WORKING PAPERS IN ECONOMICS

No. 12/07

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CHILD-CARE IN NORWAY: USE OF PARENTAL LEAVE BY FATHERS

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Child-Care in Norway: Use of Parental Leave by Fathers

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Abstract:

An important feature of parental leave in Norway is that it allows significant sharing of leave between parents. Parents may take 54 weeks of leave and receive 80 per cent of previous earnings or 44 weeks of leave with 100 per cent of earnings, up to a ceiling amount. Nine weeks of total 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 parental leave can be shared between parents. A reserved period of leave for fathers, known as the paternity quota, was introduced in 1993. Initially, this quota was four weeks. The paternity quota has been a great success and is utilized by 80–85 per cent of eligible fathers; however, very few fathers share gender-neutral parental leave. In this paper, we use register data to investigate factors that may influence fathers' share of parental leave for children born in 2001. We find that married fathers use more leave than cohabitants. In addition, fathers' education, mothers' income and number of preschool children positively affect fathers' use of the paternity quota and gender-neutral leave. Fathers' workplace does not affect the use of the paternity quota but has a significant effect on the use of gender-neutral leave.

1. Introduction

Traditionally, the literature on households assumes that only mothers are responsible for childcare. Becker (1991) argues that "women not only have a biological commitment to the production and feeding of children, but are also biologically committed to the care of children in other, more subtle ways" (p. 37). However, because of increased female labour force participation, in recent years fathers' involvement in child rearing has become essential to promote gender equality in households and the labour market. Moreover, in recent decades, research has shown that paternal participation in childcare is not only important in promoting gender equality but can be also important for the child's better upbringing. Children of highly involved fathers show increased cognitive competence, increased empathy, enhanced school performance, greater motivation to succeed, enhanced social development and self-esteem (see, for instance, ; Amato and Rivera 1999; Barnes 1984; Bernadett-Shapiro et al. 1996; Forehand et al. 1986; Forehand et al. 1993; Lamb 2004;McBride et al. 2001).

Blomquist and Christiansen (1995) and Bergstrom and Blomquist (1996) argue that, owing to the income tax differential between home production and the paid labour market, too little paid work is undertaken. They suggest that public policies that stimulate female labour force participation may improve the performance of the economy as a whole. As a result of family welfare policies, female labour force participation is higher in Scandinavia than in many other OECD countries, but many women work part time, mainly because of childcare responsibilities.[1] It is essential that fathers are involved in childcare so as to increase female labour force participation and make it easier for women to combine work and family. In Scandinavian countries, parental leave policies have been expanded in recent years to allow

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[1]For instance, in Norway, workforce participation among females aged 16–64 is 75.7% but 33.2% are in part-time work (OECD, employment outlook, 2005). In 2003, 65% of employed women with children 0–6 years old worked full time and 35% worked part time.

for significant sharing of leave between parents, thereby establishing the preconditions for both mothers and fathers to be involved in the care of children. An important feature of these parental leave schemes is that some period of leave is reserved for the father. This reserved period of leave, known as the paternity quota, is not transferable to the mother and is lost if not utilized by the father. Norway was the first country to introduce the paternity quota in 1993. Its purpose is to strengthen the father's relationship with the child and to signal the need for fathers to participate in childcare so that mothers experience less stress in their work and family lives. Initially, the paternity quota was set at four weeks, but it was increased to six weeks in July 2006. The majority of fathers use their paternity quota but their take-up of gender-neutral parental leave remains very low. It is still mainly women who interrupt their careers and remain absent from work in order to take care of children. The question of how to attain gender equality in household work and promote fathers' involvement in childcare occupies a central place in political debate in Norway. Encouraging fathers to share gender-neutral parental leave with mothers is considered an important policy issue. The identification of factors determining whether Norwegian fathers take parental leave, especially gender-neutral parental leave, is therefore a crucial policy issue that we address in this paper.

