

"The economic impact of taking short parental leave: evaluation of a French reform"

Olivier Joseph¹, Ariane Pailhé², Isabelle Recotillet³, Anne Solaz⁴

Abstract:

Many young women leave the labour force when their children are born. Although this withdrawal is usually temporary, it can have repercussions on the rest of their careers. Family policy plays a part, through replacement benefits for parents who choose to look after their children full-time or part-time for a specified period. Initially available after the birth of a second or subsequent child, the reform of the *prestation d'accueil du jeune enfant* (PAJE) in 2004 extended the benefit to the first child. The PAJE represents supplementary income for new parents, usually mothers, who interrupt their careers. This article, based on data from the fourth round of the Generation 98 survey conducted by Céreq, the French education ministry's centre for research on qualifications, proposes an evaluation of the impact of the reform on the occupational trajectories of new mothers. It reveals that, since the 2004 reform, more young women choose either to stop working completely or to work less after the birth of their first child, and that, although their labour force participation is largely unaffected, the impact on their earnings is negative up to two years after the birth.

Introduction

Two reports released almost simultaneously – the OECD's *Doing Better for Families* (OECD, 2011) and the report by France's general inspectorate for social affairs (IGAS) on gender equality in career and family responsibilities (Grésy et al., 2011) – have rekindled the debate on the length of parental leave in France. The reports make the point that career interruptions that are too long penalize women's entire careers because they imply a lower probability of returning to work, flatter pay profiles, less advancement and lower pensions when women retire. Career interruptions for childbearing and child rearing are one of the key explanatory factors in women's lower earnings (Meurs et al., 2011; Ruhm, 1998; Jaumotte, 2003; Lequien, 2010). Interruptions decrease work experience (Becker, 1964), depreciate human capital (Mincer and Polachek, 1974) and can even be interpreted by employers as a "signal" of women's lower commitment to their careers (Albrecht et al., 1999). In order to mitigate the negative impact on women's careers and enable more parents to take leave, both reports recommend reforming parental leave by reducing the maximum length to one year and offering higher remuneration.

¹ Céreq, Centre d'Etudes et de Recherche sur les Qualifications, 10 Place de la Joliette, BP21321, 13567 Marseille cedex 02, France, joseph@cereq.fr

² INED, Institut National d'Etudes Démographiques, 133 Boulevard Davout, 75980 Paris cedex 20, France, ariane.pailhe@ined.fr

³ Céreq, Centre d'Etudes et de Recherche sur les Qualifications, 10 Place de la Joliette, BP21321, 13567 Marseille cedex 02, France, recotillet@cereq.fr

⁴ INED, Institut National d'Etudes Démographiques, 133 Boulevard Davout, 75980 Paris cedex 20, France, anne.solaz@ined.fr

Incentives to take short leave have existed since 2004, but only concern the birth of a first child. The most recent reform of the system of benefits for career interruptions for child rearing introduced a new benefit – the *complément libre choix d'activité* (CLCA), or “supplementary work choice benefit” – which can be paid out from the birth of a first child for a maximum period of six months at a full or a reduced rate. Before 2004, mothers of one child were entitled to take parental leave for three years and could return to a guaranteed job with the same employer, but did not receive any compensation. The aim of this study is to assess the impact of the reform and, more broadly, the impact of taking short parental leave on the careers of mothers of one child⁵. Has the reform encouraged young working women to stop working temporarily or to work less? What is the impact of this interruption on their subsequent careers, in particular in terms of their earnings and labour force participation?

Several studies have already evaluated the impact of a reform of the French benefit system for career interruptions for child rearing. This was the previous reform, introduced in 1994, which enabled parents to receive the *allocation parentale d'éducation* (APE), or “the child rearing benefit”, for three years after the birth of a second child (previously the APE was not paid out until after the birth of a third child). The evaluations showed that the 1994 reform encouraged a large number of mothers to interrupt their careers for up to three years after the birth of their second child (Lequien, 2010, Piketty 2005) with a negative impact on their earnings.

The 2004 reform introduced compensation for career interruptions after the birth of a first child but for a relatively short period (six months compared with three years for subsequent births). We seek here to evaluate to what extent a shorter interruption might also penalize women’s careers. This study can contribute to a broader discussion of a general reform of the compensation policy for parental leave. Indeed, although empirical studies show that short career interruptions – unlike long interruptions – do not have a negative impact on careers, family policy could be reformed to offer shorter but better paid parental leave.

This evaluation is based on data from the fourth round of the Generation 98 survey conducted by Céreq, the French education ministry’s centre for research on qualifications, which makes it possible to observe individual pathways over ten years of working-age life. The survey also contains information about births of children and full-time or part-time career interruptions after the birth of each child.

First we outline the principles of the reform and the conditions for receiving the benefit for a career interruption to take care of young children in France. Next we describe the beneficiaries of the CLCA for a first child. Lastly, we discuss the method and the results of the estimate and evaluation of the impact of the reform on earnings and labour force participation.

Inset 1 – Eligibility conditions for the PAJE - CLCA for a first child

To be eligible for the CLCA for a first child, mothers must have earned eight quarters towards a retirement pension in the two years preceding the birth or adoption. Women do not necessarily have to have worked for all eight quarters immediately preceding the birth. A quarter is credited on the basis

⁵ Since 98% of the recipients of the CLCA for a first child are women, this evaluation focuses on women.

of earnings equivalent to 200 times the standard minimum hourly wage in a given year⁶. Four quarters are therefore credited on the basis of earnings equivalent to 800 times the minimum hourly wage, which is approximately 40% of the annual minimum wage⁷. A part-time job on the minimum wage therefore earns four quarters. Periods of maternity leave and sick leave are considered equivalent to work, but compensated periods of unemployment and training cannot be counted towards the CLCA for a first child. These conditions have been considered fairly restrictive, since 32% of mothers of a first child are ineligible (HCF, 2009).

