To be or not to be a (good) mother:

Life-long decisions of working women

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Debora Di Gioacchino[a], Emanuela Ghignoni[b] and Alina Verashchagina[c]

Abstract: More time spent on childcare can be seen as investment in higher quality of children, but there may be other reasons why women stay longer out of the labour market, reduce their workload or drop out altogether following childbirth. We aim to understand which other factors drive such outcomes. The theoretical model proposed describes women's trade-offs about career, fertility and the time dedicated to children. Model predictions are then tested empirically using the data from Isfol Plus 2014 survey for Italy. We show that women with higher earnings potential are as prone to have kids as their low-earning counterparts, but the duration of career break for them is shorter. Both the probability to become a mother and the duration of career break are positively affected by the taste for children, defined on the basis of the number of actual and desired children. The worsening of reproductive health instead tends to prolong the time spent out of the labour market following childbirth.

Keywords: Fertility, Career break, Female labour force participation, Italy.

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[a] Sapienza University of Rome: debora.digioacchino@uniroma1.it
[b] Sapienza University of Rome: emanuela.ghignoni@uniroma1.it
[c] Sapienza University of Rome: alina.verashchagina@uniroma1.it

Introduction

We study the decisions of working women in their relation to childbirth, in particular, whether at first place to have children or not, and then how much time dedicate to raising them. Becoming a mother can be a form of realization for a woman, with professional growth being a viable alternative. Combining the two is not easy, especially for women occupying high professional niches, due to career break associated with maternity as well as the reduction in intensity of work following childbirth typical for many women. Something that is usually done 'for the good of children' may have negative implications too. The duration of career break is critical for the possibility to get back to paid work and subsequent working conditions of mothers, including the amount of pay. The future welfare of both women and children are at stake, also due to increasing instability of marriages. All this may partly explain why, alongside to reduced fertility rates, there is a tendency for more women to remain childless (voluntarily or not), with a role of a woman in modern society being reconsidered (Aaronson et al. 2014, Baudin et al. 2017).

Italy is an interesting case study, characterized by low female labour force participation and fertility rates, close to the lowest among the European countries (ISTAT). Several reasons may account for this evidence, such as the changing life style and the evolution of the idea about family as a context to raise kids, despite a very strong familistic tradition still at place; higher investment in education on the part of women and the consequent postponement of the moment of first birth, which may turn too late for the desire to have kids eventually to realize[1].

A woman might feel not in a position to have kids until she gets a stable job, which is a guarantee for being able to raise a child. The type of job predetermines in turn how much time she can dedicate to raising kids. In Italy mothers have the right for 5 months obligatory paid maternity leave (granting 80% of the previous pay).[2] A longer career break can be chosen if a woman believes it makes good for a kid (an idea which can be imposed by existing social norms), or she enjoys the process of raising kids, comparatively more than working, and she can afford it relying on partner's income.

[1] In 2015, the average age at first birth reached 30.8 years old in Italy, the highest among the European countries (Eurostat on-line database).

[2] It is supplemented with an optional parental leave up to 6 months to be used before the age of 6 (30% of the previous pay). It can also be used fully or in part between the age of 6-8 of a child and be paid if an interested parent's individual income is below a certain predefined level.

Mothers might as well overinvest their time in raising kids, which has an impact not only on their future career prospects, but also on other women (Barigozzi et al. 2017). By suggesting a notion of child-rearing as an extremely time-consuming project, this also affects choices of women who plan to become a mother and could be one of the reasons behind the decision to remain childless. We thus aim to study the two related choices women face: 1) To become a mother or not; and if they give birth 2) How much time dedicate to raising children in the first years of their life.

In what follows, we are going to focus on the duration of career break due to maternity, which often goes to infinity in the Italian context, as long as a non-negligible part of women withdraws from the labour market some time after childbirth. A theoretical model will be presented to describe a sequence of trade-offs faced by women, starting from the decision to have kids or not and then how much time dedicate to child-rearing. The model suggests that career break is a decreasing function of woman's wage, but it increases with the "taste for children".

The model predictions are tested empirically by using data from the Isfol Plus survey for Italy (2014), which provides information on the time spent caring for children outside the labour market, including periods of child diseases, parental leaves etc. going beyond the mandatory period granted by the law. This data is complemented with a series of indicators at regional or province level which aim to capture existing cultural norms and the state of reproductive health. The latter gains importance as long as the moment of first childbirth is being postponed. The two-step process is modeled by estimating a system of equations which stand respectively for the decision to have child or not and then how much time dedicate to child-rearing. It appears that in the Italian context, women in high-career jobs tend to have more children but stay less out of the labour market following the childbirth. The taste for children instead tends to increase both the probability to have kids and the duration of career break. In addition, poorer health conditions, proxied by the ratio of miscarriages to live births at province level, tend to increase the duration of career breaks. Thus, the earning potential of women, their desire to have (more) kids and health conditions − all have to be taken into account when designing the relevant policies.

