WORKING PAPERS IN ECONOMICS

No.06/09

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DOES PATERNITY LEAVE AFFECT MOTHERS' SICKNESS ABSENCE?



Does paternity leave affect mothers' sickness absence?

By

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Abstract

Female labour force participation is high in Norway but sickness absence rates are higher for

women than for men. This may be partly a result of unequal sharing of childcare in the

family. In this paper, we consider the effect of paternity leave on sickness absence among

women who have recently given birth. We draw on a six-year panel taken from full

population data from administrative sources. We find that in the 6% of families where fathers

take out leave more than the standard quota (gender-neutral leave), the incidence of absence

among mothers is reduced by about 5–10% from an average level of 20%.

JEL Classifications: I38, J16, J22

Key Words: Parental leave, paternity quota, gender neutral leave, sickness absence

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1. Introduction

In several OECD countries, the sickness absence rate for women is much higher than for men. This is also the case in Norway, where the sickness absence is 4.7% for men and 8.0% for women. This difference is even higher at younger ages (4.1% 8.6%). Higher sickness absence rates indicate production loss and a fiscal burden on public funds that has inspired many researchers to investigate the driving forces behind the higher sickness absence rate among young women. Alexanderson et al. (1996) using Swedish data suggest pregnancy to be one of the main reasons for higher sick leave rates of young women. They report that by excluding pregnant women, the female sick leave rate decreased from 0.18 to 0.15 for all women. In addition, they found that half of the gender difference in sick leave disappeared when pregnant women were excluded from a comparison between males and females in the age group 16 to 44. However, there are reasons to believe that biological differences alone cannot explain women's sickness absence. Research studies suggest that social and cultural factors also play important roles in increasing the sick leave of females. For instance, a combination of paid employment with domestic work and responsibilities, particularly care for small children, may lead to role conflict or overload and thus may have negative consequences for women's health (see, for instance, Arber 1991 and Arber, Gilbert and Dale 1985). Empirical studies in OECD countries have found that care for children increases working mother's sickness absence (see for instance, Bratberg et al. 2002; Åkerlind et al 1996.; Scott and McClellan 1990; and Vistnes 1997). Accordingly, we hypothesize that equal sharing of childcare by the partner may improve a working mother's health and, consequently, decrease her sickness absence. To evaluate our hypothesis, we consider parental leave policy in Norway.

In the economic and sociological literature, most of the research on parental leave policies has focused on the impact of maternal leave on mothers' employment (see, for instance,

Berger and Waldfogel 2004; Gustafsson et al. 1996; Kenjoh 2005; and Rønsen and Sundström 1996), on child health and development (see, for instance, Baum 2003; Ruhm 2000; and Winergarden and Bracy 1995) and mothers' health (see, for instance, Chatterji and Markowitz 2005). However, only a few studies focus on fathers' parental leave, mainly because many OECD countries either do not grant or grant very little paid leave to fathers. However, the main feature of Norway's parental leave scheme is that it grants employed fathers and mothers equal access to paid leave. The main arguments in favour of fathers' leave include facilitation of mothers' labour force participation, promotion of gender equality and strengthening fathers' emotional relationship and involvement with their children. Studies on the effect of fathers' parental leave evaluate fathers' involvement in childcare activities. These studies indicate that fathers' leave promotes fathers' involvement in childcare even after the leave period is over (see, for instance, Brandth and Kvande 2003; Haas 1992; Haas and Hwang 2008; Lamb et al. 1988; Nepomnaschy and Waldfogel 2007; and Tanaka and Waldfogel 2007). Previous studies, however, did not consider that fathers' leave may also affect mothers' health. Fathers' involvement in childcare may promote gender equality in the family, leading to a decrease in women's workload and consequently their sick leave. In this paper, using panel data that include information from several public registers, we evaluate whether fathers' uptake of parental leave reduces the amount of sick leave that mothers take.

Norway's National Insurance Act lays down rights and entitlements regarding parental leave and pay compensation. The National Insurance Administration (NAV) pays social insurance benefits regulated by this law. All parents who have worked at least six out of the ten months immediately prior to the birth of their child are entitled to benefits. Parental leave is paid by national insurance with no direct costs to parents' employers. Parents may take 54 weeks of leave and receive 80% of their previous earnings or may take 44 weeks of leave and receive 100% of their previous earnings. Nine weeks of leave are, however, reserved for the

mother and six weeks for the father and, as a general rule, these weeks cannot be transferred to the other parent. The remaining period of leave is *gender neutral* and can be shared by parents as they wish. The reserved period of leave for fathers, known as the *paternity quota*, was introduced in 1993. Most fathers use the paternity quota but take up of gender-neutral leave is low. Take-up of gender-neutral leave indicates that fathers share additional leave with mothers as compared with fathers who use only paternity quota. Therefore, we shall particularly evaluate the effect of fathers' gender-neutral leave on mothers' sick leave.