Few studies in Norway have investigated the determinants of use of paternal leave because of a lack of data in the past. These studies were based on relatively small samples and self-reported data (see Section 2) and, therefore, it is difficult to generalize their findings. In this paper, we use a large sample extracted from register data to investigate factors that may influence fathers' share of parental leave in Norway. Using this register data, we focus on differentiating the determinants of taking leave for the minimum paternal quota or for a longer period. Fathers must either take the paternal quota period of leave or forfeit it. The paternal quota cannot be transferred to the mother, whereas fathers' use of leave in excess of the

paternal quota is optional. Therefore, the determinants of taking more than the paternal quota may be quite different, or the same factors may have different effects on the take-up of paternity quota and longer periods of leave. We run ordered logit regressions to explore the factors that influence whether fathers take leave and how the effects of these factors differ if fathers also use gender-neutral parental leave (leave in excess of the paternity quota).

The rest of the paper is organized as follows. Section 2 describes the Norwegian parental leave policy and trends of fathers' use of leave. Section 3 explains our research methodology. The sources of our data and possible determinants of fathers' use of leave are discussed in Section 4. Our empirical findings are reported and discussed in Section 5. Section 6 concludes the paper.

2. Parental Leave in Norway

Current Benefits

Rights and entitlements regarding parental leave and pay compensation are established by law in Norway. 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 the National Insurance Board up to a relatively high ceiling,[2] with no direct costs to parents' employers. Parents may take 54 weeks of leave and receive 80 per cent of their previous earnings or 44 weeks of leave and receive 100 per cent of their previous earnings, up to the ceiling amount. Nine weeks out of the total period of leave are, however, reserved for the mother and six weeks for the father and by general rule, these weeks cannot be transferred to the other parent. The remaining leave can be shared between the parents. The mother is expected to take three

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[2] The ceiling is set at annual earnings equal to $6 \times base\ amount$. The base amount is adjusted yearly to account for inflation. However, by collective bargaining agreements with the employer, an employee may be entitled to benefits greater than $6 \times base\ amount$.

weeks of her reserved leave shortly before giving birth and six weeks immediately following it.

Mothers who do not qualify for maternity leave receive a birth allowance of NOK 33,584. Since 1994, parents have also been able to combine part-time work and parental leave under the time account scheme.

Programme Extension

In 1977, Norway introduced 18 weeks of parental leave. At least six weeks of leave was to be taken before the birth. Fathers could take up to 12 of the 18 weeks, provided that the mother returned to work. In 1987, leave was extended to 20 weeks. Since 1987, the leave has been gradually extended (see Table 1), with most of the changes occurring in the early 1990s.

(Table 1 about here)

In 1989, the leave period was made flexible. Parents were entitled to take 24 weeks of leave with 100 per cent compensation of previous earnings or 30 weeks of leave with 80 per cent compensation. In 1993 the leave was extended to 42 weeks with 100 per cent, or 52 weeks with 80 per cent, of previous earnings. Nine weeks were reserved for the mother and four weeks for the father (paternity quota). Currently, the period of leave is 44 weeks or 54 weeks with 100 per cent or 80 per cent of salary, respectively. The paternity quota has been increased to six weeks.

In 1994, the time account scheme was introduced to enable more flexible use of parental leave. The scheme allows parents to combine parental benefits with reduced working hours. The total parental leave remains the same, but it can be extended over a longer period of time.

Prior to July 2000, the father's right to parental leave was based on the mother's work before childbirth. To qualify for paid parental leave, the mother had to be employed for at least six out of the ten months prior to childbirth. This rule was amended in 2000 to allow the father to receive parental benefits in his own right regardless of whether the mother was employed prior to childbirth. If the mother was not working prior to childbirth, the father can take up to 29 weeks of leave with 100 per cent of salary or 39 weeks with 80 per cent of salary. However, a father cannot take leave if the mother is at home looking after the child. The father receives parental benefits based on the rights he has earned only if the mother works in the labour force after birth, or she is undertaking full time education or is unable to look after the child because of sickness. If the mother works part time (less than 75 per cent of a full time job) after the birth, the father's salary compensation is reduced in proportion to the reduction in the mother's working hours.