The paper is structured as follows. Section one provides a literature review. Section two introduces a theoretical model. Section three describes the data and modelling strategy used in the empirical part. Section four presents the findings. The discussion section and conclusions follow.

1. Literature review

Maternity leave policies, which provide women the right to a period of job-protected leave around childbirth, are seen as a way to reduce the cost of motherhood, acting on both employment and fertility (Lalive and Zweimuller 2009), even though they seem to be related to a penalty on female wages (Blau and Khan 2016) and female career progressions (Pacelli et al. 2013). The more or less homogeneous duration of obligatory maternity leaves throughout Europe is nevertheless coupled with very different outcomes in terms of both fertility and female labour force participation. This could be partially explained by the fact that women often tend to stay longer out of the labour market or even drop altogether following childbirth. In some countries, like Italy, it is more common, meaning that the duration of obligatory maternity leave is not a good indicator of the actual absence of women from the work place.

The length of the maternity leave should be carefully balanced. Not only does it influence maternal health (Aitken et al. 2015, Avendano et al. 2015), but also cognitive and non-cognitive abilities of children (Del Bono et al. 2016, Fort et al. 2017).[3] At the same time, Del Boca et al. (2017) point out to the importance of child's own investment made during adolescence which matters more than that of mother's. Longer presence of mother at home might not be helpful for developing the autonomous behavior. Thus, there are pros and cons to extending the maternity leave. On a labour market side, moreover, a longer career break reduces the probability to come back to work, and at any rate leads to heavy penalties on female wages and lowers the chances of career progression (Adda et al. 2017).[4]

Economic literature has identified different reasons behind the choice of the duration of career breaks after childbirth. Among them: social customs, level of education, the availability and accessibility of childcare facilities (or, in alternative, the presence of elderly relatives in the household), labour markets flexibility and regulation, fiscal policies and childcare subsidies (Casadio et al. 2008).

As to social customs and cultural norms, specific long-term effects on labour market participation of married women with young children have been attributed to religion, social transformations (Boeri et al. 2005) and the nature of family ties (Alesina and Giuliano, 2010).

[3] The rational is that parents might be able to build a context in which the quality of one-to-one interactions at home is likely to be better than the quality of childcare outside the family. This especially regards well-off families.
[4] In this framework, the first three years after childbirth are crucial in Italy, as new mothers not re–entering the labour market in that period are at risk of definitive exclusion (Casadio et al. 2008).

In particular, religious beliefs were proved to have strong influence on the economic behavior of individuals (Pastore and Tenaglia, 2013). The authors carried out a cross-country comparison of the impact of religion on female labor market participation and found, that "active" Catholic women (mainly concentrated in Southern European countries) tend to work less than "non-active" Protestant women in Northern Europe. Alesina and Giuliano (2010) show that strong family ties societies (like Mediterranean ones) are characterized by an unequal division of family work between men and women (the so-called 'male-breadwinner hypothesis', in which the man works full-time and the woman dedicates herself to housework), whereas weak family ties foster an egalitarian division of gender roles in which men and women participate equally in employment and housework. For this reason, the traditional role of mothers in child-care activities is highly valued by many families in Southern European countries (Nicodemo and Waldmann, 2009) and the duration of maternity leaves tends to be longer.

Social customs tend to vary slowly along time. As a matter of fact, parents transmit their values and preferences to their offspring, thus influencing attitudes regarding women's role. A wide strand of literature finds strong associations between the presence of a working mother in the family of origin and sons/ daughters attitude towards female labour force participation as adults (Farré and Vella, 2013, McGinn et al. 2015). The increasing presence of men brought up in families in which the mother worked seems to have been a significant factor pushing female labour force participation over time (Fernández et al. 2004), even though the increase in female employment and participation rates that have taken place during the last century can be partly attributed to cohort-specific changes in preferences or the costs of child-rearing and household maintenance (Eckstein and Lifshitz, 2011).

The increase of women's formal level of education has been analyzed as a factor pushing women to postpone fertility and showing a higher labour market attachment, even after controlling for the potential endogeneity of education[5] (see, among others, Bratti, 2003). In that case we should expect that more educated women would experience shorter periods of absence from work after child-bearing. Along the same line, Kuhlenkasper and Kauermann (2010) show that the personal income of mothers and their educational attainment influence the decision when to return to work after the first childbirth. Macran et al. (1996) pointed to a kind of polarization between British mothers in a more or less privileged social groups, in terms of the ability not

[5] The author highlight that education may be in part endogenous: strong preferences for market work may induce women to invest more in education and perhaps to have lower fertility and shorter maternity leave.

only enter but also stay in paid employment after childbirth. Being in higher status occupation and earning an adequate income is what allowed to effectively externalize care. Similar trends have been observed more recently in the USA (Bar et al., 2017). Finally, new mothers with an occupational status at least as high as that of their male partner have been proven to be less likely to reduce their labour supply in the time around their first childbirth (Begall and Grunow 2015).

