The role of family orientations in shaping the effect of fertility on subjective well-being

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Abstract

This paper aims to investigate whether and how having a child impacts an individual's subjective well-being, while taking into account heterogeneity in family attitudes. People with different family orientations have different values, gender attitudes, preferences towards career and family and expectations about how childbearing can affect their subjective well-being. These differences impact shape fertility decisions and how an individual's life satisfaction is affected by parenthood. We identify three different groups of people based on their family orientations: traditional, mixed and modern. After matching individuals who have the same-socio economic characteristics and family orientations by using a difference-in-difference propensity score matching, within each group we compare those who have one child with those who are childless as well as those who have two children with those who have only one child.

Using the British Household Panels Survey, we show that parents are significantly more satisfied than non-parents, although only in the short-run. This effect is found to be stronger among men than among women. For men, we do not find significant differences across family orientations' groups in how the birth of the first child affects life satisfaction. Among women, only traditional mothers seem to be more satisfied than their childless counterparts. Women who have a second child are never more satisfied than those who have only one child, regardless of their family orientations. Traditional and mixed men experience a gain in life satisfaction when they have a second child, but this effect is not found for modern men.

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Introduction

Recently, there has been a growing recognition of the importance of the link between fertility and subjective well-being (e.g., Billari 2009; Aassve et al., 2011; Margolis and Myrskylä 2011; Myrskylä and Margolis 2014). Such increasing attention to this topic stems from the fact that in contemporary advanced societies, where contraception use is widespread, the choice of having children is determined to a great extent by an individual's subjective well-being, present and prospective. As a consequence, the link between fertility and subjective well-being has been identified as the possible missing link to explain fertility trends and differentials across space in advanced societies (Billari 2009).

Existing and on-going research on fertility and subjective well-being clearly shows that their relationship is two-fold. On the one hand, there are studies pointing out that an individual's subjective well-being may predict fertility behaviour (Parr 2010; Billari 2009). On the other hand, another body of research shows that having children affects an individual's level of subjective well-being (Pouwels 2011; Myrskylä and Margolis 2012). Therefore, we cannot uncover a causal relationship between fertility and subjective well-being, unless reverse causality is addressed. The complexity of the interaction between fertility and subjective well-being rests also with the fact that both dimensions can simultaneously be influenced by third common factors, thereby leading to another source of endogeneity.

As Kravdal (2014) points out, there is an additional issue that has to be overcome in assessing the effect of having a child on an individual's subjective well-being. People make different evaluations about how their life will be after the birth of a child. Such different assessments likely affect the probability of actually having a child. Put in another way, those who expect that a child will make their life better are those who will be more likely have a child.

The aim of the present paper is two-fold. From a substantive point of you, we aim at developing a theoretical framework able to explain how family orientations shape the effect of fertility on subjective well-being, assessing how variations in attitudes and preferences, and thereby expectations, impact what people gain in terms of life satisfaction from having a child. From a methodological point of view, we aim at using a rigorous approach that allows us to investigate the causal relationship between parenthood and subjective well-being, taking into account any potential source of selection bias or endogenity. By using longitudinal data and a difference-in-difference

propensity score matching approach we moreover aim to examine not only intra-individual but also inter-individual differences in subjective well-being due to the birth of a child. Specifically we want to analyse variations over time of subjective well-being, that is changes in pattern of life satisfaction before and after the birth of a child, as well as comparing subjective well-being between individuals who have a child with those who have not.

The rationale behind our approach is to answer to the following research question: *Is an individual who has a child more satisfied than his/her counterpart who does not have the child, but has the same socio-economic characteristics and preferences?* Put in another way: *What people who do have a child gain in terms of life satisfaction if we compare their actual subjective well-being with their subjective well-being if they had not had that child?* Our study therefore focuses on potential gains and losses due to childbearing and we address this issue by looking at two different transitions, that is, transition to first birth and transition to second birth. This means we compare people who become parents for the first time with those who stay childless, and people who have two children with those who have one child only.

The article is structured as follows. In the next section, we provide a brief overview of existing literature on the fertility subjective well-being relationship and elaborate on the role of family orientations in shaping the effect of having a child on an individual's life satisfaction. In the method section, we describe the data we use and explain our analytical strategy. After showing the results we make some concluding remarks and suggest further line for future research.