Use of Leave by Fathers

The main objectives of Norway's parental leave programme are to increase female labour force participation and encourage fathers to spend more time taking care of children. Although the legal framework allows significant sharing of parental leave between parents, it is mainly women who use the major part of parental leave. The introduction of the paternity quota increased the number of fathers taking leave. In 1993, only four per cent of fathers took parental leave, whereas 45 per cent of fathers made use of the leave in 1994 (see Table 2). This figure rose to 85 per cent in 2001 but the paternity quota has not encouraged fathers to

take longer leave. In 2001, only 13.5 per cent of fathers receiving parental benefits took leave in excess of the paternity quota.

(Table 2 about here)

Literature on Use of Fathers' Leave

As mentioned earlier, it is mainly Scandinavian countries that allow significant sharing of parental leave between fathers and mothers. This section gives a brief account of previous research on fathers' use of leave in Norway and Sweden.

Most of the previous studies suggest that fathers' working life and income have a significant effect on their take-up of parental leave. Brandth and Øverli (1998) report on the use of the paternity quota, carrying out a survey of 1,661 men who became fathers in 1995 in Norway. They found that 78 per cent of fathers with the right to paid leave used their quota. The main reasons for not using the quota were socioeconomic background and work-related variables. They found that higher paternal income and longer working hours were negatively associated with use of paternity quota. Sundström and Duvander (2002) used register data for 28,503 Swedish fathers with children born in 1994. They found that fathers' income had a positive effect on their use of leave and suggest that fathers who earned more may be less vulnerable to adverse reactions in their workplace.

Brandth and Kvande (2002) studied the use of the paternity quota. Their data comprised 1,360 men who became fathers in the period May 1994 to April 1995 in the municipalities of Trondheim and Orkdal. They found that 80 per cent of fathers used the quota. They suggest that fathers used the quota because this was the minimum period required by the state.

Brandth and Kvande (2001) compared the use of the paternity quota and the Norwegian time account scheme. Their data comprised a survey of almost 4,000 men who became fathers in 1987, 1994 or 1995 in the municipalities of Trondheim and Orkdal. They also surveyed parents who used the time account scheme in 1997 (only one-and-a-half per cent of fathers). Their findings show that the majority of fathers used only the compulsory leave while the take-up of flexible leave was inhibited by considerations of its impact on men's working lives. The majority of fathers perceived the paternity quota as a right given to them by the state. Almost 70 per cent of fathers stated that they used the paternity quota because they ought to avail themselves of this right. Brandth and Kvande (2001) conclude that state intervention through collective, standardized arrangements establish a norm and provided the necessary legitimacy for taking leave from work. The time account scheme, on the other hand, requires considerable negotiations between the father and his workplace since it is an optional, nonstandard arrangement. They suggest that as long as leave is based on individual choice, it is difficult for individual employees to set limits for work and define the boundaries between work and home.

Brandth and Kvande (2001) did not explicitly report that employees met negative reactions from employers to their possible use of the time account scheme, whereas studies in Sweden suggest that fathers experience obstacles to the taking of parental leave. Haas (1992) studied 319 Gothenberg couples with children born in 1984 and found that fathers, more so than mothers, reported that they met negative reactions from employers, supervisors and workmates to their possible use of parental leave. Albrechet et al. (1999), using cross-section data of 2,193 individuals in Sweden, report that parental leave had a larger negative effect on subsequent wages for fathers than mothers. This result indicates that fathers faced more negative responses from their employers than did mothers. Näsman (1992), in a survey of

1,000 Swedish children born in 1986, report that 25 per cent of fathers stated that they experienced obstacles to using parental leave. Näsman (1992) and Haas (1992) also assert that fathers who worked in the public sector took more parental leave than fathers working in the private sector. Bygren and Duvander (2006), using register data of 3,755 Swedish fathers, also report that fathers who worked in the private sector, in small workplaces or in male-dominated workplaces were less likely to use parental leave. They also suggest that mothers' workplace situations had less influence on fathers' leave use.