A chronic undersize of public child-care services has long been identified as one of the most important factors responsible for the low labour force participation of Italian women, and it can accordingly be suspected of lengthening the duration of maternity leaves. In Italy, only around 13% of the demand for public child-care coverage is met, and the number of applications exceeds the number of places in child-care services in all regions (Del Boca et al. 2016). Moreover, public structures often offer an insufficient number of hours per day, and private child-care is expensive.[6] The result is that the main safety net for Italian mothers remains the family, namely grandparents. Some researches show that, in an Italian context, the presence of an elderly member, cohabiting with the family, has a significant impact on the probability that a woman enters the labour market (or increases her working hours) after her husband has lost his job (Ghignoni and Verashchagina, 2016). Therefore, we can expect that mothers of young children, who cannot rely on the presence of an informal family network as a substitute for scarce and inefficient social services, are forced to longer career break when bringing up their children.

As to the role of labour market flexibility, Northern European countries, namely the Netherlands, chose part-time employment as a way to reconcile work and family life. As a result, leaving employment after the first child birth is very uncommon in the Dutch labour market, and even though part-time may represent a pitfall for vulnerable people involved in precarious jobs, the likelihood that a reduction in working hours is associated with occupational downgrading is low (Begall and Grunow 2015). In Italy the availability of part-time jobs is scarce and returning to a full-time job after a period of time spent in part-time is difficult. Moreover, the wide spread of fixed-term contracts among young people increases the female segregation in precarious job. In that case, women risk undergoing long spells of non–employment or under–employment after childbirth, which are likely to bring strong losses in mothers' human capital and future wages. In this context, some authors state that a wider availability of part-time jobs in the Italian labour markets would reduce the probability of moving out of the labor force after becoming mothers

[6] The decision to work after child birth and to buy market child-care is extremely sensitive to child-care cost (Blau and Robins 1988).

(Pacelli et al. 2013). Interestingly, thanks to the high protection accorded to part-time jobs in Italy, a significant motherhood wage penalty seems to emerge only among women working full-time before and after childbirth (see again Pacelli et al. 2013).

In what follows, we are going to present a theoretical model which describes women's trade-offs about career, fertility and the duration of career break following childbirth.

2. Theoretical model

We consider a two-period model in which women differ in education level (High or Low) and "taste for children", which is measured by a (non-negative) parameter β. In the first period, they choose whether to have a child and a job-type. Low educated women can only choose a low career job and their wage is w_L. Highly educated women can choose a low career job and earn a salary $w_H (> w_L)$ or a high career job and earn a salary πw_H $(\pi > 1)$. In the second period, mothers choose the length of maternity-leave while women who do not have a child, work full-time in the job they have chosen in the first period and consume all of their income. To model maternity-leave decisions, we divide the second period in two sub-periods. The first, of length $x \in [0, 1]$ represents the duration of the maternity-leave; in the second sub-period of length $1 - x$ the mother works.

Let c be consumption. The utility function of a woman with taste for children β is assumed to be:[7]

$$U_\beta(c, x) = u(c) + \beta v(x) \qquad (1)$$

$u(c_t)$ is increasing and quasi-concave, $v(x)$ is increasing and concave. The parameter β can be interpreted as measuring time complementarities: for a mother, non-working time is valuable because time is spent with the child. This parameter can also be interpreted as measuring positive effects of time spent with the mother on child's human capital (see e.g. Del Bono et al. 2016). Note that the value attributed to β may depend on social norms.

[7] Without loss of generality, here we focus on second period utility. Adding a first period in which women work full time does not change our results.

To find optimal choices, we proceed backward. In the second period, decisions on consumption and maternity-leave are taken to maximize the utility function subject to the budget constraint:

$$\mathrm{c} = \begin{cases} w(1-x) & if\ no\ child \\ w(1-x) - kp & for\ mothers \end{cases} \qquad (2)$$

where k is the time the child spends in child-care at the market price p. If the child must be taken care of for the whole period in child-care (i.e. if $k = 1 - x$) then, for mothers, the constraint becomes: $c = (w - p)(1 - x)$.

For women without children the optimal choice is $x^* = 0$ and $c^* = w$. Intuitively, since the utility of maternity-leave for a woman with no children is zero, non-mothers will work full-time and consume all of their wage. Accordingly, their (indirect) utility is:

$$U_0^*(w) = u(w) \qquad (3)$$

Next, consider mothers. They maximize the Lagrangian:

$$L = u(c) + \beta v(x) - \lambda[\mathrm{c} - (w - p)(1 - x)] \qquad (4)$$

The first order conditions require

$$c^* = (w - p)(1 - x^*) \qquad (5)$$

and

$$v_x(x^*) = \frac{w-p}{\beta} u_c(c^*) \qquad (6)$$

The explicit solution is $x^* = v_x^{-1}[\frac{w-p}{\beta} u_c(c^*)]$. Thus, maternity-leave depends on wage and taste for children: $x^*(w, \beta)$.