Theoretical background

Existing research has so far shown no consensus on the effect of childbirth on life satisfaction. While some studies seem to imply that in advanced societies children are detrimental to an individual's subjective well-being, because they reduce marital well-being (McLanahan and Adams 1987), or increase stresses associated to financial responsibility (Zimmerman and Easterlin 2006), other studies emphasize a positive association between childbearing and subjective well-being. The 'value of children' theory (Hoffman and Hoffman 1973; Hoffman and Manis 1979; Friedman et al. 1994), more recently reconceptualised as a special case of the general theory of social production functions (Nauck 2007), envisions having children as instrumental in maximising individual utility as expressed by the combination of physical well-being

and social esteem. In this sense, having children, when fertility control is available, positively contributes to individual well-being. Next to this approach, also 'needs theories' stress advantages associated with having children, as parenthood bring emotional rewards (Veenhoven 1996). A positive association between fertility and subjective well-being is as well emphasized by those studies claiming that children help parents enlarge social capital and network (Schoen et al. 1997).

Next to studies focusing either on positive or negative consequences of having children on subjective well-being, there is some research showing that the fertility-subjective well-being relationship varies across cultural and institutional contexts (Aassve et al. 2012; Margolis and Myrskylä 2011), or socio-economic characteristics, such as age, gender, or economic factors (Keizer et al. 2010; Nelson et al. 2012).

Although these studies provide important insights into the relationship between happiness and fertility, their main shortcoming is that almost all of them adopt a cross-sectional approach. They suffer from the potential bias caused by simultaneity of happiness and childbearing behavior and reverse causality and, therefore, they cannot identify any causal effect.

Two main empirical approaches have been used to overcome selection and endogeneity bias, they are twin fixed-effect analysis and longitudinal within-individual analysis.

The first approach have been used by Kohler et al. (2005), who demonstrate that becoming a parent contributes positively to parents' happiness. Specifically, the authors find a non-linear effect of children on happiness, especially for women. Women's happiness increases after the first child, but having higher-order children is not associated with further increases in well-being.

The longitudinal within-individual (or fixed-effect) approach has increasingly been used in several recent studies investigating changes in the pattern of an individual's subjective well-being before and after the birth of a child. These studies consistently find that subjective well-being increases in the years around childbearing (right before and right after) and decreases thereafter (Clark at al. 2008; Keizer et al. 2010; Pouwels, 2011; Myrskylä and Margolis 2014; Pollmann-Schult, 2014). The longitudinal fixed-effect analysis has mainly been used for two different purposes. On the one hand, some studies have examined how specific socio-economic characteristics (e.g., age, gender, education, income, marital status) may shape and moderate the effect of having a child on changes in subjective well-being over time (Myrskylä and Margolis

2014), also focusing on the costs arising from different family contexts (Pollmann-Schult, 2014). On the other hand, this approach has been used to empirically test the 'set-point or dynamic equilibrium theory' (Headley and Wearing 1989), according to which every individual has his/her own baseline level of subjective well-being that is primarily determined by genetic factors and thereby it cannot permanently be modified by life events, such as having a child. Clark et al. (2008) for instance show that the birth of a child can only temporarily change an individual's level of subjective well-being leading to anticipation effects before the event and adaptation effects after childbearing but no enduring effects in the long-run are found.

We adopt an alternative, third empirical approach, that is a difference-in-difference propensity score matching. Applications to this method similar to the one we undertake in this study are those done by Wunder and Schwarze (2013), who investigate the effect of partner's death on the other partner's subjective well-being, and by Sironi and Billari (2013), who study whether union formation and childbearing improve subjective well.-being in the Bulgarian context after the end of Communism. Considering how recent are these studies, they might denote a new increasing interest in using such a method to analyze the effect of life events on subjective well-being.

We indeed believe this approach has few additional advantages compared to the previous two methods, while allowing to control for reverse causality and endogeneity as the other two methods do. The first advantage is that we can examine not only intra-individual variations of subjective well-being due to parenthood, but also inter-individual differences in subjective well-being between people who experience a childbearing and who does not. This is a very interesting aspect, and a way to expand existing research because so far the comparison between parents and childless people or people with different parities (e.g., parents with two children versus parents with only one child) have been investigated only using a cross-sectional approach (Aassve et al. 2012). As we mentioned earlier, cross-sectional studies can only show potential associations between different parental statuses and certain levels of subjective well-being, but they cannot uncover causal effects. The second advantage consists in that the difference-in-difference propensity score matching does not force us to assume homogeneity in the treatment as a regression approach, even with fixed-effect, instead does.

While using the difference-in-difference propensity score matching, we take into account that heterogeneous family orientations may lead to heterogeneous effects of

fertility on subjective well-being. People with different family orientations have different values, gender attitudes, preferences towards career and family and in turn expectations about how childbearing can affect their subjective well-being.