Health insurance is also part of the national insurance scheme. All employees who have been with the same employer for at least two weeks are entitled to get sickness absence benefits, giving 100% compensation of their previous earnings. A medical certificate is necessary for absences lasting more than three days. The maximum period of benefits is 52 weeks. Employers pay the first 16 days and the remaining period is paid by NAV.

2. Sample and data

Our data source is the "FD-Trygd" database, which contains information about the total Norwegian population aged 16–67 years from 1992 on. The database includes information from several public registers merged by Statistics Norway. Information is updated yearly, or when an individual's status in a register changes. The database contains records of sickness payments from NAV. Hence, only records of absences lasting over 16 days are available. Sickness absence records are not available at the individual level for state employees because transfers from NAV are made at the institutional level.

For the present study, we have chosen 1992–2004 as our period of observation. Our sample comprises married and cohabitating women who gave birth to one child in the year 1996, 1997, 1998 or 1999. We can observe women four years before and four years after birth. Women gave birth to only one child and had a positive income in the eight years of the

observation period. The sickness absence rate of women increases in the year before birth, probably because of pregnancy-related sickness (see Alexanderson et al. 1996). Furthermore, because of maternity leave, not all women are back at work a year after childbirth. For these reasons, we exclude one year of pre- and post-birth records from the sample in the econometric analysis. This leaves us with a six-year balanced panel. In other words, if birth took place in 1997, the pre-birth observations are 1993–1995 and the post birth observations are 1999–2001. The explanatory variables are updated yearly. After exclusion of individuals with missing background information, we are left with 30,307 women.

2.1 Descriptive statistics

Table 1 shows the distribution of mothers' sickness absence based on the panel. We see that women's sickness absence is higher after childbirth as compared with before childbirth. Higher sickness absence after childbirth probably indicates that care for children increases a working mother's sickness absence. We also see that, after childbirth, the mean number of absences and absence days are lower if fathers took leave as compared with if they did not.

Figures 1–3 show how average absence days develop over time, before and after birth (here we also include the first pre- and post-birth years). Figure 1 shows average absence days for all women. Figures 2 and 3 show absence days broken down by father's leave. We see that women's absence days increase a year before birth and decrease a year after birth regardless of whether or not husbands take leave. Increase in absence days a year before birth is in line with the Alexanderson et al. (1996) finding that pregnant women have very high sickness absence. Figure 2 also illustrates that, before and after childbirth, sickness absence days are lower for women with husbands who take father's leave as compared with those who do not take leave. Figure 3 illustrates that the same is the case when we compare women with husbands who take out gender-neutral leave to those with no leave or take leave up to the paternity quota.

3. Empirical specification

Assessing the effect of fathers' leave on mothers' sickness absence is challenging for several reasons. It is not clear that sickness absence is only related to health. Even though a sickness certificate is necessary, there is a moral hazard problem and absenteeism may be related to attitudes toward work and working conditions. Moreover, identification hinges on whether families in which the father does not take out paternal leave constitute a credible comparison group to families in which he does. Presumably, the decision to take paternal leave is a joint family decision. Thus, unobserved factors that affect mothers' sickness absence may also affect fathers' decision to take paternal leave, leading to inconsistent estimates of the "leave effect." Panel data modelling may alleviate such problems because we can observe women before and after birth and look for differences. We may also model unobserved heterogeneity.

An additional consideration is that the dependent variable is censored, as in our data we have information only on absences of 16 days or more, the minimum limit for benefits paid by the National Insurance Administration (see the section on institutional background). On average, almost 80% of the women in our sample have no absence. We therefore use a Tobit model in some of our specifications; alternatively, we use a discrete outcome variable.

Let y_{it}^* denote the (latent) dependent variable, which is either number of absence days (censored at 16 days) in year t, or the net utility from being absent from work relative to not being absent.

A basic model may be written as

$$y_{it}^* = \alpha + \beta L_{it} + \theta X_{it} + u_i + \epsilon_{it}, \tag{1}$$

where the dummy variable L_{it} denotes father's leave, X_{it} is a vector of controls and u_i and ε_{it} are random components. Any causal interpretation of β hinges on L_{it} not being correlated with the random components. As is well known, fixed effect (FE) estimators difference out u_i .