Result 1: If $-\frac{c^* u_{cc}(c^*)}{u_c(c^*)} < 1$ then maternity-leave is a decreasing function of the wage.[8]

Proof: Consider a wage increase; if $-\frac{c^* u_{cc}(c^*)}{u_c(c^*)} < 1$ then $\frac{w-p}{\beta} u_c(c^*)$ increases with wage.[9] By FOC2 this requires an increase in the marginal utility $v_x(x^*)$ and - by concavity of $v(x)$- a decrease in maternity-leave.

Note that the condition in result 1, which puts a bound on the coefficient of relative risk aversion, is obviously satisfied for a linear utility function and for a CRRA utility function with parameter rho<1. Intuitively, the condition requires that the substitution effect of a wage increase is higher than the income effect.

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[8] If $-\frac{c^* u_{cc}(c^*)}{u_c(c^*)} = 1$ then maternity leave is not affected by wage: income and substitution effect cancel out.

[9] In fact, $\frac{\partial u_c(c^*)[w-p]}{\partial w} = [(w - p)(1 - x)]u_{cc}(c^*) + u_c(c^*) = c^* u_{cc}(c^*) + u_c(c^*)$ which is positive iff $-\frac{c^* u_{cc}(c^*)}{u_c(c^*)} < 1$.

Result 2: Maternity-leave increases with the intensity of leisure complementarities (taste for children).

Proof: This result derives from the concavity of $v(x)$. [10]

In what follows, we take:

$$u(c_t) = c_t \qquad (7)$$

In this case, $x^* = v_x^{-1}\left(\frac{w-p}{\beta}\right)$: maternity-leave increases with β and decreases with w.[11] Thus, ceteris paribus, a highly educated woman in a low career job will choose a longer maternity leave than a woman in a high career job.

Fertility and career decisions.

Next, we consider women's fertility and career decisions taken in period one. To this purpose, we compute and compare the (indirect) utility of highly and low educated women, as a function of their fertility and career decisions. Write the (indirect) utility for a mother with taste for children β and earning a wage *w* as

$$U_\beta^*(w) = (w-p)\big(1 - x^*(w,\beta)\big) + \beta v\big(x^*(w,\beta)\big) \qquad (8)$$

Lets' start by considering fertility decision.

Result 3: A woman will choose to have a child if $\beta > \tilde{\beta}$

Proof: Define

$$\Delta_w(\beta) = U_\beta^*(w) - U_0^*(w) =$$

$$= (w-p)\big(1 - x^*(w,\beta)\big) + \beta v\big(x^*(w,\beta)\big) - w$$

First note that $\Delta_w(0) = -p < 0$. Moreover, $\frac{d\Delta_w(\beta)}{d\beta} = v\big(x^*(w,\beta)\big) > 0$.[12]

It follows, that there exists a value $\tilde{\beta}$ such that $\Delta_w(\beta)$ is positive for any $\beta > \tilde{\beta}$.

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[10] In fact, $x^* = v_x^{-1}[\frac{w-p}{\beta}u_c(c^*)]$ which, by concavity of $v(x)$, implies that x^* decreases when β increases.

[11] Consumption increases with wage and decreases with p and ß.

[12] In fact, $\frac{d\Delta_w(\beta)}{d\beta} = -(w-p)\frac{dx^*}{d\beta} + v(x^*) + \beta v_x(x^*)\frac{dx^*}{d\beta} = v\big(x^*(w,\beta)\big)$. The last step follows from $(w-p) = \beta v_x(x^*)$. Note that a higher value of *w* implies a lower value of x^* and $v(x^*)$, therefore a flatter $\Delta_w(\beta)$ which means a higher $\tilde{\beta}$.

Note that $\tilde{\beta}$ is increasing with *w*, so that low educated woman will be more likely to have a child (see footnote 12).

Next, compare the utility for a highly educated woman in a low and high career job, in case of no child.

Result 4: A highly educated women with no child ($b = 0$) will always choose a high career job ($q = \pi$).

Proof:

$$U_0^*(\pi w_H) - U_0^*(w_H) = w_H(\pi - 1) > 0$$

Differently, for a highly educated mother the career's choice depends on her taste for children.

Result 5: A highly educated mother will choose a low career job and "long" maternity-leave if $\beta > \bar{\beta}$.