According to the 'Prospect theory' (Kahneman and Tversky 1979), individuals, who have to make a decision between uncertain alternatives, as having or not having a child definitely are, base their choice on the potential gain or loss they expect to receive when the event occurs. This consistently means that the probability for an individual of having a child also depends on the expectations that such individual has towards the impact parenthood has on his or her subjective well-being. As Kravdal (2014) points out, this leads to the problem that the factors shaping the effect of the treatment "having a child" also affect the probability that the treatment take place in the first place. Put in another way, those who expect a higher gain in subjective well-being from the birth of a child will be those who will be more likely to actually have a child. In order to overcome this issue, we match individuals not only on several socio-economic characteristics, but also family orientations.

With family orientations we refer to two aspects that we believe are the main value-related driving forces influencing both the effect of having a child on an individual's subjective well-being and the actual fertility behavior of that individual. These aspects are gender-role attitudes and preferences towards work and family. As Hakim shows (2000), these latter factors play a significant influence on an individual's fertility behavior. We envision them to play a relevant role also in shaping how the birth of a child affects an individual's subjective well-being. Specifically, we identify three different groups of people based on their family orientations: Traditional, Mixed and Modern. The categorization we use is inspired by the theoretical work of Hakim (2000, 2002) and the empirical strategy adopted by Kan (2007).

The traditional group is formed by those men and women who endorse a male-breadwinner model, in which the female partner is supposed to stay at home, not to work and be the main, if not the only, responsible for the housework and childcare activities. The opposite group is the Modern group, which consists of people approving a dual-earner family system and a gender-egalitarian model. People having these family orientations are those who think that both partners in the couple should work and equally contribute to both household income and housework as well as childcare.

In the middle, between the Traditional and the Modern groups, there is a third group of people, where the majority of the population likely rests, who approves an

intermediate or mixed family model in which the female partner is not simply a housewife but likely works (at least part-time), although at the same time she is still the main responsible for the household and childcare activities.

By comparing those who have a child with their counterparts who do not have a child within each of the three groups and for men and women separately, we manage to overcome another problematic issue raised by Kravdal (2014). According to this author, looking at the average treatment effect (among the treated), that is, the average effect of having a child (for those who had the child) on subjective well-being, might be misleading because if differences in attitudes, preferences and expectations are substantial, an average may conceal variations and become meaningless.

In existing literature we can find different indicators, definitions and metrics of subjective well-being, each of which has his own specificities and focus (Diener et al. 1999; Dolan et al 2008). We decided to focus on life satisfaction as a measure of subjective well-being. The motivation for this rests with the fact that, as some scholars point out (Dolan et al 2008; Dittmann and Goebel 2010), life satisfaction is a multidimensional construct, which focuses primarily on the cognitive aspects of subjective well-being, more than emotional ones as does the "happiness" measure. We therefore believe that a life satisfaction measure may be particularly suitable to catch an individual's evaluation of costs and benefits associated to childbearing in the long run.

Previous cross-sectional studies (Aassve et al. 2012, Nelson et al 2012) find that fathers are more often associated with higher level of happiness than mothers. We are interested in testing whether this association find support in our matching framework. In light of the fact that men and women experience family and work life differently and women usually face a greater work family conflict, experiencing higher costs and stresses associated to childrearing, which may at least partially offset gains in life satisfaction, we envision that *the gain in life satisfaction for fathers compared to non-fathers is bigger than the one for mothers compared to non-mothers (H1).*

We moreover think that differences across the three family orientations' categories that we have identified are much more relevant for women than for men. Men may have very different gender role attitudes and therefore expect their female partner to have a different role within and outside the household (e.g., housewife, working mother). They might even be more or less willing to share household and childcare activities with the partner, but, differently from women, they likely do not differ much across the three groups in terms of preferences towards work or family. Put in another way, Traditional,

Mixed and Modern men do not have significantly different lifestyles, because they are supposed to work anyways. As a consequence of persistent cultural gender differences, men usually do not have the option of choosing between family and work. This reasoning leads us to pose the following hypothesis: *Family orientations play a stronger role for women than for men (H3).*

As for women, we do expect great differences across the three family orientations' groups. Specifically, we believe that the number and type of sources of life satisfaction significantly vary across categories. While we expect Traditional women to put very high value to family life and children as the main, if not the only source of life satisfaction, we envision Modern women to have other sources of life satisfaction stemming from the work sphere and career, that might be even more relevant than having children. As a consequence, the gain in life satisfaction that Traditional women obtain from having a child should be higher than for Modern women. As for Mixed women, we believe that their sources of life satisfaction should be more in number than Traditional women, because likely such women also have an active and working life outside the household. However, they might still place a high value to family life, considering having children as still the primary source of life satisfaction. If this is true, this group is the one that may bear the highest costs, deriving from trying to reconcile work and family and balance them. We therefore *expect mothers to be more satisfied than non-mothers among those women who value more a life devoted to family and children*: *first Traditional, then Mixed, finally Modern (H3).*

We aim to explore whether we obtain different results considering two different birth transitions: transition to first birth, and transition to second birth. Building on Billari et al (2009), we assume that these two transitions are very different, and involve different expectations and different actual costs. As a consequence, we run separate analyses, matching and comparing first those who become parents for the first time with non-parents, then those who have a second child with those who have only one child.

