DOES FATHERS’ CARE SPILL OVER? EVALUATING REFORMS IN THE SWEDISH PARENTAL LEAVE PROGRAM

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ABSTRACT
The aim of reserving months for fathers in the Swedish parental leave system was to increase fathers’ use of leave as well as encourage gender equality in the home and labor market. Using data from the Swedish Social Insurance Agency, this study investigates the effects of the reform – reserving one month of leave for fathers in 1995 and a second month in 2002 – on gender equality in the home. The study uses the take up of the parental benefit for the care for sick children (CFSC) as a proxy for gender equality and follows parents’ use of CFSC for twelve years for the first reform and ten years for the second reform. Results indicate the first reform led to more equal leave sharing, mainly because use of the benefit decreased among mothers with low education, and at least in part fulfilled the aim of increasing gender equality in the home.

KEYWORDS
Parental leave, family, division of labor, household labor, childcare, Sweden

JEL Codes: H31, J16, J18

INTRODUCTION
In many European countries, various aspects of family policy have recently been used as policy instruments to attain desired goals. In particular, parental leave has been in focus, and there are numerous examples of reforms of benefit levels and increased rights to leave. The Nordic countries are often seen as forerunners here, not just in generosity but also in earmarking part of the leave for each parent with the goal of gender-equal use. In Finland, Iceland, Norway, and Sweden, part of the leave is reserved for use exclusively by the father and another part for use by the mother (Moss 2013). The reserved part of the leave in Sweden, often referred to as the father’s quota, was introduced with the distinctive goals of not...
just promoting gender-equal use, but also encouraging gender equality in homes and the labor market. This study focuses on whether the more extensive goals of increased gender equality in homes have been reached through reserving days for fathers in the Swedish parental leave system.

After the introduction of the present parental leave system in Sweden in 1974, parents were able to share parental leave between them as they preferred, and the system was with few exceptions gender neutral in giving the same rights to fathers and mothers. Not surprisingly, mainly mothers used parental leave, and a long political and public debate eventually led to the earmarking of days (Cedstrand 2011). In 1995, one month out of the fifteen months of leave was reserved for fathers and one month for mothers; these months would be forfeited if not used by the designated parent (Duvander and Johansson 2012). In 2002, another month was reserved for each parent, and the leave was also extended by one month to the current sixteen months of leave.

Reform evaluation is a growing field, but it is often difficult to perform with convincing methodology. Primarily, it is difficult to isolate an effect of a reform from other processes in society, such as economic cycles and demographic processes. Potential effects from reforms also have to be measured over an extended period of time, and it is easy to draw conclusions too hastily by following the potentially affected individuals for short observation periods. In addition, the politically stated goal of a reform is often abstract and vague, such as “increasing gender equality” or “improving families’ abilities to make choices.” Such goals need to be operationalized to be evaluated, but this also often means narrowing them down to something less than the political ambitions.

The most direct way of evaluating these reforms is to analyze how days of leave were shared before and after reforms. This has undoubtedly led to the conclusion that the reforms have been successful, as both reforms increased the number of days of leave for fathers (Duvander and Johansson 2012; Ekberg, Eriksson, and Friebel 2013). However, in this study, we are interested in whether the reforms also influenced another, less directly related, area of gender equality. At the time they were passed, there was political hope that the reforms would lead to more gender equality in homes. This study attempts to capture the effects of the reforms on a more long-term basis by following the parents who were first affected by the reforms for twelve and ten years, respectively. We investigate the sharing of care for sick children (CFSC) as a proxy for gender equality in the home (Eriksson and Nermo 2010).

**SWEDISH FAMILY POLICY AND GENDER EQUALITY**

The introduction of the parental leave system is often seen as part of the political change that reformed Swedish families from depending on a
male breadwinner to becoming dual-earner, dual-carer families (Ferrarini and Duvander 2010). The leave system was the outcome of a regime shift starting in the 1960s, when gender equality and, specifically, women’s economic independence were at the forefront of the political agenda (Cedstrand 2011; Lundqvist 2011). In addition, an expanding labor market was in desperate need of labor, especially in the public sector (Stanfors 2003). Fathers’ participation in childcare and other household tasks first entered the conversation at this time and has become increasingly important. The parental leave insurance system was eventually introduced in 1974 with the goal of enabling the combination of paid work and family for women and men (Lundqvist 2011). By replacing an earlier system of maternal leave for employed women, parental leave emphasized the importance of fathers’ care.

Originally, parents were provided with six months of leave, paid at 90 percent of previous earnings up to a ceiling, to share between them as they saw fit. The expectation was that women would use most of the leave, and some argued for a division of half to the mother and half to the father to avoid negative effects for women in the labor market (Cedstrand 2011). Nevertheless, the earnings-related benefit implied a strong incentive for women especially to work in the labor market before starting a family, as the alternative to 90 percent of previous earnings was a very low flat rate. The earnings-related benefit was later decreased to 80 percent during the economic crisis of the 1990s.

The length of the leave was extended in steps during the 1980s to twelve months and an additional three months paid at a low flat rate for everyone. Fathers’ share of the leave started out minimal but increased slowly. Just before the introduction of the first reserved month, fathers were using 11 percent of parental leave; today, they are responsible for 25 percent of all days used. The debate on gender equality has been present in Sweden since the 1960s, and fathers’ use of leave has always been at the forefront of this debate (Klinth 2002).

The reform in 1995 reserved one month for each parent, meaning that if the designated parent did not use the leave, it would be forfeited. The only exception was if one parent had sole custody of the child, but this is very uncommon in Sweden, as joint custody is most common even when the parents do not live together. A Liberal-Conservative government introduced the reform, and the stated aim was not only to enhance sharing of leave days, but also to reach gender equality in other areas. The law proposal specifies that the reform would hopefully lead to more gender equality in homes and a stronger position for women in the labor market.