1) The success of the PAJE-CLCA for a first child

1.1. The 2004 reform of the PAJE

On 1 January 2004, the *prestation d'accueil du jeune enfant* (PAJE), or “benefit for rearing a young child”, superseded all previous benefits for childbirth and the rearing of young children. There are several components of the PAJE. One of these is the *complément libre choix d'activité* (PAJE-CLCA), a benefit for parents who choose to stop working (full CLCA) or to work less (reduced CLCA) in order to look after a young child. The CLCA, which is paid out by the Caisse des Allocations Familiales (CAF), the family allowance fund, replaced the *allocation parentale d'éducation* (APE), or “childrearing benefit”, but unlike its predecessor, starts at the first child and is paid out for a maximum period of six months from the birth or from the end of maternity leave, paternity leave or adoption leave. For the second child and subsequent children, the period of payment of the benefit is the same as for the APE: the PAJE can be paid up to the child's third birthday. Payment of the CLCA is subject to conditions of eligibility, primarily previous employment. These conditions vary for each child, and are fairly restrictive for the first child (Inset 1).

The CLCA is a fixed amount, is not means-tested and is the same for each child. In 2010 the full benefit was €552⁸ per month, and the reduced benefit was €420 if the recipient worked less than 50% of the company's full-time hours, or €317 if the recipient worked between 50% and 80% of a full time load⁹. The reduced CLCA therefore does not imply any reduction in income if the benefit makes up for the shortfall in earnings due to the reduction in work time.

It should be noted that the CLCA, governed by social security law, is distinct from parental leave, which is governed by labour law. Any parent who has worked for a year for his or her current employer when a child is born (regardless of which child) has the right to stop working or to work part-time until the child's third birthday. After this period of leave, the beneficiary has a guaranteed right to return to work for the same employer, in his or her previous or a similar position, for equivalent pay. Since the conditions of eligibility for the CLCA and parental leave differ, the two systems do not completely overlap. Some employees are eligible for parental leave but not for the CLCA and vice versa.

1.2. The new system was an instant success

⁶ The reference wage to accrue one quarter is fixed at €1,438, which is the wage paid for 200 hours worked at the minimum wage.

⁷ It is not possible to credit more than four quarters per year.

⁸ This amount includes the base benefit of the PAJE for those who are eligible.

⁹ The two parents cannot both receive the full CLCA; but they can both receive a reduced CLCA.

The new benefit was immediately popular with parents of one child. Some 37,000 families receive the CLCA for a first child each year (Table 1). These families make up almost one-third of all entries into the CLCA system (HCF, 2009). Almost all the beneficiaries are mothers (97.6%), and a majority of them (61%) receive the benefit for the maximum period (Nicolas, 2010); the average length of payment is 5.145 months (HCF, 2009). We assess below the impact of the reform on the careers of women who stopped working or reduced their work time.

Table 1: Number of families with one child that receive the PAJE-CLCA in the whole of France at 31 December

	2004	2005	2006	2007	2008	2009
Full benefit	19,948	21,616	24,990	22,151	22,086	21352
Reduced benefit 1 (works between 50% and 80% of full-time hours)	8,038	10,513	10,740	11,501	12,056	12665
Reduced benefit 2 (works less than 50% of full-time hours)	3,392	3,519	3,094	3,099	3,163	2918
Couples	80	117	104	111	145	125
Total	31,458	35,765	38,928	36,862	37,450	37,060

Source: CNAF data

2) Eligibility and access to the CLCA through the Generation 98 survey.

The Generation 98 survey is representative of the population who left the education system at any level in 1998. This group was surveyed on four occasions – in 2001, 2003, 2005 and 2008. For our purposes, we used the sample of women surveyed and interviewed ten years after they left the education system i.e. in 2008¹⁰.

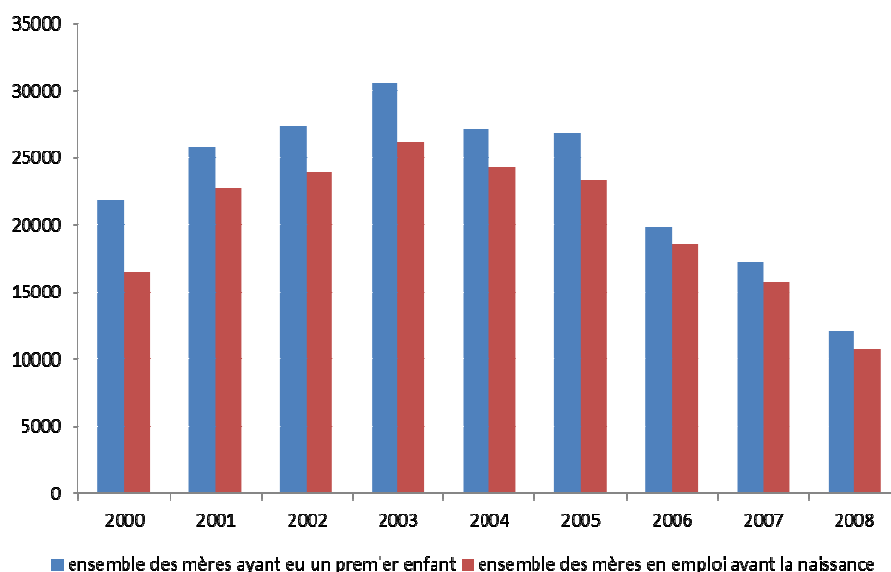
2.1. Half of the women had had one child before the reform of the PAJE