Data and analytical strategy

Data

This paper uses the British Household Panels Survey (BHPS), an annual panel survey consisting of a nationally representative sample of about 5,500 households recruited in

1991, containing a total of approximately 10,000 interviewed individuals. These individuals are re-interviewed each successive year for 18 years and, if they split-off from original households to form new households, they are followed and all adult members of these households are also interviewed. Similarly, new members joining sample households become eligible for interview and children are interviewed as they reach the age of 16.

The BHPS dataset is very suitable for investigating the relationship between fertility and life satisfaction, because it provides information on several socio-economic characteristics, fertility history and subjective well-being measured over time.

Sample

In order to investigate the transition to first birth, and therefore compare the differences in subjective well-being between those who become parents for the first time and those who stay childless, we selected women and men aged 16 years old or older, who remained childless or had one child during the observation period (up to 18 waves). We also included in our sample individuals who had more than one child during the observation period, but they were censored two years before the birth of the second child, to avoid any potential anticipation effects of the second child on subjective well-being. We decided to proceed in this way after checking that anticipation effects only appear in the year before the childbearing, and not earlier. After deletion of missing values our working sample consists of 5,278 women and 5,127 men, corresponding to 21,762 and 19,600 persons-year observations, respectively.

We use the same strategy to identify the sample for the analysis focusing on the comparison between those who have two children and those who have one child only. Therefore, we selected women and men who had one or two children during the 18 waves, and those who had more than two children were censored two years before having the third child. The final working sample consists of 1,505 women and 2,054 men, corresponding to 4,173 and 6,535 persons-year observations, respectively.

Measurements

Dependent variable

In the BHPS, life satisfaction is measured using the following question: *"How dissatisfied or satisfied are you with your life overall"*, with answers ranging from one (*not satisfied at all*) to seven (*completely satisfied*). Unfortunately, this question was not

asked throughout the entire survey (i.e., 18 waves). It starts to be measured in wave 6 until the end of the survey (i.e., wave 18), but with a gap in wave 11.

Family orientatations

We measure family orientations using the following 6 items on 5-point scales (from *strongly agree* to *strongly disagree*):

1. A pre-school child is likely to suffer if his or her mother works
2. All in all, family life suffers when the woman has a full time job
3. A woman and her family would all be happier if she goes out to work
4. Both the husband and wife should contribute to the household income
5. Having a full-time job is the best way for a woman to be an independent person
6. A husband's jobs is to earn money; a wife's job is to look after the home and family

These items, that refer to both gender role attitudes and preference towards work and family, are measured in alternating waves in the BHPS. Therefore we imputed missing values based on the measure of the year before.

In order to construct a valid and reliable index measuring an individual's family orientations, we followed the same strategy adopted by Kan (2007), who use the same items in the BHPS dataset to evaluate Hakim's Preference Theory (2000). Specifically, after putting all of the items in the same directions (i.e. a low score in the answers means traditional orientations), we summated them to obtain a score index, which was found reliable (Cronbach's alpha=0.64).

People who scored in the lower quartile were defined as Traditional; those in the upper quartile as Modern; those in-between were identified as Mixed. This partition of the index, that leave the Mixed group as the biggest group is in line with Hakim's theory and it is based on an assumption we made, that the majority of the population should have mixed family orientations.

Analytical strategy

As we mentioned earlier, our strategy to identify a causal effect of having a child on life satisfaction consists in using a difference-in-difference propensity score matching, which is a method based on the potential outcome framework (Rubin, 1974). Specifically, we consider the birth of a child (first and second respectively) as our "treatment" variable, defining those who have a child in our sample as the treated group,

and those who have not as the control group. Our outcome over which we observe the effect of the treatment is life satisfaction measured at different points in time.