Furthermore, the leave was formally individualized in 1995, which means that half the leave is “owned” by each parent, and if one parent wants to use more than half of the leave, the other parent must accept this by
formally signing over days. All days except those reserved can be signed over to the other parent, and this is often done to transfer leave from the father to the mother. It is, however, likely that the reform had an informational and symbolic importance in this respect, especially as the system is complicated and knowledge of one’s rights is lacking, especially among fathers (National Social Insurance Board 2003). The reform of reserved months was part of a political compromise and was introduced in combination with home care allowance to parents who wanted to stay at home with their children after the parental leave period to postpone external childcare alternatives (Ferrarini and Duvander 2010). The flat rate for three months was replaced by a much more extensive (in length) home care allowance for children up to the third year, albeit at the same low benefit level. When the Liberal-Conservative government changed to a Social Democratic government six months after the reforms were legislated, the home care allowance was quickly abolished and the three months at a flat rate reinstalled, but the reserved months and individualized leave were kept. The reform was introduced during the 1990s economic crisis, a time when unemployment was high and also fertility was declining dramatically (Andersson and Kolk 2015). In 2002, a Social Democratic government introduced a second reserved month with much less debate and much less opposition. One reason was that the leave was extended by one month to sixteen months at the same time; thus, reserving time for one parent (often the father) did not decrease the leave length for the other parent (often the mother). This was a more prosperous economic period for many young women and men, which also entailed a more stable fertility rate at a relatively high level (Andersson and Kolk 2015). Also since 2002, parental leave has been heatedly debated, especially with regard to whether to increase the reserved periods for each parent. For example, a government commission on the subject suggested a system with five months for the mother, five months for the father, and five months to share as preferred (Government Commission 2005). The Liberal-Conservative government in 2008 instead chose the new alternative of introducing a gender-equality bonus to parents who shared their leave. This reform introduced economic compensation for parents who shared leave equally in addition to using the reserved months, but the reform has been found to have no direct effect on use of leave (Duvander and Johansson 2012). At the same time, a home care allowance was again introduced, but this policy was rarely used (Duvander and Ellingsæter 2016). The ceiling for the benefit was also raised in 2006, partly to eliminate economic restrictions in leave use for fathers, who more commonly had incomes over the ceiling. In 2016, a third month was reserved for each parent within the present sixteen months of leave.
Sweden is not alone in reserving time for fathers. Norway introduced a similar policy one year earlier, and similar reforms have been introduced in Iceland and Finland, as well as in Germany (Eydal and Gíslason 2008; Lappegard 2008; Geisler and Kreyenfeld 2011; Schober 2014). Swedish studies have shown that both the first and second reserved months had direct effects on the sharing of leave days (Duvander and Johansson 2012; Ekberg, Eriksson, and Friebel 2013). Comparing fathers with children born just before and after the first reform, the average number of days increased from 26 to 36 during the first two years of the child’s life. Perhaps more impressive is that the proportion of fathers who used leave during the child’s first two years increased from 44 to 77 percent from the year before the reform to the reform year (Duvander and Johansson 2012). At the introduction of the second month in 2002, fathers’ average use had increased, and the introduction of the reform further increased the average use of leave from 42 to 48 days (during the child’s first two years).

Although the average number of days is increasing, only some fathers may be reacting to the reform. When investigating subgroups of fathers, it has been found that the first month primarily affected fathers who did not already use leave; that is, fathers with low education and low income. The second month affected instead the middle group of fathers; that is, the ones with secondary education and middle to high income. These fathers started to use the leave more, and thus their use became similar to that of the fathers with high education and high income (Duvander and Johansson 2014).

In Norway, the reserved share of leave was increased stepwise to fourteen weeks and then recently decreased to ten weeks. Sara Cools, John H. Fiva, and Lars J. Kirkebøen (2015) found that among eligible fathers, the number of users increased from 4 percent to 39 percent during the first period of the reform. Fathers took 25 days on average, and 75 percent took exactly the reserved amount; use of leave beyond the reserved amount is slowly increasing. Mari Rege and Ingeborg F. Solli (2013) found that in 1995, 60 percent of fathers working full time in the labor market took leave.

In Iceland, leave use also increased dramatically when a reserved part for fathers was introduced, and today almost all fathers use three months of leave (Eydal and Gíslason 2008). When reserved time for fathers was introduced in Germany, the leave use also increased; however, in Germany, it was highly educated and permanently employed fathers who took up the leave (Geisler and Kreyenfeld 2011).

Fathers’ use of leave is often used as an indicator for gender-equal sharing of childcare, and it is also seen as leading to other dimensions of gender equality, although causality is rarely proved. A number of studies have indicated that fathers who take leave are more engaged in childcare
later on (see Tanaka and Waldfogel [2007] for the UK; Haas and Hwang [2008] and Duvander and Jans [2009] for Sweden). Qualitative studies also indicate that fathers who take leave then go on to do a larger share of both household work and childcare (see, for example, Almqvist and Duvander [2014] for Sweden). One informative example is a qualitative study comparing fathers’ arguments for going on leave (or not), as well as their experiences of leave in Quebec, the rest of Canada, and the United States. The study found that in Quebec, which has reserved time for fathers and a high level of earnings-related benefit during parental leave, fathers who were not necessarily interested in childcare took the leave because it would otherwise be forfeited (Rehel 2014). These less child-oriented fathers seemed to change their perspective while on leave and became more inclined toward co-parenting afterward. The study compared this change in attitude among fathers who had been on leave with fathers who had not taken leave and who were more often reduced to being “helpers” in later childcare at home.

