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Can Policy Reforms Enhance Fertility? An Ex-Ante Evaluation through Factorial Survey Experiments

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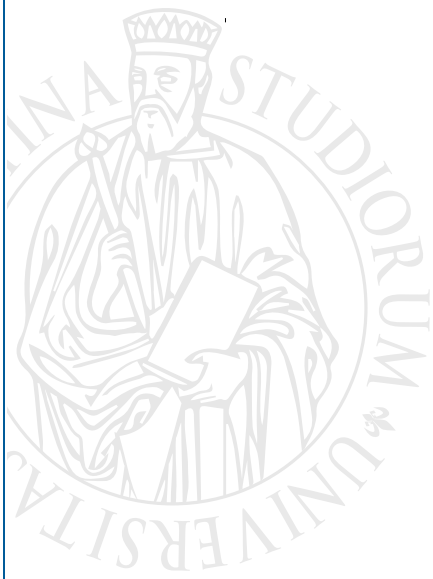

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Can Policy Reforms Enhance Fertility?
An Ex-Ante Evaluation through Factorial Survey Experiments

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Abstract

This paper contributes to the literature on the family policies-fertility nexus by assessing the potential role of parental leaves, childcare services, and child benefits on fertility through the use of factorial survey experiments (FSE). We focus on Italy, a country whose lowest-low fertility is often traced back to its familistic and sub-protective welfare state. We collected data on 4,022 respondents aged 20-44 and exposed them to several scenarios characterised by different family policy packages. We asked them to ascribe short-term fertility intentions to a fictitious couple under these different policy scenarios, in a sort of ex-ante evaluation of possible policy reforms. Results show that each of the family-friendly policies we envisioned in the experiment positively impacts ascribed fertility intentions. The availability of full-time, public childcare services seems more relevant than higher child benefits, whereas more generous and gender-equal parental leaves are perceived as less relevant. However, results suggest that only a consistent mix of financial benefits, parental leave schemes, and childcare provisions can potentially boost fertility intentions, whereas marginal changes in single policy levers are most likely ineffective. The results of our FSE point out that a couple's socioeconomic status is perceived as more important than family policies for fertility decisions, as ascribed fertility intentions increase substantially when both partners of the fictitious couple are employed and household income is high. We conclude by discussing the implications of our findings for policymaking.

Keywords: Family policy; Fertility; Factorial survey experiments; Italy

1. Introduction

Extensive literature has investigated the impact of family policies on fertility; however, evidence is mixed and somewhat inconclusive, and results suffer from theoretical and methodological limitations. First, quantifying the potential fertility impact of family policies is complicated because such estimation should take into consideration family policy packages, whereas most studies analyse the effects of single instruments and do not assess the possible existence of complex interactions between them (Gauthier, 2008; Luci-Greulich & Thevenon, 2013). Another, often hidden aspect of family policies in empirical tests is that it is not only the availability of family policies (leave regulations, economic-based incentives, or childcare availability) that affects fertility, but also the broader perception of these policies (Hoem, 2008; Mills et al., 2011). Policies cannot be viewed in isolation, as they form part of a broader message conveyed to individuals about their ability to pursue and maintain parenthood over the long term. Finally, assessing the effects of family policies on fertility

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and understanding the mechanisms operating between the political setting and family behaviour require *ad hoc* research setups, such as using micro-level (quasi-)natural experiments (Neyer & Andersson, 2008; Kreyenfeld, 2021).

This paper addresses all these theoretical and empirical drawbacks of existing studies by taking a novel perspective to assess the role of family policies on fertility through the use of factorial survey experiments (FSE). Our analytical setting allows us to investigate potential recipients' perceptions of policies that may be implemented to enhance fertility rates in a lowest-low fertility context such as Italy, in a sort of ex-ante evaluation of possible policy reforms. We concentrate on policies that target parenthood, and in particular on those policies that are most closely related to fertility: parental leave policies, childcare services, and child benefits. They essentially respond to families' needs for time, money, and services around childbirth(s) and during the childrearing period (Luci-Greulich & Thévenon, 2013). These policies constitute the core of welfare-state policies related to childbearing and the rearing of (small) children (Neyer, 2003). In our innovative experimental setting, we expose the respondents to several scenarios (vignettes) characterised by different family policy packages and ask them to ascribe short-term fertility intentions to a fictitious couple under these different circumstances. Fertility intentions anticipate concrete behaviour by reflecting the combined effect of desired fertility and situational constraints (Thomson & Brandreth, 1995) and have been generally regarded as a fairly suitable predictor of individual behaviour (Schoen, et al. 1999).

We take Italy as a meaningful case study, where the current political debate on the use of different combinations of family policies is especially lively. Italy's persistently low fertility has spurred public and political interest in whether family policies could maintain or increase fertility levels. After decades of ups and downs between low and *lowest-low* fertility rates, the recent COVID-19 pandemic has further exacerbated the negative trend of Italian fertility, in parallel with a continuous decline in the absolute number of births. In 2021, Italy re-entered the lowest-low fertility regime (the average number of children per woman, i.e. the TFR, equals to 1.24 in 2022).

The contribution of this work is threefold. First, this paper responds to Gauthier's (2008: 27) call that demographers "*need to devote a greater effort to improving measurement of policies, especially the whole package of policies designed for families*" while also exploring group-specific differences in uptake. Second, this paper will offer Italian policymakers an evaluation of how a specific set of family policies might be perceived by the population of potential recipients. Finally, we propose a new methodological approach to provide an ex-ante evaluation of the potential impact of family policies on fertility by utilizing an experimental setting. The use of experiments in the social sciences has increased appreciably in recent years (Jackson & Cox, 2013). Fertility intention research

has primarily used surveys, which generally do not allow the manipulation of conditions. Only very recently has an experimental approach been considered in the realm of fertility intention research (e.g., Guetto et al., 2022; Lappegard et al., 2022; Vignoli et al., 2022), and never for an ex-ante, causal evaluation of the potential impact of family policies. Hence, this paper will contribute to methodological advances in demographic research.

2. Background

2.1 Family policies and fertility: the magnitude of the effect and its heterogeneity

Theoretically, there are compelling reasons to anticipate that family policies would have a beneficial effect on fertility. However, when it comes to actual evidence of the impact of fertility policies, the results are less straightforward. Although many studies have demonstrated a positive effect of policies, there is no agreement on the magnitude of the effect, or whether it is short-term or medium-term (Gauthier, 2007). Two reviews can be located to help sort out a crowded and fragmented empirical literature on the linkages between family policies and fertility. The influential review of Gauthier (2007) suggested that the effects of policies were small and mainly temporary: an impact of policies within the range of 0.05-0.2 children per woman (see Gauthier, 2007). Nonetheless, she concluded that evidence was limited, and more solid causal evidence was needed. Thévenon and Gauthier (2011) further added that the policy environment accounts for only a limited share of the variation in fertility across developed countries. Some of the variation can be attributed to financial support, but its impact seems mainly to accelerate the timing of births. Fourteen years after Gauthier's review (2007), Bergsvik, Fauske, and Kaldager Hart (2021) have synthesized results based on new developments in empirical causal modelling, concluding that policies may be more important for fertility than previously thought. They provide a systematic review of available (quasi-)experimental evidence since 1970 in Europe, the US, Canada, and Australia. They conclude that childcare expansions have a lasting impact on fertility, whereas the impact of child benefits is substantial yet transitory. In addition, by leaning on updated evidence and giving the most weight to large reforms evaluated in credible analytical designs, they conclude that generous parental leave expansions also have substantial and lasting fertility effects. However, these effects can be measured only when due allowance is made for policy changes that are large enough to affect fertility.

