



Can Daddies Learn to Care for Babies? The Effect of A Short Paternity Leave on the Division of Childcare and Housework

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Abstract

To foster gender equality and involve fathers in parenting, leave-from-work targeted at fathers has been implemented in many countries. In France, until 2021, fathers can avail of a statutory paid paternity leave of 11 working-days that must be taken within 4 months after childbirth. This article estimates the impact of this short-duration and large coverage paternity leave on the gender division of domestic and parental tasks. We measure the effect of paternity leave using the Elfe survey, a national cohort of children born in 2011. We take advantage of the timing of the 2-month survey: some fathers had already taken their leave, while others intended to but had not done so by then. Taking paternity leave leads to a more equal division of several parental tasks. It affects sharing of domestic activities only marginally. The effect on child-rearing tasks is greater for first-time parents and differs by father's education level. Paternity leave may provide the opportunity to learn how to perform child-related tasks to fathers, and involving them early in parenting.

Keywords Paternity leave · Gender · Unpaid work · Work division · Father · Family policy

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Introduction

The birth of a child dramatically changes the division of labor among couples. Women typically reduce their labor supply (Angrist & Evans, 1998; Kleven et al., 2019) and, alongside taking care of their children, devote more time to core housework tasks. In contrast, men maintain or increase their working hours (Apps & Rees, 2005; Anxo et al., 2011; Coudin et al., 2018), reinforcing marital specialization. These patterns have persisted over time, are observed in most countries, and have long-term consequences on the overall, as well as the ‘within-couple,’ gender gap in pay (Angelov et al., 2016).

To foster gender equality, and involve fathers in parenting from their children’s initial stages of growth, leave-from-work targeted at fathers has been implemented in many countries. Some countries—mainly in northern Europe—have set fathers’ quotas on parental leave, i.e., relatively long periods of paid leave reserved for fathers. Many other countries have opted for a statutory paternity leave: a shorter period of leave that can be availed of by fathers during the first months after their child’s birth. This short-duration, reserved paternity leave is the least costly form of leave for fathers in terms of public expenditure, and the most frequently implemented. Its take-up rate is much higher than that of parental leaves (Blum et al., 2023). Because of this large coverage, this leave has a great potential to change fathers’ behavior at the societal level.

Previous research has shown that fathers who took paternity leave have higher involvement in child-related tasks (Bunning, 2015; Farre & Gonzalez, 2019; Huerta et al., 2013; Tamm, 2019; Wray, 2020). Some studies find a non significant relationship but they focused on indirect indicators of paternal investment, such as working hours or labor market earnings (Cools et al., 2015; Ekberg et al., 2013; Hart et al., 2022). The evidence is scarcer and more mixed about housework. Paternity leave has been sometimes shown to be associated with fathers increased participation in housework (Bunning, 2015; Patnaik, 2019; Tamm, 2019), sometimes not (Farre & Gonzalez, 2019; Schober, 2014). Most research focuses on fathers’ involvement and, to the best of our knowledge, only a few studies evaluated the direct effect of paternity leave on intra-marital specialization, namely, the division of housework and parental work. They showed that paternity leave did not significantly change fathers’ share of time devoted to childcare (Kluge & Tamm, 2013; Patnaik, 2019) because both parents increased their time with their child. In addition, insufficient attention has been paid to the fact that taking paternity leave is likely to be a partly endogenous phenomenon: fathers who take paternity leave may be more willing to participate in domestic and parental tasks. Thus, just comparing fathers who took the leave from those who do not makes it difficult to identify a causal effect of parental leave.

While most research is devoted to estimating the effect of fathers’ quotas, few studies have assessed the consequences of shorter paternity leaves on gender equality at home (except Farré & González 2019). This paper assesses the short- and medium-term effects of widespread short-duration paid paternity leave on the parental division of housework and childcare after birth. Our analysis is based on

a recent, large, nationally representative cohort of children born in France in 2011 (the *Elfe* study), focusing on 13 specific housework- and childcare related tasks, measured 2 months and 2 years after the child's birth. To analyse the effect of taking paternity leave, we compare households in which fathers are "early-takers," "late-takers," and "non-takers" (of leave). Compared to those who do not intend to take the leave, fathers who are about to take the leave are much more comparable to fathers who have already taken it, allowing identification of the short-term effect of paternity leave. By taking advantage of the 2-year interview, we test the validity of our approach by comparing the level of implication of early and late takers once they all took the leave. On top of that, the use of the 2-year interview also allows to analyse the evolution of fathers' involvement over time, and to see whether fathers who take the leave between the two interviews have a stronger increase in involvement than fathers who already have taken it.

We show that in spite of its short duration, the 2-week paternity leave renders the household's division of childcare tasks more equal. In particular, first-born children's fathers, who have already availed of paternity leave, are more involved in most child-rearing activities than fathers who are yet to take it. Furthermore, heterogeneous effects illustrate that the tasks in which fathers participate vary according to their level of education. Altogether, these results suggest that a short paternity leave may impact behaviors within the household, at least in the short term. From a theoretical perspective, these changes may be viewed as a change in the technology of the household production function: Paternity leave gives fathers the opportunity to learn how to perform child-related tasks. This interpretation is reinforced by the fact that effects are mostly significant for first-born children.

This paper is organized as follows. The next section outlines the main results found in the literature, presents features of French paternity leave, and discusses its potential impact. "[Data](#)" section describes the data, and "[Methodology](#)" section presents the methodology. "[Results](#)" section reports the results and several robustness checks. The last section concludes the study.

Background

Statutory Paternity Leave and Spouse Specialization

One of the main motivations to offer statutory paternity leave is to increase fathers' involvement in housework and child-rearing activities, and reduce unequal task-sharing between parents. It provides fathers the opportunity to take some time off, with a replacement income, to care for the newborn and the house, thus reducing the opportunity costs of taking leave. In addition to providing a legal framework, the implementation of paternity leave also sends a symbolic signal as it lowers the potential stigma associated with work interruptions and employers' pressure to not take leave (Patnaik, 2019). Two different economic theories may explain how paternity leave affects the distribution of domestic time between spouses: the bargaining perspective and the identity perspective.

For resource bargaining theories, each spouse has its own preferences and the household division of labour is the result of a negotiation process based on each spouse's economic resources. In the “collective household approach”, where domestic goods and children can be considered public goods produced by the household, parental preferences are assumed to influence the total quantity of the goods produced, but play no role in the relative time spent by each partner on producing these goods. The allocation of time by each spouse devoted to the production of public goods only depends on the production function itself, and the relative wages of each spouse (see Browning et al. 2014, Chap. 4) when assuming a production function with constant returns to scale. In this framework, we can thus identify two mechanisms by which paternity leave can change the division of labor between spouses: (i) A change in the relative wages in response to income replacement during the leave, or (ii) a change in the household production function, e.g., an increase in the father's productivity in domestic or childcare activities.

The first mechanism has little relevance in the case of short-duration paternity leaves. A 2-week paternity leave is unlikely to induce changes in the relative wages of spouses, as the fathers' earning losses are usually covered by the State or the employer; furthermore, the leave is too short to impact human capital, which would have affected the balance between the spouses' relative labor market earnings.

The second mechanism is more likely in the given scenario. The paternity leave—even when it is of short duration—might influence the household production function. In Becker's allocation-of-time framework (Becker, 1965), where fathers' and mothers' time with children are perfect substitutes for home production, we expect a change in specialization as soon as there is a change in the partners' comparative advantage in domestic production. Paternity leave is likely to decrease men's comparative disadvantage: during their leave, fathers may participate in housework and child-rearing activities, and learn how to perform them (or improve their skills if they were already performing them). This ‘learning-by-doing’ process would increase fathers' productivity in parental activities. Thus, the production function may be affected by this change in fathers' domestic productivity, which in turn may modify the relative time spent by parents on domestic work and childcare in the long run.

According to second theory of the gender identity economics, social norms influence individual behaviours. The paternity leave policy and its public promotion tend to reduce the cost of deviation from the gender norm for fathers who take care of the children. Paternity leave may affect “fathers' identity” (Akerlof & Kranton, 2000) and reduce the psychological costs associated to parental tasks. It may increase father-child bonding and thus increase the investment of fathers in their children. This change would increase the total extent of childcare provided by fathers, and possibly the gender division of childcare tasks between parents.

Empirical Evidence on Paternity Leave

Paternity leave programs vary a great deal in their design, coverage, duration, targeting and expected outcomes. First of all, fathers' take-up (of leave) varies

according to their individual characteristics and the type of leave. Uptake of paternity leave is very low when it is not mandatory (i.e., when employers can refuse a request), such as in the US, Australia, and the UK (Bartel et al., 2018; Baum & Ruhm, 2016; Han et al., 2009; Hosking et al., 2010; Huerta et al., 2013; Nepomnyaschy & Waldfogel, 2007; Tanaka & Waldfogel, 2007), while it is higher if leave is mandatory, or short and paid at, or near, income replacement level (Moss, 2015). The implementation of fathers' quotas on parental leave, as in many Nordic countries, has increased leave take-up (Cools et al., 2015; Ekberg et al., 2013; Haas & Hwang, 2008; Hart et al., 2022; Kotsadam & Finseraas, 2011, 2013; Rege & Solli, 2013; Sundström & Duvander, 2002), for results from the forerunner countries, i.e., Sweden and Norway; Kotsadam & Finseraas 2013 for Germany; Kotsadam & Finseraas 2019 for Quebec). However, the characteristics of fathers who take paternity leave appear to be relatively similar across different national contexts: they are generally more advantaged, better educated, in higher prestige occupations, and have greater incomes.

The empirical evidence on the impact of paternity leave on fathers' involvement in their children has produced mixed results. A few studies, that all exploit exogenous variation in exposure to paternity leave over time and/or space, find no significant impact. Patnaik (2019) shows that, fathers that have been exposed to the introduction of a 2-month leave reserved for fathers in Quebec did not increase their time spent on childcare. Using indirect indicators for fathers' involvement in housework and comparing births before and after the introduction or extension of the paternal quotas in Norway or Sweden, Cools et al. (2015), Hart et al. (2022) and Ekberg et al. (2013) do not find any impact on fathers' labor supply, wages, or taking days off work to look after a sick child.

Most studies find a significant positive correlation between paternity leave and fathers' involvement in childcare. Comparing several developed countries, Boll et al. (2014) find a positive correlation between the duration of fathers' exclusive parental leave and paternal childcare time in eight countries, the effect being strongest for highly educated fathers. Based on a survey of 356 fathers working in large private companies in Sweden, Haas and Hwang (2008) observe that fathers who take longer than average leave are more involved in childcare-related tasks. This increased participation was observed on workdays. Using several child cohort studies, Huerta et al. (2013) compare four OECD countries (Australia, Denmark, United Kingdom and United States) and find that paternity leave is associated with higher involvement of fathers in child-related activities in early childhood. The same data and method show that paternity leave taken after childbirth has significant positive effects on fathers' involvement in the care of their 9-month old babies (Nepomnyaschy & Waldfogel, 2007; Tanaka & Waldfogel, 2007), or their 3–19 months children on weekends (Hosking et al., 2010). This set of studies does not fully consider that fathers who take leave may be a selected group, with particular preferences. The ones presented below identify the causal effect of paternity leave using panel data and a fixed effects strategy or difference-in-difference design. Bunning (2015) shows that German first-time fathers who took parental leave subsequently reallocated their time from work to home, increasing their involvement in childcare. The effect is stronger for a long leave (longer than 2 months) and when fathers took paternity

leave alone rather than simultaneously with their partners. Tamm (2019) found a positive effect of parental leave-taking on time spent with children on weekends, for German fathers who already have a child. The fathers who were eligible for the 2-week paternity leave in Spain in 2007, indulged in almost an hour of more childcare per day in 2009–2010, as compared to others (Farre & Gonzalez, 2019). Compared to shared parental leave, the reserved paternity leave policy introduced in Quebec in 2006 led to an increase in solo parenting (Wray, 2020). Four weeks of paternity leave during the child's first year of life, leads to a 1–3% decrease in fathers' future earnings (Rege & Solli, 2013). This effect lasts for 5 years. The authors conclude that the reform must have reduced the labor supply of fathers and increased their time spent with their children, which they confirm with data from the Norwegian Time Use Survey.

Most of the previously cited articles focus on fathers' involvement, but only a few compare the effect of paternity leave on both parents, and therefore on the division of parental work between spouses. Using a difference-in-difference strategy, Kluge and Tamm (2013) showed that the “two daddy months” plan in Germany did not reflect in any significant changes in fathers' share of time devoted to childcare during the child's first year; indeed, both fathers and mothers increased their time with their child after the reform. Patnaik (2019) even finds a significant increase in the time spent by mothers, as compared to fathers, on childcare.