The propensity score matching serves us to generate a control group (Rosenbaum and Rubin, 1983). We match pairs of similar individuals who have and have not a child during the period of observation. We perform the matching two years before the childbearing. In this way we make it more likely that covariates are not affected by the treatment and we can also assess if there is an anticipation effect of childbearing on life satisfaction, that is, if people that planned a childbearing anticipate its effect in terms of life satisfaction. In previous analyses we tried to match individuals also 3, 4, 5 and 6 years before the treatment, but since we could observe diverging patterns of life satisfaction, due to anticipation effects, only the year before the treatment (i.e., childbearing), we opted for doing the matching two years before childbearing, in order to follow individuals and measure their life satisfaction for a longer period of time after childbearing.

After having matched treated and control individuals, we select all person-year observations of these individuals that are available in the data set in the following years. In this way, we can compare life satisfaction of treated and control units over time.

As suggested in the literature, we experimented with different methods and different specifications of the propensity score. The method that guaranteed the best balancing of covariates was a radius matching with a caliper equal to one quarter of the standard deviation of the estimated propensity score. Propensity scores were estimated using a logit model with several independent variables that are relevant for the mechanism that leads to childbearing (i.e., the treatment), and for the outcome under study, that is life satisfaction. In the matching variable set we specifically included: age, gender, marital status, health status and health problems, household income, education, employment status, and all of the 6 items measuring individuals' family orientations, previously defined. Instead of matching on the three identified groups of family orientations (i.e., Traditional, Mixed and Modern), we used all of the 6 items as covariates in order to have a finer matching on attitudes and preferences. Furthermore, we included in the matching variable set the level of life satisfaction measured in the matching year (i.e., 2 years before childbearing). The inclusion in the matching set of the outcome variable measured before treatment has been suggested in the treatment effect literature as a way to control for time-invariant unobserved factors, similarly to a fixed effect analysis. The

resulting estimator is known as Difference-in-Difference matching estimator (Arpino and Aassve, 2013).

The parameter we aim at estimating is the so-called Average Treatment Effect on the Treated (ATT; Imbens, 2004). The ATT can be interpreted in our context as the estimated difference between the observed average level of life satisfaction for treated (those that within the observation time span gave birth to a child, that in our analyses can be the first or the second) and the average level of life satisfaction they would have had if they did not give birth to that child.

As we have already said, we are interested in investigating differences in life satisfaction between parents and non-parents as well as those who have a second child and those who have one only child not only around the birth of the child, but also in the longer term. In principle, we can calculate ATTs considering life-satisfaction in each year starting from the childbirth year, until when the child is 11 years old. However, since the number of treated units dramatically decreases over time (Table 1), we investigate potential gains or losses in life satisfaction after childbirth not year by year, but measuring the ATT aggregating over different periods of time. Specifically, we focus on life satisfaction cumulatively measured over the entire period of observation (since the year when the matching is performed, that is two years before the potential childbearing, until the end of the period of observation); life satisfaction before the treatment (i.e., in the year before childbearing); life satisfaction since the birth of the child. Furthermore, we specifically aim to study whether life satisfaction may vary according to the different childrearing phases. To do so, we segment period over which we observe life satisfaction after the birth of a child, according to the kid's age. We specifically look at life satisfaction when the kid is between 0 and 3 years old and life satisfaction when the kid is between 4 and 11 years old.

Table 2 and 3 show the described time period we focus on in our analysis, also reporting the relative sample size for both the treated and the control group.

As we mentioned earlier, because the aim of our study is to uncover whether gender and family orientations play a relevant roles in shaping the effect of childbearing on life satisfaction, we run separate analysis by gender. Then, for women and men separately, we also run different analyses for the three family orientations' groups. We performed the matching within each sub-group, every time checking that balancing of covariates was satisfactory.

Results

Results from the difference-in-difference propensity score matching

As a measure of balance for the variables used for the matching, we used the percent standardized bias, that for each covariate is defined as the standardized difference between the means of that variable in the treatment and control group (Rosenbaum and Rubin, 1985). Values above 10% are considered unacceptable (Normand et al, 2001). Table 4 shows that before matching substantial imbalance existed between covariates. Matching was highly satisfactory as balanced improved considerably. After matching none of the covariates showed a bias higher than 4%.

ATT estimates from propensity score matching are reported in tables 5 to 10 .

Table 5, 6, and 7 report results concerning the transition to first birth, that is those in which the treatment is the birth of the first child, and thereby the comparison is between parents of one child and childless individuals. As shown in Table 5, we observe that, looking at the whole sample, parents seem to be more satisfied than non-parents, but the gain in life satisfaction deriving from parenthood seems to be short-termed. Parents seem to have a higher life satisfaction than childless individuals only until the child is 3 years old. Afterwards no positive effect is found. Previous research show similar results (Clark et al 2008). In line with our first hypothesis, fathers seem to have a higher gain in life satisfaction than non-fathers, compared to the one of mothers versus non-mothers. Mothers show a strong positive effect on life satisfaction the year before the birth of the first child. Then, the gain in life satisfaction during the first three years after childbearing gets very small and, although not significant, the effect of parenthood on life satisfaction for mothers seems to become even negative when the child is 4 years old or older. Fathers instead always show a significant gain in life satisfaction compared to non-fathers but, as in the total sample, the positive effect stops when the child is 3 years old.