Among the possible reasons beyond such a small-to-moderate positive effect of family policies on fertility, virtually all prior authors advanced a methodological issue, namely the fact that analyses often focus on the impact of a single policy on fertility, ignoring the possible combined effects of different instruments. What may matter for couples is not each policy on its own but the actual package of policies. In addition, it is important to explore the heterogeneity in individuals' and

families' responses to policies. The positive effects of financial child benefits are likely to vary based on household income, although empirical evidence is mixed on whether the fertility response is stronger among low- or high-income households (see, e.g., Riphahn & Wiynck, 2017), which may depend on policy design. Also, policies to reconcile work and family duties are likely to be more relevant for heterosexual couples where both partners are working (Wood & Neels, 2019). The effects might also differ by parity transitions, but even in this case, the empirical evidence is mixed, with some studies finding stronger effects for the transition to parenthood (*ibidem*) and others on second and higher-order childbirths (Rindfuss et al., 2010).

Through the implementation of FSE, this paper analyzes the potential impact on fertility of different family policy packages, while also considering the possible moderating role of couples' characteristics, namely household income, both partners' employment condition, and parity.

2.2 Family policies and fertility: perception of policies

Bourdieu (1996) asserted that family policies not only target families but also shape them. Family policies operate on two levels: the level of facts and the level of perceptions (Neyer & Andersson, 2008). The effectiveness of any policy is influenced by the broader societal context, including social norms (McDonald, 2002). Family policies reflect the norms that they contribute to create, maintain, or reinforce, and signal what types of behavior are encouraged or at least supported. They, therefore, exert an impact through their symbolic and normative function. The potential effect of family policies on actual behavior depends on how individuals perceive the policy and what it signifies for their present and future life course. In other words, family policies and fertility are likely to be endogenous – policies not only influence fertility and bring about change but are also often a response to changes in fertility and an integral aspect of those changes (Neyer & Andersson, 2008; Letablier et al., 2009; Mills et al., 2011). As advanced by Hoem (2008: 256), family policies aimed at reducing the gap between intentions and outcomes "*will remain an ephemeral goal where such coordination is lacking*". Generous arrangements for parental leave, child benefits, and childcare may be considered desirable in their own right, but such policies alone are unlikely to succeed in raising the fertility level on a grand scale; they must be embedded in a family-friendly culture deliberately nurtured by the state and shared by policy recipients (McDonald, 2002; Neyer & Andersson, 2008).

Within our FSE approach, respondents are exposed to several scenarios (vignettes) characterised by different family policy packages and asked to ascribe short-term fertility intentions to a fictitious couple under these different policy settings. This helps to shed light on the perceived efficacy of a specific set of policies, and their combinations, for fertility decisions, and how such perception varies based on the characteristics of the fictitious couple.

2.3 Family policies and fertility in Italy

Over the last decades, family policies in Italy have been relatively modest, both in terms of financial support, parental leave, and the availability of caregiving services (Saraceno, 2015). As regards financial support, starting from the 1980s a *household allowance* was provided to families whose income derived from dependent work for at least 70%; hence, self-employed and non-employed were excluded. An additional allowance for the third child was introduced in 1999, together with maternity benefits provided to mothers without eligibility for social security benefits and residing in economically disadvantaged households. Starting from March 2022, all existing measures were replaced by the General Family Allowance (GFA), a new single and universal (i.e., it applies to all children under 18) allowance whose amount paid is means-tested on the basis of household income and wealth (for a more detailed discussion, see Dalla Zuanna & Mc Donald, 2023).

At the time of writing, parental leave policies for dependent workers include five months of mandatory maternity leave, plus ten additional months of parental leave to be taken before the child turns 12. The couple can share this period (fathers are entitled to take it starting from 2000), but neither of the two can take more than six months. While the mandatory leave is fully paid, the additional months are compensated with an allowance equal to only 30% of the salary, which means that men are not encouraged to take them (Naldini & Saraceno, 2022).[4] Paternity leave was introduced in 2012 and consisted of three days (only one day was mandatory), but it was taken only by 12% of fathers. It was then extended to four days in 2018 (when it was taken by about 33% of fathers) and currently amounts to ten days.

Finally, early childhood education and care (ECEC) services for children under age 3 remain inconsistent both in terms of quality and geographical coverage across the country. Among the main reasons, the decision to arrange and finance this type of provision ultimately goes to the regions and municipalities. Another crucial aspect is the vicious circle of low mothers' employment rates and low demand for ECEC services, particularly in the South. Data from 2022 indicate that public facilities provide childcare for 13.4% of children under age 3 at the national level (it rises to 27.2% if private facilities are also considered), with large regional heterogeneity – e.g., from 36.1% in Central regions to 15.2% in the South (Istat, 2022).

The established argument is that the Italian familistic and sub-protective welfare state is among the main causes behind the country's prolonged low fertility (Matysiak & Vignoli, 2013; Naldini & Saraceno, 2022). However, there is limited convincing empirical evidence on the causal effect of family policies. Among the few studies made on the Italian case, Del Boca (2002) found that the availability of publicly provided childcare increases the probability of having a child. Boccuzzo

[4] Self-employed mothers are entitled to take 5 months of maternal leave (not mandatory, paid with an allowance equal to 80% of the daily wage established annually by law for the type of activity performed), plus three additional months to be taken before the child turns one (also paid with an allowance equal to 30% of the daily wage).

et al. (2008) analysed the fertility impact of a bonus at birth implemented in the years 2000-2003 in the northern Italian region of Friuli-Venezia Giulia, finding substantial evidence for a positive effect, especially among low-educated women with at least two children. Another study focussing on the same Italian region showed that the effect of daycare subsidies on the probability of having another child in the period 2017-2020 is positive, but rather small compared to other factors such as employment (Dimai, 2023).

Understanding the potential contribution of family policies to fertility levels is especially crucial in contexts – like the Italian one – characterised by limited expenditure for family policies *as well as* low spending capacity due to high public debt, in order to identify the measures most likely to have an effective impact on fertility.

3. Factorial Survey Experiments for the analysis of fertility intentions

We assess the causal impact of family policies on ascribed fertility intentions using factorial survey experiments (Auspurg & Hinz, 2014). A factorial survey is a multivariate experiment through which a researcher creates different descriptions of fictional situations (vignettes) judged by respondents under a particular aspect of interest, which represents the "dependent variable" of the vignette. In our case, the situations to be evaluated correspond to different scenarios characterised by different family policies, and the dependent variable of interest is a fictitious couple's short-term fertility intentions. In other words, respondents answered a question about the fictitious couple's fertility intentions in case the existing family policies were those described in the vignette.

Asking about ascribed fertility intentions, i.e., referring to a fictional couple instead of directly to the respondent, has several methodological advantages. First, it helps reduce social desirability bias, which is the tendency for individuals to respond in a way that they believe is socially acceptable or expected. People might feel pressure to conform to societal norms, like the 2-child norm. In addition, it makes it more plausible to evaluate counterfactual scenarios; for example, childless respondents do not have to imagine themselves personally having a child, which can be a difficult exercise. Instead, they can evaluate the likelihood of the fictitious couple having a second child. Also, referring to a fictitious couple in our survey allows downplaying the influence of person-specific contingent situations compared with alternative direct questioning techniques. When respondents are directly asked about their own fertility decisions, they may feel compelled to take into account the impact of factors such as financial support from their parents and the availability of informal childcare services from relatives; however, when we present a hypothetical couple's situation, respondents are encouraged to focus on the elements described in the scenario, reducing the influence of factors such as intergenerational transfers and informal support systems.