Proof: Define

$$\begin{aligned}\Delta_\pi(\beta) = U_\beta^*(w_H) - U_\beta^*(\pi w_H) \\ = (w_H - p)\big(1 - x^*(w_H, \beta)\big) + \beta v\big(x^*(w_H, \beta)\big) - (\pi w_H - p)\big(1 - x^*(\pi w_H, \beta)\big) \\ + \beta v\big(x^*(\pi w_H, \beta)\big)\end{aligned}$$

First note that $\Delta_\pi(0) = -w_H(\pi - 1) < 0$.

Moreover, $\frac{d\Delta_\pi(\beta)}{d\beta} = v\big(x^*(w_H, \beta)\big) - v\big(x^*(\pi w_H, \beta)\big) > 0$.[13]

Define $\bar{\beta}$ be such that $\Delta_\pi\big(\bar{\beta}\big) = 0$. It follows, that for any $\beta > \bar{\beta}$ the woman will prefer a low career job and a "long" maternity leave.

Our model has several testable implications, which we are going to consider in the next section: 1. maternity leave is a decreasing function of wage (R1); 2. maternity leave increases with beta (R2); 3. fertility increase with beta and decreases with Wage (R3); 4. career choice for highly educated woman: high if beta low (either no child, R4, or if child, R5).

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[13] In fact, $\frac{d\Delta_\pi(\beta)}{d\beta} = v\big(x^*(w_H, \beta)\big) - v\big(x^*(\pi w_H, \beta)\big) - \beta\left[v_x\big(x^*(w_H, \beta)\big)\frac{dx^*}{d\beta} - v_x\big(x^*(\pi w_H, \beta)\big)\frac{dx^*}{d\beta}\right] - (w_H - p)\frac{dx^*}{d\beta} - v_x(\pi w_H - p)\frac{dx^*}{d\beta} = v\big(x^*(w_H, \beta)\big) - v\big(x^*(\pi w_H, \beta)\big) > 0$ where once again we have used $\beta v_x\big(x^*(w, \beta)\big) = w - p$. The last inequality follows from $x^*(w_H, \beta) > x^*(\pi w_H, \beta)$. Note that a higher value of π implies a steeper $\Delta_w(\beta)$, which means a lower $\bar{\beta}$.

3. Data and methodology

The main data are drawn from the Isfol Plus 2014 survey.[14] We consider women aged up to 60 with children under 14 years old, which results in 7,192 observations. Out of them, 4,222 women had been working before childbirth and 2,542 made use of maternity leave. All the relevant information refers to the youngest child, or otherwise the last childbirth. At the moment of the interview the child can be up to 14 years old, so we also consider retrospective information regarding the behavior around childbirth. There are several reasons why we choose to concentrate on mothers whose children are at most 14 y.o. Firstly, because individual information refers to the present rather than the period when the child was born, so we aim to avoid large discrepancies. Secondly, some information (such as the use of childcare facilities when the child was below 3 years old) was only collected for children aged 0-14.

Our main focus is on the duration of career break which has been retrieved from an answer to question (d144bis): "How many months have you been continuously absent from the place of work following childbirth (including obligatory maternity leave, vacations, illnesses, parental leaves etc.)?" 55.2% of mothers in our sample did not work for more than 5 months around childbirth (see Figure A.1 in the Appendix).

The empirical model represents a system of 2 equations, respectively for: 1) 'Being a mother of a child aged up to 14 years old' (estimated by probit); and 2) The duration of career break after childbirth (estimated by ordered probit[15]):

$$\begin{cases} \text{Mother}_i = \alpha_1 \cdot X_i + \alpha_2 \cdot K_j + u_i & (9) \\ \text{Career break}_i = ß_1 \cdot X_i + ß_2 \cdot H_j + u_i & (10) \end{cases}$$

where vector Xi includes a series of individual characteristics, such as professional level (high, medium and low), taste for children[16], age, education, marital status, citizenship, household income); vectors Kj and Hj contain a range of region or province characteristics, overlapping in part, including the ratio of miscarriages to live birth (as a proxy for reproductive

[14] http://www.isfol.it/open-data-delle-ricerche/isfol-microdati

[15] Given that the career break includes both maternity and parental leave, as well as the episodes of child illness and vacations taken in between, there is a certain degree of imprecision in indicating the number of months continuously spent taking care after kid. So, we opt to present this information in the form of categorical variable distinguishing between 1) 1 to 5 months career break; 2) 6 to 12 months; 3) 12 to 72 months; 4) more than 72 months which corresponds to women who did not resume working after childbirth.

[16] We use a proxy by referring to the actual number of kids a woman has, if she declares to not be willing have more in the next 3 years. Instead, it takes values 'number of children in the moment of interview' + 1, if she plans having another kid soon.

health), the average number of children per woman (in order to test for peer effects), the percentage of people who regularly attend the church (at least once a week); the use of kindergarten for kids below 3 years old, plus the percentage of those who think that a kid suffers if the mother gets back to work earlier, and the average duration of breastfeeding (for more details on variables definition see Tab. A1 in the Appendix).