It is rare to establish causality between fathers’ use of leave and the continued division of household tasks or childcare, but some studies have used reforms in the parental leave system in attempts to establish causality. A Norwegian study based on survey data measured the influence of the introduction of the father’s quota in 1993 on gender equality of household division of labor (Kotsadam and Finseraas 2011). The study compared parents whose last children were born two years before the reform with those whose last children were born two years after and found that conflict over household division decreased, and that parents were more likely to share the task of washing clothes after the reform. The study also indicated a changed preference for spending time on childcare but no effect on individual attitudes toward gender equality. One study analyzed the 2007 reform of parental leave in Germany, in which the compensation became income related and two months were reserved for fathers, with regard to the effect on childcare and household work (Schober 2014). A comparison of parents of children born two years before and parents of children born two years after the reform indicated an increase in fathers’ childcare, but there was no effect on household work for either fathers or mothers. However, these results were not confirmed by Jochen Kluve and Marcus Tamm (2013), who used a more selective sample. In addition, and similar to this study, a relevant Swedish study investigated the effects of the first reserved month on the division of CFSC and found no effect (Ekberg, Eriksson, and Friebel 2013). The present study uses the same measure of CFSC but a different sample, method, and follow-up period. In addition, we also investigate the effect of the second reserved month. Most importantly, we find that the parents of children born just before or after the reforms differ in their characteristics and that a difference-in-differences approach is preferred.
SWEDISH PARENTAL LEAVE PROGRAM

WHY WOULD REFORMS INFLUENCE GENDER EQUALITY IN CHILDCARE?

As the development of gender equality is not likely to be the same in all areas, it is important to be specific about what dimension of gender equality is measured. Childcare is not synonymous to other kinds of household work, even though they are likely to be related. Also, childcare may consist of very different tasks and responsibilities, with different incentives to be involved; parents often see parental leave as a preferred activity, whereas temporary parental leave when the child is sick (CFSC) may be more of a nuisance and an unwelcome interruption from paid work. CFSC may be a more direct outcome of negotiation between the parents.

Reserving part of parental leave for fathers would increase the incentives for fathers to take leave, which would otherwise be forfeited. Likewise, reserved leave puts a cap on the length of the mother’s leave. The restrictions introduced by reserved leave on the choice of sharing of childcare between mothers and fathers are thus likely to lead to increased initial sharing of childcare by sharing parental leave. In turn, initial sharing of parental leave may also lead to continued childcare sharing, as both mothers and fathers develop childcare skills and, likely, preferences as well. Caring for sick children will be part of such continued sharing of childcare. In particular, the father is likely to invest more in early childcare and therefore have more experience for later childcare. Initial sharing of parental leave may also restrict the bargaining power of the often economically stronger father and promote sharing of both labor market work and household work (Becker 1981; Lundberg and Pollak 1996; see similar arguments for reforms to parental leave policies in Germany in Schober [2014]). This argument assumes that fathers prefer to work in the labor market than take parental leave, an assumption that is questionable. It is clear that the reserved month strengthens the bargaining power of the father who wants to take leave in relation to the employer.

From a more sociological perspective, gender is constantly redefined in interaction with how paid and unpaid work are structured (see a review of sociological and social policy perspectives by Schober [2014]). Policies could affect the idea of preferred behavior (Lewis 2001), and if the policy is successful, it could also change behavior (Pfau-Effinger 2005). Men’s increased childcare involvement may also be caused by increased interest in childcare (Duvander and Andersson 2006; Almqvist and Duvander 2014). When it is not only the mother who has expertise at home and the father–child bond is increasing, it is likely that fathers will reprioritize investments in the labor market to invest more in childcare and perhaps more indirectly in other housework as well.

The potential effects of the reserved parental leave for fathers on other dimensions of gender equality may result from the intervention’s
introduction at a critical time for renegotiating the division of labor in couples (Kotsadam and Finseraas 2011). When couples become parents, the division of household work often becomes more traditionally divided (Evertsson 2014), and the difference between men’s and women’s income development increases. The reforms reserving part of parental leave for fathers may thus affect women’s and men’s relative positions in the negotiation of continued division of labor by facilitating sharing of both childcare and labor market work.

CFSC AS A PROXY FOR GENDER EQUALITY IN THE HOME

Division of childcare can be measured in many different ways, and the availability of data is often a major concern. In register studies, there are obviously no direct measures of sharing of childcare (or household work). For direct measures of gender equality in the home, time-use studies are often used, and sometimes the division of tasks is self-reported. However, such studies very rarely follow respondents over time and sometimes run the risk of systematic nonresponse and biased reporting, such as if participants estimate their own share of household work to be larger than the partner’s. Rickard Eriksson and Magnus Nermo (2010) proposed the use of temporary parental benefits for CFSC as an alternative measure of gender equality in the home. CFSC is part of parental leave insurance in Sweden and can be used by all parents working in the labor market. It is used when the child is sick and cannot attend preschool, other daycare, or school. In Sweden, a large majority of children attend publicly subsidized daycare; in 2017, about 90 percent of all children age 2 are already attending, a number that was somewhat lower in the mid 1990s because waiting times for a place in daycare were sometimes long, and children of parents who were unemployed (or on parental leave with siblings) did not automatically get a place in daycare (Skolverket 2017). Parents in Sweden have up to 120 days per year per child of temporary parental benefit for CFSC for children up to 12 years old at 77.6 percent earnings replacement (Försäkringskassan n.d.). The first 60 days of leave per year can be used more freely than the rest of the days, which are subject to some restrictions. Parents use most days for children who have just started public daycare, and the use is highly seasonal (used mostly in the winter). On average, parents use 11.4 days a year for 2-year-olds and around 6.1 days for 7-year-olds (Swedish Social Insurance Agency 2014).

By combining survey data on self-observed division of household tasks and women’s and men’s attitudes toward the importance of gender equality in the household with register data on days used for CFSC, Eriksson and Nermo (2010) tested whether CFSC measures gender equality. They concluded that CFSC is a good proxy for gender-equal sharing of household tasks, specifically as it also has an independent correlation when
controlled for attitudes toward gender equality. They used CFSC as a measure of gender equality in example studies to test its reliability and found that if women or men have increased their efforts at labor market work (by increasing earnings more than 20 percent in two years), they will use a smaller share of the CFSC. They also found that in periods of economic downturn, men use smaller shares of the CFSC. We take Eriksson and Nermo’s study as validation for using temporary parental benefit for CFSC as a measure of gender equality in the home, but we are of course aware that this is only one dimension of the multifaceted concept of division of childcare and other household tasks. Further work on sharing of CFSC has found that parents’ bargaining power is related to how it is shared, and that, for example, parents with the same occupation share the benefit more equally (Boye 2015). It is likely that the use of the CFSC benefit is underreported by some parents, especially in some employment situations where childcare and paid work may be combined, such as by bringing paid work home on the day that the child is sick. For the present study, this is not of major concern, as the underreported parents are likely to be randomly distributed between the control and treatment groups.