Finally, adopting an FSE approach makes it possible to evaluate the potential fertility consequences of different policy packages, through respondents' judgments on scenarios including different combinations of family policies. In doing so, experiments guarantee internal validity, i.e. respondents' reactions to randomly-assigned vignettes reflect variations in the vignettes only.

3.1 Our experimental setting

Our vignettes depict the situation of a heterosexual couple named Caterina (30 years old) and Tommaso (32 years old). Each vignette includes specific details about various dimensions that we manipulate for the study. The first three dimensions pertain to the couple's situation – namely, if the couple already has a child, both partners' employment status, and household income. The second set of dimensions relates to family policies and focuses on the three typical instruments of family policy packages (Luci-Greulich & Thévenon, 2013), i.e., child benefits, childcare services, and parental leaves. While we decided to focus on the abovementioned couple's characteristics, we acknowledge that many other factors – which have been excluded to limit the complexity of the vignettes' design – may well influence the family policy/fertility link. In particular, two factors that may play a chief role are the fictitious couple's agreement to have a(nother) child and the availability and geographical proximity of grandparents (Rutigliano et al., 2023). To prevent any interference, we 'fixed' these factors by ensuring that Caterina and Tommaso agree to have a(nother) child and that the parents of both live over an hour's drive away. Accordingly, before listing the six dimensions presented in the vignettes, we specify these conditions to provide a consistent basis for respondents' evaluations. In addition, when manipulating the employment status dimension, we ensure that both partners (if employed) are employees holding an unlimited-time contract, to cancel out the possible influence of exposure to employment instability (Alderotti et al., 2021). Table 1 provides an overview of the vignette dimensions with the respective vignette levels, while Figure A1 in the appendix illustrates a sample vignette with the introductory text.

The first dimension we manipulate in the vignettes regards whether the couple already has a child. In one set of vignettes, Caterina and Tommaso are a childless couple, while in another set, they are parents to a three-year-old child. The couple's employment status can also vary between two levels: either both members are employed with an unlimited-time contract, or only Tommaso has an unlimited-time employment contract while Caterina does not work. Finally, we set three levels of household income (low income, medium income, and high income), with exact values changing depending on the couple's employment status. In order to assign plausible values to the net monthly household income dimension, we relied on estimates obtained from the 2020 wave of the Survey on Household Income and Wealth (SHIW), carried out by the Bank of Italy. We started by estimating the medium-income scenario, which, when only Tommaso works, roughly corresponds to the median

net monthly income of Italian one-earner families with two or three components. This value is approximately 1,650€, but we slightly reduced it (by about 10%) to account for Tommaso and Caterina's young age, obtaining 1,500€. Starting from this, we computed the medium-income scenario for the dual-earner couple by adding the same income reduced by 20% to reflect the gender gap in wages (Istat, 2021), obtaining 2,700€ (i.e., 1,500€ + 1,200€). Then, we generated the low-income scenarios and the high-income scenarios by, respectively, decreasing and increasing the medium income by 25%. Accordingly, the low scenario is characterised by a net monthly household income of 1,100€ if only Tommaso works, while it corresponds to 2,100€ if both Tommaso and Caterina work. The high-income scenarios correspond to 1,900€ and 3,300€ for the single-earner and dual-earner couple, respectively.

Turning to the policy dimensions, each of the three dimensions has three levels. The baseline level closely resembles the existing Italian family policy situation, while the other levels represent plausible improvements for each policy instrument. As far as the child benefits, their exact amount depends on the couple's household income. The first level – corresponding to the amount that the couple would receive based on the existing GFA in Italy – is designed by assigning the highest amount (175€) to couples with a low net monthly income (that we defined as 1,100€ or 1,500€), the average amount (100€) to couples with a medium net monthly income (that we defined as 1,900€ or 2,100€), and the lowest amount (50€) to couples with high income (that we defined as 2,700€ or 3,300€)[5]. Tables A1 and A2 in the appendix provide a schematic overview of the relationship between the couple's employment situation, their household income, and the amount of benefit across the various scenarios. In the second level, all amounts are doubled; and in the third (i.e., best-case) level, all amounts are tripled with respect to the baseline. Regarding childcare availability, setting a baseline level – i.e., the one resembling the actual situation in the country – is not straightforward, given the high heterogeneity in childcare availability at the municipal level in Italy. However, considering the national childcare coverage rate of approximately 27%, primarily concentrated in large cities (Istat, 2022), we describe the baseline scenario as one with virtually no available places in the nurseries near Tommaso and Caterina's place of residence. In the medium scenario, there are places available but only on a part-time basis, during the morning (i.e., 8a.m. – 1p.m.); while in the best scenario, there are places available full-time. The last policy dimension is parental leave. Also in this case, the baseline scenario represents the situation of the parental leave for dependent workers in Italy at the time of the survey, namely 5 months of compulsory leave for the mother and 10 days for the father (fully paid), plus additional 10 months that can be taken by either the mother or the father before the

[5] As anticipated in the background, the actual amount of the GFA in Italy depends on both household income and the couple's wealth. In this case, we assigned values based on household income as defined in the vignette.

child turns 12 (paid at 30%). The intermediate scenario improves the first one in terms of generosity because the additional leave is paid at 80%; while the best-case scenario is improved also in terms of gender equality since both partners are entitled to take 5 months of fully-paid parental leave.

At the end of each vignette, respondents are asked how likely is it – on a scale from 0 to 10 – that the fictitious couple will have a(nother) child in the next three years.

Table 1 – Vignette dimensions and levels

Vignette dimension (variables)	Levels of dimensions (values)
Parity	1. Childless 2. Already have a 3-year-old child
Employment status	1. Both are employed with an unlimited-time contract 2. He is employed with an unlimited-time contract; she is not employed
Household income *(a=only he works; b=both work)*	1. a=1,100€; b=2,100€ 2. a=1,500€; b=2,700€ 3. a=1,900€; b=3,300€
Child benefit *(values change depending on the couple's household income, see Table A2)*	1. **Real amount** that the couple would receive based on existing GFA in Italy: 175€ for the low-income scenario; 100€ for the medium-income scenario; 50€ for the high-income scenario 2. **Twice the real amount** that the couple would receive 3. **Three times the real amount** that the couple would receive
Childcare services	1. Virtually **no place** available in the municipality's nurseries 2. Availability in the municipality's nurseries, **only part-time** (e.g., 8 a.m. – 1 p.m.) 3. Availability in the municipality's nurseries, **full-time** (e.g., 8 a.m. – 5 p.m.)
Parental leave	1. **Realistic scenario**: 5 months for the mother, 10 days for the father (fully paid). Additional 10 months to be taken by either the mother or the father before the child turns 12 (paid at 30%) 2. 5 months for the mother, 10 days for the father (fully paid). Additional 10 months to be taken by either the mother or the father before the child turns 12 (**paid at 80%**) 3. 5 months for the mother, **5 months for the father** (fully paid). Additional 10 months to be taken by either the mother or the father before the child turns 12 (**paid at 80%**)

4. Data & Methods

4.1 Data collection and experimental design

The data collection was conducted by the survey company Demetra, which is well-known in Italian academic circles for its high-quality and rigorous data collection. We relied on a quota sampling strategy, imposing national quotas by 5-year age groups, gender, education, macro-region of residence, and combinations of union type (i.e., living apart together – hereafter, LAT, -

cohabitations, marriages) and parity (childless, with a child). Individuals not in a union were excluded from the sample. Quota sampling ensures that the final sample is virtually distributed as the country benchmark given by the statistics provided by the National Statistical Office on key sociodemographic factors. Additionally, we used post-stratification weights to adjust for small deviations from the benchmark population statistics. At the end of the collection procedure, we could rely on a sample of 4,022 respondents aged 20-44 years old.