Of the 363,000 women interviewed in 2008 in the Generation 98 survey, 66% had had at least one child within ten years after finishing their education, but only 35% had become mothers within five years of finishing their education (Recotillet, Rouaud, Ryk, 2011). The volume of births of first children increases until 2003 then begins to gradually decline (Figure 1). In the period between 2000 and 2008, 56% of mothers had had their first child before 2004. This is not only an observation of fact. It reveals that the timing of births is strongly linked to the age of the women interviewed in the survey and therefore also to their education level when they leave the education system¹¹. The 45% of women who are higher education graduates have their first child sooner after the end of their education; 58% of them before 2004. Moreover, the breakdown by year of the volume of births indicates that the structure of the data is suitable for our research question, since there is a similar volume of births before and after the 2004 reform.

¹⁰ For a detailed description of the survey and its rounds, see <http://www.cereq.fr/index.php/sous-themes/Enquetes-Generation-Sous-Themes/Generation-1998-Enquetes-2001-2003-2005-2008>

¹¹ Women who graduated from higher education in 1998 surveyed in 2008 were aged 24 on average, whereas those who left school with only secondary education or less were aged 20 on average.

Figure 1 – Breakdown by year of the volume of first births



All mothers of one child

All mothers employed before the birth

Source: Fourth round in 2008 of Generation 1998, Céreq.

The majority of the respondents who became mothers in the 2000-2008 period were in the labour force before the birth of their child: 83% were employed in the period immediately preceding the birth. Their employment rate is therefore high, even if it varies over the period under review. The percentage in the labour force increases with time elapsed since the end of education. After 2004, 90% of respondents were employed before the birth of their first child, compared with 77% before 2004.

2.2. Eligibility for the CLCA depends strongly on education level

Since access to the CLCA is conditioned on employment (Inset 1), we observe more eligible women after 2004 than before. While 66% of all new mothers were eligible for the CLCA over the whole 2000-2008 period (Inset 2), regardless of the year in which their child was born and their employment status before the birth, 76%¹² of those who had their first child after 2004 were eligible. Among mothers who were employed prior to the birth the percentage of those eligible for the CLCA was even higher, but relatively even across the whole period. Some 81% of women who were in the labour force prior to the birth were thus eligible between 2000 and 2008, with a very similar rate in both sub-periods, i.e. 2000-2004 and 2004-2008. This point is useful for our evaluation because, since the percentage of eligible women is similar in both sub-periods, the eligibility of mothers who were employed prior to the birth is not affected by the amount of time that has elapsed since the end of their education. It is therefore valid to compare eligible women before and after 2004.

¹² 28% would not be eligible for the CLCA. This figure is similar to the estimate of the Family Policy Watchdog (HCF2009), which is 32%.

Inset 2 – Plotting parental leave and calculating the CLCA eligibility criterion in the Generation 98 survey

1. The data from the fourth round of the Generation 98 survey have at least two advantages for evaluating the 2004 reform of the PAJE. Firstly, the observation periods of individual trajectories before and after the reform are of equal length. Secondly, unlike the administrative data of the CNAF, which cover only the population of recipients, the individual data collected by Céreq on earnings in each job held enables an accurate definition of the population of mothers eligible for the CLCA. The data provide a detailed description of the first ten years of the career since the end of education with the characteristics at start and finish for each job held. Furthermore, there are several questions about family and births, which make it possible to measure the impact of having two children on employment. The question of taking parental leave and switching to part-time work is raised for the first two births, but only for women who were employed before the birth.

2. The data also indicate earnings including bonuses (but net of social contributions) at the start and finish of each position for the same employer. To apply the CAF's eligibility criterion (Inset 1) meant reconstructing a timeline of the respondents' earnings. For women who remained in the same position for a long time, the intermediate round of interviews of the sample made it possible to refine the approximate earnings trajectory. It also made it possible to factor the number of hours worked into the calculation. Next, the number of quarters credited through pension contributions was determined on the basis of the minimum wage in each of the given years, the criterion explained in Inset 1: four quarters are credited on the basis of earnings equivalent to 800 times the minimum hourly wage. Eligibility could only be calculated from 2000 onwards so that the number of quarters observed was sufficient to calculate the number of quarters credited. The eligibility indicators are therefore only provided for the period from 2000 to 2008.

Table 3 – Percentage of women eligible for the CLCA by education level

Education level in 1998	Percentage of mothers eligible for the CLCA between 2000 and 2008	Percentage of mothers eligible between 2000 and 2003	Percentage of mothers eligible between 2004 and 2008
No qualification	36	24	54
Vocational junior secondary certificate	59	47	75
Vocational secondary leaving	66	58	73
Standard secondary leaving	56	50	61
2 years of higher education	76	69	85
3 years of higher education	78	73	85
Postgraduate or specialized school	74	64	91

Source: Fourth round in 2008 of Generation 1998, Céreq.