The effect of paternity leave on the division of household chores among couples has received much less attention. The few available studies, focusing on this outcome, show a positive effect of paternity leave on the relative involvement of fathers in domestic tasks. Parents who had a child after the introduction of father quotas in Norway, are more likely to equally divide domestic tasks 15 years later (Kotsadam & Finseraas, 2011). Men exposed to a 5-week fathers' quota in Quebec spent more time on housework, especially on shopping, DIY (do-it-yourself) and repairs while exposed women spent less time on housework, specifically, on housekeeping and cooking (Patnaik, 2019). German fathers who took more than 2 months of leave (whether joint or solo) subsequently increased their participation in housework (Bunning, 2015; Tamm, 2019). No significant effect was found for the 2-week leave in Spain (Farre & Gonzalez, 2019) or the longer German leave (Schober, 2014).

Finally, the outcomes studied have been measured at different ages of children and are not consistent across studies. They have included, for example, the frequency of performing specific child-related tasks; the amount of time fathers spend with their children (either self-declared or based on time-use diaries); or the sharing of specific tasks with the mother. Most previous studies usually rely on a few items to describe parents' domestic and childcare involvement (except studies using national birth cohorts). Other studies use occasional measures of a father's involvement such as the days off taken by him in case of a sick child (when declared to the employer and then registered in administrative data). More indirect measures of fathers' involvement, e.g., their income or labor force participation are also used, based on the assumption that fathers who participate more at home will have a lower income due to their lower availability in the labor market. This assumption is open to criticism, given that the time spent by men on housework does not necessarily affect their wages

negatively, as shown by Pollmann-Schult (2010) in the German context. These indirect indicators are not precise enough for evaluating the division of domestic and parental tasks between partners. To the best of our knowledge, except Farre and Gonzalez (2019) there is no evaluation of the impact of short paternity leave policies, as the one observed in France. Many previous studies consider only total household labor. But gender asymmetry also occurs in the household and childcare tasks performed (Tai & Treas, 2012).

Our study examines the division of housework and childcare among couples by studying specific tasks. We aim at identifying which domestic and parental tasks are more likely to be affected by the policy.

The French Paternity Leave

France has one of the highest fertility rates in Europe,¹ which is often associated with generous family-oriented policies (Toulemon et al., 2008). In addition to family allowances, subsidized and means-tested childcare, family taxation, maternity leave² and parental leave, a statutory paternity leave was introduced in January 2002. Its duration has been recently increased in August 2021.

Until 2021, paternity leave entitlements included up to 11 consecutive days of paid leave (Saturdays, Sundays and bank holidays included)—18 days in case of multiple births—in addition to an already existing allowance of 3 days, as stipulated by the French Labor Code. This short duration is comparable with that of most European countries where paternity leave allowances last about 2 weeks.³ The duration can be shortened but cannot be split. Most fathers who take their leave, utilize the entire 11 days (Bauer & Penet, 2005). Fathers have some flexibility as they can use it any time during the first 4 months after the birth, the only condition is to inform the employer at least 1 month before the start date. During the leave, the job contract (or unemployment period) is interrupted, and beneficiaries are paid directly by social security.

The paternity leave allowance amounts to 80% of gross wages,⁴ with a monthly limit of 3129 € (or 81.27 €/day). On many occasions, especially in large companies, fathers may benefit from specific agreements through which the employer maintains their full current wage.

The coverage of this short paternity leave is very wide, as it covers all employees regardless of firm size or sector (public and private), as well as self-employed workers and unemployed fathers. It also covers fathers who are not living with the child.⁵ The employer has the legal obligation to accept the leave request, whatever the nature of

¹ The total fertility rate reached 1.9 children per woman in 2017.

² Maternity leave lasts 16 weeks for a first or second birth. As for the paternity leave, the employer has the legal obligation to offer it to the employee.

³ Paternity leave lasts 10 days in Belgium and Sweden, about 2 weeks in Denmark, Poland, Spain, the UK, Slovenia and Estonia.

⁴ The calculation of the daily earnings is based on the last 3 months before fathers take leave.

⁵ Since 2013, paternity leave was also made available to step-fathers (non-biological fathers who cohabit with the mother).

the employment contract (short-term, long-term, part-time, temporary or seasonal work, etc.), and the beneficiary is guaranteed by law to be able to return to work for the same employer and in the same position.

The payment of paternity leave benefits is, however, conditional on the past employment trajectory.⁶ These eligibility criteria are not very restrictive. Along with the short duration of the leave and the high income-replacement rate, they explain the large take-up rate among fathers. Hence, fathers have embraced this policy, from its commencement; more than 61% of fathers took paternity leave in 2003, and this figure increased gradually to 68% in 2013. Uptake of this short paternity leave is much higher than uptake of parental leave, which can last up to 3 years but entails much lower pay; only 3% of fathers took parental leave.⁷

Data

The Elfe Study and Sample Selection

We draw our analytical sample from the *Étude Longitudinale Française depuis l'Enfance* (Elfe).⁸ This survey is the first nationally representative, large-scale birth cohort in France, and follows over 18,000 children born in 2011 (Charles et al., 2020). The study includes single and twin births, to mothers aged 18 and over, born at 33 weeks of gestation or more at a randomly selected sample of 349 maternity wards (out of a total of 544 hospitals), within four inclusion periods during the year.⁹

The study includes repeated in-depth interviews with the parents, biological samples taken at birth, and linkage to maternity notes that contain information relating to the pregnancy and birth, such as any complications, weight at birth, and gestational age. We use the first, second and fourth waves of data collection.¹⁰ The first wave was carried out in the maternity wards shortly after birth and includes information collected directly from the mothers by trained midwives. The second wave includes two separate telephone interviews with both, the father and the mother. The interview with the mother was carried out about 2 months after birth, with the child's median age being 10 weeks at the time of interview. The interview with the father systematically took place after that with the mother. The survey gathered data on socio-economic status, living arrangements, nutrition, the home environment, the sharing of domestic and childcare tasks between parents, and the take-up of paternity leave. The fourth interview was carried out by

⁶ For eligibility, fathers must have at least 10 months of social insurance contributions, and must have worked either a minimum of two hundred hours in the past 3 months, or accumulated earnings amounting to at least six times the minimum monthly wage (1394 euros in 2011) during the 6 months before the birth.

⁷ In order to reinforce gender equality, a reform introduced fathers' quotas in January 2015: for a first birth, each parent receives 6 months of parental leave. For subsequent births, each parent receives 12 months. The allowance is much lower than for paternity leave: only about 500€/month, irrespective of wages. Fathers' take-up of this leave is very low.

⁸ More information about this study can be found at <http://www.elfe-france.fr/>

⁹ Born 1–4 April/June 27–28, July 1–4/September 27–29 October 1–4/November 28–30 December 1–5.

¹⁰ The third wave, carried out when the child was about 1 year old, is not used here since it does not contain any information on the household division of tasks.

telephone with each parent around the child's second birthday. It also contains a description of the division of domestic and parental tasks between the parents. We thus analyze the paternity leave effects 9 years after the reform was implemented, when paternity leave became common. It means that we can observe a standard cohort of fathers, and not only the vanguards who are more likely to take leave shortly after the implementation.

From the initial sample, we select households where parents lived together at the time of the second and fourth interviews. Parents of twins are excluded as paternity leave is longer for them. Given that paternity leave has to be taken within 4 months after the birth, we only include households wherein mothers were interviewed up to 120 days after birth at the second interview.¹¹ We also exclude households with missing information on the task sharing and on paternity leave take-up. The final sample is composed of 8868 households.¹² This analytical sample can be considered as a representative sample of couples with a non-very-premature child born in 2011 who are living together 2 years later.

Paternity Leave Take Up

At the 2-month survey, paternity leave uptake was declared by the mothers. They were asked whether the father was eligible for paternity leave (7% thought their partner was not eligible), and whether he had already taken, was about to take, or was not intending to take leave. 62% of fathers, called "Early takers," had already taken their paternity leave at the time of the mother's second interview (Table 7 in Appendix), probably just after the child's birth, but the data does not provide the exact timing. Almost all these recipients took the complete leave offered, i.e., 11 days. The proportion of "Early takers" is lower among less-educated fathers (Table 8 in Appendix).

A non-negligible share of mothers declared that the fathers intended to take their leave but had not done so yet (16%). We name them "Late takers". Note that "Late takers" are defined according to the time of the mother's 2-month interview. This does not necessary indicate that fathers take the leave late, if the interview is conducted at the beginning of the fieldwork (see Fig. 4 in Appendix). Subsequent waves of the survey do not contain information on the effective take-up among these "Late takers." But for more than one fifth of them, we are able to check whether they actually took the leave after the mother's 2-month interview, because when they were interviewed shortly after the mother, they reported being on paternity leave. In a robustness check we distinguish between these "Observed Late takers" and the "Unobserved Late takers" (for the construction of these groups, see Fig. 1). Among eligible fathers, the take-up rate ranges from 67% (Early takers only) to 84% (including Late takers observed or not observed), insuring a large external validity.

¹¹ The timing of the interviews, which is also the child age, ranged from 55 to 222 days after birth (see Fig. 4 in Appendix). We exclude 0.3% of households where the mother was interviewed very late.

¹² The sample size differs slightly per outcome. Moreover, some questions were not asked when not relevant: for instance, breastfeeding mothers are not asked about who feeds the child, which explain the smallest sample size for this outcome.

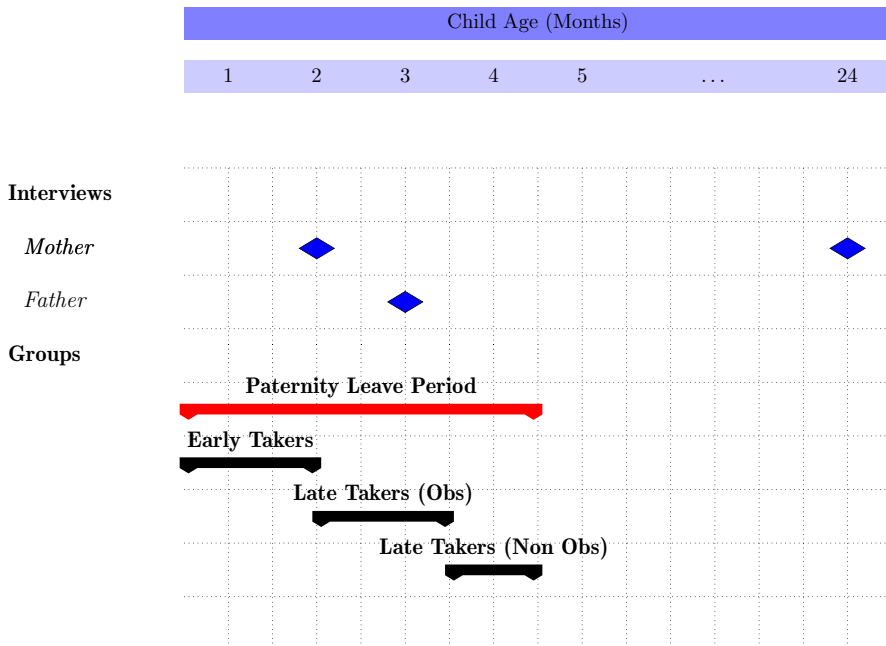


Fig. 1 Timing of the data

A further 15% of mothers declared that their partner would not take any leave, though eligible (Table 7 in Appendix). We call this group “Non-takers”.

Tables 9, 10 and 11 in the Appendix describe the parent and child characteristics for the “Early takers,” and the differences between this group and the “Late takers,” the “Non-takers” and the “Not eligible.” “Non-takers” or “Non-eligible” households show large differences in terms of socio-economic background as compared to “Early takers” households: “Non-takers” possess a lower level of education, and earn lower wages and lower household income. Fathers are less likely to work in the public sector or to have a permanent job, and they are more likely to be self-employed or farmers. Furthermore, non-uptake is more likely in households where the woman is not employed or highly educated. These patterns are similar to those found in other countries (Bauer & Penet, 2005). Not taking paternity leave is more likely for a second- and a third-born child than for a first-born. “Non-takers” were also less likely to be present at the delivery, suggesting that these fathers are either less involved or more time constrained. All these differences remain and are emphasized for “Non-eligible” fathers, who are poorer and, along with their partners, are more likely to be only primary level educated.