For the six dimensions included in our design (two with two levels and four with three levels) the completely crossed vignette universe includes $2^2x3^4=324$ combinations of vignette characteristics. Accordingly, we opted for a mixed design – i.e., different groups of respondents are assigned different vignette sets, but within each group, respondents evaluate the same set of vignettes. The mixed design allows for obtaining enough observations for each vignette with a smaller sample size compared to the between-subject design. Vignette sets (decks) were drawn through random sampling, which is efficient for large sample sizes. In order to determine the size of each vignette set, we followed the guidelines provided by Auspurg and Hinz (2015), who suggest not to exceed 10 vignettes per respondent. We thus opted for 6 vignettes for each deck, because it demands relatively low fatigue and yields enough variation within respondents. Considering that each of the 4,022 respondents evaluated six vignettes (for a total of 24,132 observations), we obtained on average 74 replications for each possible vignette.

The first part of the questionnaire included questions about respondents' socio-demographic characteristics required to fill quotas (e.g., age, sex, union status, education, region of residence, parity), followed by the six vignettes. Respondents filled out the questionnaire online. The data collection started on 23 December 2022 and was completed on 10 February 2023.

To ensure high-quality responses across all the vignettes we inserted an attention check right after the first vignette. Respondents were asked a multiple choice question about where Caterina's and Tommaso's parents live (over an hour's drive away): If they provided the wrong answer, they were excluded from the survey. In addition, starting from the second vignette, we highlighted in bold all the dimensions' levels that have changed with respect to the previous vignette. For example, if in the first vignette, the child benefit is 175€, while in the second it is 350€, the latter appears bolded in the second vignette. We did this to help readers keep track of which dimensions change between two consecutive vignettes.

4.2 Analysis plan

As a first step, we focused on the analysis of single vignettes, adopting a purely "between" approach. We thus implemented six OLS regression models, one for each vignette, with the respondents' answers to the question about the couple's fertility intentions (0-10) as the dependent variable, and

the vignette dimensions as independent variables. Results obtained from the analysis of the first vignette are of special interest, as they are not affected by carryover effects, e.g., practice or learning effects, and prevent fatigue effects – which may instead arise with subsequent vignettes. Models control for whether the respondent has children, interacting this term with the parity of the fictitious couple, and are stratified by the respondent's sex.

Second, we moved to a "within approach", combining multiple vignettes per respondent. In order to deal with the nested structure of data (i.e., each respondent evaluated six vignettes), we tested both fixed-effect and random-effect OLS regression models. Results were virtually identical; hence, we opted for the more efficient random-effect model. With respect to the "between" approach, the sample size becomes larger, allowing us to augment the models with a three-way interaction between child benefits, childcare services, and parental leaves. Through this interaction term, we operationalise the concept of family policy package, allowing the effect of each policy lever on ascribed fertility intentions to vary depending on the other levers. Additionally, we included interactions between policy items and the fictitious couple's characteristics (i.e., their employment condition or household income) after testing whether they improved the model fit through a Wald chi-squared test. We tested the significance of each interaction between policy items and the fictitious couple's characteristics separately among men and women. As a result of these stepwise procedures, the model for men includes three additional interaction terms, namely, between household income and child benefits, between household income and parental leave, and between the couple's employment status and child benefits. The model for women includes four additional interaction terms, namely, the three included in the model for men, plus an interaction term between the couple's employment status and childcare availability. Considering the high number of coefficients estimated in the latter models (due to the numerous interactions), results – reported in paragraph 4.2 – will be shown in terms of predicted scores.

To examine more in-depth whether the overall effect size of family policies on fertility intentions varies based on couple-level characteristics, we used the same models specified as in the "within approach" to predict, for all possible combinations of the fictitious couple's characteristics (i.e., whether they have a child, employment status, and household income), the ascribed fertility intentions under two scenarios: when all three family policy instruments are set to 'low,' and when all three family policy instruments are set to 'high'.

5. Results

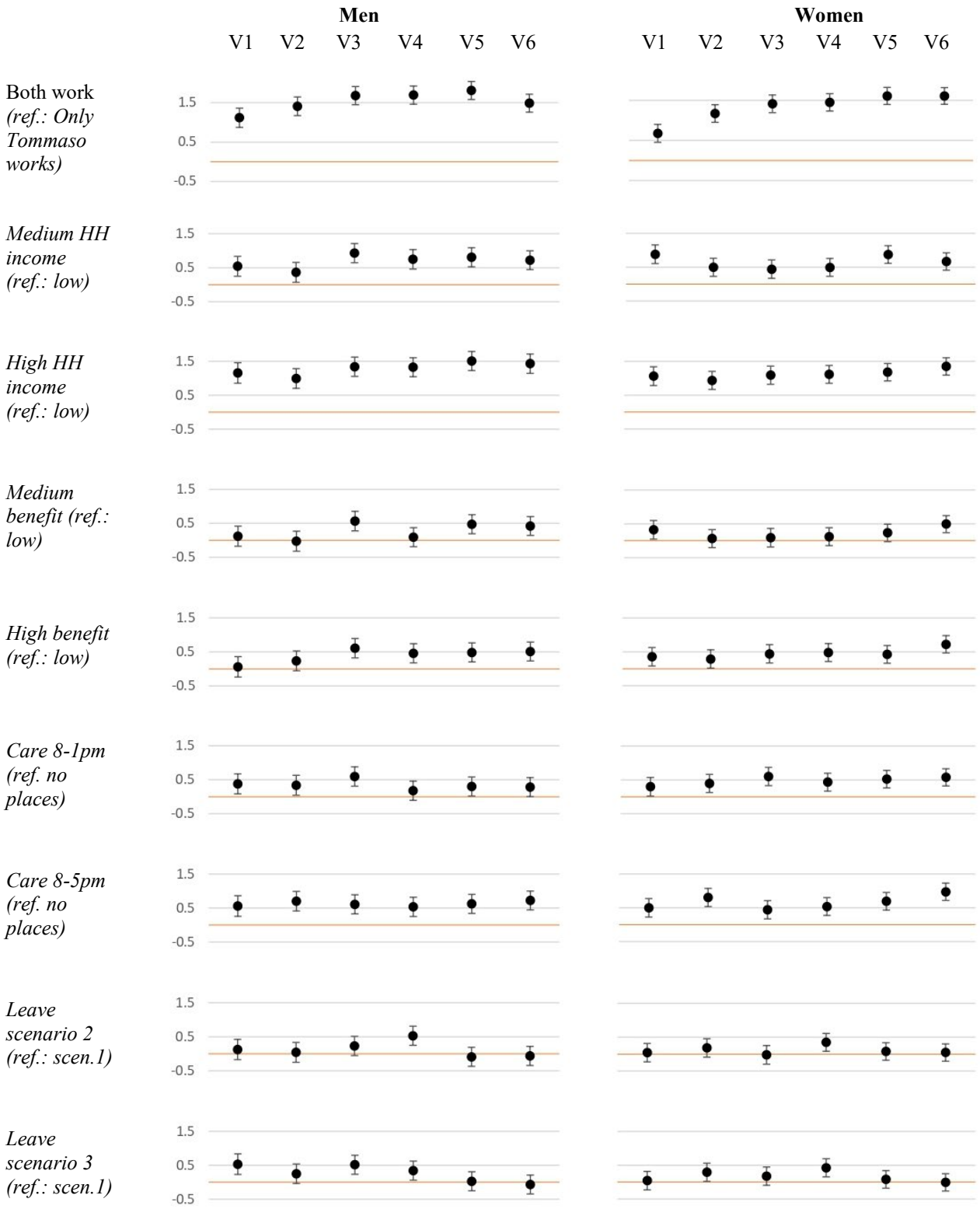
5.1 Between approach: the effects of each vignette dimension on ascribed fertility intentions

Figure 1 shows beta coefficients from OLS regression models on ascribed fertility intentions, separately for each vignette (between approach) and stratifying the analyses by respondent's sex. Coefficients show differences in the predicted ascribed fertility intentions compared to the reference level of each dimension. The first dimension is the couple's employment. Results show substantially higher ascribed fertility intentions when both the man and the woman in the fictitious couple work. The coefficient is smaller when estimated on the first vignette only (about 1 additional point for men and about 0.5 points for women, on a scale from 0 to 10), while it becomes larger on subsequent vignettes – i.e., around 1.5 points for both men and women. The second dimension is household income. When the fictitious couple has medium or high household income, respondents' scores about the couple's fertility intentions are higher – by 0.5 to 1 point for medium household income and by 1 to 1.5 points for high income, both among men and women. Estimates are statistically significant in all vignettes.