The system of equations is estimated by using conditional mixed process procedure (CMP: Roodman, 2009).

4. Empirical findings

The *preliminary estimates* presented in Table A.1 suggest that high-career oriented Italian women do not give up on kids and, at the same time, they afford shorter career breaks. Being married and having higher taste for children work in the direction of increasing both the probability of becoming a mother and the time spent caring for kid.

The effect of family income is ambiguous, in that income growth positively affects the chances to become a mother only at the bottom end of the distribution, when passing from 1000 to 2000 euro per month. Further growth seems to reduce the chances to become a mother, probably because it is often achieved through the intensification of work effort on the part of women. At the same time, higher family income tends to reduce the duration of career break for mothers, but only around the mean of the distribution. Women from richer families stay home longer. One of the reasons could be that their contribution to family income still is not high enough to bargain on that (due to assortative mating), or longer career break is less critical for them to be able to return back to work (due to family ties).

Higher percentage of miscarriages with respect to live birth does not appear as significant in the first equation but turns to be positive and significant in the equation for the duration of career break. This means that after numerous attempts made to conceive a child, once it happens, women tend to stay longer out of work. In contexts where the average number of children per woman is higher, the probability to become a mother is also higher, at the same time, religious practices do not appear as supportive to motherhood.

Placing a kid in the kindergarten before the age of 3 allows to significantly reduce the duration of career break. This nevertheless remains not very common in Italy, not only due to low availability and affordability of childcare. Many people believe it does not make good for a kid if his/her mother works. We test the effect of a variable, defined at regional level, which

captures the share of population thinking along these lines. In fact, it shows up as positive and significant in the equation for the duration of career break. The same holds for the duration of breastfeeding, whose impact if even larger, judging by the size of the coefficient.

5. Discussion

The decline in fertility rates throughout Europe has raised debates about which are the forces behind (Pritchett and Viarengo 2012). Here we looked at the issue from a perspective of working women whose interests spread over both family and working life. In Italy, an increasing share of them is opting not to have kids[17], which can be a sign that the two life-projects, career and kids, are not easy to combine. At the same time, ever more women who eventually become mothers stop at one or at most two kids. One the one side, this can be due to higher labour market attachment by women, fueled by increasing educational attainments. On the other side, the taste (or the need) for children is changing with the structure of economy. As long as subsistence farming is fading away (at least in developed countries), it is no longer necessary to have many kids to survive. But even few are not strictly necessary. The structure of households is changing towards less numerous units and often single living individuals (OECD Family database). This is accompanied by profound changes in the life-style and the importance people attach to family and kids. Alongside to childless couples there is an increasing share of families with one kid, despite most of Italian women still declare to be willing to have two kids (*ibidem*). This is a situation when overinvestment of time in childrearing is most probable, especially on the part of women given that male breadwinner family structures prevail.

There is an idea that close contact with mother is good for a kid, especially in the first years of their lives (Del Bono 2016). The motivation behind is that children call for attention, and the more personalized care and study plan a kid is granted, the better it is. While perceived as an investment in high quality children, it has to be subtracted from time dedicated to work which has repercussions on earned income. Children thus come at a cost, predominantly for women (Adda et al. 2017), with the motherhood penalty estimated to be high and long-lasting in the case of Italy (Picchio et al. 2018).

[17] According to ISTAT, among the generation of the 1950s, one out of ten Italian women remained childless. In just a couple of decades the share of women without children in Italy doubled. According to the recent estimates, among the generation of the 1970s every fifth woman is going to remain childless by the end of the reproductive cycle.

It is plausible to assume that the amount of motherhood penalty depends on the duration of career break (De Martino 2017), the longer it is, the larger is the loss of human capital accumulated pre-birth. Career interruptions lead not only to lower earned income, but also much lower pensions in later ages, with the gender gap in pensions estimated around 40% for the European average (Bettio et al. 2013). Why would then women accept this?

On the one side, time dedicated to raising kids can be seen as an altruistic action, but there can also be self-interested motives behind. For example, later in life adult children are expected to provide some form of elderly care. People do not think about this straight when making decision to have kids or no, but this idea can be in the backward of their mind when they take care of them. Reciprocity would imply that the more one cares about kid during the childhood when (s)he is not autonomous, the more one expects him(her) to provide care when losing autonomy later in life.

Moreover, the decision to dedicate more time to kids can be driven by social norms. In contexts where mothers are expected to do so, otherwise judged as 'bad mothers', women tend to be more attached to kids. Challenging existing social norms requires time and can be a matter of several generations to pass, also to understand the pros and cons of higher female employment. This process is hindered by underdeveloped infrastructure, childcare services in particular, which can be either unavailable or unaffordable, or both.