Previous studies also suggest that fathers' education level plays a significant role in determining how much parental leave they take. Brandth and Øverli (1998) using a sample of 1,445 Norwegian men, suggest a positive association between use of the paternity quota and education. They found that 31 per cent of men with a university education used the paternity quota, compared with 24 per cent men with a college education. Näsman (1992) reports that fathers who used at least one month of leave had more education than other fathers. Hoem (1995), using Swedish data for children born in 1974–90, also found that fathers with high education levels were more likely to take at least one month of parental leave.

Mothers' education, income and work were also found to be important determinants of fathers' use of leave. Brandth and Kvande (2001) found that fathers did not use paternity quota if mothers worked part time and did most of the housework.. They suggest that fathers are more likely to use their paternity quota when mothers work longer hours and have higher incomes. Näsman (1992) found that when both parents were gainfully employed, fathers took leave more often when mothers had relatively high levels of education and work skills. Haas (1992) also reports that fathers who were married to mothers with high status jobs were more likely to use their parental leave. Sudström and Duvander (2002) show that fathers took more

leave if mothers had high levels of education, and less leave if mothers' income was low. Sudström and Duvander (2002) also suggest that parents' marital status influence whether fathers take parental leave. They report that married fathers were more likely to take parental leave than cohabitants. In addition, they found that younger cohorts took more leave than older cohorts. Based on the assumption that younger cohorts had more egalitarian attitudes than older cohorts, they suggest that parents are more likely to share parental leave if both of them have egalitarian gender attitudes.

3. Research Methodology

Our dependent variable is ordinal. An individual has three options: do not take leave, use leave up to the paternity quota or use leave in excess of the paternity quota. For modelling the choice between these three categories, we use an ordered logit model, specified as:

$$Y_i^* = \beta X_i + \varepsilon_i$$

where X_i is a vector of explanatory variables with coefficient vector β. ε_i is the random disturbance term,

and is assumed to be independent of X_i and has logistic distribution. The outcome variable Y_i^* is a latent variable and is not observed, but an observation rule defines Y_i representing the category into which Y_i^* falls:

$$Y_i = 0 \text{ iff } Y_i^* \leq \delta_1$$

$$Y_i = 1 \text{ iff } \delta_1 < Y_i^* \leq \delta_2$$

$$Y_i = 2 \text{ iff } Y_i^* > \delta_2$$

where δ_s are unknown threshold parameters to be estimated. The coefficients and threshold parameters are estimated by the method of maximum likelihood. However, by using this method, the interpretation of the coefficients is difficult. Since a usual practice is to report marginal effects, we therefore report marginal effects. These marginal effects are evaluated at average sample characteristics.

4. Data and Variables

Data

Our data are extracted from the FD-Trygd database, which contains information about the total Norwegian population aged 16–67 years. The database includes information from several public registers, merged by Statistics Norway. It is organized in an event-oriented fashion; records are added when an individual's status in a register changes. It provides detailed background information for each individual, including income, working hours, age and education. Maternity leave information in FD-Trygd currently covers the period from 1992 to 2002.

Our sample comprises married and cohabitating parents with a child born in 2001. The reason for choosing 2001 was that in July 2000, the Norwegian government introduced a substantial change in parental leave arrangements (see Section 2). Among other changes, this reform may also influence the factors determining fathers' use of leave. Moreover, choosing 2001 gives us information about the factors determining fathers' leave in recent years. This information is important if the Norwegian government wants to introduce further reforms in the parental leave policy.

Very few women give birth after the age 45 or before the age 25. Our sample comprises couples with mothers aged 25–45 years. Originally, we had information on 24,678 births. We focus on couples with mothers who are native Norwegians but fathers are from any ethnic background. We are interested in knowing the determinants of paternal leave given that fathers are entitled to get such leave; therefore, we exclude individuals who did not have any earnings in the year of childbirth and the previous year. We also exclude couples with mothers who took no leave or took leave less than their reserved quota (nine weeks), as our aim is to determine which factors influence whether fathers share parental leave with mothers. In addition, we exclude observations with missing variables. Very few parents take advantage of the time account scheme; in our data, only two per cent of parents combined work and leave. We exclude these from our analyses. Our remaining sample comprises 12,670 observations. Table 3 shows the number of observations that we exclude.