We now need to uncover whether the average effects on life satisfaction for men and women that we have just described conceal variations that somehow balance them out (Kravdal 2014). According to our theoretical framework and in line to what Kravdal claims (2014), variations in the effect of parenthood on life satisfaction are mainly due to different family orientations, that we have categorized in the three groups of Traditional, Mixed and Modern. We therefore need to compare parents and non-parents within each of these three groups. Table 6 shows the results for women only by family orientations. It is very interesting to note that the gain in life satisfaction that we find in

the total sample of women is only driven by the high gain of the Traditional mothers compared to their childless counterparts, in line to what we hypothesize. While Modern mothers do not show any positive effect, neither before nor after childbearing, Mixed mothers show a significant and positive anticipation effects before having the first child, but no effects are found after the treatment. Actually the effect is negative, but not significant when the child is 4 years old or older. These findings seem to support our reasoning according to which Mixed women are those who bear higher costs compared to women in the other family orientations's groups. The fact that these mothers have a rather high, positive anticipation effect but no gain in life satisfaction after the birth of the child might indeed be due to the fact that high costs, such as time costs (Pollmann-Schult 2014) and difficulties in balancing work and family life, may offset a higher satisfaction coming from parenthood. Put in another way, Mixed mothers might experience a great mismatch between their expectations and their actual outcomes in terms of life satisfaction after the birth of the first child. On the other hand, Modern women, who seem to never experience a gain in life satisfaction, not even before childbearing, might have other relevant sources of life satisfaction, likely coming from the work and career sphere, which overall reduce the relative role played on life satisfaction by parenthood. In other terms, Modern mothers are not affected by the birth of a child, because the factors in their "utility function" are various and the change in only one of those (i.e., having a child) might not have a significant impact on their life satisfaction.

Table 7 shows the results for men by family orientations' group. It is clear that there are no substantial differences in terms of effects on life satisfaction for the three groups under study. Fathers seem always more satisfied than non-fathers, before and after childbearing, regardless of their family orientations. This is in line with our second hypothesis. We believe that differences across categories of family orientations are less relevant for men than for women, because the aspect related to the preferences towards work or family is less applicable for men than for women. Men may have very different gender role attitudes, but likely not very different lifestyles, because they are supposed to work anyways. As a consequence of persistent cultural gender differences, they usually do not have the option of choosing between family and work or career.

Tables 8, 9 and 10 report results regarding the transition to second birth. These findings stem from the comparison between those who have two children and those who only have one child. Table 8 shows that, looking at the entire sample, people who have

a second child seem to gain further in life satisfaction compared to those who have one child only. The positive effect, differently from the first child, seems to last also in the long run, even when the second child is between 4 and 11 years old. It is very interesting to see that this positive effect that we observe in the total sample is entirely due to gain in life satisfaction experienced by fathers. Mothers do not show any effect, it does not matter which family orientations they have, as Table 9 shows. This finding seems to be in line with previous research (Myrskylä and Margolis 2014), which shows that the second child has a much less strong effect on life satisfaction. Table 10 instead reports results for men by family orientations' group. We observe that Traditional and Mixed fathers have a positive and enduring effect on life satisfaction due to the birth of their second child, whereas Modern father has a similar trend to the one of Mixed mothers with the first child. They experience an increase in life satisfaction the year before the childbearing, but then they do not have any gain after the birth of the child. We believe this might be due to the fact this category of men are those who experience higher costs compared to men in the other two groups, because they are likely willing to share with the famale partner household and childcare tasks. As a consequence, since costs increase with the number of children, they might start feeling, with the arrival of the second child, the burden of reconciling work and family life and time constraints.

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Tables

Table 1. Sample size year by year for the analysis on the effect of the first child and life satisfaction.