DATA

For the empirical analyses, we used register data from the Swedish Social Insurance Agency. The data covered the entire Swedish population and contained detailed information on childbearing and temporary parental benefit for CFSC. During the investigated period, the temporary parental benefit in addition to benefits for CFSC included benefits for the so-called “daddy days” to be used by fathers just after the birth. These days were excluded from the analyses because they were only available to fathers. The data also included parents’ individual characteristics, such as sex, date of birth, birth order of the child, geographic residence, education level, annual income, and country of birth. We only counted days of CFSC for children born around the reform, and the control of the children’s birth order at least partly accounts for the fact that a parent may look after many sick children at home at the same time but may only use benefits for one of them. We set the maximum of used days to 60 per year and child for the few cases of higher use in order not to influence the models disproportionally.

We excluded cases where either of the parents or the child emigrated or died during the observation period. We also excluded parents of children born abroad, multiple births, and adopted children, as special rules for parental leave apply in these cases. In addition, we excluded parents whose educational information or other individual characteristics were missing. In all, some 400 parents were excluded for the first reform and 200 parents for the second reform. Immigrant parents were overrepresented in this group.
We excluded same-sex couples because our interest here is in changes in gender equality. The sample contained parents with children born four weeks before or after the reform’s introduction, as well as those born four weeks before or after the same date one year before, to control for potential seasonal variations in births, which has been found to be necessary between December and January births. We excluded children born the day before or after the introduction of the reform. It is very difficult to time the event of a birth, and we do not suggest that this is done to any considerable degree. However, as one earlier Swedish study indicated that the registration of the event of a death was affected by economic incentives caused by repealing the inheritance tax (Eliason and Ohlsson 2013), we wanted to make sure our analyses would not be affected by any possible skewing of the reporting of births. In addition, a slight shift in births after a similar reform was found in a Norwegian study (Cools, Fiva, and Kirkebøen 2015). Our sample consisted of approximately 24,000 for the first reform (1995) and 20,000 for the second reform (2002). Descriptive statistics of the sample are found in Table 1. As can be seen, there is a statistically significant difference between parents of children born in December and January on some dimensions. Swedish-born fathers less often have children born in December, primary-educated fathers more often have children in December, and second births appear more often in January, compared to first and higher order births. These differences disappear once a difference-in-differences method is used (see the Appendix for the compared cohorts from one year earlier).

METHOD

We investigate to what extent, if any, the reforms of reserved months in the parental leave system have influenced long-term gender equality in the home. The first reserved month is applicable to parents of children born on or after January 1, 1995, and the second reserved month is applicable to parents of children born on or after January 1, 2002. Both reforms are thus examples of natural experiments, and the potential effects can be investigated by comparing the outcomes for parents of children born just before and after the reforms. We chose to compare the outcomes for parents of children born four weeks before and after the reform’s introduction. That is, outcomes of parents of children born December 4 to December 30 (control group) were compared to those of parents of children born January 2 to January 28 (treatment group). As mentioned, we excluded children born the day just before or after the reform to avoid late or early reporting of births for those wanting to take part (or not) in the reform.

The analysis also includes parents of children born in the same period one year before the reforms were introduced, to control for
## Table 1 Descriptive statistics

|                        | 1995 reform          | 2002 reform          |
|------------------------|----------------------|----------------------|
|                        | Dec 1994 | Jan 1995 | Dec 2001 | Jan 2002 |
| Mean age of mother     | 29.5     | 29.4     | 30.8     | 30.7     |
|                        | (0.06)   | (0.06)   | (0.07)   | (0.07)   |
| Mean age of father     | 32.2     | 32.1     | 33.4     | 33.3     |
|                        | (0.08)   | (0.08)   | (0.09)   | (0.09)   |
| Mother is Swedish born | 0.89     | 0.89     | 0.85     | 0.86     |
|                        | (0.004)  | (0.004)  | (0.005)  | (0.005)  |
| Father is Swedish born | 0.88     | 0.89     | 0.85**   | 0.86**   |
|                        | (0.004)  | (0.004)  | (0.005)  | (0.005)  |
| Birth order: First     | 0.39     | 0.38     | 0.46**   | 0.44**   |
|                        | (0.007)  | (0.006)  | (0.007)  | (0.007)  |
| Birth order: Second    | 0.37**   | 0.40**   | 0.34***  | 0.37***  |
|                        | (0.006)  | (0.006)  | (0.007)  | (0.007)  |
| Birth order: Third +   | 0.23     | 0.22     | 0.21     | 0.19     |
|                        | (0.006)  | (0.005)  | (0.006)  | (0.005)  |
| Mean income of mother  | 125.0    | 124.7    | 187.4    | 189.8    |
| (1,000 SEK)            | (0.73)   | (0.73)   | (1.42)   | (1.42)   |
| Mean income of father  | 172.5    | 173.0    | 263.7    | 266.8    |
| (1,000 SEK)            | (0.90)   | (0.90)   | (2.15)   | (2.15)   |
| Birth in a large city  | 0.32     | 0.31     | 0.36     | 0.36     |
|                        | (0.006)  | (0.006)  | (0.007)  | (0.007)  |
| Birth in a large town  | 0.33     | 0.33     | 0.33     | 0.33     |
|                        | (0.006)  | (0.006)  | (0.007)  | (0.006)  |
| Birth elsewhere in Sweden | 0.35 | 0.36     | 0.32     | 0.31     |
|                        | (0.006)  | (0.006)  | (0.007)  | (0.006)  |
| Mother has primary     | 0.15     | 0.14     | 0.11     | 0.10     |
| education              | (0.005)  | (0.004)  | (0.005)  | (0.004)  |
| Mother has secondary   | 0.58     | 0.58     | 0.51     | 0.52     |
| education              | (0.007)  | (0.006)  | (0.007)  | (0.007)  |
| Mother has tertiary    | 0.28     | 0.28     | 0.38     | 0.38     |
| education              | (0.006)  | (0.006)  | (0.007)  | (0.007)  |
| Father has primary     | 0.19**   | 0.17**   | 0.13     | 0.12     |
| education              | (0.005)  | (0.005)  | (0.005)  | (0.004)  |
| Father has secondary   | 0.55     | 0.56     | 0.55     | 0.56     |
| education              | (0.007)  | (0.006)  | (0.007)  | (0.007)  |
| Father has tertiary    | 0.26     | 0.27     | 0.32     | 0.33     |
| education              | (0.006)  | (0.006)  | (0.007)  | (0.006)  |
| N                      | 5,615    | 6,038    | 4,512    | 5,428    |