(Table 3 about here)

Variables and Hypotheses

This section describes the possible determinants of fathers' use of leave that we investigated. As the number of parental leave benefit days is fixed, we expected that fathers' parental leave would be determined by characteristics of both mother and father. Based on household literature, we draw hypotheses that predict which characteristics of mothers and fathers affect fathers' use of parental leave, and their manner of operation. In the next section, we evaluate our hypotheses and discuss whether the results we obtain are in line with previous studies on fathers' use of leave in Scandinavia.

Human capital analyses assume that education increases the earnings and productivity of women in the labour market, which establishes a positive association between women's education and their participation in the labour force. The literature on women's return to work after childbirth suggests that more highly educated women return to work sooner, as their earning profiles are steeper and they incur a greater reduction in their future wages from taking longer leave (see, for instance, Gustafsson et al. 1996; Rønsen and Sudström 1996). Previous research in Scandinavia suggests that highly educated fathers spend more time in childcare compared with less educated fathers (see Rønsen 2001; Flood and Gråsjö 1997). Since the education levels of both parents can be important determinants of both childcare and labour force participation, we include years of education of fathers and mothers as dummy variables using compulsory education (nine years of school) as a reference category. We expect that both mothers' and fathers' education will have a positive effect on fathers' use of parental leave.

Our data provided information on annual earnings of individuals. We include earned income of both mother and father for the year 2000 (a year prior to childbirth). Empirical studies (see, for instance, Bielby and Bielby 1989; Bielby 1992) show that women with higher incomes are likely to be more committed to labour force participation and prefer to return to the labour force as soon as possible (see Leibowitz and Klerman 1995). Therefore, we expect a positive association between mothers' income and fathers' leave. As far as fathers' income is concerned, given that families prefer to take leave for 52 weeks with 80 per cent of salary,[3] we expect two possible opposing effects on fathers' use of leave. Where the husband's income is higher than his wife's, it is more costly for the family if the father takes leave; on

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[3] This is because childcare centres are only available for children who are at least one year old. Therefore, 42 weeks of leave with 100 per cent salary is less practical and less common.

the other hand, the family is more able to afford his use of leave if he has higher earnings. Which of these effects dominates is an empirical question that we address.

In addition to annual earnings, our data also provide information on whether individuals work full time or part time. We include as a dummy variable whether mothers were working full time a year prior to childbirth and use part-time work as a reference category. Like earned income, full-time work indicates that mothers are career oriented. Moreover, it is quite likely that the division of household work, including childcare, is less gender-based if women are working full time in the labour market. Hence, we expect a positive effect from mothers' working hours on fathers' use of leave.

The norms at an individual's workplace and job requirements may have a strong impact on use of parental benefits, as suggested by previous research on fathers' use of leave. Our data provide information on individuals' job categories. We include dummy variables having the value 1 if mothers or fathers are working in teaching, health or social services. Job requirements in these professions are flexible; consequently, it is easier to combine work and childcare in these professions than in other professions. Moreover, these sectors in Norway are dominated by female employees. Employers in female-dominated workplaces may be more used to absences because of parental leave and the attitude of colleagues toward parental leave may also be positive. Hence we may say that female-dominated workplaces have established norms that employees will have long periods of parental leave to take care of infants. We therefore hypothesize a positive effect on fathers' use of leave for fathers working in the teaching, health or social service sectors. However, we expect a negative effect on fathers' use of leave for mothers working in teaching, health or social services, as these provide the flexibility that makes it easier for women to combine work and childcare.

Moreover, mothers do not risk adverse reactions from employers and colleagues if they take lengthy maternity leave.

The number of children is an important determinant of women's labour force participation. Theoretical and empirical literature on families suggests a trade-off between fertility and labour market participation (see, for instance, Becker 1985; Nakamura and Nakamura 1994; Rønsen and Sudström 1996; Sanchez and Thomson 1997). Consequently, career-oriented women may have a lower number of children than women specializing in household work. Hence, a higher number of children may indicate a more gendered division of household work, leading to a negative effect on fathers' use of leave. To estimate the effect of number of children, we used a dummy variable with number of children equal to or less than two as a reference category.