The differences between “Early takers” and “Late takers” are more minor. Importantly, there are no, or only insignificant, SES differences, in terms of father’s education and monthly income. Older and only very highly educated fathers tend to postpone their paternity leave, but these differences are always significantly smaller in magnitude than those between “Early takers” and “Non-takers.” There is a very small difference in take-up timing by employment status, and no significant difference by income or order of birth, and interestingly, in terms of the father’s presence at delivery. This suggests that fathers who delay the leave might not differ in their attitudes towards parenting roles from “Early-takers.” However, “Early and Late takers” differ in terms of the baby’s feeding practices: Men whose partners are breastfeeding are more likely to delay the leave, perhaps to wait until they are able to participate in feeding their baby. Leave postponement is also more frequent in cases of shorter gestational ages, as unanticipated early childbirth prevents fathers from taking paternity leave earlier, because of the legal obligation to notify their employer 1 month in advance. Birth seasonality also affects the timing of the leave. When births take place in October, fathers postpone their leave, whereas if births take place in December, fathers take their leave before the child is 2 months old. This seasonality may be associated with the timing of Christmas or summer holidays. Finally, and as expected, the later the 2-month interview, the less likely it is that the leave will be postponed, i.e., the survey design explains why some fathers are rather earlier or late takers at the time of interview. Thus, though patterns of taking paternity leave show a selection of fathers who do not take paternity leave, there are only few SES differences and no parenting differences between “Early takers” and “Late takers.” Then, conditional on the large and diverse set of characteristics, we are able to compare these two groups.

Housework and Child Rearing Activities

At the 2-month interview, mothers were asked about the division of housework tasks (washing dishes, shopping, cooking, doing the laundry, cleaning, DIY and repairs), and activities dedicated to the newborn (changing nappies, feeding, putting to bed, bathing, taking for a walk, caring for baby at night, taking her to the doctor).¹³ Four questions on childcare tasks were repeated at the 2-year interview (feeding, putting to bed, bathing, and night-time care). For each task, mothers were asked whether it was done ‘always by themselves,’ ‘usually by themselves,’ ‘by both parents equally,’ ‘usually by their partner,’ ‘always by their partner,’ or ‘by someone else.’ We considered this last scenario as an equal division of the task. Since it is unlikely for fathers to ‘always’ perform parental tasks, we group together the categories “always” and “usually” carried out by the father.

¹³ These questions were also asked to the father, but information given by the mother is retained in order to have simultaneous information on the taking of the paternity leave and on the division of tasks. There is also much more missing information when the father answered, and these non-answers by fathers may be related to their involvement in housework.

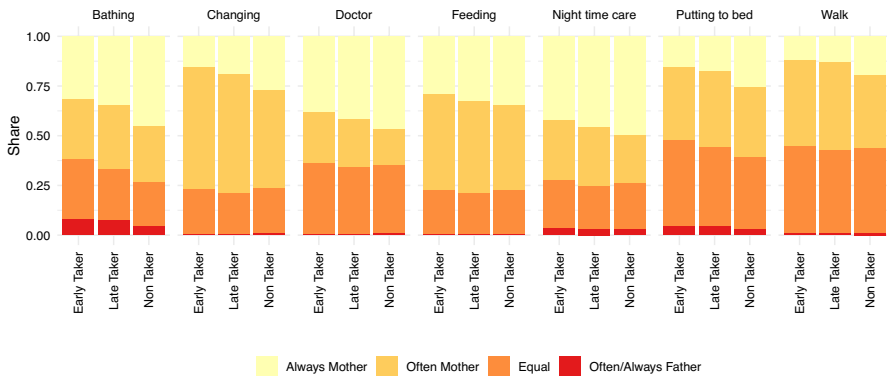


Fig. 2 The sharing of parental activities according to paternity leave status (2 months)

Figure 2 shows the distribution of the tasks by paternity leave status at the time of the 2-month interview. The gender division of tasks is particularly unbalanced for child-related activities, partly because most mothers are still on maternity leave. The share of couples where the father is doing more than the mother is extremely low (less than 5%). In most cases, the mother is the main care-giver, especially for bathing and taking care of the baby at night. Putting the baby to bed and outdoor activities are more likely to be shared between parents (about 40% of couples share these tasks). As found in studies based on time-use data (Blair & Lichter, 1991), women carry out most of the daily core tasks, such as preparing meals, cleaning, and doing laundry (Fig. 5 in Appendix). Men do more episodic household tasks such as DIY and home repairs. The gender division of work is particularly pronounced for doing laundry: more than 80% of mothers declare that they always or usually carry out this task. Conversely, more than 80% of mothers declare that DIY and repairs are mainly done by fathers. Shopping and washing the dishes are usually shared equally.

Comparing the distribution of housework and child-related activities by paternity leave status shows a clear hierarchy between households: “Early takers” are more involved than “Late takers,” who, in turn, are more involved than “Non-takers.”

Two years after birth, the proportion of parents who equally share parenting tasks is higher than at the time of the 2-month interview, since most mothers rejoin work by then. Yet, the division of childcare remains unbalanced: in half of the couples, the mother mainly performs the parental tasks (Fig. 3). “Early takers” and “Late takers” now show a remarkably similar division of tasks, which is different from that among “Non-takers.”

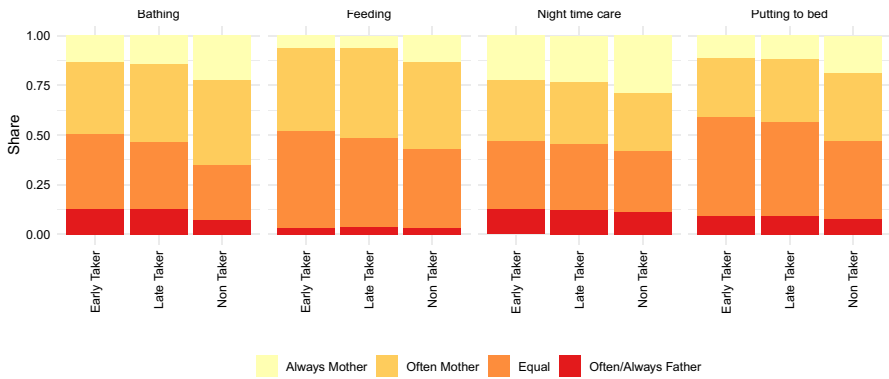


Fig. 3 Division of parental activities according to paternity leave status (2 years)

Methodology

Identification Under Conditional Independence Assumption

An important advantage of the Elfe study is that it allows distinguishing among fathers intending on taking paternity leave, those who have already used it (Early takers) from those who are on the point to take (Late takers). Usually, when information on paternity leave is collected, it is limited to whether or not the leave is taken; takers are then compared to non-takers. In such a set-up, selection of fathers into paternity leave takers is likely to be endogenous: compared to fathers who have already taken their leave, those who do not intend to take their leave may differ on several unobserved characteristics, that might also impact their propensity to participate in housework and childcare. We saw previously that “Takers” and “Non-takers” differ significantly, especially in terms of fathers’ involvement at birth. We argue below that the comparison of “Early takers” with “Late takers” is relevant for assessing the impact of paternity leave, and clarifies potential mechanisms for this impact.

The timing of the interview provides a unique opportunity to compare these two categories of households, and to assess the short-term impact of the policy. Both groups want to make use of their paternity leave, but some of these fathers have actually availed of it at the time of the interview. As seen previously, these two groups of fathers are much more similar to each other than to those who do not intend to opt for paternity leave. The parents interviewed first are more likely to have not taken their leave yet, while those interviewed later are more likely to have already taken it. The share of fathers who have taken the leave increased from about 0.75 for the first interviewed individuals, to less than 0.90 for the last interviewed individuals (see Fig. 6 in Appendix).

The probability of having taken the leave is largely due to the large dispersion of the timing of the survey, which can be considered exogenous to the division of tasks as it is related to survey logistics and the interviewer’s workload. Nevertheless, fathers could take leave from the earliest opportunity as they need to participate in

the care of their newborn as soon as possible. This is why we control for numerous variables that could affect both the timing of the leave and the implication of fathers in different activities. In total, the first analysis tackles the potential selection bias by focusing on fathers that already took or intent to take the leave, and by controlling for additional covariates. On that selected sample, we thus assume conditional independence assumption (CIA) of the treatment status from the potential outcomes.¹⁴

Control Variables

The covariates have been added in three steps in order to analyze how the specific effect of paternity leave may be related to these covariates. The first model includes the child's characteristics (sex, age, month of birth, birth weight). The second model adds couple and household characteristics (marital and cohabiting status, birth order, age, household equivalized income, each parent's socio-economic status, employment status, whether employed by public or private sector, permanent employment versus short-term contracts). For mothers, these characteristics relate to employment before birth (we also control for full-time versus part-time employment). It also includes father's education and wage, and relative positions of the mother in terms of wages and educational level. As shown in the analysis of collective models (see Browning et al. 2014), these relative variables should influence the division of housework.¹⁵ Finally, Model 3 controls for the father's involvement at birth (presence at delivery) and main mode of feeding (mainly breastfed or not). The same set of control covariates is used to analyze the division of housework and childcare.

For the sake of clarity and brevity, we report only the last and richest specification in our main tables, the two other specifications are available in the Appendix.¹⁶

Empirical Specification

From an empirical point of view, we estimate a discrete ordered choice model. This type of model is the most relevant way to take advantage of the discreteness of the dependent variables we have at our disposal. The dependent variables Y_{it} represent the level of sharing of each task described above for household i , at period t . We consider 2 different periods: 2 months and 2 years ($t \in \{2m, 2y\}$); Latent task sharing Y_{it}^* is modeled as follows:

$$Y_{it}^* = ET_i \tau_t + NT_i \alpha_t + X_i' \beta_t + \varepsilon_{it}$$

ET_i , early takers, is a dummy variable that equals to one if the father in household i declares that he already took the leave at the 2-month interview. NT_i , non takers, equals 1 if the father declares that he will not take the leave. The group of Late

¹⁴ The empirical framework we refer to, is the Rubin Causal model which is usual in the treatment effect literature. See Imbens and Rubin (2015) for more details on that framework.

¹⁵ When control variables are assumed to be time-constant, we imputed any missing data using information from later waves (for instance, if parents' level of education was missing at 2 months but available at 1 or 2 years' interview). The remaining missing data are controlled for by including dummies in the econometric analysis, which limits sample selection bias. This was the case for fathers' wages, diploma, and type of job.

¹⁶ The regressions with all parameters are available upon request.

Takers is thus the reference group in the regression. X_i is a set of control variables. ε_{it} is a residual term that follows a standard normal distribution, leading to the usual ordered probit specification.¹⁷ The main effect of the treatment is measured from the τ_{2m} parameter at 2 months. This parameter has no unit, but can be interpreted as a change in the relative participation in housework and child-related activities. We set up the model such that the higher the latent variable, the higher the father participation relatively to the mother. A positive τ parameter indicates that Early takers have a more equal division of tasks (with larger relative participation of the father relative to the mother) than Late takers. At 2 months, we expect the division of tasks to be more egalitarian among Early Takers compared to Late Takers, because the latter have still not taken leave by then, and to a larger extent, when compared to “Non-takers” as they do not take leave and hold specific unobserved characteristics.

The conditional independence assumption also has important implications for the 2-year parameters: if paternity leave has the same effect for early and late takers at medium term, we expect τ_{2y} , the 2 years parameter to be equal to 0. Said differently, at 2 years, we expect the division of tasks to be similar for early and late takers who have both already taken their paternity leave at that moment if the set of conditioning variables correctly captures differences in heterogeneity driving selection. Although this is not a sufficient condition for the CIA to hold, we consider the 2 year analysis as a robustness test for our 2 months analysis.

Magnitude of the Treatment

In order to interpret the policy’s impact better, we also present the marginal effects of paternity leave on the different items of the division of task outcome. These effects help us understand the extent to which the policy impacts the distribution of tasks. Although these effects are somewhat constrained by the functional form, they also allow assessing whether the paternity leave creates an increase in father’s investment (or a decrease in mother’s), whether certain behaviors occur at the tails of the distribution (fathers investing completely in one activity) and whether domestic tasks are more equally shared between partners. In practice, marginal effects are computed for each individual and then averaged over the distribution of covariates.