Scope: All mothers

Conversely, the percentage of eligible mothers varies strongly with education level (Table 3), from 36% for mothers with no qualification to 74% for mothers with postgraduate or specialized education. The breakdown by education level also changes significantly between the two periods (before and after 2004), particularly for mothers with no qualification.

2.3. An increase in interruptions of work after the reform of the PAJE

Before the reform of the PAJE in 2004, the percentage of women opting for parental leave for their first child (see Inset 2 on plotting parental leave in the survey) was relatively low: only 7% of mothers who were in the labour force before the birth took parental leave (without benefits). After the reform was introduced, 27% opted for parental leave, interrupting their careers either full-time or part-time.

A majority of new mothers, whether eligible for the CLCA or not, choose part-time leave (63% of eligible mothers and 56% of non-eligible mothers). Moreover, 60% opted for part-time leave when their first child was born after 2004. Of mothers who interrupted their careers full-time, 82% did so after 2004.

By paying an income supplement to parents who interrupt their careers, the CLCA has evidently encouraged more new mothers to stop working completely or partly. By offering financial compensation – even if only small – the reform lowers the opportunity cost of a career interruption. Since that cost is easier to bear for part-time career interruptions, we observe (Table 3) that these are more frequent (17%) than full-time interruptions (10%). The opportunity cost of stopping work is generally higher for the most educated new mothers, who also have access to higher occupations and earnings. For women with higher education, full-time interruptions are much less frequent (8%) and part-time interruptions are preferred.

Table 4 – Percentage of women interrupting their careers by education level

	Full-time interruption (%)	Part-time interruption (%)
No qualification or vocational certificate	16	18
Secondary leaving (vocational or standard)	12	16
2 years of higher education	8	20
3 or more years of higher education	8	17
Total	10 (**)	17(*)

Source: Fourth round in 2008 of Generation 1998, Céreq.

Scope: All mothers employed before the birth of their first child.

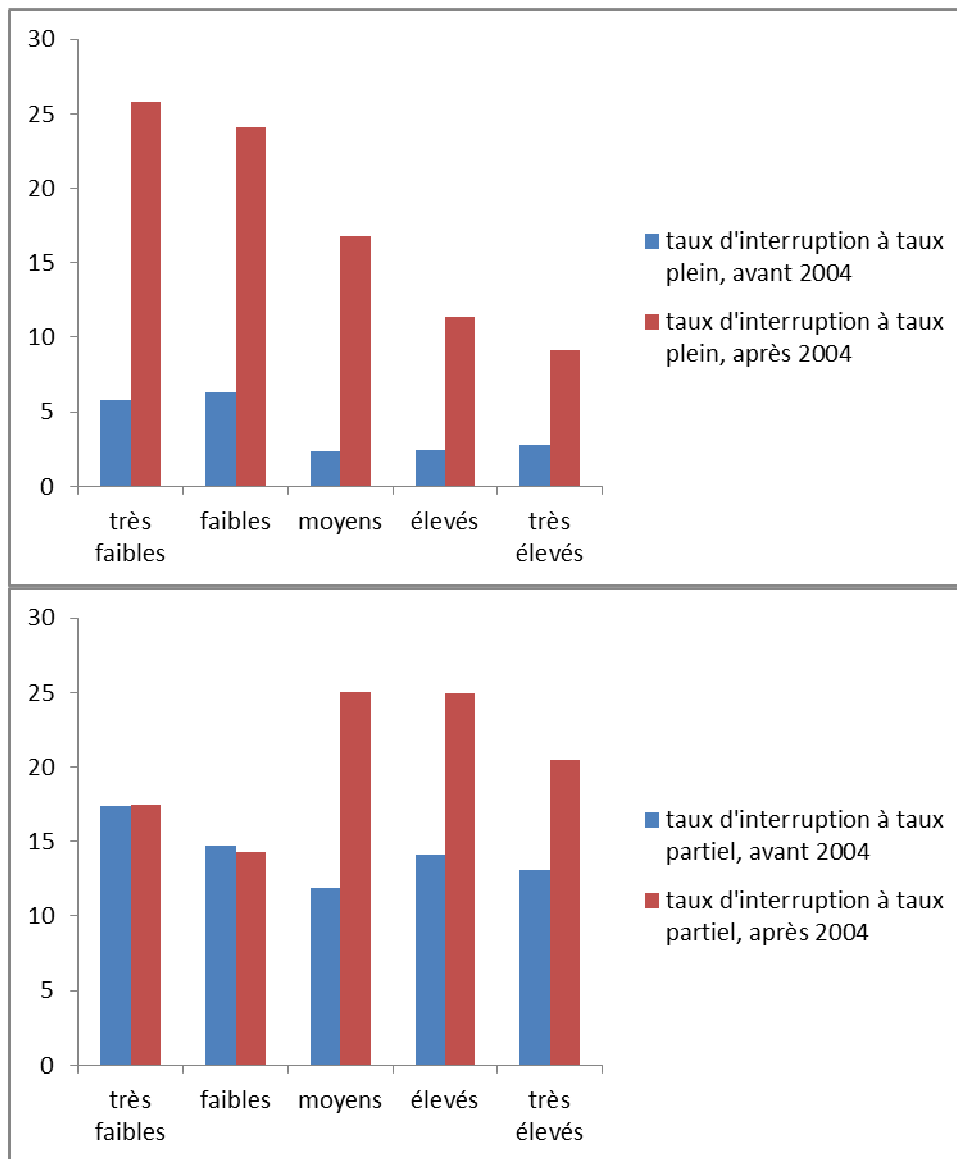
Example: (*) 17% of mothers in the labour force before the birth of their first child opted for parental leave on a reduced benefit and (**) 10% on the full benefit.