Control				Treated			
Year	Obs	Mean	Std. Dev.	Year	Obs	Mean	Std. Dev.
-1	24136	5.17	1.17	-1	1203	5.48	1.12
0	20139	5.15	1.16	0	1294	5.51	1.10
1	17587	5.13	1.15	1	975	5.26	1.16
2	15124	5.11	1.15	2	641	5.12	1.12
3	13254	5.09	1.16	3	476	5.14	1.15
4	10992	5.09	1.14	4	342	5.12	1.16
5	8972	5.09	1.13	5	253	5.15	1.11
6	7165	5.08	1.12	6	199	5.14	1.02
7	5764	5.08	1.12	7	166	5.04	1.19
8	4546	5.10	1.12	8	124	5.08	1.19
9	4222	5.09	1.13	9	120	5.19	1.00
10	3418	5.08	1.13	10	104	5.10	1.15
11	2698	5.06	1.13	11	76	5.24	1.13
12	2052	5.05	1.13	12	67	5.36	0.87
13	1455	5.08	1.12	13	51	5.24	1.07
14	917	5.07	1.13	14	33	5.55	0.87
15	440	5.05	1.14	15	14	5.14	1.29

Table 2. Sample size for the analysis on the effect of the first child, over different periods of time

Control				**Treated**			
Time	Obs	Mean	Std. Dev.	Time	Obs	Mean	Std. Dev.
Over the entire period	30597	5.14	0.97	Over the entire period	1612	5.40	0.92
Before childbirth	24136	5.17	1.17	Before childbirth	1203	5.48	1.12
After childbirth	25416	5.13	0.97	After childbirth	1556	5.37	0.98
Child 0-3	25259	5.13	1.02	Child 0-3	1555	5.37	1.00
Child 4-11	12335	5.09	0.97	Child 4-11	365	5.16	1.00

Table 3. Sample size for the analysis on the effect of the first child, over different periods of time

Control				**Treated**			
Time	Obs	Mean	Std. Dev.	Time	Obs	Mean	Std. Dev.
Over the entire period	7482	4.98	1.07	Over the entire period	1481	5.27	0.88
Before childbirth	5898	5.02	1.26	Before childbirth	1059	5.37	1.10
After childbirth	6317	4.96	1.08	After childbirth	1441	5.26	0.91
Child 0-3	6311	4.98	1.11	Child 0-3	1439	5.27	0.94
Child 4-11	3412	4.93	1.13	Child 4-11	736	5.14	0.91

Table 4. Balancing of indipendent variables before and after matching

		Mean					Mean		
Variable	Sample	Treated	Control	% bias	Variable	Sample	Treated	Control	% bias
Gender	Unmatched	0.57	0.47	19.20	Edu ISCED 3	Unmatched	0.41	0.49	-14.70
	Matched	0.57	0.57	**-1.10**		Matched	0.41	0.41	**0.00**
Age	Unmatched	27.33	25.40	30.20	Edu ISCED 4	Unmatched	0.10	0.09	5.20
	Matched	27.33	27.33	**0.00**		Matched	0.10	0.11	**-2.10**
Age squared	Unmatched	778.91	695.01	23.60	Edu ISCED 5	Unmatched	0.02	0.04	-10.80
	Matched	778.91	778.37	**0.20**		Matched	0.02	0.02	**0.00**
Happiness	Unmatched	3.06	3.06	0.70	Employed	Unmatched	0.87	0.65	53.90
	Matched	3.06	3.06	**0.40**		Matched	0.87	0.87	**0.10**
Single	Unmatched	0.27	0.71	-99.20	Unemployed	Unmatched	0.06	0.06	-2.80
	Matched	0.27	0.28	**-1.80**		Matched	0.06	0.06	**-0.70**
Married	Unmatched	0.45	0.11	80.30	Other LFS	Unmatched	0.07	0.29	-58.60
	Matched	0.45	0.45	**-0.10**		Matched	0.07	0.07	**0.30**
Cohabiting	Unmatched	0.27	0.16	28.10	Item 1 attitudes	Unmatched	2.80	2.90	-10.90
	Matched	0.27	0.26	**2.20**		Matched	2.80	2.79	**0.70**
Separated	Unmatched	0.01	0.02	-3.10	Item 2 attitudes	Unmatched	3.42	3.48	-6.30
	Matched	0.01	0.01	**-0.50**		Matched	3.42	3.42	**0.40**
Health status	Unmatched	1.99	1.99	0.70	Item 3 attitudes	Unmatched	3.07	3.05	3.60
	Matched	1.99	2.01	**-2.10**		Matched	3.07	3.06	**1.00**
Health probl	Unmatched	0.45	0.41	7.60	Item 4 attitudes	Unmatched	2.40	2.32	10.10
	Matched	0.45	0.46	**-2.00**		Matched	2.40	2.38	**2.80**
Income	Unmatched	2832.00	3012.60	-9.60	Item 5 attitudes	Unmatched	2.78	2.74	4.30
	Matched	2832.00	2819.10	**0.70**		Matched	2.78	2.77	**1.00**
Edu ISCED 1	Unmatched	0.21	0.17	10.90	Item 6 attitudes	Unmatched	3.98	3.99	-1.30
	Matched	0.21	0.22	**-2.60**		Matched	3.98	3.98	**-0.10**
Edu ISCED 2	Unmatched	0.25	0.21	8.00					
	Matched	0.25	0.23	**3.90**					

Table 5. Average treatment effect among the treated (ATT) on life satisfaction resulting from the difference-in-difference propensity score matching considering as treatment the birth of the first childbirth. Analysis on the entire sample and by gender.