The remaining dimensions regard family policies. The effect of a medium child benefit (i.e., doubled with respect to the baseline scenario representing the current Italian GFA) on ascribed fertility intentions is weak: among men, we find a statistically significant effect (of about 0.5 points) only in three out of six vignettes, while for women we find a statistically significant effect only in the first and in the last vignette. The effect of a high benefit (i.e., three times the existing GFA) on ascribed fertility intentions is similar in magnitude to that found for the medium benefit, but it is significant in four out of six vignettes among men and in all vignettes for women. Next, the part-time availability of childcare in nearby kindergartens has small positive effects on ascribed fertility intentions (i.e., between 0 and 0.5 points) both among male and female respondents, albeit results are statistically significant in all vignettes only among women. When childcare availability is full-time, coefficients indicate a slightly stronger and statistically significant effect on the ascribed fertility intentions, as the effect sizes vary between 0.5 and 1 point. Finally, results are ambiguous as regards the effect of enhanced policies on parental leave. If the ten additional months of parental leave are paid at 80% instead of 30%, virtually no effect is detected among both sexes (a small, around 0.5 points, and statistically significant effect is only retrieved in one vignette out of six). With the best-case scenario – namely, 5 months of fully-paid parental leave to be taken from both the mother and the father, plus ten additional months paid at 80% – a weak positive effect is found among men (around 0.5 points, statistically significant in three vignettes) and, to a lesser extent, among women (smaller than 0.5 points, statistically significant only in two vignettes).

Results so far point to small-to-moderate effects of each family policy instrument on the fictitious couple's fertility intentions reported by respondents. In the next paragraph, we move on to the analysis of the interactions between family policy levers.

Figure 1 – Beta coefficients (with 95% confidence intervals) from OLS regression models on ascribed fertility intentions, by respondent's sex and vignette order.



Note: models control for respondent's parity interacted with the fictitious couple's parity.

5.2 Within approach: the combined effects of family policies on ascribed fertility intentions

In the second part of the analysis, we combined all vignettes and ran sex-specific random-effect models to test whether and to what extent policy levers interact with one another in affecting fertility intentions. Figures 2 (for men) and 3 (for women) show variations in the predicted ascribed fertility intentions, sorted in ascendant order, holding constant one of the three policy dimensions at a fixed level and letting the other two change. For example, in the upper-left panel of Figure 2, the graph reports the predicted fertility intentions, in ascendant order, when the child benefit is fixed at the low level, while childcare availability and parental leave (on the x-axis) change. Letters L, M, and H indicate the low, medium, and high levels of each dimension, respectively.

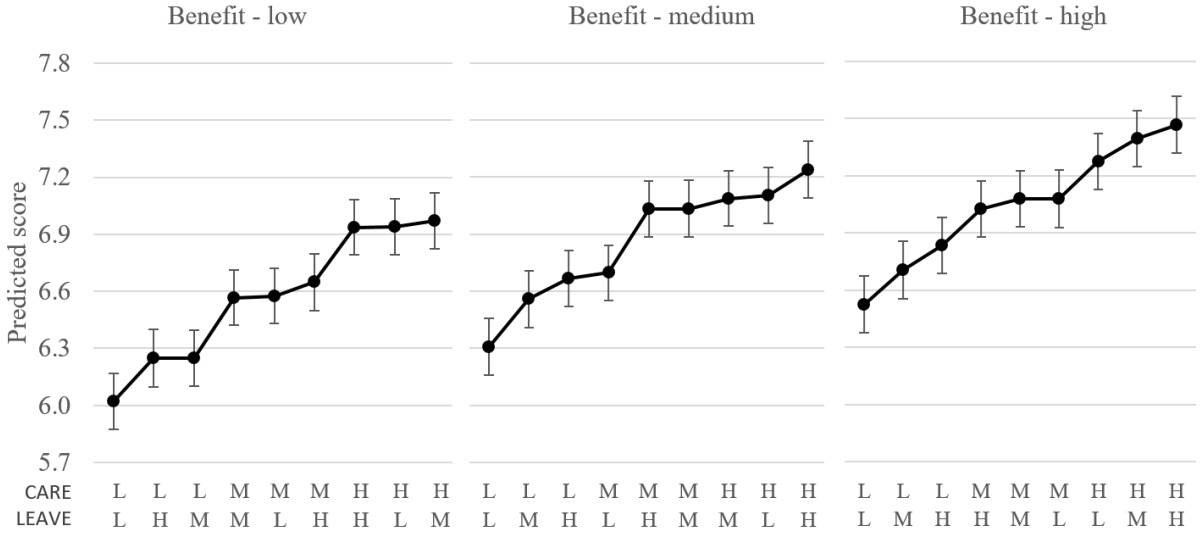
Overall, the ascribed fertility intentions tend to be higher as the levels of each family policy simultaneously increase. However, there is quite a degree of variation in the combined policy effects, which suggests that some policy levels are more important than (and interact with) the others. Starting from men (Figure 2) and looking at the graphs with childcare levels held constant, we can see that the lines are relatively flat, while the lowest predicted ascribed fertility intention increases remarkably when childcare availability improves from low to medium and from medium to high. This means that childcare availability plays a chief role in shaping the ascribed fertility intentions for men, while the contribution of the other two dimensions is relatively smaller. Conversely, looking at the graphs with parental leave policies held constant, the lines' slopes are steeper, and the lowest predicted score of the ascribed fertility intentions remains relatively stable across the three graphs. This means that, at least for men, levels of child benefits and childcare availability impact ascribed fertility intentions regardless of the generosity of parental leave schemes. For instance: when parental leave policies are those of the high scenario, the predicted ascribed fertility intentions range from 6.24 (in the case both benefits and childcare are set to the low scenario) to 7.45 (in the case both benefits and childcare are set to the high scenario) – i.e., the maximum combined contribution of child benefits and childcare availability is about 1.2 points. On the other hand, when childcare is available full-time (i.e., high scenario), the predicted ascribed fertility intentions range from 6.95 to 7.45 (i.e., the maximum combined contribution of the child benefits and parental leave is about 0.5 points). This means that enhancing child benefits and parental leaves when childcare is fully available may have little consequences on fertility intentions; while enhancing child benefits and childcare availability would strongly impact fertility intentions even in a scenario of generous parental leave policies. In addition, when childcare availability is limited (i.e., low scenario), the predicted scores of ascribed fertility intentions range between 6.05 and 6.85 – i.e., the contribution of the other two dimensions is about 0.8 points, which is larger than in the high scenario (by about 0.3 points). This suggests that the positive effect of enhancing child benefits and parental leave would be (slightly) stronger in a scenario