Notes: ***, ** denote statistical significance at the 1 and 5 percent levels, respectively. Standard deviations are in parentheses.
potential differences between parents of children born in December and January. If parents of children born at different times of the year are systematically different, this could influence the results, and therefore we apply a difference-in-difference approach (Angrist and Krueger 2000).

When comparing parents of children born in December and January from 1992 to 2005, we found some systematic differences worth noting. The share of foreign-born parents was higher among the December children, and more first-born children were born in December, whereas more second-born children were born in January. In addition, parents with higher incomes and higher education levels more often have children in January than in December. These differences call for a difference-in-difference study (see Table 1 and the Appendix). Once seasonal variations in childbearing are controlled for, there is no trend in the composition of groups between the reform years and the prior year.

We used linear regression models to separately estimate the number of CFSC days per year used by mothers and fathers after the child was born. The models controlled for a number of socioeconomic and demographic characteristics, as well as the seasonal variations, by adding parents of children one year before the reform was introduced. The model is defined as:

\[ y = \alpha + X_i \beta + \gamma \text{Year} + \delta \text{Month} + \lambda \text{Treatment} \]

where \( Xi \) is a vector of individual characteristics of the father and the mother, including the child’s sex, parents’ ages, countries of origin of parents, birth order of the child, region of child’s birth in Sweden, parents’ labor market work sectors, parents’ incomes, and parents’ educational levels. The variables \( \text{Year} \) and \( \text{Month} \) are dummy variables indicating the year and month of birth of the child, where \( \text{Year} \) is 1 for children born around the introduction of each reform and 0 for children born a year earlier. The variable \( \text{Month} \) assumes the value 1 for the month when each of the reforms were introduced and 0 for the month before the reform. The potential impact of the reforms is measured by the variable \( \text{Treatment} \), an interaction variable of \( \text{Year} \times \text{Month} \), indicating that the parents belong to the treatment group.

RESULTS

We present the results as predicted probabilities from the models in which the above-mentioned controls are included. During the first two years of a child’s life, the use of CFSC is very low because most children are cared for in the home with one parent on parental leave (see Duvander and Viklund [2014] for length of parental leave in Sweden). However, at some time during the second year of the child’s life most children start public
Table 2 Mothers’ and fathers’ number of days of temporary parental leave used in the control and treatment groups for the parental leave reforms: Predicted probabilities

| Child’s age | Control | Treatment | Difference | Control | Treatment | Difference |
|-------------|---------|-----------|------------|---------|-----------|------------|
|             | Mothers | Fathers   |            | Mothers | Fathers   |            |
| 12 years    | 28.9    | 27.1      | 14.5       | 14.6    | 0.0       |
| 0–2 years   | 3.5     | 3.2       | 2.2        | 2.1     | 0.0       |
| 2–7 years   | 16.3    | 15.3      | 8.4        | 8.3     | 0.1       |
| 7–12 years  | 9.1     | 8.7       | 3.9        | 4.2     | 0.2       |

Notes: The predicted number of days of temporary leave are controlled for child’s sex, child’s birth order, child’s region of birth within Sweden, multiple or single birth, parents’ ages, parents’ countries of origin, parents’ incomes, parents’ work sectors, and parents’ educational levels. ***, ** denote statistical significance at the 1 and 5 percent levels, respectively.

daycare, and the use of CFSC is high. In the seventh year of life, mandatory school begins in Sweden and even if CFSC is still available, the use is much lower. Table 2 presents the use of CFSC for mothers and fathers in the control and treatment groups for the two reforms – that is, mothers and fathers who had a child just before or just after the reforms. The first two columns present the predicted number of days for the control and treatment group, and the third shows the difference between the two, which corresponds to the coefficient of treatment – that is, having a child after the reform’s introduction. The first panel shows results for the first reform and the second for the second reform. The first row in each panel indicates the use for the entire studied period, and the following three rows indicate grouped use categorized by the child’s age. Note that we follow the use of CFSC for twelve years for the first reform and for ten years for the second reform. For the first reform, by the time children reached age 12, fathers had used an average of approximately 14.5 days, and there is no difference between the control and treatment groups. There is no difference in fathers’ number of days between the control and treatment groups at any age of their children. On average, mothers used many more days over the period and statistically significantly fewer days after the reform’s introduction. Mothers in the control group used almost 29 days, and those in the treatment group used just over 27 days, with the
major drop in used days occurring when the child was 2–7 years old. The interpretation of more equal sharing of days after the reform is complicated by the fact that mothers took fewer days after the reform but fathers did not statistically significantly increase their use, which is not what would be intuitively expected.

When we turned to the analysis of the second reserved month in 2002, the data limited the analysis to the period up to when the child was 10 years old. The second panel in Table 2 indicates that both mothers and fathers slightly increased their CFSC days after the reform when their children were 2–7 years old; however, this is not statistically significant in the figures for the entire ten-year period. By comparing the panels, we can also note that fathers, on average, used slightly more days around the reform in 2002 than in 1995 (8.4 and 8.3 days for children aged 2–7 years born at the first reform, compared to 9.3 and 10.1 days for children in the same ages born at the second reform). Mothers’ use of days was at a similar level around the two reforms.