Evolution of Task Sharing

We also take advantage of the panel data structure of the ELFE data to analyse the evolution of task sharing over time. Indeed, this allows us to measure the impact of an early take up of the paternity leave on the evolution of the parents’ task sharing over time, from the 2-month to the 2 years interview:

¹⁷ The link between latent and observed task sharing is given by:

$$\sum_{j=1}^5 j \mathbb{1}(Y_{it}^* \in [\delta_{j,t}, \delta_{j+1,t}])$$

where $\mathbb{1}()$ is a function that equals one if the argument is true and zero otherwise, and $\delta_{j,t}$ and $\delta_{j+1,t}$ are thresholds to be estimated.

$$\begin{aligned}\Delta Y_i^* &= Y_{i,2y}^* - Y_{i,2m}^* \\ &= ET_i \times (\tau_{2y} - \tau_{2m}) + NT_i \times (\alpha_{2y} - \alpha_{2m}) + X_i'(\beta_{2y} - \beta_{2m}) + \Delta \varepsilon_i\end{aligned}$$

The parameter associated to being an early taker ($\tau_{2y} - \tau_{2m}$) reflects the difference in the evolution of Early and Late Takers involvement in tasks. It is thus the negative of the catch-up effect of “Late Takers” relative to “Early Takers”. Note that, to interpret the parameter in a causal way, this empirical approach does not require the conditional independence assumption previously described to identify the treatment effect. In that precise case, it is sufficient to assume a common trend assumption on the potential outcome once treated to recover the treatment effect. In that respect, this empirical strategy is close to a difference in differences strategy where the Early Takers play the role of the control group as their treatment status is stable over time, while the Late Takers is the treated group as they switch treatment status between the two periods. The effect of the paternity leave is thus recovered by assuming that outcomes of Late Takers would have evolved the same as the ones of the Early Takers if they had taken the leave earlier.¹⁸

On top of the analysis comparing the evolution of Early and Late Takers, the comparison of the evolution of Late and Never Takers is also informative about the treatment effect. In this case, Never Takers can be used as a control group for Late Takers. The identifying assumption under which this last comparison is informative about the treatment effect is slightly different from the previous one: we now require that in the absence of the paternity leave, task sharing of Late Takers and Never Takers would have evolved the same way.

From an empirical point of view, the change in observed task division can take three distinct values: increase in the relative involvement of the mother, no change in the relative participation of parents, and increase in the father’s participation. Given the nature of the observed outcome variable, we choose to model it through an ordered probit model. A positive coefficient in that regression is thus linked to an increase in relative the participation of the father.

Heterogeneous Effects

We expect heterogeneous effects of paternity leave by parity and socioeconomic status. The gendered division of childcare is not yet established among parents of a first-born child. Moreover, men have fewer fatherhood skills for a first child and the learning-by-doing effect is more likely for a first birth than for subsequent ones. We therefore expect a stronger effect of paternity leave when the child is a firstborn, especially with regard to childcare tasks. The literature also points to higher effects for highly educated fathers (Boll et al., 2014; Dotti Sani & Treas, 2016). Families with highly educated fathers potentially hold more egalitarian attitudes and may be more affected by paternity leave take-up. In order to test these potential heterogeneous effects, we stratified the sample by (i) birth order (first child versus

¹⁸ Such parallel assumptions on the potential outcome when treated are used in particular settings as in de Chaisemartin and D’Haultfoeuille (2017).

higher order parities); and (ii) three categories of education (primary, i.e., less than high school; secondary, i.e., high school graduate; and tertiary, i.e., at least some college education).

Robustness Checks

A criticism that could be formulated about our leave take-up indicator is that “Late takers” will not necessarily take leave. In that case, the control group would not necessarily be of good quality. If fathers’ leave intentions not being fulfilled are due to external reasons (job constraints, for instance), our control group would be fuzzy if the delay is related to a father’s weaker desire to take paternity leave. To tackle this issue, we provide two robustness checks to “clean up” the control group by checking that fathers who intend to take leave will actually do so.

First, we further sub-categorize “Late takers” into “Observed late takers”, i.e., those for whom paternity leave take-up is ascertained from the answers to a later survey.¹⁹

Second, we aim at excluding the fathers who are less likely to take the leave, from the control group of late takers. As fathers can take their paternity leave within 4 months after the birth of the child, we restricted our estimation sample to mothers who answered the survey before 3 months (91 days). This restricts the likelihood that a “Late taker” would be a “Non-taker.”

Results

Effect of Paternity Leave on the Distribution of Childcare

Table 1 shows the impact of the fathers’ status on the division of childcare tasks at 2 months, 2 years, and on its evolution between the two dates. For each regression, the reference category is composed of Late Takers. We analyze the relative distribution of each childcare task when the father is a Early Taker, and when he is a Non Taker. A positive and significant coefficient for the Early Takers means that paternity leave has a pro-egalitarian causal effect on the division of the considered task.

Once the demographic characteristics of father, mother, child and household are controlled for, Early Takers have a more equal division in four out of the seven parental tasks than Late Takers at 2 months: putting to bed, bathing, changing nappies, and taking care of the baby during the night. For these four tasks, the impact of paternity leave on fathers’ participation is stable regardless of the set of control variables (Table 12 in Appendix) we use, confirming that our results are robust to the small differences between Late and Early Takers observed previously in the descriptive section. Note that adding the child’s and parents’ socio-economic characteristics, as well as the relative income and education status of the partners, does not

¹⁹ Fathers also answer a survey about 2 months after the birth of the child. This survey is almost always posterior to the mothers survey (see Fig. 1). From this survey, we can measure the actual take up of fathers who took the leave between the mother and the father’s interview.

Table 1 Estimation results on baby tasks

	2 months	2 years	Evolution
<i>Feeding</i>			
Early takers	0.006 (0.04)	0.016 (0.04)	-0.010 (0.04)
Non takers	-0.058 (0.05)	-0.165*** (0.05)	-0.113** (0.04)
N	6783	6783	6783
<i>Putting to bed</i>			
Early takers	0.067** (0.03)	0.044 (0.03)	-0.023 (0.03)
Non takers	-0.163*** (0.05)	-0.165*** (0.04)	-0.028 (0.05)
N	8164	8164	8164
<i>Bathing</i>			
Early takers	0.104*** (0.03)	0.040 (0.03)	-0.025 (0.03)
Non takers	-0.131*** (0.05)	-0.221*** (0.04)	-0.025 (0.05)
N	8167	8167	8167
<i>Night caring</i>			
Early takers	0.065* (0.03)	0.025 (0.03)	-0.043 (0.03)
Non takers	-0.022 (0.05)	-0.048 (0.04)	-0.050 (0.05)
N	7905	7905	7905
<i>Changing</i>			
Early takers	0.079** (0.03)		
Non takers	-0.034 (0.05)		
N	8303		
<i>Taking for a walk</i>			
Early takers	0.028 (0.03)		
Non takers	-0.055 (0.05)		
N	8260		
<i>Taking to the doctor</i>			
Early takers	0.044 (0.03)		
Non takers	-0.005 (0.05)		
N	8292		

Source: ELFE birth cohort survey. Estimates were obtained on the observed population 2 years after birth. Dependent variables are indicated in line. Late Takers corresponds to the reference category. Each estimation controls for child characteristics, family type, parents demographic variables, education, occupation and income. We also control for presence of the father during the delivery and breastfeeding at birth. Stars give the significance: * 10%, ** 5%, *** 1%

strongly affect the estimates, except for taking the baby to the doctor for which the coefficient is not significant anymore. Including the main mode of feeding and the presence of the father at delivery—which can be interpreted as an early indicator of the father’s commitment or time constraints (Model 3)—somewhat diminishes the estimates for putting the baby to bed, taking care of the baby at night and changing nappies. Hence, these activities appear to be related to breastfeeding: mothers are more likely to care for their baby in the evening and at night while feeding them, which may reduce the involvement of fathers in these tasks.

Table 2 Marginal effect of paternity leave on parental activities

	P (always mother)	P (often mother)	P (equal)	P (often/always father)
<i>Feeding</i>				
Early takers	-0.002 (0.01)	0.000 (0.00)	0.002 (0.01)	0.000 (0.00)
N	5849	5849	5849	5849
<i>Putting to bed</i>				
Early takers	-0.016** (0.01)	-0.009** (0.00)	0.019** (0.01)	0.006** (0.00)
N	7035	7035	7035	7035
<i>Bathing</i>				
Early takers	-0.035*** (0.01)	-0.001** (0.00)	0.022*** (0.01)	0.013*** (0.00)
N	7038	7038	7038	7038
<i>Night caring</i>				
Early takers	-0.025* (0.01)	0.005 (0.00)	0.016* (0.01)	0.004** (0.00)
N	6812	6812	6812	6812
<i>Changing</i>				
Early takers	-0.019** (0.01)	-0.003*** (0.00)	0.021** (0.01)	0.001*** (0.00)
N	7141	7141	7141	7141
<i>Taking for a walk</i>				
Early takers	-0.006 (0.01)	-0.005 (0.01)	0.010 (0.01)	0.001 (0.00)
N	7102	7102	7102	7102
<i>Taking to the doctor</i>				
Early takers	-0.016 (0.01)	0.001 (0.00)	0.015 (0.01)	0.001 (0.00)
N	7134	7134	7134	7134

Source: ELFE birth cohort survey. This table gives average marginal effects of being of late taker vs being an early taker on the probability indicated in column. Each line corresponds to a different predicted variable. Late takers corresponds to the reference category. Each estimation controls for child characteristics, family type, parents demographic variables, education, occupation and income. We also control for presence of the father during the delivery and breastfeeding at birth. The subsample used for prediction is the one of early and late takers. Non takers were excluded. Stars give the significance: * 10%, ** 5%, *** 1%

Non Takers have a more unequal sharing of parental tasks than Late Takers for all tasks, the parameters are negative for all tasks, and significant and high for putting to bed and bathing the baby. These large differences underline the magnitude of the selectivity of the paternity leave and inform about the sensitivity of fathers' involvement for the considered tasks.

Thus, treated fathers have a more equal sharing of parental tasks. Though significant, the effects of such short-term leave are limited in magnitude. Table 2 shows the marginal effects associated with the coefficients for Early Takers vs. Late Takers. We observe a decrease of 2–4 percentage points (pp) of the total proportion of households in which the mother is always the parent who is putting to bed, bathing, changing nappies, and caring for the child at night; whereas the share of households where the division of tasks is more equally shared increases

by 2 pp for each of these four tasks. In other words, for these tasks, paternity leave encourages some fathers to start participating in childcare, and others to share childcare more equally with the mother, but does not invert the gender roles. For example, only 1.3 pp more fathers become the main partner bathing the child after paternity leave.

Our other findings are consistent with our conceptual framework. First, for the four tasks both observed at the 2-month and 2-years interviews, we do not find any differences among parental leave takers at 2-years interview, whether they take it early or late (Table 1). This finding reinforces the relevance of comparing early and late takers. Indeed, the fact that no significant difference remains after 2 years when the two groups of fathers are treated is a necessary condition for these fathers to be comparable. On the contrary, the differences between Takers and Non Takers for three of the four parental tasks mentioned are more pronounced at 2 years than at 2 months (except for night caring, very occasional task at 2 years).

Second, for the evolution of the household division of childcare tasks between 2 months and 2 years (Table 1), the coefficients for early takers are always negative, meaning that the change in the division of tasks between these 2 time periods tends more towards balance for late takers that took the leave between the two periods than for early takers that have previously taken it (coefficients are not significant however). On the other hand, for Non Takers, the division of tasks tends to become more unequal over time, particularly, regarding the feeding practice. The analysis of the evolution of task sharing, thought relying on different assumptions, do not invalidate our main results.

Third, in our first robustness check, we distinguish among the sub-population of Late Takers, those effectively “observed” (now the reference category) and those “not observed” (Table 3). Paternity leave effects are stronger and more significant if we compare “Early takers” to “Observed late takers”. The stronger point estimates suggests that “Observed Late Takers” are a better control group. As expected, at 2 years, there is no more difference between “Early Takers” and “Observed Late Takers”. Interestingly, in terms of evolution (last column), we now find a significant increase for “Observed Late Takers” as compared to the “Early Takers.” It means that when the sub-population of late takers is cleaner, both specifications (at 2 months and evolution analysis) give very similar results. The paternity leave tends to increase the three activities of putting to bed, bathing and night caring.

Fourth, our second robustness check (Table 13 in Appendix) shows very consistent results for the division of childcare tasks regardless of whether or not we include fathers who are at the highest risk of not taking their leave. Fathers who have just taken the leave adopt a more egalitarian division of parental tasks than those who are about to take it for the four activities, i.e., putting to bed, bathing, night caring and changing nappies. Altogether, these results are very consistent with a causal effect of paternity leave on involvement in baby-related tasks.