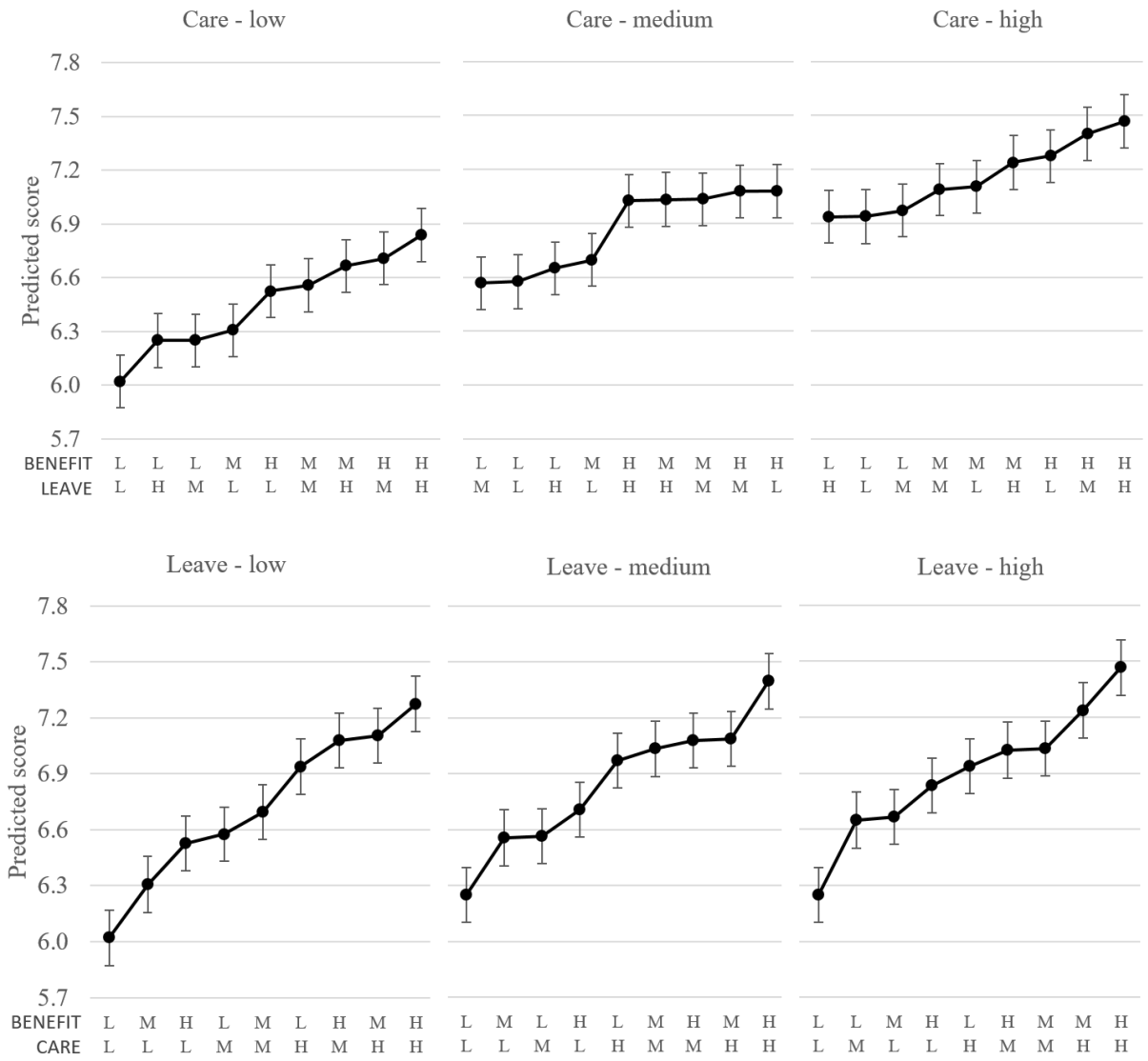
with poor childcare availability. Overall, the results suggest that the role played by child benefits lies somewhere in between those of childcare availability and parental leave policies.

The results for women (Figure 3) illustrate a similar pattern, albeit differences between policy effects are slightly less pronounced compared to those observed among men. This implies that women attribute some degree of efficacy to all types of family policies. Nevertheless, similar to our findings for men, relatively flatter lines are obtained when childcare availability is held constant, confirming that the single policy dimension with the larger effect on ascribed fertility intentions is childcare availability. For example, when childcare availability is set to the low scenario (i.e., few places are available in kindergartens), the predicted ascribed fertility intentions rise from 6.38 (in the case both child benefits and parental leave are set to the low scenario) to 7.05 (in the case both child benefits and parental leave are set to the high scenario), i.e., the maximum combined contribution of the other dimensions is only 0.67 points; conversely, when parental leave policies are those of the low scenario, the predicted ascribed fertility intentions rise from 6.38 to 7.61, i.e., the contribution of the other dimensions is 1.23 points.

All things considered, analysing the interactions between policy instruments suggests that not only each lever may exert a different effect on fertility intentions, but also that such effects may change depending upon the levels of the other levers.

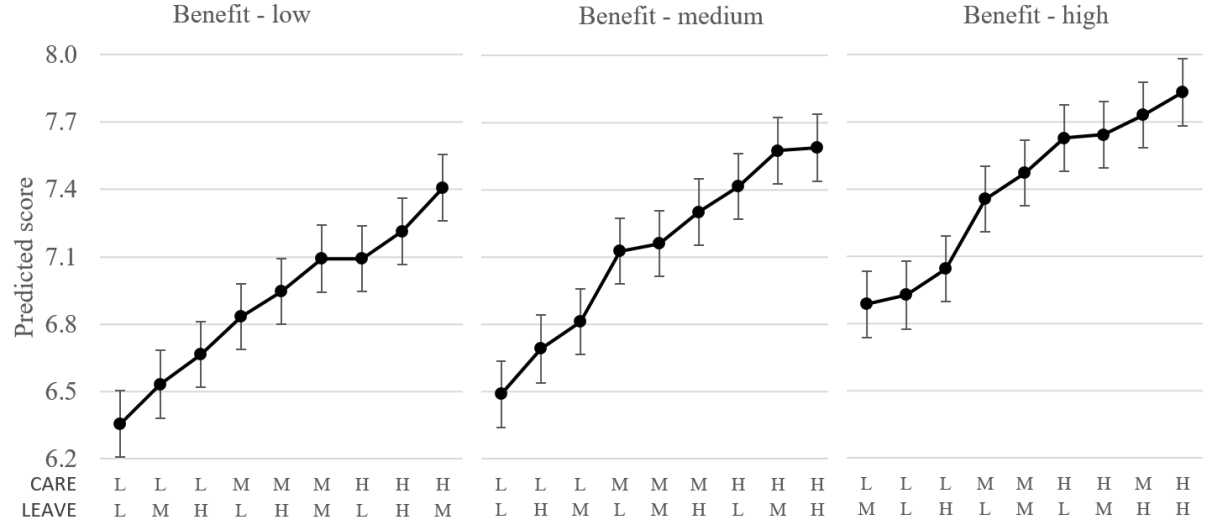
Figure 2 – Predicted ascribed fertility intentions (with 95% confidence intervals), by all possible combinations of family policies – MEN

