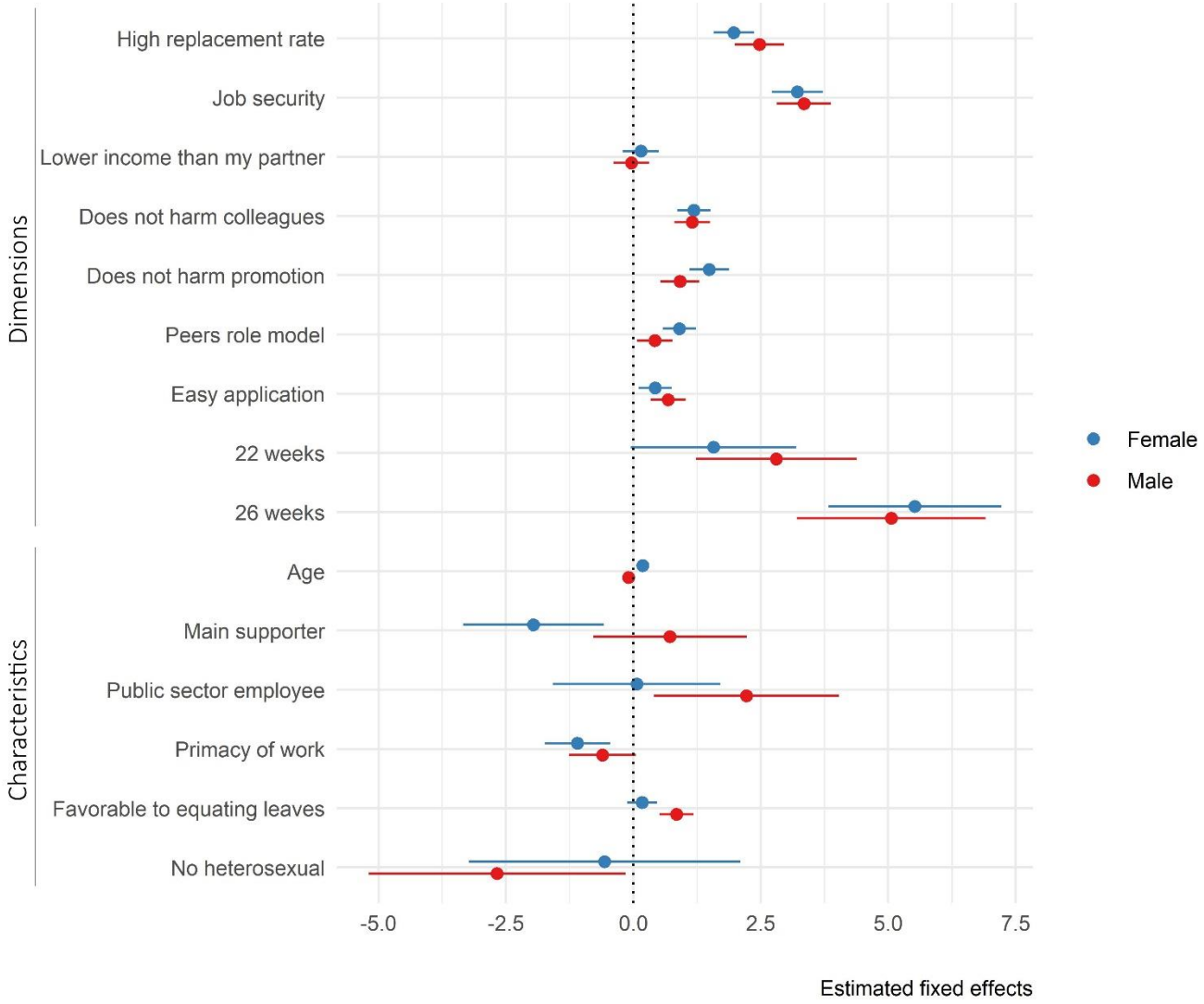
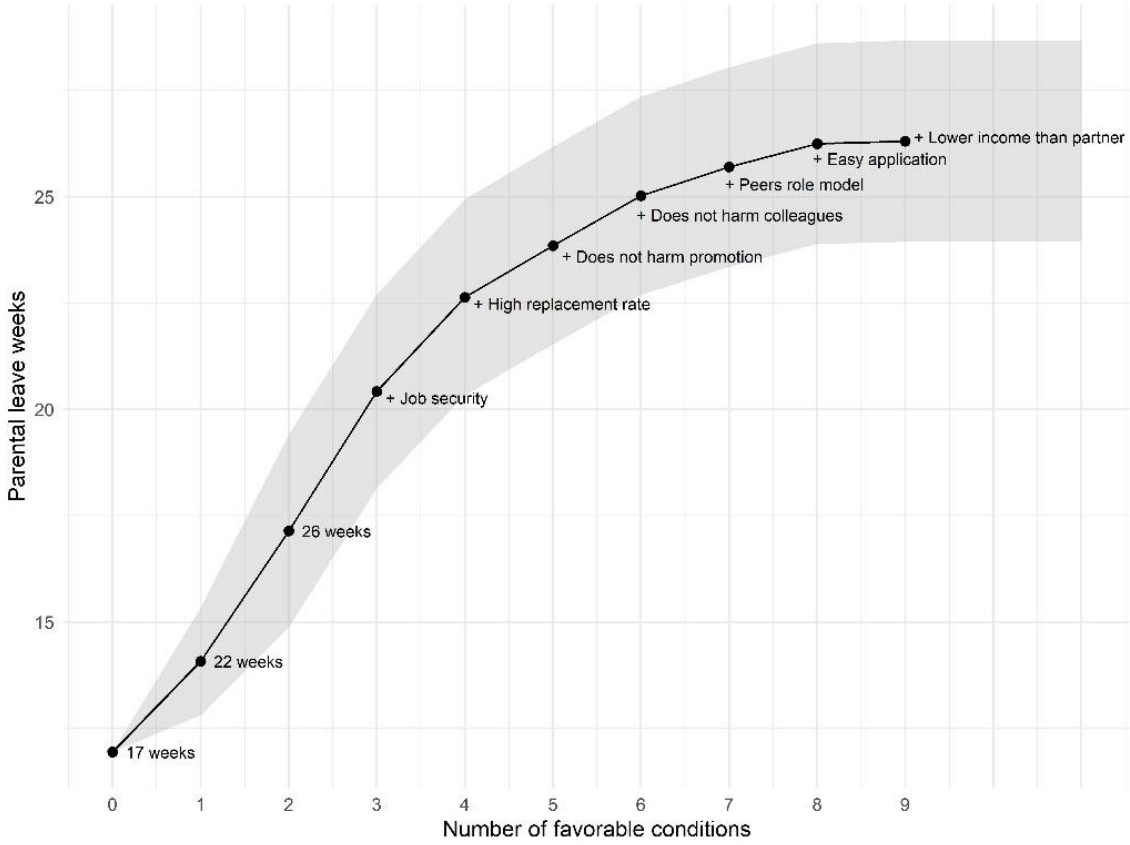


Figure 7. Capability curve for the entire sample (from model 1)



Note. Based on the predictions of the M1 model in Table 3 (from its unstandardized regression coefficients), the capability curve shows how the number of weeks of desired parental leave increases as more favorable factors (vignette dimensions) accumulate.