Time	Effect of first childbirth					
	Total sample		Women		Men	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Over the entire period of observation	0.206***	0.025	0.118**	0.036	0.260***	0.034
Before childbearing	0.253***	0.035	0.157**	0.051	0.313***	0.047
After childbearing	0.190***	0.027	0.094*	0.040	0.247***	0.037
When kid is 0-3	0.195***	0.028	0.101*	0.041	0.247***	0.038
When kid is 4+	0.038	0.055	-0.047	0.079	0.104	0.075

*** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10.

Table 6. Average treatment effect among the treated (ATT) on life satisfaction resulting from the difference-in-difference propensity score matching considering as treatment the birth of the first childbirth. Analysis only on women, by family orientations.

Time	Effect of first childbirth on women					
	Traditional		Mixed		Modern	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Over the entire period of observation	0.347***	0.085	0.086	0.045	0.072	0.086
Before childbearing	0.282*	0.118	0.144*	0.061	0.117	0.134
After childbearing	0.369***	0.093	0.064	0.049	0.024	0.093
When kid is 0-3	0.413***	0.095	0.070	0.051	0.019	0.096
When kid is 4+	0.066	0.277	-0.058	0.094	0.032	0.157

*** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10.

Table 7. Average treatment effect among the treated (ATT) on life satisfaction resulting from the difference-in-difference propensity score matching considering as treatment the birth of the first childbirth. Analysis only on men, by family orientations.

Time	Effect of first childbirth on men					
	Traditional		Mixed		Modern	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Over the entire period of observation	0.289***	0.084	0.238***	0.041	0.323***	0.092
Before childbearing	0.213*	0.096	0.296***	0.060	0.430***	0.122
After childbearing	0.284**	0.096	0.239***	0.043	0.227*	0.102
When kid is 0-3	0.270**	0.095	0.225***	0.045	0.275**	0.103
When kid is 4+	0.064	0.184	0.075	0.088	0.240	0.220

*** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10.

Table 8. Average treatment effect among the treated (ATT) on life satisfaction resulting from the difference-in-difference propensity score matching considering as treatment the birth of the second childbirth. Analysis on the entire sample and by gender.

Time	Effect of second childbirth					
	Total sample		Women		Men	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Over the entire period of observation	0.161***	0.028	0.070	0.040	0.232***	0.039
Before childbearing	0.203***	0.040	0.102	0.058	0.279***	0.054
After childbearing	0.171***	0.030	0.070	0.042	0.237***	0.042
When kid is 0-3	0.162***	0.031	0.076	0.044	0.214***	0.043
When kid is 4+	0.102*	0.042	-0.003	0.064	0.182**	0.056

*** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10.

Table 9. Average treatment effect among the treated (ATT) on life satisfaction resulting from the difference-in-difference propensity score matching considering as treatment the birth of the second childbirth. Analysis only on women, by family orientations.

Time	Effect of second childbirth on women					
	Traditional		Mixed		Modern	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Over the entire period of observation	0.124	0.091	0.062	0.051	0.130	0.121
Before childbearing	0.167	0.132	0.123	0.075	0.025	0.153
After childbearing	0.070	0.088	0.069	0.054	0.168	0.134
When kid is 0-3	0.054	0.093	0.095	0.057	0.163	0.128
When kid is 4+	-0.064	0.138	-0.080	0.078	0.327	0.224

*** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10.

Table 10. Average treatment effect among the treated (ATT) on life satisfaction resulting from the difference-in-difference propensity score matching considering as treatment the birth of the second childbirth. Analysis only on men, by family orientations.

Time	Effect of second childbirth on men					
	Traditional		Mixed		Modern	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Over the entire period of observation	0.217*	0.092	0.242***	0.048	0.124	0.105
Before childbearing	0.214	0.116	0.273***	0.070	0.283*	0.129
After childbearing	0.323**	0.101	0.260***	0.051	0.053	0.115
When kid is 0-3	0.257*	0.107	0.247***	0.052	0.048	0.120
When kid is 4+	0.332**	0.121	0.170*	0.068	-0.069	0.157

*** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10.