Because we found an increase in mothers’ use after the first reform, we were interested in whether the reforms had similar effects for subgroups of parents and tested the models for parents with different combinations of education separately (see Table 3). Here, we define low education as up to secondary education and high education as tertiary education. We divided

| Child’s age      | Mothers | Fathers |
|------------------|---------|---------|
|                  | Control | Treatment | Difference | Control | Treatment | Difference |
| 1995 reform (12 years) |         |          |            |         |          |            |
| Mother low, father low | 28.6    | 28.0     | −0.6       | 14.6    | 15.4     | 0.8        |
| Mother low, father high | 29.8    | 23.3     | −6.5***    | 14.2    | 11.7     | −2.5       |
| Mother high, father low | 31.4    | 28.4     | −3.0       | 15.9    | 16.0     | 0.1        |
| Mother high, father high | 27.3    | 25.9     | −1.4       | 13.1    | 12.1     | −1.0       |
| 2002 reform (10 years) |         |          |            |         |          |            |
| Mother low, father low | 25.6    | 26.4     | 0.7        | 15.8    | 17.2     | 1.4        |
| Mother low, father high | 22.0    | 25.6     | 3.5        | 13.1    | 14.7     | 1.6        |
| Mother high, father low | 26.8    | 27.7     | 0.9        | 17.5    | 16.2     | −1.3       |
| Mother high, father high | 21.3    | 23.0     | 1.8        | 12.6    | 13.6     | 1.0        |

Notes: The predicted number of days of temporary leave are controlled for child’s sex, child’s birth order, child’s region of birth within Sweden, multiple or single birth, parents’ ages, parents’ countries of origin, parents’ incomes, parents’ work sectors, and parents’ educational levels. ***, ** denote statistical significance at the 1 and 5 percent levels, respectively.
the parents into (1) both low, (2) mother low and father high, (3) mother high and father low, and (4) both high. For the first reform, we found that mothers took fewer days mainly when they had low education and the father had high education. However, fathers also took slightly fewer days in this group. Thus we found that mothers with low education took fewer days, whereas fathers with low education took slightly more days (although not statistically significant) and that the change was largest among mothers. This fits with earlier analyses indicating that the reform of the first reserved month affected parents with low education most (Duvander and Johansson 2014). Why fathers’ use did not increase as much as mothers’ decreased in this group may be a result of gendered work situations, which we will discuss in the conclusion.

For the second reserved month, no consistent statistically significant change caused by the reform could be found for any of the educational level groups for either mothers’ or fathers’ used days.

We performed a number of sensitivity analyses, which are summarized in Table 4. The presented figures are the days with CFSC for the control and treatment groups as well as the difference between the two. For all tests we show figures for mothers and fathers for the two reforms. First, we used placebo models for the years before the reforms (1993 and 1994, Table 4)

| Child’s age          | Mothers | Fathers |
|----------------------|---------|---------|
|                      | Control | Treatment | Difference | Control | Treatment | Difference |
| 1995 reform (12 years) |         |          |            |         |          |            |
| Placebo model        | 24.7    | 25.7     | 1.0        | 13.6    | 13.2     | −0.4       |
| No control variables | 29.1    | 27.0     | −2.0**     | 14.5    | 14.6     | 0.1        |
| Not separated        | 28.2    | 26.4     | −1.9**     | 14.3    | 14.4     | 0.2        |
| Separated            | 32.1    | 30.3     | −1.7       | 15.6    | 15.1     | −0.5       |
| 2 weeks              | 28.6    | 27.2     | −1.4       | 14.1    | 14.1     | 0.0        |
| 3 weeks              | 28.5    | 27.3     | −1.2       | 14.4    | 14.2     | −0.2       |
| 2002 reform (10 years) |         |          |            |         |          |            |
| Placebo model        | 27.1    | 26.1     | −1.0       | 16.5    | 16.2     | −0.3       |
| No control variables | 24.7    | 26.0     | 1.3        | 15.1    | 16.0     | 0.9        |
| Not separated        | 24.1    | 25.6     | 1.5        | 15.2    | 15.6     | 0.4        |
| Separated            | 27.0    | 27.0     | 0.0        | 15.0    | 18.2     | 3.2        |
| 2 weeks              | 24.1    | 25.7     | 1.3        | 15.2    | 16.3     | 1.1        |
| 3 weeks              | 24.2    | 25.9     | 1.6        | 15.2    | 16.0     | 0.8        |

Notes: ***, ** denote statistical significance at the 1 and 5 percent levels, respectively.
to see whether patterns would vary between years and thus run a larger risk of being random. If we had found any effects when performing analyses for years that had no reforms, we would have suspected that patterns of use varied in a way that made our main results less reliable. The placebo models showed no statistically significant effects for any of the reforms. Second, models without any controls indicate the same effect of the first reserved month and no effect of the second, thus ensuring that the results presented in the main models are not caused by misspecification of the models.

We also considered whether the results were sensitive to including or excluding parents who separated over the measured period. Note that CFSC can be used by the parent who is caring for the child and will mainly be used by the residential parent. We find that the main results of more gender-equal sharing after the first reserved month are valid for the part of the sample that did not separate over the period. For the part of the sample that separated, we find no statistically significant effect of the reform (however, there was much higher use among mothers who were separated, regardless of the reform). For the second reform, we see an increase in days for fathers from 15.2 days in the control group to 18.2 in the treatment group, which, even if not statistically significant, may indicate another potential increase in CFSC attributable to the reform. In addition, as our results differed from an earlier study of the same question (Ekberg, Eriksson, and Friebel 2013), we were careful in examining how the studies differed. In contrast to the earlier study, we controlled for the systematic differences between parents of children born in December and January by extending the analysis to a difference-in-difference model – that is, including parents of children born in the exact same periods one year earlier. We also followed the parents for twelve years rather than eight years as in John Ekberg, Rickard Eriksson, and Guido Friebel’s study. Ekberg, Eriksson, and Friebel used groups of parents of children born two weeks before and after the reform, whereas this study used a four-week window from which the last day of old legislation and first day of new legislation were excluded. When we tested different sample sizes, we also found no statistically significant effects when using a sample of children born within two weeks before and after the reform. We found no statistically significant effect with a two- or three-week sample for any of the reforms. We carefully checked the number of days used in the control and treatment groups of various sizes and found no sharp distinctions in size for any of the groups. As the results systematically point in the same direction, we interpret the lack of statistical significance of the result in samples of two and three weeks to be caused by too small of a sample size. Lastly, Ekberg, Eriksson, and Friebel only studied the first reform in 1995 and not the second reform in 2002. When we considered different sample sizes for the second reform, we found no statistically significant effect at either
two or three weeks, or for our chosen sample of four weeks, as described earlier.