Thus, if unobserved factors like preferences for family work sharing that affect the decision to take out father's leave are time constant, we may obtain a consistent estimate of β . Random effect (RE) estimators, on the other hand, rely on u_i being uncorrelated to L_{it} . For both types of estimators, we must assume that ε_{it} is not correlated to L_{it} .

In the regressions, father's leave is represented by two dummy variables: *Father's leave* is 1 for all families where fathers take out some leave, 0 for families where they not. *Father's gender-neutral leave* indicates leave longer than a father's quota. The comparison group for the second dummy variable includes families where fathers do not take leave or take leave up to the paternity quota.

We report (i) random effects Tobit estimates, where the dependent variable is absence days, (ii) fixed effect (FE) logit estimates, (iii) fixed effect linear probability model (LPM) estimates and (iv) difference in difference (DID) estimates. For (ii), (iii) and (iv), the dependent variable is an indicator for having absence (> 16 days). (i) handles the censoring but, as noted above, relies on independence of L_{it} and u_i ; moreover, the assumption that errors are normal is critical. The FE logit (ii) and LPM (iii) estimators do not require independence of L_{it} and u_i , but information on the length of the absence spell is lost. The FE logit (conditional) estimator is conditional on variation in the outcome variable, thus only the part of the sample with at least one 0 value and one 1 value in the observation period is used. In LPM, all observations are used, but the estimator has the undesirable property that the estimated probabilities may lie outside the unit interval. If the focus is on estimating marginal effects, this shortcoming may be less important, however. In these estimations, we use the full (unbalanced) panel, where we have at least one year of pre-birth and one year of post-birth observations. We also report difference in differences (DID) estimates (iv). Here, the identifying assumption is less restrictive than in FE, namely that $\Delta \varepsilon_{it}$ and ΔL_{it} are uncorrelated. As there is no satisfactory way to deal with the censoring problem, we only report this estimator for the LPM model. For this part of the analysis, we use one pre-birth observation (two years before birth) and one post-birth observation (two years after birth).

4. Results

In what follows, Table 2 reports the Tobit results, Table 3 shows the FE logit and LPM results and Table 4 reports the DID results.²

In line with previous studies, Table 2 shows that sick leave increases after giving birth, with marginal effects of 4.56 (unconditional) and 5.29 (conditional on having a sick leave). Furthermore, the effect of fathers taking out leave is negative: the conditional effect of just taking leave (no/yes) is -0.99 and -1.21 for gender-neutral leave. The other results show that sick leave increases by the number of children and by income (probably because higher income is associated with more hours and thus more exposure.) Higher educated women have less absence, whereas the husband's education and income have no significant effects on absence.

The results in Table 2 are biased if unobserved family properties that affect women's absence behaviour also affect the husband's propensity to take out father's leave. In Table 3, we report logit and LPM fixed effect results that are not affected by this, as long as the unobserved factors are constant over time. First, the logit results show no significant effect of just taking leave (no/yes); however, there is an effect of gender-neutral leave (but only significant at the 5% level). The LPM results are similar, but here the effect of gender-neutral leave is clearly significant. The reason that the logit coefficient is not significant may be that the sample we used is smaller as a result of the restriction that only individuals with at least one year with and one year without absence can be included. The logit marginal effect is – 0.01 and the LPM coefficient (also the marginal effect) is –0.02. Given that the average

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²Increase in the father's share of childcare may also affect his sick leave. Therefore, we also ran regression on fathers' sickness absence but our results showed no statistically significant of fathers' leave on their sickness absence.

probability of having an absence after childbirth is about 0.2 (cf. Table 1), the effect is considerable. These marginal effects are comparable in size to the marginal effect on the probability of being uncensored in the Tobit model, cf. Table 2; therefore, it is not clear that the Tobit results are affected by unobserved effects bias.

Table 4 shows the difference in differences results based on observations two years before and two years after birth. The results with respect to father's leave in the first column are quite similar to the FE-LPM results, with no significant effect of just taking father's leave (no/yes) but a significant (10%) effect of gender-neutral leave. The estimated effect of gender-neutral leave is –0.02. We also show results from a regression with days of sickness absence as the independent variable, with a coefficient of –1.9 for gender-neutral leave. Because the censoring is not taken into account, this result may however be biased toward zero. With some caution, we may interpret –1.9 as a lower level for the effect on days of absence.