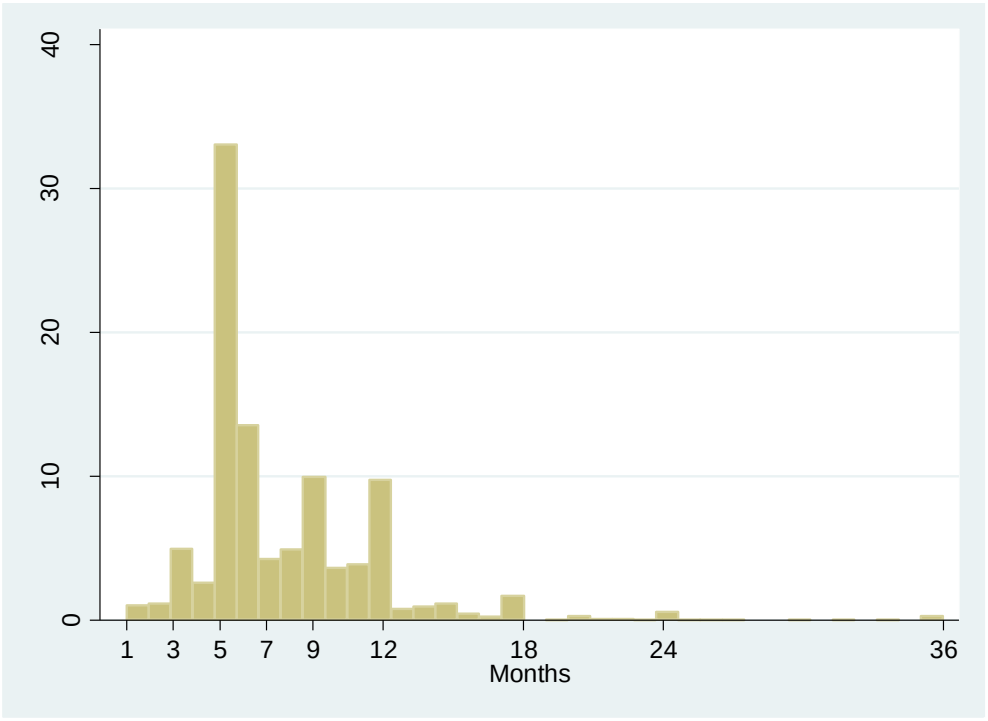
Concluding remarks

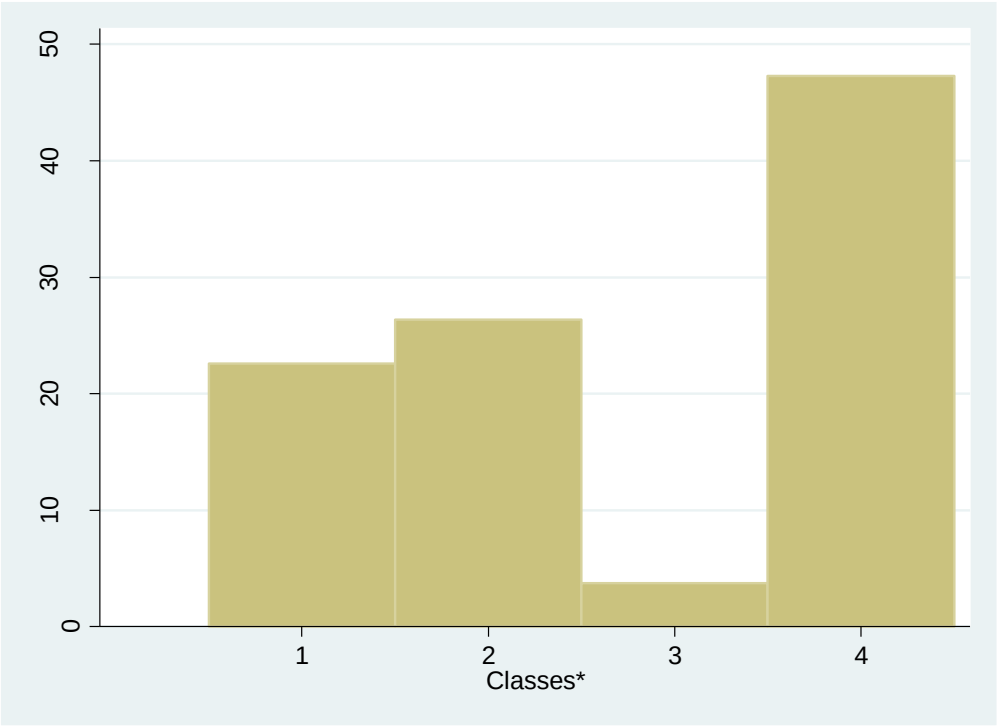
We model the choices faced by women regarding childbearing and childrearing, taking into account the increasing heterogeneity among them, including low- versus high-skill, career- versus family-oriented etc. The theoretical model proposed highlights which way the outcomes depend on these characteristics. In particular, the career break following childbirth was shown to be a decreasing function of woman's wage, but it is expected to increase with the "taste for children". Model predictions have been proven using the Italian data.