Table 3 Estimation results on baby tasks

	Two months	Two years	Evolution
<i>Feeding</i>			
Early takers	0.037 (0.07)	0.074 (0.07)	0.019 (0.08)
Late takers (not obs)	0.040 (0.08)	0.075 (0.08)	0.037 (0.08)
Non takers	-0.026 (0.08)	-0.105 (0.08)	-0.084 (0.08)
N	6783	6783	6783
<i>Putting to bed</i>			
Early takers	0.105* (0.06)	-0.012 (0.06)	-0.114* (0.07)
Late takers (not obs)	0.048 (0.07)	-0.072 (0.07)	-0.116 (0.07)
Non takers	-0.125* (0.07)	-0.222*** (0.07)	-0.120 (0.07)
N	8164	8164	8164
<i>Bathing</i>			
Early takers	0.146** (0.06)	-0.110* (0.06)	-0.189*** (0.07)
Late takers (not obs)	0.053 (0.07)	-0.191*** (0.07)	-0.208*** (0.07)
Non takers	-0.089 (0.07)	-0.373*** (0.07)	-0.190** (0.07)
N	8167	8167	8167
<i>Night caring</i>			
Early takers	0.112* (0.07)	0.005 (0.06)	-0.153** (0.07)
Late takers (not obs)	0.060 (0.07)	-0.025 (0.07)	-0.140* (0.07)
Non takers	0.026 (0.07)	-0.068 (0.07)	-0.161** (0.08)
N	7905	7905	7905
<i>Changing</i>			
Early takers	0.153** (0.07)		
Late takers (not obs)	0.094 (0.07)		
Non takers	0.040 (0.07)		
N	8303		
<i>Taking for a walk</i>			
Early takers	-0.015 (0.06)		
Late takers (not obs)	-0.055 (0.07)		
Non takers	-0.098 (0.07)		
N	8260		
<i>Taking to the doctor</i>			
Early takers	0.088 (0.07)		
Late takers (not obs)	0.057 (0.07)		
Non takers	0.040 (0.07)		
N	8292		

Source: ELFE birth cohort survey. Estimates were obtained on the observed population 2 years after birth. Dependent variables are indicated in line. Observed Late Takers corresponds to the reference category. Each estimation controls for child characteristics, family type, parents demographic variables, education, occupation and income. We also control for presence of the father during the delivery and breastfeeding at birth. Stars give the significance: * 10%, ** 5%, *** 1%

Effects on Childcare by Child Parity and Education Level of the father

The effect of paternity leave varies according to the child's parity (Table 4 and Table 14²⁰ in Appendix). Paternity leave clearly has a bigger impact on the division of childcare for parents of a first-born child than for those of children born later. Five out of the seven tasks measured at 2-month interview, i.e., putting to bed, bathing, night caring, changing nappies, and taking the baby to the doctor, are shared more equally when the father of a first-born has already taken paternity leave. First-time parents are more likely to learn these new childcare tasks during their leave; the paternity leave period may therefore help them become more involved in these tasks. Paternity leave lowers the likelihood that mothers always, or usually, perform childcare tasks, and increases the probability that these tasks are more equitably shared or, are often or always performed by the father (Tables 15 in Appendix). Among households with a first-born child, paternity leave increases equal sharing by 4 pp for doctors' visits, 3 pp for changing nappies, putting the child to sleep and bathing activity. The probability that only the mother bathes or takes care of the child at night, diminishes, respectively, by 4 pp and 3 pp.

For subsequent births, we do not observe any significant effects of having already taken paternity leave, versus intending to avail of it later. This suggests that paternity leave does not change the division of care for children born subsequently (not first-born). Paternity leave (for the first child) may already have equalized (as much as possible) parental roles, and therefore cannot further impact the division of tasks for subsequent births. Another interpretation would be that at the birth of other children, parents divide tasks among them, with fathers taking care of older children and mothers looking after the new-born. The participation of fathers in tasks related to older children will not be visible here because our survey collects information on childcare tasks related only to the youngest child of the household. However, it is possible that fathers concentrate mostly on their older children during the paternity leave for the birth of a (younger) child.

As expected, there are no differences between Early Takers and Late Takers at 2 years since both groups of fathers have already taken the leave at that moment (Table 14 in Appendix), whatever the parity, confirming that the timing of paternity leave is not linked to the division of parental tasks. The point estimate is positive, but not significantly different from 0 between Late and Early Takers. We note that the negative selection of Non Takers in terms of fathers' involvement seems much stronger for subsequent children, than for the first child, and after 2 years, their participation is much lower relative to Takers.

The type of tasks affected by the leave depends on the level of education (Table 4 and Table 16 in Appendix). Whatever the father's educational level, paternity leave leads to a more even division of tasks for one activity: bathing the baby. The effect is important for less-educated fathers, with 5pp more fathers involved, and 3pp more equal division, because of the paternity leave (Table 17 in Appendix). Paternity leave also tends to make sharing more equal for outdoor activities in households where the father is primary level educated: Taking the baby for a walk demonstrates lower

²⁰ Sample sizes of subgroups by birth order and educational level are provided in Table 8 in Appendix.

Table 4 Baby tasks: heterogeneity of the effects

	Father's education			Parity	
	Low	Medium	High	First	Second+
<i>Feeding</i>					
Early takers	0.066 (0.08)	-0.114 (0.08)	0.029 (0.05)	0.072 (0.05)	-0.057 (0.05)
Non takers	-0.086 (0.10)	-0.069 (0.12)	-0.041 (0.07)	-0.001 (0.08)	-0.121* (0.07)
N	1625	1382	3776	3171	3612
<i>Putting to bed</i>					
Early takers	-0.003 (0.07)	0.006 (0.07)	0.107** (0.04)	0.104** (0.05)	0.028 (0.04)
Non takers	-0.275*** (0.09)	-0.114 (0.11)	-0.149** (0.06)	0.013 (0.07)	-0.281*** (0.06)
N	1902	1620	4642	3710	4454
<i>Bathing</i>					
Early takers	0.122* (0.07)	0.095 (0.07)	0.084** (0.04)	0.139*** (0.05)	0.064 (0.05)
Non takers	-0.093 (0.10)	-0.191* (0.11)	-0.153** (0.06)	-0.135* (0.07)	-0.122** (0.06)
N	1902	1622	4643	3709	4458
<i>Night caring</i>					
Early takers	0.076 (0.08)	0.094 (0.08)	0.050 (0.04)	0.087* (0.05)	0.046 (0.05)
Non takers	-0.029 (0.10)	0.079 (0.11)	-0.066 (0.06)	0.082 (0.07)	-0.100 (0.06)
N	1824	1581	4500	3577	4328
<i>Changing</i>					
Early takers	0.058 (0.07)	0.023 (0.08)	0.101** (0.05)	0.112** (0.05)	0.042 (0.05)
Non takers	-0.104 (0.09)	0.025 (0.11)	-0.031 (0.06)	0.105 (0.07)	-0.128** (0.06)
N	1959	1661	4683	3769	4534
<i>Taking for a walk</i>					
Early takers	0.126* (0.07)	-0.004 (0.08)	-0.005 (0.04)	0.035 (0.05)	0.019 (0.05)
Non takers	-0.045 (0.09)	-0.019 (0.11)	-0.081 (0.06)	0.030 (0.07)	-0.115* (0.06)
N	1938	1653	4669	3755	4505
<i>Taking to the doctor</i>					
Early takers	0.014 (0.07)	-0.083 (0.08)	0.080* (0.04)	0.110** (0.05)	-0.020 (0.05)
Non takers	-0.026 (0.10)	0.081 (0.11)	-0.055 (0.06)	0.128* (0.07)	-0.107* (0.06)
N	1956	1657	4679	3763	4529

Source: ELFE birth cohort survey. Estimates were obtained on the observed population 2 years after birth. Dependent variables are indicated in line. Late Takers corresponds to the reference category. Each estimation controls for child characteristics, family type, parents demographic variables, education, occupation and income. We also control for presence of the father during the delivery and breastfeeding at birth. Stars give the significance: * 10%, ** 5%, *** 1%

likelihood of 'always done by the mother' (3 pp lower) and more of 'often shared equally' (5 pp more). This activity is symbolic from a gender perspective, given that the father shows himself to the outside world with the child, which might represent a deviation from the standard assignment of gender roles (Akerlof & Kranton, 2000) or

at least a public signal of the father's investment with the child. When the father has a tertiary level of education, paternity leave acts on the distribution of other activities within the household: Taking the child to the doctor is less exclusively done by the mother (3 pp.) as putting the child to bed, changing and bathing the child (2 pp decrease). These differences in activities performed across levels of education may be related to work schedules: highly educated fathers may have longer working hours and therefore participate in late evening or night-time tasks, and planned activities, such as visits to the doctor who are more often equally shared between parents (3 pp.).

Effect of Paternity Leave on the Distribution of Housework

The effect of paternity leave is much less marked on the sharing of household chores between parents (Table 5). At the 2-month interview, paternity leave

Table 5 Household tasks

	Two months	Two years	Evolution
<i>Washing-up</i>			
Early takers	0.104*** (0.03)	0.034 (0.03)	-0.076** (0.03)
Non takers	-0.022 (0.04)	-0.158*** (0.04)	-0.110** (0.05)
N	8155	8155	8155
<i>Shopping</i>			
Early takers	0.030 (0.03)	-0.003 (0.03)	-0.048 (0.03)
Non takers	0.010 (0.04)	-0.003 (0.04)	-0.005 (0.05)
N	8147	8147	8147
<i>Cooking</i>			
Early takers	0.029 (0.03)	0.016 (0.03)	-0.006 (0.03)
Non takers	0.018 (0.04)	0.005 (0.04)	0.003 (0.05)
N	8165	8165	8165
<i>Doing the laundry</i>			
Early takers	0.042 (0.03)	-0.015 (0.03)	-0.062* (0.03)
Non takers	-0.026 (0.05)	-0.073 (0.05)	-0.076 (0.05)
N	8165	8165	8165
<i>Cleaning</i>			
Early takers	0.087*** (0.03)	0.116*** (0.03)	0.008 (0.03)
Non takers	0.049 (0.05)	0.007 (0.05)	-0.035 (0.05)
N	8141	8141	8141
<i>DIY and repairs</i>			
Early takers	0.028 (0.03)	0.026 (0.03)	-0.003 (0.03)
Non takers	-0.086* (0.05)	-0.029 (0.05)	0.046 (0.05)
N	7899	7899	7899

Source: ELFE birth cohort survey. Estimates were obtained on the observed population 2 years after birth. Dependent variables are indicated in line. Late takers corresponds to the reference category. Each estimation controls for child characteristics, family type, parents demographic variables, education, occupation and income. We also control for presence of the father during the delivery and breastfeeding at birth. Stars give the significance: * 10%, ** 5%, *** 1%

does not have any significant impact on the division of domestic activities such as shopping, cooking, laundry, or DIY and home repairs. Only the division of dish-washing and cleaning is more egalitarian for “Early takers” relatively to “Late takers.” Differences with “Non-takers” are also less pronounced than those observed for childcare tasks. At 2 years, the effect of paternity leave is significant only for washing activities (no significant difference between Early and Late takers while significant difference with “Non takers”. Taking leave early seems to have persisting positive effect on the division of cleaning on the medium term. The evolution of the sharing between “Early takers” and “Late takers” is negative (except for cleaning), and significant for washing-up and doing the laundry. It means that late takers may take the opportunity of the paternity leave to increase their participation in these tasks.

Table 6 Household tasks: heterogeneity of the effects

	Father's education			Parity	
	Low	Medium	High	First	Second+
<i>Washing-up</i>					
Early takers	0.071 (0.07)	0.101 (0.07)	0.104** (0.04)	0.118** (0.05)	0.092** (0.04)
Non takers	0.015 (0.09)	0.033 (0.10)	-0.081 (0.06)	0.108 (0.07)	-0.106* (0.06)
N	1896	1619	4640	3708	4447
<i>Shopping</i>					
Early takers	-0.039 (0.07)	0.012 (0.07)	0.052 (0.04)	0.000 (0.05)	0.049 (0.04)
Non takers	-0.173* (0.09)	0.148 (0.10)	0.021 (0.06)	-0.047 (0.07)	0.046 (0.06)
N	1897	1619	4631	3700	4447
<i>Cooking</i>					
Early takers	-0.064 (0.07)	-0.004 (0.07)	0.064 (0.04)	-0.009 (0.05)	0.067 (0.04)
Non takers	-0.147 (0.09)	0.042 (0.10)	0.068 (0.06)	-0.003 (0.07)	0.051 (0.06)
N	1902	1621	4642	3707	4458
<i>Doing the laundry</i>					
Early takers	-0.008 (0.08)	0.108 (0.08)	0.036 (0.04)	-0.004 (0.05)	0.078 (0.05)
Non takers	-0.122 (0.10)	0.174 (0.12)	-0.070 (0.06)	0.025 (0.07)	-0.048 (0.07)
N	1902	1622	4641	3709	4456
<i>Cleaning</i>					
Early takers	0.029 (0.07)	0.136* (0.07)	0.078* (0.04)	0.094** (0.05)	0.085* (0.04)
Non takers	-0.087 (0.09)	0.151 (0.11)	0.059 (0.06)	0.147** (0.07)	-0.006 (0.06)
N	1897	1620	4624	3698	4443
<i>DIY and repairs</i>					
Early takers	-0.059 (0.08)	-0.008 (0.08)	0.073 (0.04)	0.022 (0.05)	0.038 (0.05)
Non takers	-0.124 (0.10)	-0.149 (0.11)	-0.063 (0.06)	-0.173** (0.07)	-0.037 (0.06)
N	1852	1583	4464	3559	4340

Source: ELFE birth cohort survey. Estimates were obtained on the observed population 2 years after birth. Dependent variables are indicated in line. Late Takers corresponds to the reference category. Each estimation controls for child characteristics, family type, parents demographic variables, education, occupation and income. We also control for presence of the father during the delivery and breastfeeding at birth. Stars give the significance: * 10%, ** 5%, *** 1%

The effect of paternity leave on the sharing of household chores varies little by parity (Table 6). For first-born children or subsequent births, the same tasks are performed considerably more by “Early takers” relatively to “Late takers,” at 2 months: washing-up and cleaning. More interestingly, the classification by educational level highlights that paternity leave tends toward a more egalitarian sharing domestic tasks among fathers with at least some tertiary education (for cleaning and washing up), and among those with medium level education (for cleaning). No effects of taking paternity leave are observed for fathers with lower levels of education. Therefore, compared to low-educated fathers, the more educated ones appear to have a more equal division of some domestic tasks after a paternity leave, even though their households are already more egalitarian.