In summary, the results indicate that the probability of mothers' sickness episode after giving birth is smaller in families in which the father takes out gender-neutral leave, with a marginal effect of -0.01 - 0.02. The FE and DID results, which are the most credible, show no effect of just taking leave (no/yes).

5. Discussion and concluding remarks

Transfer of resources to families with children is one of the important features of Norwegian welfare state. Long paid parental leave and provision of high quality subsidized day care are important policies in this regard. Probably as a result of these policies, female labour force participation is higher in Norway than in many other OECD countries, and the labour force participation rates of women and men are quite similar (74.0 versus 76.8).

Paid parental leave policy in Norway has three components: maternity quota, paternity quota and gender-neutral leave. Only a few weeks are reserved for maternity and paternity quotas whereas the remaining period of leave is gender neutral and can be shared by parents as they wish. Most fathers use the paternity quota but the take-up of gender-neutral leave is low. Public policy makers are considering a variety of options to increase fathers' share of parental leave so that mothers experience less stress in reconciling their work and family lives (Ministry of Children and Equality 2009). Therefore, it is important to know the net impact of fathers' leave. Previous research has focused on the impact of taking paternal leave on fathers' participation in childcare. Our study extends this literature by examining a positive side effect of paternity leave on the health of mothers. We focus on mother's sickness absence as it may have an adverse effect on their future health as well as their participation in the labour force. The exact mechanisms behind the effect of fathers' leave on mothers' sickness absence are beyond the scope of our analysis, which relies on administrative data sources. However, a likely explanation based on previous research is that a more equal sharing of childcare may have a positive effect on mothers' health. We hypothesize that fathers taking leave may result in equal sharing of childcare in the future, as taking leave may alter their parenting skills (see O' Brien, 2003), leading to a decrease in mothers' sickness absence. It cannot be ruled out a priori that the effect of fathers' leave on mothers' absence is the result of selection. Therefore, we applied fixed effect and difference in differences estimators. We find no effect of fathers' just taking leave (no/yes). A possible explanation is that a majority of fathers take leave up to a paternity quota that comprises only a few weeks, and this may not be helpful in improving fathers' childcare skills. Hence, mothers still remain responsible for childcare after the leave period is over. We find that in the 6% of families in which fathers take longer leave (gender-neutral leave), the incidence of absence among mothers is reduced by one to two percentage points, or about 5–10% from an average level of about 20%.

Our results suggest that policies that lengthen fathers' quota to several weeks may have positive effects by reducing the amount of sick leave that mothers take. However, increasing fathers' quota may increase the costs of parental leave as the majority of fathers have higher wages than mothers. Hence, from a policy perspective, the net benefit of setting a longer paternity quota has to be evaluated.

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Table1: Distribution of Leave and Mean values of Sickness absence based on panel

After child Birth	Total	No	Father	Paternity	Gender-
	population	Father_leave	leave>0	quota	neutral
Percentage out of total					
population		35.56	64.44	58.60	5.84
Percentage given fathers'					
leave is taken				90.93	9.07
Sickness absence	0.23	0.23	0.22	0.23	0.21
Days of sickness absence	11.82	12.53	11.36	11.85	10.48
Days sickness absence>0	52.48	54.32	51.05	52.32	50.49
Before Child Birth					
Sickness absence	0.15				
Days of sickness absence	5.76				
Days sickness absence>0	37.72				

Table 2. Tobit regression: Effect on mothers' days of sickness absence

			Unconditional Expected value		Conditional on being Uncensored		Probability Uncensore	
	Coefficient	Z value	Marginal Effect	Z value	Marginal Effect	Z value	Marginal Effect	Z value
Fathers' Leave (Yes=1)	-4.97	-5.0	-0.85	-5.0	-0.99	-5.0	-0.01	-5.0
Fathers' gender neutral leave (Yes=1)	-6.11	-3.1	-1.01	-3.2	-1.21	-3.1	-0.02	-3.1
Birth (Yes=1)	26.28	27.2	4.56	26.8	5.29	27.2	0.07	27.1
Number of children under 11(Yes >2)	10.93	8.0	1.76	8.6	2.14	8.2	0.03	8.4
Annual Income (NOK 10,000)	4.34	36.5	0.75	36.4	0.87	36.8	0.01	37.0
Income Square	-0.05	-30.0	-0.01	-30.1	-0.01	-30.3	-0.0001	-30.3
Husband Annual Income (NOK 10,000)	-0.01	-0.4	0.00	-0.4	-0.001	-0.4	-0.00002	-0.4
Education	-2.26	-13.9	-0.39	-13.9	-0.45	-13.9	-0.006	-13.9
Husbands' education	-0.91	-6.3	-0.16	-6.3	-0.18	-6.3	-0.002	-6.3
Age	6.19	8.1	1.07	8.1	1.24	8.1	0.02	8.1
Age Square	-0.12	-9.7	-0.02	-9.7	-0.02	-9.7	-0.0003	-9.7
Part time work (yes =1)	-1.14	-1.1	-0.20	-1.1	-0.23	-1.1	-0.003	-1.1