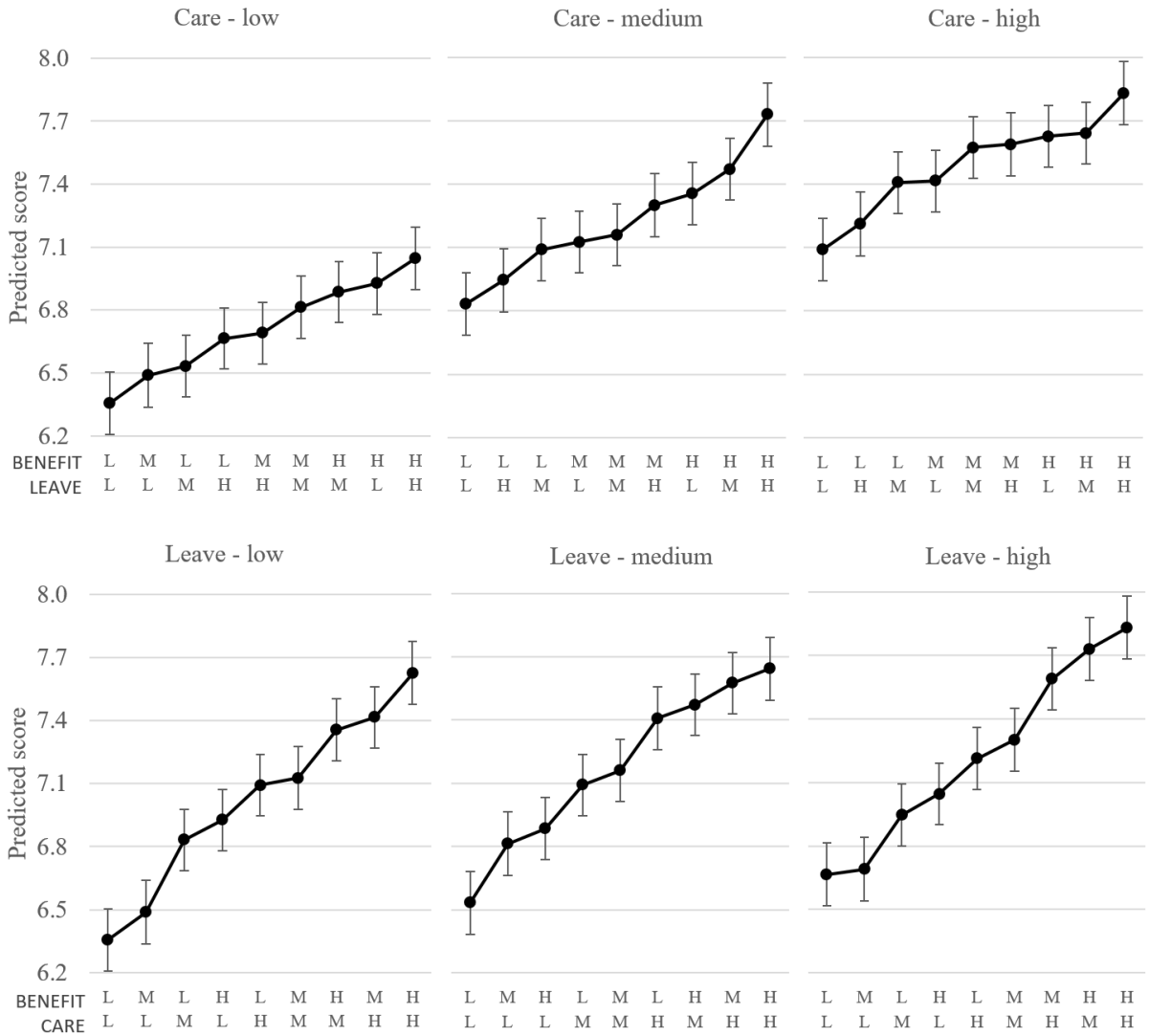




Note: models control for respondent's parity interacted with the fictitious couple's parity.

Figure 3 – Predicted ascribed fertility intentions (with 95% confidence intervals), by all possible combinations of family policies – WOMEN





Note: models control for respondent's parity interacted with the fictitious couple's parity.

5.3 Heterogeneity in the effects of family policies by characteristics of the fictitious couple

To examine possible heterogeneity in the effects of family policies, Table 2 reports differences between the best-case scenario and the worst-case scenario predictions by all possible combinations of the fictitious couple's characteristics (i.e., whether they have a child, employment status, and household income). Large differences can be interpreted as cases in which enhanced family policies have the strongest power to increase the ascribed fertility intentions, while small differences refer to cases in which improving family policies would not (much) affect the ascribed fertility intentions. For ease of interpretation, light grey cells correspond to small differences between the high-scenario and the low-scenario, while darker grey cells refer to larger differences between scenarios. Starting with men, we find the largest difference between the two scenarios when only Tommaso works and the household income is low (1.89); conversely, differences reduce when both Tommaso and Caterina work and the household income is medium or high – with small discrepancies by parity. For instance, if both Tommaso and Caterina work and the household income is high, a change from the worst- to

the best-case scenario in family policies would increase the intention of having the first child by only 0.90 points. Thus, among men, family policies seem to matter the most when the fictitious couples' economic situation is more fragile – e.g. a single-earner and a low household income. Under these circumstances, male respondents attribute particular relevance to child benefits for the couple's fertility intentions (see Figure A2 in the appendix). Among women, this pattern emerges less clearly and only when the fictitious couple already has a child. Similar to men, we find a difference in the predicted ascribed intentions of second birth between the best-case and worst-case scenarios of 1.83 points if only Tommaso works and household income is low or medium, and of 1.28 points if both Tommaso and Caterina work and household income is high. However, female respondents seem to "anticipate" the potential relevance of family policies when *she* is employed as well, even if the fictitious couples' income is high: in this specific combination, the difference in the predicted ascribed intentions of a first child between the best-case and worst-case scenarios is 1.57 among women and only 0.9 among men.

In general, the perception of the overall efficacy of family policies for fertility intentions does not differ substantially based on parity, although female respondents report higher positive effects of more generous family policies on the fictitious couple's intention to have the second rather than the first child.

Table 2 – Differences in the predicted ascribed fertility intentions between the best-case scenario (HHH) and the worst-case scenario (LLL) of family policies, by combinations of the fictitious couple's characteristics.

		Men		**Women**	
	Income	childless	with a child	childless	with a child
only Tommaso works	low	1.89	1.70	1.26	1.83
	medium	1.73	1.60	1.28	1.83
	high	1.36	1.36	1.60	1.43
both work	low	1.43	1.43	1.22	1.67
	medium	1.26	1.34	1.25	1.67
	high	0.90	1.11	1.57	1.28

Note: background is coloured in light grey for differences smaller than 1.30; in grey for differences between 1.30 and 1.69; and in dark grey for differences equal to or larger than 1.70.

6. Concluding discussion

This paper contributes to the literature on the family policies-fertility nexus by assessing the potential role of parental leave policies, childcare services, and child benefits on fertility through the use of factorial survey experiments (FSE). Starting from the consideration that family policies may only have a supportive impact on the childbearing behaviour of those families "that are in a position to conform" (Bourdieu, 1996: 24, cited in Neyer and Andersson, 2008), we investigated potential

recipients' perceptions of the efficacy of these policies in a lowest-low fertility context such as Italy. By doing so, we provide a sort of ex-ante evaluation of the efficacy of possible policy reforms to enhance fertility. Our analytical approach also responds to recent concerns that empirical studies should not focus on single policy tools but on family policy packages and their possible interactions (Gauthier, 2008). Finally, through the manipulation of the characteristics of the fictitious couple to which respondents ascribed short-term fertility intentions, we considered the heterogeneity in the perceived efficacy of family policies based on household income, both partners' employment, and parity.

Results suggest that each of the family-friendly policies we envisioned in the experiment – child benefits, childcare availability, or parental leave – positively impacts ascribed fertility intentions. More precisely, ascribed fertility intentions were at their highest in scenarios where all family policies were set at their highest levels. However, this conclusion needs to be qualified in two ways.