**CONCLUSION**

When the reserved months were introduced to the parental leave system, there were great hopes that the reforms would not just increase fathers’ parental leave use, but also increase gender equality in the home and in the labor market. In this study, we investigated one potential indirect effect of the reforms by analyzing the response of the first parents who took part in the reform. We operationalize increased gender equality in the home based on mothers’ and fathers’ use of CFSC, a benefit that is used to stay at home with children who are sick and cannot attend daycare or school. Doubtless, this measure only accounts for part of the dimension of gender equality, but we have reason to believe that it will indicate the direction of a potential change. If fathers get more involved in childcare during their parental leave, it is likely to continue with involvement such as CFSC, and perhaps also in other areas of household task division.

We want to start by pointing out that the results we have found are relatively small. Nevertheless, the results indicate that after the first reserved month, CFSC became more equally shared between mothers and fathers. However, the major reason for the change was that mothers with low education started to use fewer days. The intuitive expectation is that fathers would then use more days to the same extent, but this is not the case, which is something of a puzzle. Men with low education take slightly more days of leave, but not enough to compensate the decrease among women. Men with higher education do not compensate for mothers’ decreased use. However, a possible explanation may be that fathers are more reluctant to use this part of the social insurance and use parental benefit days instead. Since the reform, they may also have used their expanded opportunity to combine labor market work and care of a sick child in the home through a more flexible labor market work situation. Even if men work more overtime than women, they more often have flexible hours (Statistics Sweden 2012). Men with high education are especially likely to have flexible labor market work situations, and there is even a Swedish term for combining paid work and caring for sick children in the home (to vobba). Another possible explanation for why fathers’ use does not increase when mothers’ days decrease may be that decisions on when the CFSC is needed are different in more gender-equal families. That is, when fathers are more involved in childcare, the judgment of when a child is sick may be made differently. Both these explanations are obviously highly speculative and need further investigation before being valid.

Another question is why we have found an effect from the first reserved month but not the second reserved month. A reasonable explanation is that
by the time the second month was introduced, most fathers had already used their parental leave. It was probably a more dramatic shift for the future division of childcare when fathers went from having no parental leave to having one month than when this one month was extended to two months. The first reserved month in 1995 was also the first time this kind of reform took place in Sweden and may therefore have been more important for changes in views of gendered responsibility for children. This may have led to the expectation of limited measurable impact from further reserved months in the parental leave system in this respect.

Based on detailed analyses and numerous sensitivity analyses, we were able to examine in detail an earlier study that came to the conclusion that the first reform had no effect on CFSC (Ekberg, Eriksson, and Friebel 2013). Instead, we found that there are some effects of more gender-equal sharing. In conclusion, this study indicates that the reforms in parental leave have had an effect in the form of an indirect outcome of gender equality in the home. As mentioned, the effect that we detect in this study is indisputably small, but we do not interpret this to mean that the effects from the reforms are small, as it is likely that the main influence from the reforms will be gradual and take time; such effects are thus not discernible with the method of analysis chosen here. For example, we saw an increase in fathers’ days of CFSC when comparing the time of the first reform, the 1990s, with the time of the second reform, the 2000s. Given that the first reform was accompanied by a major public debate on fathers’ responsibility for childcare and use of parental leave, it is also possible that the control group was affected by the changed general societal climate. This is less true for the second reserved month, which got much less attention. The major importance of this study is that these marginal effects have been found and show evidence of policy implications in a wider sense than pure reform evaluations.

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NOTES

1 Proposition 1993/94:147. Jämställdhetspolitiken: Delad makt – delat ansvar [Gender equality policy: Shared power and shared responsibility]. Proposition for law change. Social Ministry, Sweden.

2 Proposition 2000/01:44. Föräldraförsäkring och föräldraledighet [Parental leave insurance]. Proposition for law change. Social Ministry, Sweden.

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APPENDIX

Table A1 Descriptive statistics: Children born one year before reforms and diff-in-diff

|                | 1995 reform | 2002 reform | Diff-in-diff |
|----------------|-------------|-------------|--------------|
|                | Dec 1993    | Jan 1994    | Dec 2000     | Jan 2001     | 1995   | 2002  |
| Girl           | 0.49        | 0.50        | 0.49         | 0.48         | −0.005 | 0.006 |
|                | (0.007)     | (0.006)     | (0.007)      | (0.007)      | (0.013) | (0.014) |
| Boy            | 0.51        | 0.50        | 0.51         | 0.52         | 0.005  | −0.006 |
|                | (0.007)     | (0.006)     | (0.007)      | (0.007)      | (0.013) | (0.014) |
| Mean age of    | 29.4        | 29.4        | 30.5         | 30.5         | −0.156 | −0.067 |
| mother         | (0.07)      | (0.07)      | (0.07)       | (0.07)       | (0.125) | (0.137) |

(Continued)
Table A1 Continued.