Number of Observation

181,842

Table 3. Logit Fixed Effect and Linear Fixed Effect regression: Effect on mothers' sickness absence (Yes=1)

Logit Fixed Effect

Linear Fixed Effect

	Coefficient	Z value	Marginal Effect	Z value	Coefficient	t value
Fathers' Leave (Yes=1)	0.04	1.4	0.002	1.4	0.001	0.4
Fathers' gender neutral leave (Yes=1)	-0.12	-1.9	-0.01	-1.8	-0.02	-3.0
Birth (Yes=1)	0.14	5.4	0.01	4.1	0.01	2.6
Number of children under 11(Yes >2)	0.36	9.7	0.02	6.3	0.04	8.7
Annual Income (NOK 10,000)	0.14	40.5	0.01	7.7	0.01	35.5
Income Square	-0.001	-23.8	-0.0001	-7.5	-0.00005	-19.5
Husband Annual Income (NOK 10,000)	0.001	0.58	0.0001	0.57	0.00001	0.2
Education	0.03	1.8	0.001	1.34	0.001	1.2
Husbands' education	0.02	1.00	0.001	0.9	0.001	1.1
Age	0.199	5.69	0.009	2.3	0.05	18.9
Age Square	-0.003	-6.02	-0.0001	-2.2	-0.001	-18.9
Part time work (yes =1)	0.02	1.2	0.001	1.2	-0.03	-8.8

103,428 181,842

Number of Observations

Table 4. Difference in Difference: Sickness absence(Yes=1) and Days of sickness absence

Sickness absence (Yes=1) Days of Sickness Absence

	Coefficient	t value	Coefficient	t value
Fathers' Leave (Yes=1)	-0.00034	-0.1	0.11	0.2
Fathers' gender neutral leave (Yes=1)	-0.02	-1.9	-1.90	-1.9
Number of children under 11(Yes >2)	0.01	1.2	0.24	0.4
Annual Income (NOK 10,000)	0.004	7.3	0.25	6.1
Income Square	-0.0001	-3.2	-0.005	-3.4
Husband Annual Income (NOK 10,000)	-0.00002	-0.1	0.003	0.2
Education	0.001	0.6	0.04	0.3
Husbands' education	0.003	1.5	0.15	1.0
Part time work (yes =1)	-0.02	-2.1	-0.75	-1.3

30,307

Number of Observations

Figures

Figure 1: Mean of Days of sickness Absence for all in the Sample

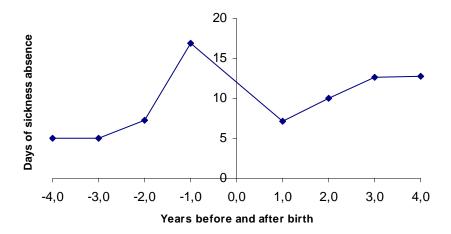


Figure 2:

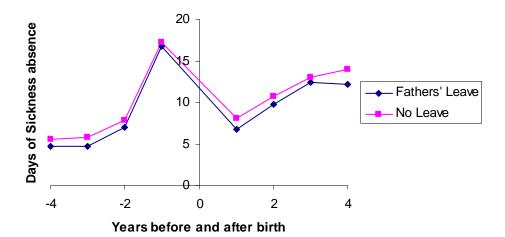
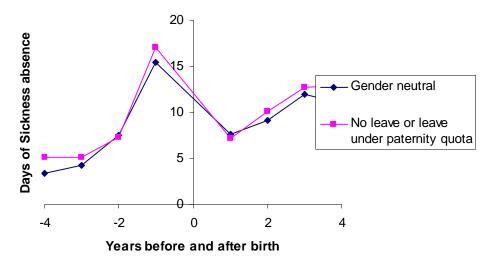


Figure 3:



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