First, not all policy levers are equally important: the availability of full-time, public childcare services seems more relevant than higher child benefits, whereas more generous and gender-equal parental leaves seem to be perceived as less relevant. In scenarios characterised by virtually no places in public kindergartens, even the most generous benefits and parental leave schemas have been found to contribute very little to the ascribed fertility intentions, especially when the vignettes were evaluated by female respondents. Thus, other family policies cannot compensate for the lack of childcare services.

Second, it appears quite clear that only a consistent mix of financial benefits, parental leave schemes and childcare provisions can potentially boost fertility intentions, whereas marginal changes in single policy levers are most likely ineffective. Results suggest that even considering the policy dimension perceived as the most relevant – i.e. childcare services – vignettes in which the other policy dimensions are set at their current levels in Italy (low scenarios) whereas the fictitious couple can access full-time public childcare report ascribed fertility intentions higher by only 0.7 and 0.8 points (on a 0-10 scale) compared to the baseline, among women and men, respectively. On the contrary, a simultaneous shift from low to high levels of the three family policies has been found to increase ascribed fertility intentions by 1.4 points, among both male and female respondents. However, improving the Italian family policies to the levels envisaged in our high scenarios requires a substantial increase in public spending. For instance, the baseline level of child benefits in our vignettes, which is the current General Family Allowance (GFA) recently introduced in Italy, cost approximately 15 billion euros in its first year of application, almost half the amount of the 2023 budget law approved by the Italian Parliament. Increasing the amount of the allowance to three times

its current value may thus be difficult to bear for the Italian public finances, at least without substantial tax increases – which may not be a politically viable option. In general, such a huge increase in public spending on a single policy lever may produce small effects on total fertility rates.

The results of our FSE point out that a couple's socioeconomic status is more important than family policies for fertility decisions. Figure 2 suggests that ascribed fertility intentions increase by up to 3 points when both partners are employed and household income is high, with virtually no differences based on respondents' sex. This is a remarkable finding for a country with the second-lowest female employment rate in the European Union and long held to be marked by a pervasive male breadwinner norm. Of course, this does not necessarily imply a turn toward a gender-egalitarian division of gender roles. Rather, it may indicate that two earners and a decent household income are perceived as preconditions for a couple to have children in contemporary Italy, in light of labour market instability, increasing costs of children, and declining real wages (Vignoli et al., 2012, 2020a, 2020b).

The characteristics of the fictitious couple also play an important role in moderating the effects of family policies. In scenarios where both partners are employed and the household income is high, a simultaneous shift from low to high levels of the three family policy dimensions only produces limited increases in ascribed fertility. This pattern is particularly pronounced among male respondents, who perceive child benefits as particularly relevant only when the household income is low. Female respondents, instead, perceive family policies as relatively more relevant even in the fictitious couple's more favourable socioeconomic condition, especially with regard to the availability of public childcare services and the transition to the first child. This pattern reveals some traces of Becker's specialization model, with male respondents placing particular emphasis on income effects and somewhat underrating work-family reconciliation issues, while female respondents seem to take possible substitution effects into account.

The conclusion that couples' socioeconomic characteristics are perceived as more important by potential policy recipients for fertility decisions does not imply that family policy reforms are unnecessary in that they are costly and would only play a negligible role. The premise of this paper is that the success of policy reforms is partly dependent on the potential recipients' perception of the efficacy and relevance of family policies for fertility decisions (e.g., Hoem, 2008). However, it might also be that a policy that is perceived of minor importance before its implementation stimulates within-couple adjustments that eventually favour fertility decisions. For instance, more generous paternity leaves may be perceived as less relevant given that fathers, especially in the Italian context, participate very little in the care of small children. But once implemented, such a policy may

endogenously induce a change in attitudes toward gender roles and foster fertility through a more equitable partners' division of unpaid labour (Toulemon, 2011).

Most importantly, our ex-ante evaluation of the potential impact of family policies on fertility depends on the design and assumptions of our experimental setting. Female employment may indeed be fostered by public childcare availability and generous parental leave schemas, which means that part of the positive effects of improved family policies on fertility intentions may be mediated by rising women's employment (Luci-Greulich and Thevenon, 2013). However, this causal path is not captured in our FSE as the couple's employment (and income) situation enters our vignettes as an additional exogenous dimension that may influence partners' fertility decisions, regardless of family policies. Also, how the vignettes have been designed may make some manipulated dimensions more relevant than others. For instance, changes in household income or child benefits may be easier to grasp for the respondent, as they only imply a changing number passing from one vignette to the next. On the other hand, differences in the levels of parental leave are more subtle and require the respondent to read several sentences in the vignettes. This may partly explain why the relevance attributed by male respondents to more generous and gender-equal parental leaves in the first vignette gradually reduces in the subsequent ones, while the opposite occurs regarding child benefits (Figure 1).

Despite these limitations, we conclude that reasonably boosting Italian fertility should be possible through the coordinated use of family policies. Individuals must be informed about policies to embed public support in their decision-making. Bergsvik and colleagues (2021) advance that the symbolic meaning and/or signalling effect of announcing family-friendly policies should not be underestimated. The authors state that the most significant impact on fertility resulting from child benefits and parental leave expansions occurred in cases where the reforms explicitly aimed to boost fertility. This is an important consideration, given the renewed willingness to adopt instrumental considerations (e.g. the sustainability of pension systems) and to pay less attention to the moral stance that once dominated the attitudes of policymakers, in the shadow of past abuses by fascist and other authoritarian regimes. The aim of family-friendly policy reforms in contemporary Western countries should be filling the gap between desired and actual fertility, which is the highest in Southern European countries (Beaujouan & Berghammer, 2019). Also, coherence and stability of policies are key parameters to raise policy effectiveness and combat uncertainty by instilling sufficient trust in the future for households to have children.

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Appendix

Table A1 – Exact values of monthly net household income for each scenario reported in the vignette text according to the couple's employment situation

	Only Tommaso works	Both work
Low scenario	1,100€	2,100€
Medium scenario	1,500€	2,700€
High scenario	1,900€	3,300€

Table A2 – Amount of child benefit for each scenario reported in the vignette text according to the couple's net monthly income

IF: ↓	Low scenario	Medium scenario	High scenario
Low income (1,100€ or 1,500€)	175€	350€	525€
Medium income (1,900€ or 2,100€)	100€	200€	300€
High income (2,700€ or 3,300€)	50€	100€	150€

Figure A1 – Example vignette with introductory text (translated version)

Introductory text:
You will see 6 different possible scenarios, each of which describes the ***hypothetical situation of a couple****.*
For each scenario, please indicate how likely it is, according to you, that the couple ***will have a child (or another child)*** *in the next three years.*
Starting from the second scenario, the aspects that have changed with respect to the previous scenario are ***bolded****.*

Caterina (30) and Tommaso (32) are a couple without children, and they generally agree that they might have a child. Both Kate's and Tom's parents live over an hour's drive away.

- They are both employees with permanent contracts.
- The couple's net monthly income, including benefits and transfers, is 2,700€.

Considering the following scenario in terms of family policies:

- Child allowance of 100€ per month if they had a child.
- Public care services:
  - Public kindergartens in their city have places available 8:00 – 17:00
- Parental leave:
  - If they had a[nother] child, the mother would be entitled to 5 months of fully paid maternity leave, and the father to 10 days of fully-paid paternity leave. In addition, either the mother or the father could take up to 10 additional months of leave paid at 30% before the child turns 12.

How likely is it, according to you, that the couple will have a[nother] child during the next three years?

Answer:

0	1	2	3	4	5	6	7	8	9	10
Extremely unlikely										Extremely likely

Figure A2 - Predicted ascribed fertility intentions (with 95% c.i.) for selected combinations of policy dimensions and characteristics of the fictitious couple, by respondent's sex and fictitious couple's parity.