|                          | 1995 reform |          | 2002 reform |          | Diff-in-diff |
|--------------------------|-------------|----------|-------------|----------|-------------|
|                          | Dec 1993    | Jan 1994 | Dec 2000    | Jan 2001 | 1995        | 2002        |
| Mean age of father       | 32.0        | 32.0     | 33.2        | 33.2     | −0.137      | −0.075      |
|                          | (0.08)      | (0.08)   | (0.09)      | (0.09)   | (0.153)     | (0.166)     |
| Mother is Swedish born   | 0.89        | 0.90     | 0.84***     | 0.86***  | −0.012      | −0.016      |
|                          | (0.004)     | (0.004)  | (0.005)     | (0.005)  | (0.008)     | (0.010)     |
| Mother is foreign born   | 0.11        | 0.10     | 0.16***     | 0.14***  | 0.012       | 0.016       |
|                          | (0.004)     | (0.004)  | (0.005)     | (0.005)  | (0.008)     | (0.010)     |
| Father is Swedish born   | 0.89**      | 0.90**   | 0.84**      | 0.85**   | −0.010      | 0.000       |
|                          | (0.004)     | (0.004)  | (0.005)     | (0.005)  | (0.008)     | (0.010)     |
| Father is foreign born   | 0.11**      | 0.10**   | 0.16**      | 0.15**   | 0.010       | 0.000       |
| Birth order: First       | 0.40        | 0.39     | 0.44        | 0.42     | −0.005      | −0.005      |
|                          | (0.007)     | (0.006)  | (0.007)     | (0.007)  | (0.013)     | (0.014)     |
| Birth order: Second      | 0.37        | 0.38     | 0.34***     | 0.37***  | 0.011       | 0.004       |
|                          | (0.007)     | (0.006)  | (0.007)     | (0.007)  | (0.013)     | (0.014)     |
| Birth order: Third +     | 0.23        | 0.23     | 0.22        | 0.21     | −0.007      | 0.000       |
|                          | (0.006)     | (0.005)  | (0.006)     | (0.006)  | (0.011)     | (0.012)     |
| Mean income of mother    | 122.5**     | 124.5**  | 171.8**     | 175.6**  | −2.35       | −1.4        |
|                          | (0.70)      | (0.70)   | (1.33)      | (1.33)   | (1.40)      | (2.64)      |
| Mean income of father    | 167.5**     | 170.5**  | 248.4       | 252.0    | −2.54       | −0.5        |
|                          | (0.88)      | (0.88)   | (2.07)      | (2.07)   | (1.73)      | (4.09)      |
| Birth in a large city    | 0.32        | 0.31     | 0.35        | 0.36     | 0.007       | −0.014      |
|                          | (0.006)     | (0.006)  | (0.007)     | (0.007)  | (0.012)     | (0.014)     |
| Birth in a large town    | 0.32**      | 0.35**   | 0.34        | 0.33     | −0.021      | 0.021       |
|                          | (0.006)     | (0.006)  | (0.007)     | (0.006)  | (0.012)     | (0.013)     |
| Birth elsewhere in Sweden| 0.35        | 0.35     | 0.31        | 0.31     | 0.014       | −0.007      |
|                          | (0.006)     | (0.006)  | (0.007)     | (0.006)  | (0.012)     | (0.013)     |
| Mother has primary ed     | 0.15**      | 0.14**   | 0.11        | 0.11     | 0.010       | −0.007      |
|                          | (0.005)     | (0.004)  | (0.005)     | (0.004)  | (0.009)     | (0.009)     |
| Mother has secondary ed   | 0.58        | 0.58     | 0.53        | 0.52     | 0.008       | 0.023       |
|                          | (0.007)     | (0.006)  | (0.007)     | (0.007)  | (0.013)     | (0.014)     |

(Continued)
|                          | 1995 reform | 2002 reform | Diff-in-diff |
|--------------------------|-------------|-------------|--------------|
|                          | Dec 1993    | Jan 1994    | Dec 2000     | Jan 2001     | 1995          | 2002          |
| Mother has tertiary education | 0.27**  (0.006) | 0.29**  (0.006) | 0.35  (0.007) | 0.37  (0.007) | −0.018 (0.012) | −0.016 (0.014) |
| Father has primary education   | 0.19** (0.005) | 0.17** (0.005) | 0.13*** (0.004) | 0.12*** (0.004) | 0.002 (0.010) | 0.006 (0.009) |
| Father has secondary education | 0.056 (0.007) | 0.57 (0.006) | 0.55 (0.007) | 0.56 (0.007) | −0.003 (0.013) | −0.008 (0.014) |
| Father has tertiary education | 0.26 (0.006) | 0.26 (0.006) | 0.32 (0.007) | 0.33 (0.007) | 0.001 (0.013) | 0.002 (0.014) |
| Mother works in central government | 0.04** (0.003) | 0.05** (0.003) | 0.03 (0.003) | 0.04 (0.003) | −0.011 (0.013) | −0.008 (0.014) |
| Mother works in local government | 0.40 (0.007) | 0.41 (0.006) | 0.34 (0.007) | 0.35 (0.007) | 0.000 (0.013) | −0.002 (0.013) |
| Mother works in private sector | 0.42 (0.007) | 0.42 (0.006) | 0.50 (0.007) | 0.51 (0.007) | 0.004 (0.013) | 0.004 (0.014) |
| Mother works in unknown sector | 0.14** (0.005) | 0.13** (0.004) | 0.12** (0.004) | 0.10** (0.004) | 0.006 (0.009) | 0.006 (0.009) |
| Father works in central government | 0.07 (0.005) | 0.07 (0.004) | 0.04 (0.005) | 0.04 (0.005) | −0.007 (0.009) | −0.004 (0.009) |
| Father works in local government | 0.10 (0.004) | 0.10 (0.004) | 0.08 (0.004) | 0.09 (0.004) | 0.013 (0.006) | 0.000 (0.006) |
| Father works in private sector | 0.74 (0.004) | 0.75 (0.004) | 0.82 (0.004) | 0.82 (0.004) | 0.005 (0.008) | 0.000 (0.008) |
| Father works in unknown sector | 0.09 (0.006) | 0.09 (0.005) | 0.06 (0.006) | 0.05 (0.005) | −0.011 (0.011) | 0.003 (0.011) |
| N                        | 5,493       | 6,491       | 4,634        | 5,423        | 23,637        | 19,997        |

Notes: ***, ** denote statistical significance at the 1 and 5 percent levels, respectively. Standard deviations in parentheses.