These observations based on the data from the fourth round of the Generation 98 survey are consistent with other surveys that observe a high take-up of the reduced CLCA among the middle and upper classes. The survey of recipients of the PAJE conducted by CRÉDOC, CNAF and DREES in September 2005 showed that 34% of recipients of the reduced CLCA for a first child were in intermediate occupations, 25% were manual workers, 20% managers and 16% clerical/sales workers. The percentages of manual workers and sales/clerical workers were higher among recipients of the full CLCA (31% and 20% respectively). In September 2005 some 55% of recipients of the reduced CLCA for a first child had higher education, compared with 42% of recipients of the full CLCA. In terms of income, 41% of the reduced-benefit recipients with higher education had very high income, 31% had high income, and 20% average income (Berger *et al.*, 2006). It therefore seems that the CLCA for a first child has changed the employment behavior of all mothers (Ananian, 2010). This pattern is found again in the data on percentages stopping work by earnings bracket in Generation 98¹³ with much

¹³ The earnings are broken down into five percentiles, as in Berger *et al.*, 2006.

higher percentages stopping work part-time after 2004 among mothers whose earnings fall in the average to very high range (Figure 2).

Figure 2 – Percentage stopping work by year of birth of first child, by wage bracket



Percentage interrupting their careers part-time before 2004
Percentage interrupting their careers part-time before 2004

Very low
Low
Average
High
Very high

Source: Fourth round of Generation 98
Scope: Mothers of one child in the labour force before the birth

3) Impact of the reform of the PAJE on mothers' careers

By offering short paid leave from the first child, the PAJE reform encouraged more mothers to take parental leave. What is the longer-term impact of these career interruptions on women’s employment and earnings trajectories?

To answer that question, we observe the employment status and earnings of mothers who returned to work after the period of the benefit. Since the majority of recipients of the CLCA no longer receive it 12 months after the birth of their child, we examined the occupational trajectory of mothers 12, 18 and 24 months after the birth, by looking at their employment status (employed/unemployed/non-worker) and their earnings.

3.1 An evaluation method

The labour-force participation rate of women is 94% before the birth of their first child and falls to 88% one or two years after the birth¹⁴. Has this rate changed since the PAJE reform? In other words, has the reform encouraged mothers taking parental leave to remain outside the labour force after the period of the CLCA benefit?

The labour-force participation rates of mothers who interrupted their careers part-time remain very high after the birth of their first child (Table 5), reflecting the composition of that group, a majority of whom have higher education and earn average to very high incomes. Conversely, while their employment rate is among the highest, their average earnings are lower than those of mothers who did not interrupt their careers. Could that be an impact of their career interruption, and consequently an induced effect of the reform, which has encouraged more mothers to interrupt their careers part-time?

Table 5 – Average earnings and employment rate 12, 18 and 24 months after the birth of the first child

Labour force participation	Child born before 2004			Child born after 2004		
	Full-time interruption	Part-time interruption	No interruption	Full-time interruption	Part-time interruption	No interruption
T+12	35	82	87	83	98	94
T+18	46	87	87	84	96	92
T+24	35	87	88	85	96	90

Average earnings (€)	Child born before 2004			Child born after 2004		
	Full-time interruption	Part-time interruption	No interruption	Full-time interruption	Part-time interruption	No interruption
T+12	461	995	1,135	1,032	1,267	1,365
T+18	1,223	1,157	1,304	1,173	1,268	1,460
T+24	1,311	1,184	1,327	1,165	1,290	1,468

Studying the impact of the reform on women’s decisions to return to or to remain in employment implies assessing the employment patterns of mothers who would have taken parental leave without the reform. Since taking parental leave for the birth of a first child is an event that only occurs once (it cannot be observed in the same individuals both before and after the reform), it is not possible to

measure the impact of the reform on the same mothers. We therefore have to compare the labour-force behavior of women who took parental leave after the reform – the “treatment group” – with women who would have taken parental leave before 2004 if the new system had existed then – the “counterfactual” or “control” group.

The two groups could be compared directly, but the structure of the sample of women taking parental leave is specific. It is therefore necessary to find a control sample: we therefore sought a group of women who became mothers before 2004 comparable to the group of mothers who had their first child after the reform was introduced. The implied hypothesis is that we have two comparable populations, one of which benefited from the reform and one of which did not. Any differences observed are therefore attributable to the implementation of the reform. Matching analysis (see Brodaty et al., 2007, Givord 2010, Bonnet et al., 2010) is well suited to constructing a control group on the basis of observable criteria¹⁵ (Inset 3).

Inset 3 – The estimation method used to identify the average impact of the CLCA on recipients

Formally, the problem is relatively simple to express. We define Y_{i1} to be the value of earnings x months after the birth for mothers whose child was born after the introduction of the CLCA (the treatment group) and Y_{i0} to be the same value for mothers whose child was born before the CLCA. For the same person, it is only possible to observe one or other Y , even though we want to know the value of Y if the same person had been in the alternative situation. We define T_i to be the indicator of access to the CLCA, commonly referred to as “the treatment” in quantitative methods of evaluation. T_i has a value of 1 if the mother opts for the CLCA and a value of 0 if not. The commonly proposed evaluation of the treatment is based on an estimation of the average impact of the treatment on the treated (ATT), expressed as:

$$ATT = E(Y_{i1}|T_i = 1) - E(Y_{i0}|T_i = 1)$$

The average treatment effect on the treated (ATT) is estimated by comparing the mean differences of the variable of interest in the treated individuals. The definition of the ATT is more conceptual, however, since it is not possible to observe Y_{i0} among individuals for whom $T_i=1$. The ATT can only be identified through the hypothesis of a selection based on observable characteristics.