Conclusion

In this study, we estimate the impact of a short and very large coverage paternity leave on the parental division of various childcare-related as well as other routine household tasks in France. We use an original dataset that allows to: (a) distinguish the precise type of household and childcare task performed; and (b) compare fathers who have already taken paternity leave at the time of interview with those who intend to take it shortly thereafter conditional on several observable characteristics. Comparing these two groups shows that paternity leave equates the division of several childcare tasks when the baby is 2 months old. In particular, we show that paternity leave reduces the probability that mothers always perform childcare tasks, thereby increasing the likelihood of an equal task division between the parents. This result is in line with previous literature that shows that paternity leave increases fathers’ participation in childcare (Bunning, 2015; Farre & Gonzalez, 2019; Huerta et al., 2013; Tamm, 2019; Wray, 2020). It differs from studies which show that the gender division of childcare is not affected by paternity leave, due to the increase in time spent by mothers on childcare activities (Kluve & Tamm, 2013; Patnaik, 2019). Our results seem to show that in France the increase in men’s time is greater than that of women.

Although the policy does not directly target domestic housework, fathers’ investment in childcare may be compensated by a change in the division of other types of tasks. We show that the distribution of housework tasks is only marginally affected, in spite of the overall increase of domestic workload, due to the arrival of the child. The greater involvement of fathers in childcare does not impact the distribution of other housework activities, except for washing up. This lower effect of paternity leave on housework was expected, since the leave is primarily intended to involve fathers with their children rather than in domestic activities and is line with previous literature (Farre & Gonzalez, 2019; Schober, 2014). Moreover, domestic activities are generally less enjoyable and less socially valued than parental activities (Sullivan, 2013); thus, in a time-constrained framework, fathers might prefer to devote the extra time provided by paternity leave on childcare rather than on domestic tasks.

The effect of paternity leave depends strongly on the child’s birth order and, to a lesser extent, on the father’s level of education. The change towards a more balanced sharing of childcare after paternity leave is observed for first births only,

suggesting that paternity leave allows new fathers the time to learn how to perform childcare activities. The lack of an effect for fathers of more than one child raises questions about the effectiveness of short leaves for higher birth parities. Conversely, longer leaves have been shown to have a positive effect on fathers' childcare participation (Tamm, 2019). However, our data do not allow assessing whether this leave could have an impact on older children in the household.

Distinguishing between the types of childcare tasks performed by fathers makes it possible to identify the subtle effects of paternity leave on relatively routine or pleasurable tasks. It highlights an educational gradient in the division of tasks that are affected by paternity leave. All fathers are more involved in bathing the baby after taking leave, an activity perceived as pleasant. While less educated fathers who have taken leave are more likely to share equally in outdoor activities, fathers with a tertiary education opt for sharing the tasks of bedtime activities' and doctor visits, more equally. These differences according to the level of education may reflect different gender ideologies (Grunow et al., 2018) but also work-schedule constraints and differences in the timing of returning from work. Paternity leave has a lower positive effect on father-child bonding for low-educated fathers. Indeed, it represents a higher status cost for fathers with lower rather than higher education, given their less egalitarian family and social environments.

The first part of our empirical analysis is based on comparing fathers who have already taken leave with those who intend to take it. Causal interpretation of our results relies on the assumption that the timing of the leave is conditionally independent from potential outcomes. Likely departure from that assumption is that fathers with larger gains from the leave may take it earlier than others, which would induce an upwards bias in our estimates. However, the fact that we do not observe significant differences between outcome variables at 2 years when all fathers took the leave is reassuring with respect to this assumption. The comparison of our control and treatment groups shows no statistically significant difference in childcare division 2 years after the birth, which is what one would expect as all fathers are likely to be treated at that time. While at 2 years, differences are persistent, and even deeper for some tasks, for "Non-takers." Moreover, results are robust when we restrict the "delayed takers" to the fathers who are more likely to take the leave or to those who have effectively taken it. Nevertheless, they may still differ due to unobserved characteristics.

Altogether, the effects of a policy involving a short, but statutory and paid paternity leave, are modest but significant. Through increased fathers' involvement in childcare, paternity leave may facilitate father-child bonding, which has been associated with child well-being, cognitive development, and socio-emotional outcomes (Shannon et al., 2002; Yogman et al., 1995). It also fosters gender equality by favoring a more equal gender division of tasks, without indication of any adverse effects on domestic task-sharing. Finally, this more equal distribution of tasks may contribute to a rise in women's labor productivity and earnings, and, therefore, to a reduction in the gender wage gap. France extended the tenure of paternity leave to 1 month in July 2021, with 1 week being compulsory for all; this extension of paternity leave is expected to have more pronounced effects on the division of labor and overall gender inequalities.

Appendix

See Figs. 4, 5, and 6. Tables 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17.

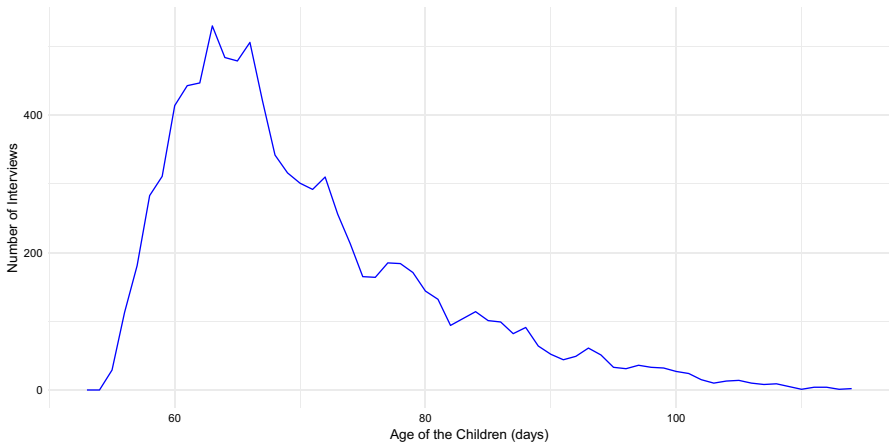


Fig. 4 Number of interview by age of the child

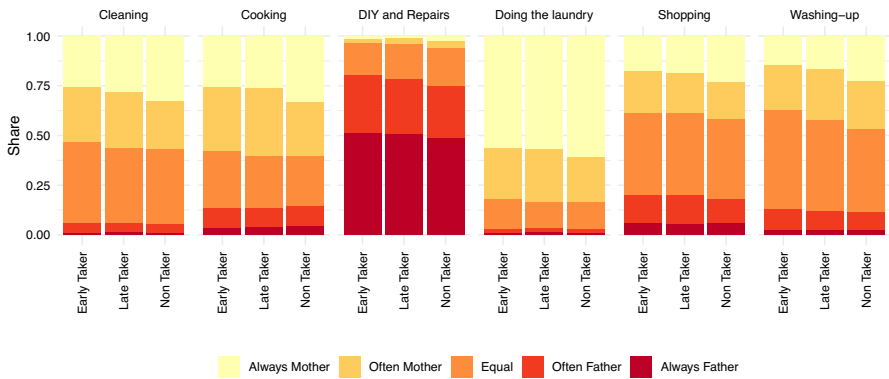


Fig. 5 The sharing of housework according to paternity leave status (2 months)

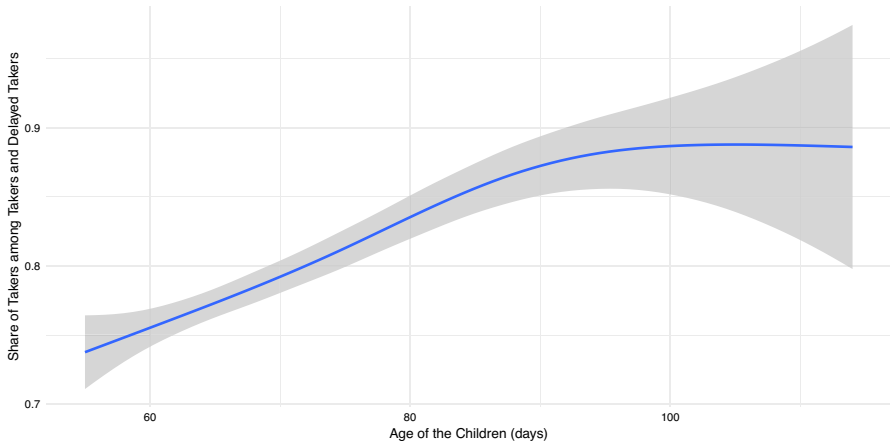


Fig. 6 % of takers among takers and delayed takers by age of the child at the interview

Table 7 Distribution of paternity leave take up

Take-up status	Observations	Pct	Weighted Pct
Early takers	5648	63.69	61.94
Late takers (obs)	321	3.62	3.38
Late takers (not obs)	1175	13.25	13.06
Non takers	1163	13.11	14.33
Not eligible	561	6.33	7.30
Total	8868	100.00	100.00

Source: ELFE birth cohort survey. Statistics obtained from authors computation

Table 8 Distribution of paternity leave take up by groups

Take-up status	Education of the father						Parity			
	Low		Medium		High		First		Second+	
	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
Early takers	1274	59.95	1151	65.47	3223	64.65	2622	64.76	3026	62.79
Late takers	340	16.00	295	16.78	861	17.27	702	17.34	794	16.48
Non takers	347	16.33	215	12.23	601	12.06	446	11.02	717	14.88
Not eligible	164	7.72	97	5.52	300	6.02	279	6.89	282	5.85
Total	2125	100.00	1758	100.00	4985	100.00	4049	100.00	4819	100.00

Source: ELFE birth cohort survey. Statistics obtained from authors computation

Table 9 Father characteristics

	Mean		Diff with respect to early takers				Not eligible
	All	Early takers	Late takers (Obs)	Late takers (not obs)	Non takers		
Age at child birth	33.019	32.696	1.165***	0.650***	0.741***	1.020***	
Immigrant	0.116	0.085	-0.024	0.030**	0.076***	0.184***	
Education							
Primary education	0.109	0.089	-0.005	-0.001	0.059***	0.123***	
Vocational	0.236	0.223	-0.015	0.011	0.060***	0.028	
Secondary education	0.203	0.216	-0.001	-0.033***	-0.020	-0.055***	
Some college	0.173	0.189	-0.042*	-0.014	-0.056***	-0.048***	
Higher education	0.279	0.283	0.064**	0.037**	-0.043***	-0.049***	
Monthly income (1000 euros)	1.837	1.935	0.193	-0.023	-0.229***	-0.744***	
Occupation							
Farmer	0.016	0.005	0.002	0.019***	0.045***	0.019***	
Independent	0.067	0.029	-0.012	0.025***	0.136***	0.162***	
Executive	0.220	0.235	0.030	-0.001	-0.055***	-0.077***	
Intermediate occupations	0.238	0.268	-0.002	-0.007	-0.103***	-0.146***	
White collar	0.153	0.163	-0.038*	-0.014	-0.036***	-0.009	
Blue collar	0.295	0.299	0.017	-0.022	-0.011	0.005	
Other	0.010	0.002	0.002	0.000	0.024***	0.046***	
Not working	0.086	0.028	-0.023***	0.019**	0.156***	0.379***	
Sector of employment							
Private	0.702	0.729	-0.002	-0.008	-0.047***	-0.204***	
Public	0.188	0.221	0.047*	-0.016	-0.115***	-0.174***	