The labour market developments, whereby the nature of jobs is changing with service sector overtaking in most of the developed countries, make it easier for women to enter jobs on par with men. It is thus expected that career breaks due to motherhood will be reducing, and childcare will get increasingly externalized. Both positive and negative effects may be at place as a result of such transformations. The latter can be partially compensated by higher quality childcare facilities. Thus, policies should be aimed not only at enhancing the availability and affordability, but also at improving the quality of childcare.

Appendix of Figures and Tables

Figure A.1 Duration of career break





Note: * **1**= 1 to 5 months; **2**= 6 to 11 months; **3**= 12 to 72 months; **4**= she does not come back to work after childbirth.

Source: own elaborations using Isfol Plus 2014 data.

Table A1. Variables definition*

Variable	Description
Mother (dependent variable_1)	=1 if a woman has child under 14y.o., 0 otherwise
Duration of career break due to childbirth (dependent variable_2)	Ranges from 1 to 5: 1=1 to 5 months; 2=6 to12 months; 3=13 to 72 months; 4=∞ (does not return to work after childbirth)
Individual variables	
Profession_h	High profession; =1 if Istat code (ISCO-08, 1 digit) =1(Managers) or 2 (Professionals); 0 otherwise
Profession_l	Medium profession; =1 if Istat code (ISCO-08, 1 digit) =3 (Technicians and associate professionals), 4 (Clerical support workers) or 5 (Service and sales workers); 0 otherwise
PA	=1 if the woman works in Public Administration; 0 otherwise
Taste for children	Taste for children: number of kids that a woman actually has if she declares to not be willing have more in the next 3 years; number of children in the moment of interview + 1 if she declares to be going to have more soon.
Age	Woman's age
Education	Woman's years of education
Married	=1 if the woman is married; 0 otherwise
Non-citizen	=1 if the woman is not an Italian citizen; 0 otherwise
Household variables	
Family income_2000	=1 if the monthly family income ranges from 1000 to 2000; 0 otherwise (reference category: up to 1000 euros)
Family income_3000	=1 if the monthly family income ranges from 2001 to 3000; 0 otherwise
Family income_4000	=1 if the monthly family income ranges from 3001 to 4000; 0 otherwise
Family income_5000	=1 if the monthly family income ranges from 4001 to 5000; 0 otherwise
Local variables	
Miscarriage/Live birth	Ratio between miscarriages and live births by province (Istat, 2014)
Av_num_children	Average number of children per woman by province (Istat, 2014)
Religion	Percentage of people who attend religious services at least once a month by region (European Values Study, 2008)
Kindergarten_0-3	=1 if the child has been to a kindergarten between 0 and 3 years old
Child suffers	Percentege of people who agree/strongly agree with the following statement: "a pre-school child is likely to suffer if his/her mother works", by region (European Values Study, 2008)
Breastfeeding	Average duration of breastfeeding by region (Istat, 2014)

*Source: Isfol Plus 2014, unless otherwise specified

Table A.2. Estimation results

	(1)	(2)
VARIABLES	Mother	Career break
Prefession_h	0.159***	-0.778***
	(0.035)	(0.042)
Profession_m	0.225***	-0.575***
	(0.025)	(0.032)
Taste for children	0.893***	0.141***
	(0.027)	(0.018)
Age	-0.064***	-0.014***
	(0.002)	(0.001)
Education	0.043***	-0.029***
	(0.004)	(0.004)
Married	1.354***	0.141***
	(0.033)	(0.037)
Non-citizen	0.164**	0.132
	(0.076)	(0.094)
Family income_2000	0.091***	-0.017
	(0.027)	(0.033)
Family income_3000	-0.028	-0.312***
	(0.029)	(0.033)
Family income_4000	-0.170***	-0.256***
	(0.041)	(0.043)
Family income_5000	-0.338***	0.086
	(0.080)	(0.089)
Miscarriages/Live birth	0.002	0.022***
	(0.008)	(0.009)
Av_num_children	0.322***	
	(0.108)	
Religious	-0.011***	
	(0.002)	
Kindergarten_0-3		-0.195***
		(0.033)
Child suffers		0.005***
		(0.001)
Breastfeeding		0.044*
		(0.023)
Constant	-0.564**	
	(0.241)	
cut_2_1		-1.328***
		(0.240)
cut_2_2		-0.531**
		(0.240)
cut_2_3		-0.423*
		(0.240)
atanhrho_12	0.090***	
	(0.019)	
Observations	25,999	10,237

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: own elaborations using Isfol Plus 2014 data.

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