It is therefore necessary to estimate $E(Y_i|X_i, T_i = 1)$ and $E(Y_i|X_i, T_i = 0)$ by using, in an intermediate stage, the propensity score as defined by Rosenbaum and Rubin (1983), which is obtained by estimating a logistic regression of the probability of reducing work and receiving the CLCA.

The main hypothesis here implies that assignment to the treatment is independent, conditioned on the variable of interest (see Heckman and Robb, 1985). Indeed, without this hypothesis, we would obtain a biased estimator of the ATT since a selection of the observables would determine specific Y values for each group. This hypothesis underpins the whole matching method. It makes it possible to use the untreated group with a similar distribution to the observable characteristics to measure what the recipients would have earned if they had not interrupted their careers in exchange for a benefit.

In practice, there are several possible matching methods. The simplest is to match each individual I who received the CLCA with an untreated individual with the same characteristics X as the individual

¹⁵ It is also possible to take unobservable characteristics into account by combining a difference-in-differences estimator with the matching procedure (Heckman *et al.*, 1997).

i. The disadvantage of this method is that when the number of variables X is too large (or if some are continuous variables), matching becomes difficult. Rosenbaum and Rubin (1983) therefore propose matching individuals not on the basis of the characteristics X but on the basis of a function of those variables, called the propensity score. Several algorithms can be used to choose the paired individual(s) with the closest propensity scores to those of the separate individuals. We can take the nearest neighbour(s) (k-nearest-neighbour method), minimize a function of the sum of the distances between the paired individuals and the recipients of parental leave (the Mahalanobis distance) or use a core estimator (see Afssa and Givord, 2009). We have chosen a core estimator, which involves relating each individual who took parental leave to all the individuals who did not take leave by assigning to the latter a weight inversely proportional to their distance from the individual who took parental leave.

In order to match the individuals, we estimate the probability of taking parental leave (the propensity score) on the following variables: education level, earnings 12 months before the birth, spouse's status at the time of the birth, non-participation in the labour market of the respondent's mother, **qualification** and region of residence. We check that the distributions of the two populations partly overlap in order to ensure that it will be easy to find for each woman who took a CLCA a comparable woman before 2004 with a similar propensity score.

The impact of the reform of the PAJE on women's occupational trajectories is obtained by calculating the sample mean of the differences in labour-force participation and earnings between the group of recipients of the CLCA and the counterfactual group. The standard deviation of the estimator has to be recalculated by bootstrapping¹⁶.

3.2 The PAJE reform has a bigger impact on earnings trajectories than on labour-force participation after the birth of the first child

The percentage of women working one year after the birth is similar for mothers who received the CLCA and the counterfactuals: at 96.4% and 94.5%, the difference is not significant (Table 6). The reform of the PAJE for the first child has therefore not reduced the labour-force participation of mothers after the period of the benefit. Conversely, a smaller percentage of mothers who received the CLCA for the first child stayed out of the labour force than those who would have been eligible for the CLCA before 2004. This result should, however, be qualified because it is based on small numbers. It might show that a category of mothers wants to remain outside the labour force for longer than their maternity leave. Before 2004, those mothers stayed out of the labour force, whereas the reform has enabled this group to take longer leave and to return to work at the end of it. It therefore emerges that for the birth of a first child, this type of shorter leave has fewer perverse effects on women's labour-force participation than longer parental leave, which tends to keep mothers outside the labour force for a longer time (Piketty, 2005). We are not in a position to estimate whether this effect remains valid for subsequent births. But workforce participation decreases (as women shift into part-time work or non-working) with each birth (Pailhé and Solaz, 2006).

In terms of the earnings of mothers who returned to work after the birth, it emerges that those who received the CLCA have lower earnings 12 and 18 months after the birth than those with the same

¹⁶ 100 bootstrapping iterations were performed.

profiles who would have taken the CLCA before 2004 if the reform had existed. The lower increase in earnings might be due to the short interruption (depreciation of human capital over an extended maternity leave, lower rate of promotion, negative signal to the employer), but might also be the consequence of decisions to work part-time after the period of the CLCA. Unfortunately the data do not enable us to know whether these mothers actually switched to part-time work. Conversely, it is possible to identify which recipients of the CLCA chose the reduced (part-time) rate.

Table 6 – Average effect of the CLCA on recipients

	Treatment group (CLCA recipients)	Control group (eligible before 2004)	Difference	Standard deviation	Significance (Student's statistics)
Employment status after the birth					
T+12 months					
Employed	0.964	0.945	0.018	0.012	1.83
Unemployed	0.291	0.033	-0.004	0.006	-0.44
Non-workers	0.007	0.022	-0.014	0.006	-2.33
T+18 months					
Employed	0.967	0.943	0.025	0.011	2.20
Unemployed	0.027	0.033	-0.005	0.010	-0.55
Non-workers	0.005	0.025	-0.019	0.006	-3.04
T+24 months					
Employed	0.943	0.937	0.006	0.015	0.39
Unemployed	0.036	0.030	0.006	0.012	0.47
Non-workers	0.208	0.033	-0.012	0.009	-1.30
Earnings after the birth (for employed mothers)					
T+12 months	1340	1414	-74	19.02	-3.88
T+18 months	1331	1406	-75	22.17	-3.36
T+24 months	1341	1440	-99	24.47	-4.03

To evaluate whether the full and reduced CLCA had different impacts on mothers' labour-force participation and earnings, we next matched mothers who received the full CLCA (who stopped working completely) with those who received the reduced CLCA (who continued to work part-time).