Table 9 (continued)

	Mean		Diff with respect to early takers			
	All	Early takers	Late takers (Obs)	Late takers (not obs)	Non takers	Not eligible
Contract						
Permanent	0.797	0.879	0.040**	-0.036***	-0.254***	-0.446***
Short-term	0.093	0.071	0.005	0.012	0.092***	0.067***

Source: ELFE birth cohort survey. For each variable, the first column (All) gives the average for the whole sample, the second column (Taken) gives the average for the population of individual that had taken paternity leave at some point before the survey. The last four columns give the difference with the second column. Stars give the significance of the t-test: * 10%, ** 5%, *** 1%. Statistics are weighted with survey weights

Table 10 Mother characteristics

	Mean		Diff with respect to early takers			
	All	Early takers	Late takers (obs)	Late takers (not obs)	Non takers	Not eligible
Age at child birth	30.726	30.703	0.686**	0.265	0.082	-0.506*
Immigrant	0.120	0.091	0.006	0.033***	0.080***	0.135***
Education						
Primary education	0.093	0.076	-0.009	-0.010	0.045***	0.135***
Vocational	0.067	0.057	-0.021	0.000	0.047***	0.047***
Secondary education	0.292	0.293	-0.045*	0.002	0.015	-0.019
Some college	0.213	0.228	-0.013	-0.013	-0.050***	-0.060***
Higher education	0.335	0.347	0.089***	0.020	-0.057***	-0.103***
Monthly income (1000 euros)	1.314	1.374	0.219*	-0.014	-0.213***	-0.365***
Occupation						
Farmer	0.002	0.001	0.007	0.003	0.003	-0.001
Independent	0.018	0.015	0.009	0.008	0.013**	-0.001
Executive	0.151	0.155	0.009	0.010	-0.020**	-0.028**
Intermediate occupations	0.299	0.321	0.034	-0.009	-0.083***	-0.106***
White collar	0.386	0.388	-0.008	-0.009	0.010	-0.023
Blue collar	0.077	0.069	-0.023*	0.004	0.029***	0.036**
Other	0.067	0.050	-0.029**	-0.009	0.049***	0.123***
Usual working time						
Not working	0.314	0.272	-0.043	0.016	0.131***	0.234***
Part time	0.142	0.145	-0.011	-0.002	-0.004	-0.013
Full time	0.544	0.583	0.053*	-0.015	-0.127***	-0.221***
Works at the moment of the itw	0.067	0.074	-0.045***	-0.024***	-0.009	-0.019**

Table 10 (continued)

	Mean		Diff with respect to early takers			
	All	Early takers	Late takers (obs)	Late takers (not obs)	Non takers	Not eligible
Sector of employment						
Private	0.442	0.464	0.002	-0.001	-0.075***	-0.115***
Public	0.244	0.264	0.041	-0.015	-0.056***	-0.119***
Contract						
Permanent	0.636	0.676	0.058**	-0.018	-0.134***	-0.212***
Short-term	0.050	0.052	-0.016	0.001	0.003	-0.022***

Source: ELFE birth cohort survey. For each variable, the first column (All) gives the average for the whole sample, the second column (Taken) gives the average for the population of individual that had taken paternity leave at some point before the survey. The last four columns give the difference with the second column. Stars give the significance of the t-test: * 10%, ** 5%, *** 1%. Statistics are weighted with survey weights

Table 11 Child and family characteristics

	Mean	Diff with respect to early takers							
		Early takers	Late takers (obs)	Late takers (not obs)	Non takers				
All									
Month of birth									
April	0.232	0.222	0.027	0.025	0.020	0.030			
July	0.261	0.263	-0.026	-0.009	-0.008	0.008			
October	0.256	0.255	0.045*	0.035**	-0.013	-0.029			
December	0.251	0.260	-0.046**	-0.051***	0.001	-0.009			
Girl	0.488	0.489	-0.009	-0.010	-0.005	0.019			
Age at interview (days)	70.618	70.632	-3.238***	-1.920***	0.877**	2.196***			
Birth weight (kg)	3.341	3.355	-0.006	-0.028*	-0.019	-0.084***			
Gest. age (days)	277.470	277.709	-0.759	-0.831**	-0.402	-0.551			
Marital and cohabiting status									
Married	0.451	0.453	-0.046	0.002	0.003	-0.013			
PACS	0.157	0.180	-0.035*	-0.029**	-0.071***	-0.081***			
Cohabiting couple	0.382	0.362	0.079***	0.025	0.048***	0.077***			
Step family	0.092	0.079	0.027	0.014	0.037***	0.048***			
Rank of birth									
First child	0.436	0.446	0.022	-0.009	-0.068***	0.012			
Second child	0.356	0.364	-0.033	-0.012	-0.012	-0.048**			
Third child +	0.209	0.190	0.010	0.021	0.080***	0.037*			
Equivalized income	1.561	1.612	0.088*	-0.013	-0.111**	-0.392***			
% Woman's wage in total income	0.384	0.372	0.020	0.004	0.022**	0.089***			
Relative education of parents									
Mother's < Father's	0.213	0.208	-0.030	0.007	0.009	0.041*			
Mother's = Father's	0.380	0.383	0.015	0.005	-0.016	-0.017			

Table 11 (continued)

	Diff with respect to early takers					
	Mean	Early takers	Late takers (obs)	Late takers (not obs)	Non takers	Not eligible
Mother's > Father's	0.407	0.409	0.015	-0.012	0.007	-0.024
Presence of the fath. during delivery						
Yes	0.843	0.867	-0.019	0.002	-0.089***	-0.108***
No, and cesarean delivery	0.093	0.089	-0.011	-0.002	0.022*	0.010
No, and uncomplicated delivery	0.064	0.044	0.030	0.001	0.067***	0.098***
Some breast feeding since birth	0.682	0.669	0.066**	0.052***	0.002	0.046**

Source: ELFE birth cohort survey. For each variable, the first column (All) gives the average for the whole sample, the second column (Taken) gives the average for the population of individual that had taken paternity leave at some point before the survey. The last four columns give the difference with the second column. Stars give the significance of the t-test: * 10%, ** 5%, *** 1%. Statistics are weighted with survey weights

Table 12 Baby tasks different specifications

	Two months			Two years			Difference		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
<i>Feeding</i>									
Early takers	0.059 (0.04)	0.038 (0.04)	0.006 (0.04)	0.028 (0.04)	0.018 (0.04)	0.016 (0.04)	-0.037 (0.04)	-0.033 (0.04)	-0.010 (0.04)
Non takers	-0.072 (0.05)	-0.031 (0.05)	-0.058 (0.05)	-0.250*** (0.05)	-0.166*** (0.05)	-0.165*** (0.05)	-0.165*** (0.05)	-0.128** (0.05)	-0.113** (0.05)
N	6783	6783	6783	6783	6783	6783	6783	6783	6783
<i>Putting to bed</i>									
Early takers	0.086*** (0.03)	0.077** (0.03)	0.067** (0.03)	0.055* (0.03)	0.048 (0.03)	0.044 (0.03)	-0.029 (0.03)	-0.027 (0.03)	-0.023 (0.03)
Non takers	-0.236*** (0.04)	-0.158*** (0.05)	-0.163*** (0.05)	-0.226*** (0.04)	-0.166*** (0.04)	-0.165*** (0.04)	-0.019 (0.04)	-0.032 (0.05)	-0.028 (0.05)
N	8164	8164	8164	8164	8164	8164	8164	8164	8164
<i>Bathing</i>									
Early takers	0.108*** (0.03)	0.102*** (0.03)	0.104*** (0.03)	0.057* (0.03)	0.040 (0.03)	0.040 (0.03)	-0.021 (0.03)	-0.020 (0.03)	-0.025 (0.03)
Non takers	-0.275*** (0.04)	-0.137*** (0.05)	-0.131*** (0.05)	-0.327*** (0.04)	-0.224*** (0.04)	-0.221*** (0.04)	0.013 (0.04)	-0.021 (0.05)	-0.025 (0.05)
N	8167	8167	8167	8167	8167	8167	8167	8167	8167
<i>Night caring</i>									
Early takers	0.095*** (0.03)	0.083** (0.03)	0.065* (0.03)	0.029 (0.03)	0.028 (0.03)	0.025 (0.03)	-0.058* (0.03)	-0.054 (0.03)	-0.043 (0.03)
Non takers	-0.072 (0.05)	-0.010 (0.05)	-0.022 (0.05)	-0.117*** (0.04)	-0.050 (0.04)	-0.048 (0.04)	-0.082* (0.05)	-0.061 (0.05)	-0.050 (0.05)
N	7905	7905	7905	7905	7905	7905	7905	7905	7905

Table 12 (continued)

	Two months			Two years			Difference		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
<i>Changing</i>									
Early takers	0.099*** (0.03)	0.086** (0.03)	0.079** (0.03)						
Non takers	-0.137*** (0.04)	-0.033 (0.05)	-0.034 (0.05)						
N	8303	8303	8303						
<i>Taking for a walk</i>									
Early takers	0.051 (0.03)	0.032 (0.03)	0.028 (0.03)						
Non takers	-0.122*** (0.04)	-0.056 (0.05)	-0.055 (0.05)						
N	8260	8260	8260						
<i>Taking to the doctor</i>									
Early takers	0.056* (0.03)	0.048 (0.03)	0.044 (0.03)						
Non takers	-0.102** (0.04)	-0.002 (0.05)	-0.005 (0.05)						
N	8292	8292	8292						

Source: ELFE birth cohort survey. Estimates were obtained on the observed population 2 years after birth. Dependent variables are indicated in line. Late Takers corresponds to the reference category. Model 1 does not include any control variable. Model 2 additionally controls for child characteristics, family type, parents demographic variables, education, occupation and income. Model 3 additionally controls for presence of the father during the delivery and breastfeeding at birth. Stars give the significance: * 10%, ** 5%, *** 1%

Table 13 Estimation results on baby tasks: interview before 91 days

	Two months	Two years	Evolution
<i>Feeding</i>			
Early takers	0.010 (0.04)	0.015 (0.04)	-0.013 (0.04)
Non takers	-0.040 (0.05)	-0.142*** (0.05)	-0.117** (0.05)
N	6472	6472	6472
<i>Putting to bed</i>			
Early takers	0.071** (0.03)	0.048 (0.03)	-0.021 (0.03)
Non takers	-0.156*** (0.05)	-0.152*** (0.05)	-0.022 (0.05)
N	7799	7799	7799
<i>Bathing</i>			
Early takers	0.100*** (0.03)	0.043 (0.03)	-0.021 (0.03)
Non takers	-0.133*** (0.05)	-0.210*** (0.05)	-0.013 (0.05)
N	7803	7803	7803
<i>Night caring</i>			
Early takers	0.062* (0.03)	0.026 (0.03)	-0.042 (0.04)
Non takers	-0.018 (0.05)	-0.036 (0.05)	-0.047 (0.05)
N	7558	7558	7558
<i>Changing</i>			
Early takers	0.079** (0.03)		
Non takers	-0.022 (0.05)		
N	7924		
<i>Taking for a walk</i>			
Early takers	0.035 (0.03)		
Non takers	-0.045 (0.05)		
N	7882		
<i>Taking to the doctor</i>			
Early takers	0.040 (0.03)		
Non takers	0.004 (0.05)		
N	7913		

Source: ELFE birth cohort survey. Estimates were obtained on the observed population 2 years after birth. Dependent variables are indicated in line. Late Takers corresponds to the reference category. Each estimation controls for child characteristics, family type, parents demographic variables, education, occupation and income. We also control for presence of the father during the delivery and breastfeeding at birth. Stars give the significance: * 10%, ** 5%, *** 1%

Table 14 Estimation results on baby tasks by parity

	Two months		Two years		Evolution	
	First	Second +	First	Second +	First	Second +
<i>Feeding</i>						
Early takers	0.072 (0.05)	-0.057 (0.05)	-0.006 (0.05)	0.031 (0.05)	-0.090 (0.06)	0.067 (0.05)
Non takers	-0.001 (0.08)	-0.121* (0.07)	-0.025 (0.08)	-0.249*** (0.07)	-0.050 (0.08)	-0.131* (0.07)
N	3171	3612	3171	3612	3171	3612
<i>Putting to bed</i>						
Early takers	0.104** (0.05)	0.028 (0.04)	0.077 (0.05)	0.013 (0.04)	-0.040 (0.05)	-0.002 (0.05)
Non takers	0.013 (0.07)	-0.281*** (0.06)	-0.093 (0.07)	-0.216*** (0.06)	-0.103 (0.07)	0.027 (0.06)
N	3710	4454	3710	4454	3710	4454
<i>Bathing</i>						
Early takers	0.139*** (0.05)	0.064 (0.05)	0.059 (0.05)	0.014 (0.04)	-0.070 (0.05)	0.019 (0.05)
Non takers	-0.135* (0.07)	-0.122** (0.06)	-0.182*** (0.07)	-0.256*** (0.06)	-0.002 (0.07)	-0.044 (0.06)
N	3709	4458	3709	4458	3709	4458
<i>Night caring</i>						
Early takers	0.087* (0.05)	0.046 (0.05)	0.042 (0.05)	-0.002 (0.04)	-0.036 (0.05)	-0.059 (0.05)
Non takers	0.082 (0.07)	-0.100 (0.06)	-0.000 (0.07)	-0.085 (0.06)	-0.090 (0.07)	-0.026 (0.06)
N	3577	4328	3577	4328	3577	4328
<i>Changing</i>						
Early takers	0.112** (0.05)	0.042 (0.05)				
Non takers	0.105 (0.07)	-0.128** (0.06)				
N	3769	4534				
<i>Taking for a walk</i>						
Early takers	0.035 (0.05)	0.019 (0.05)				
Non takers	0.030 (0.07)	-0.115* (0.06)				

Table 14 (continued)

	Two months		Two years		Evolution	
	First	Second +	First	Second +	First	Second +
	N	3755	4505			
<i>Taking to the doctor</i>						
Early takers	0.110** (0.05)	-0.020 (0.05)				
Non takers	0.128* (0.07)	-0.107* (0.06)				
N	3763	4529				

Source: ELFE birth cohort survey. Estimates were obtained on the observed population 2 years after birth. Dependent variables are indicated in line. Late Takers corresponds to the reference category. Each estimation controls for child characteristics, family type, parents demographic variables, education, occupation and income. We also control for presence of the father during the delivery and breastfeeding at birth. Stars give the significance: * 10%, ** 5%, *** 1%

Table 15 Marginal effect of paternity leave on parental activities by parity

	First			Second +				
	P (always M.)	P (often M.)	P (equal)	P (often/always F.)	P (always M.)	P (often M.)	P (equal)	P (often/always F.)
<i>Feeding</i>								
Early takers	-0.022 (0.02)	0.002 (0.00)	0.019 (0.01)	0.001 (0.00)	0.019 (0.02)	-0.005 (0.00)	-0.013 (0.01)	-0.001 (0.00)
N	2799	2799	2799	2799	3050	3050	3050	3050
<i>Putting to bed</i>								
Early takers	-0.019** (0.01)	-0.021** (0.01)	0.028** (0.01)	0.012** (0.00)	-0.008 (0.01)	-0.003 (0.00)	0.009 (0.01)	0.002 (0.00)
N	3276	3276	3276	3276	3759	3759	3759	3759
<i>Bathing</i>								
Early takers	-0.039*** (0.01)	-0.013*** (0.00)	0.028*** (0.01)	0.024*** (0.01)	-0.024 (0.02)	0.005 (0.00)	0.014 (0.01)	0.006 (0.00)
N	3275	3275	3275	3275	3763	3763	3763	3763
<i>Night caring</i>								
Early takers	-0.032* (0.02)	0.004 (0.00)	0.023* (0.01)	0.005** (0.00)	-0.017 (0.02)	0.004 (0.00)	0.011 (0.01)	0.003 (0.01)
N	3158	3158	3158	3158	3654	3654	3654	3654
<i>Changing</i>								
Early takers	-0.021** (0.01)	-0.013*** (0.00)	0.032** (0.01)	0.002*** (0.00)	-0.012 (0.01)	0.001 (0.00)	0.011 (0.01)	0.000 (0.00)
N	3324	3324	3324	3324	3817	3817	3817	3817
<i>Taking for a walk</i>								
Early takers	-0.005 (0.01)	-0.009 (0.01)	0.013 (0.02)	0.001 (0.00)	-0.004 (0.01)	-0.003 (0.01)	0.007 (0.02)	0.000 (0.00)
N	3312	3312	3312	3312	3790	3790	3790	3790
<i>Taking to the doctor</i>								
Early takers	-0.039** (0.02)	-0.003*** (0.00)	0.041** (0.02)	0.001** (0.00)	0.008 (0.02)	-0.001 (0.00)	-0.006 (0.01)	-0.000 (0.00)
N	3320	3320	3320	3320	3814	3814	3814	3814

Source: ELFE birth cohort survey. This table gives average marginal effects of being of Late Taker vs being an early taker on the probability indicated in column. Each line corresponds to a different predicted variable. Late Takers corresponds to the reference category. Each estimation controls for child characteristics, family type, parents demographic variables, education, occupation and income. We also control for presence of the father during the delivery and breastfeeding at birth. The subsample used for prediction is the one of early and late takers. Non takers were excluded. Stars give the significance: * 10%, ** 5%, *** 1%

Table 16 Baby tasks by education

	Two months			Two years			Evolution		
	Low	Med	High	Low	Med	High	Low	Med	High
<i>Feeding</i>									
Early takers	0.066 (0.08)	-0.114 (0.08)	0.029 (0.05)	-0.032 (0.08)	0.158* (0.08)	-0.013 (0.05)	-0.111 (0.08)	0.206** (0.08)	-0.052 (0.05)
Non takers	-0.086 (0.10)	-0.069 (0.12)	-0.041 (0.07)	-0.184* (0.10)	0.076 (0.12)	-0.246*** (0.07)	-0.125 (0.10)	0.134 (0.12)	-0.202*** (0.07)
N	1625	1382	3776	1625	1382	3776	1625	1382	3776
<i>Putting to bed</i>									
Early takers	-0.003 (0.07)	0.006 (0.07)	0.107** (0.04)	-0.050 (0.07)	0.058 (0.07)	0.082* (0.04)	-0.083 (0.07)	0.034 (0.08)	-0.013 (0.04)
Non takers	-0.275*** (0.09)	-0.114 (0.11)	-0.149** (0.06)	-0.270*** (0.09)	-0.134 (0.10)	-0.135** (0.06)	-0.034 (0.09)	-0.018 (0.11)	-0.021 (0.06)
N	1902	1620	4642	1902	1620	4642	1902	1620	4642
<i>Bathing</i>									
Early takers	0.122* (0.07)	0.095 (0.07)	0.084** (0.04)	-0.065 (0.07)	0.129* (0.07)	0.045 (0.04)	-0.122* (0.07)	-0.007 (0.08)	0.014 (0.04)
Non takers	-0.093 (0.10)	-0.191* (0.11)	-0.153** (0.06)	-0.250*** (0.09)	-0.033 (0.10)	-0.274*** (0.06)	-0.138 (0.10)	0.181 (0.11)	-0.015 (0.06)
N	1902	1622	4643	1902	1622	4643	1902	1622	4643
<i>Night caring</i>									
Early takers	0.076 (0.08)	0.094 (0.08)	0.050 (0.04)	0.078 (0.07)	0.061 (0.07)	-0.006 (0.04)	0.024 (0.07)	-0.050 (0.08)	-0.063 (0.05)
Non takers	-0.029 (0.10)	0.079 (0.11)	-0.066 (0.06)	-0.002 (0.09)	0.054 (0.10)	-0.110* (0.06)	-0.025 (0.10)	-0.044 (0.11)	-0.055 (0.07)
N	1824	1581	4500	1824	1581	4500	1824	1581	4500
<i>Changing</i>									
Early takers	0.058 (0.07)	0.023 (0.08)	0.101** (0.05)						
Non takers	-0.104 (0.09)	0.025 (0.11)	-0.031 (0.06)						
N	1959	1661	4683						

Table 16 (continued)

	Two months			Two years			Evolution		
	Low	Med	High	Low	Med	High	Low	Med	High
	<i>Taking for a walk</i>								
Early takers									
Non takers	-0.045 (0.09)	-0.019 (0.11)	-0.081 (0.06)						
N	1938	1653	4669						
<i>Taking to the doctor</i>									
Early takers									
Non takers	-0.026 (0.10)	0.081 (0.11)	-0.055 (0.06)						
N	1956	1657	4679						

Source: *ELFE birth cohort survey*. Estimates were obtained on the observed population 2 years after birth. Dependent variables are indicated in line. Late Takers corresponds to the reference category. Each estimation controls for child characteristics, family type, parents demographic variables, education, occupation and income. We also control for presence of the father during the delivery and breastfeeding at birth. Stars give the significance: * 10%, ** 5%, *** 1%

Table 17 Marginal effect of paternity leave on parental activities by education

	Low			Med			High					
	P (always M.)	P (often M.)	P (equal)	P (often/always F.)	P (always M.)	P (often M.)	P (equal)	P (often/always F.)	P (always M.)	P (often M.)	P (equal)	P (often/always F.)
<i>Feeding</i>	-0.021	0.003	0.018	0.001	0.032	0.003	-0.033	-0.001	-0.010	0.003	0.006	0.000
<i>Early takers</i>	(0.03)	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)	(0.02)	(0.01)	(0.01)	(0.00)
N	1334	1334	1334	1334	1209	1209	1209	1209	3306	3306	3306	3306
<i>Putting to bed</i>	0.001	0.000	-0.001	-0.000	-0.002	-0.001	0.002	0.000	-0.023**	-0.018***	0.030**	0.011***
<i>Early takers</i>	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
N	1570	1570	1570	1570	1410	1410	1410	1410	4055	4055	4055	4055
<i>Bathing</i>	-0.046*	0.007	0.028*	0.011**	-0.032	0.001	0.023	0.009	-0.025*	-0.005***	0.017*	0.013**
<i>Early takers</i>	(0.03)	(0.01)	(0.02)	(0.01)	(0.03)	(0.00)	(0.02)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
N	1570	1570	1570	1570	1412	1412	1412	1412	4056	4056	4056	4056
<i>Night caring</i>	-0.029	0.007	0.018	0.004	-0.035	0.006	0.022	0.007	-0.019	0.003	0.012	0.003
<i>Early takers</i>	(0.03)	(0.01)	(0.02)	(0.00)	(0.03)	(0.01)	(0.02)	(0.00)	(0.02)	(0.00)	(0.01)	(0.00)
N	1506	1506	1506	1506	1379	1379	1379	1379	3927	3927	3927	3927
<i>Changing</i>	-0.017	0.001	0.015	0.001	-0.005	-0.001	0.006	0.000	-0.022**	-0.006***	0.026**	0.001**
<i>Early takers</i>	(0.02)	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)	(0.02)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
N	1612	1612	1612	1612	1446	1446	1446	1446	4083	4083	4083	4083
<i>Taking for a walk</i>												

Table 17 (continued)

	Low			Med			High					
	P (always M.)	P (often M.)	P (equal)	P (often/always F.)	P (always M.)	P (often M.)	P (equal)	P (often/always F.)	P (always M.)	P (often M.)	P (equal)	P (often/always F.)
Early takers	-0.032 (0.02)	-0.016** (0.01)	0.046* (0.03)	0.003** (0.00)	0.001 (0.01)	0.001 (0.01)	-0.001 (0.03)	-0.000 (0.00)	0.001 (0.01)	0.001 (0.01)	-0.002 (0.02)	-0.000 (0.00)
N	1593	1593	1593	1593	1440	1440	1440	1440	4069	4069	4069	4069
<i>Taking to the doctor</i>												
Early takers	-0.005 (0.03)	0.000 (0.00)	0.005 (0.02)	0.000 (0.00)	0.029 (0.03)	0.001 (0.00)	-0.029 (0.03)	-0.001 (0.00)	-0.029* (0.02)	0.002 (0.00)	0.026* (0.01)	0.001* (0.00)
N	1611	1611	1611	1611	1443	1443	1443	1443	4080	4080	4080	4080

Source: ELFE birth cohort survey. This table gives average marginal effects of being of Late Taker vs being an early taker on the probability indicated in column. Each line corresponds to a different predicted variable. Late Takers corresponds to the reference category. Each estimation controls for child characteristics, family type, parents demographic variables, education, occupation and income. We also control for presence of the father during the delivery and breastfeeding at birth. The subsample used for prediction is the one of early and late takers. Non takers were excluded. Stars give the significance: * 10%, ** 5%, *** 1%

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Data availability The authors do not have the right to share the data, but the data are available upon request for research. See conditions on the following website: <https://www.elfe-france.fr/en/the-research-access-to-data-andquestionnaires/>.

Declarations

Conflict of Interest The authors have no relevant financial or non-financial interests to disclose.

Ethical Approval Ethics approval was not required for this study.

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