For mothers who stopped working completely, we did not observe any differences either in the employment trajectory, aside from a lower probability of being non-workers, which had already been observed for all recipients, or in the earnings profile after the birth (Table 7). Receiving the full CLCA therefore had no effect.

Table 7 – Average effect of the full CLCA on recipients

	Treatment group (CLCA recipients)	Control group (eligible before 2004)	Difference	Standard deviation	Significance (Student's statistics)
--	--------------------------------------	--	------------	-----------------------	---

Employment status after the birth					
T+12 months					
Employed	0.908	0.924	-0.016	0.023	-0.70
Unemployed	0.072	0.046	0.026	0.022	1.18
Non-workers	0.019	0.301	-0.010	0.014	-0.75
T+18 months					
Employed	0.926	0.926	0.000	0.024	0.00
Unemployed	0.059	0.039	0.019	0.021	0.94
Non-workers	0.015	0.035	-0.020	0.015	-1.36
T+24 months					
Employed	0.905	0.918	-0.013	0.028	-0.48
Unemployed	0.071	0.036	0.035	0.025	1.43
Non-workers	0.024	0.046	-0.022	0.016	-1.41
Earnings after the birth (for employed mothers)					
T+12 months	1291	1300	-8.47	23.77	-0.36
T+18 months	1270	1269	0.417	30.42	0.01
T+24 months	1289	1334	-45	33.83	-1.33

For mothers who opted to receive the reduced benefit and work part-time, we observe lower probabilities of becoming non-workers or unemployed and, symmetrically, higher probabilities of being in employment 12 and 18 months after the birth (Table 8). Continuing to work after the birth protects against the risk of unemployment and non-working by maintaining a link with the labour force. After two years, these differences disappear.

Although labour-force participation continues, the earnings profile is not the same for the women who chose to work part-time. We observe lower earnings in the treatment group than in the control group, and the difference increases with the amount of time that elapses since the birth. Several explanations can be advanced. Mothers with limited prospects of an increase in earnings (such as employees working for the minimum wage) might have taken advantage of the reform to shift to part-time work. There is probably also a windfall effect: mothers who would have taken part-time work before the reform anyway took it after the reform and received the benefit to boot. That is probably the case for less career-oriented mothers with lower earnings. Lastly, the lower earnings could be attributed to part-time work that continues after the period of the benefit. In this likely case, by encouraging mothers to shift to part-time work (for those working 80% of a full-time load, the loss of earnings can be completely offset by the benefit), the reform of the PAJE might have given them a taste for more flexible family organization. They therefore continued to work part-time after the period of the benefit. It is also possible that plans for a second child contributed to the decision to remain in part-time work.

Even if the matching covers a whole set of observable characteristics that are expected to capture the main differences in access to parental leave between mothers, there are probably some unobserved characteristics, which may be correlated with the variable of interest (earnings or labour-force participation). This may be a limitation of this type of estimator (Dias, Ichimura, Van den Berg, 2008). To verify this, we combined a difference-in-differences estimator with the matching analysis by

calculating the difference in earnings 12 months before and 12 months after the birth for the treatment group and for the control group (Table 8), as suggested by Guo and Fraser (2010). In general, difference estimators eliminate the correlation between the treatment and the variable of interest by differencing the data observed with those of the control group (Crépon and Jacquemet, 2010). For the recipients of the CLCA, the difference in earnings remains significant and negative after the unobserved heterogeneity has been taken into account. For the recipients of the reduced CLCA, we observe a negative difference in earnings, which confirms the hypothesis of mothers remaining in part-time work after the period of the benefit.

Table 8 – Average effect of the reduced CLCA on recipients

	Treatment group (CLCA recipients)	Control group (eligible before 2004)	Difference	Standard deviation	Significance (Student's statistics)
Employment status after the birth					
T+12 months					
Employed	0.996	0.954	0.042	0.008	5.19
Unemployed	0.004	0.027	-0.023	0.006	-3.84
Non-workers	0	0.019	-0.019	0.005	-4.05
T+18 months					
Employed	0.987	0.951	0.036	0.011	3.21
Unemployed	0.009	0.028	-0.019	0.009	-2.20
Non-workers	0.004	0.021	-0.016	0.007	-2.28
T+24 months					
Employed	0.967	0.948	0.018	0.014	1.25
Unemployed	0.014	0.025	-0.011	0.009	-1.20
Non-workers	0.019	0.027	-0.007	0.011	-0.68
Earnings after the birth (for employed mothers)					
T+12	1376	1479	-103	21.20	-4.89
T+18	1359	1473	-114	24.66	-4.65
T+24	1366	1503	-137	33.13	-4.16
Difference in earnings					
(T+12) – (T-12)	-74.56	53.21	-127.77	14.14	-9.03

Conclusion

This study seeks to evaluate the impact of the introduction of the *Complément Libre Choix d'Activité* (CLCA) in 2004, designed by the CAF to provide financial support for new parents who temporarily interrupt their careers when their first child is born. Prior to the reform, family policy – particularly parental leave measures – targeted subsequent births. The decision to compensate six-month parental leave for the birth of the first child revived the debate about women's career interruptions for childbearing and child rearing. After the work by Lequien (2010), our research seeks to be

complementary by offering a rigorous evaluation approach to the introduction of the new benefit. Drawing on the data from the fourth round of the Generation 98 survey conducted by Céreq, we show that more new mothers interrupted their careers between 2004 and 2008 compared with the 2000-2004 period and that this interruption was usually part-time for the most educated mothers who held high occupational positions. Before 2004, young women could opt for parental leave, but with no financial compensation. By broadening access, despite eligibility conditions, the 2004 reform has enabled more new mothers to interrupt their careers after the birth of their first child. Even though the interruption is short, the effect on later earnings is negative. The debate over the introduction of short but better paid parental leave therefore is still on the agenda. We think that better compensation might reduce the stigmatization of young women who wish to put their careers on hold, even briefly.

References

- Albrecht J., Edin P.A., Sundström M., Vroman S., 1999, "Career interruptions and subsequent earnings: a reexamination using Swedish data", *The Journal of Human Resources*, 34(2), pp.294-311.
- Ananian S., 2010, L'activité des mères de jeunes enfants depuis la mise en place du complément libre choix d'activité", *Etudes et résultats*, Drees, n°726.
- Becker G., 1964, *Human Capital*.
- Berger E., Chauffaut D., Olm C., Simon M. O., 2006, Les bénéficiaires du Complément de libre choix d'activité: une diversité de profils", *Etudes et résultats*, Drees, n°510.
- Bonnet Carole, Solaz Anne, Algava Elisabeth 2010, "Les changements professionnels en France autour de la séparation conjugale", *Population*, Avril-juin vol 65, n°2, p 273-308.
- Brodaty, Crépon B., Fougère D., 2007, "Les méthodes micro-économétrique d'évaluation et leurs applications aux politiques actives de l'emploi", *Economie et Prévision*, 177(1).
- Cour des comptes, 2008, Rapport de la Cour des comptes sur la sécurité sociale, chapitre X.
- Crépon B., Jacquemet N., 2010, *Econométrie: méthode et applications*, De Boeck Université.
- Dias M.C., Ichimura H., Van den Berg G.J., 2008, "The matching method for treatment evaluation with selective participation and ineligibles", *IZA DP*, numéro 3280.
- HCF Haut Conseil de la Famille, 2010, "Le complément libre choix d'activité: un état des lieux", La lettre du Haut Conseil de la Famille, n°01.
- HCF Haut Conseil de la Famille, 2009, "Les aides apportées aux familles qui ont un enfant de moins de trois ans".
- Givord P., 2010, "Econometric methods for public policies evaluation", Document de travail de la DESE, Insee, G2010-08.
- Grésy B., Dole P., Chivot F., 2011, "L'égal accès des femmes et des hommes aux responsabilités professionnelles et familiales dans le monde du travail, rapport de l'IGAS.
- Guo S., Fraser M.W., 2010, *Propensity score analysis: statistical methods and applications*, Sage eds.
- Heckman J.J., Ichimura H., Todd P., 1997, Matching as an econometric evaluation estimator, *Review of Economic Studies*, 64, pp.605-654.
- Heckman J.J., Robb R., 1985, "Alternative methods for evaluating the impact of interventions", in Heckman J., and Singer B., eds., *Longitudinal analysis of Labor Market Data*, Cambridge University Press.
- Jaumotte F., 2003, "Female labour force participation: past trends and main determinants in OECD countries", *OECD Economics Department Working Papers*, No. 376.

- Legendre E., Vanovermeir S., Sautory O., 2011, Situations professionnelles à l'entrée et à la sortie du complément libre choix d'activité, *Etudes et résultats*, Drees, n°750.
- Lequien L., 2010, "L'impact sur les salaires de la durée d'une interruption de carrière suite à une naissance", *Annales d'Economie et Statistiques*, à paraître.
- Mincer J., Polachek S., 1974, "Family investments in human capital: earnings of women", *Journal of Political Economy* Vol. 82, No. 2 Part II, pp.S76-S108.
- Nicolas M., 2010, Interrompre ou réduire son activité à la naissance d'un enfant, et bénéficier du CLCA de la PAJE", *l'essentiel*, CNAF, n°97.
- Pailhe A., Solaz A., 2006, "Vie professionnelle et naissance: la charge de la conciliation repose essentiellement sur les femmes", *Population et Sociétés*, 436.
- OCDE, 2011, Assurer le bien-être des familles.
- Piketty T. (2005) "L'impact de l'allocation parentale d'éducation sur l'activité féminine et la fécondité en France, 1982-2002", In: LEFEVRE C. (Ed.): Histoires de familles, histoires familiales, *Les Cahiers de l'INED*, numéro 156, p. 79-109.
- Recotillet I., Rouaud P., Ryk F., 2011, "Regards sur les dix premières années de vie active d'une génération", *NEF-Céreq*, numéro 45.
- Rosenbaum P., Rubin D., 1983, "The central role of the propensity score in observational studies for causal effects", *Biometrika*, 70, 1, pp.41-55.
- Ruhm C., 1998, "The Economic consequences of parental leave mandates: Lessons from Europe", the *Quarterly Journal of Economics*, 113(1), pp.285-317.