We also include the number of preschool children in our analyses.[4] This variable may have a different effect on fathers' use of leave than the total number of children, as the presence of more preschool children does not necessarily mean higher fertility but instead may indicate a shorter time between pregnancies. Mothers can be very career oriented and may have, for instance, two or more preschool children instead of one. Hence, we have conflicting hypotheses on the effect of this variable. According to human capital theory, a higher number of preschool children may have a negative impact on fathers' use of parental leave if the division of labour in the household (including childcare) is more gendered. The increased time demands imposed by preschool children increase the advantages of specialization (see Becker 1991). On the other hand, social structural theory suggests that the time demands created by preschool children increase the domestic involvement of both husbands and wives.

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[4] Children aged less than six years, as children start school at the age of six in Norway.

Husbands are more likely to participate in household labour, particularly when the wife's availability is limited (see, for instance, Berk 1985; Coverman 1985; Coltrane 1989). Hence, it is quite likely that fathers will be more involved in childcare if the number of dependent children increases and women are also career oriented. How the number of preschool children affects fathers' use of leave is an interesting empirical question that we address in this paper.

We believe that marriage generally represents a higher level of commitment between couples than cohabitation. Therefore, we compare use of fathers' leave for married and cohabiting couples. Here, one may expect two opposing effects. The division of labour is generally more gendered within marriage, leading to less use of leave by married fathers. On the other hand, because of their stronger commitment, married fathers may be more inclined to invest time in their children and hence use more leave than cohabitants.

The research literature suggests that fathers are more involved in childcare when the parents' ideology is more egalitarian (see, for instance, Deutsch et al. 1993; Thompson and Walker 1989). We therefore presume that fathers with less traditional orientations are more likely to care for their infants and prefer to use parental leave. To estimate the effect of fathers' orientation, we use dummy variables indicating fathers' ethnic background. We believe that fathers from Western countries are more involved in using parental leave than fathers from traditional societies. We also include the year of birth of each parent to detect changes in preferences and attitudes to fathers' participation in childcare between cohorts, with the expectation that younger cohorts may have a more egalitarian approach.

Table 4 shows the distribution of fathers' leave for our sample. We see that 26 per cent of fathers do not take any leave although they were eligible to do so. The majority of fathers (57

per cent) only take leave for the paternal quota period (four weeks in 2001). Almost 16 per cent of fathers also use gender-neutral parental leave.

(Table 4 about here)

Table 5 shows the mean values for our explanatory variables. We see that the mean values for parents' education and number of preschool children are highest for fathers who take leave for longer than the paternity quota. The proportions of mothers who worked full time and fathers who worked in teaching, health or social services are also higher for the same group. On the other hand, the proportion of families with more than two children and the proportion of cohabitant parents are highest where fathers did not take any leave. Moreover, mothers' income and the proportion of women working full time are lowest for the same group.

(Table 5 about here)

5. Regression Results

We run ordered logit regressions for three models. The results are shown in Table 6. First, we run regressions without controlling for parents' earnings, work history or professions (Model 1). In Model 2, we control for parents' earnings and work history and in Model 3, we also control for parents' professions and fathers' ethnic background. Since the majority of fathers take some leave, our main focus is to differentiate the determinants of fathers' leave up to or in excess of the paternal quota. The results for these two choices are reported in Table 6. Factors determining why fathers do not take any leave are reported in the Appendix (see Table A).

(Table 6 about here)

We see in Table 6 that mothers' university education has a positive effect on fathers' share of leave (Model 1) but this effect is mitigated when we control for mothers' income (Model 2). Model 2 and Model 3 show there is no effect of mothers' higher education on fathers' use of leave. Hence, our hypothesis that mothers' higher education will have a positive effect on fathers' share of leave is rejected. However, fathers' own education has a positive impact on their use of leave in all models. Fathers with university education are much more likely to take leave in excess of the paternity quota. This effect of fathers' university education supports previous research in Scandinavia that shows that highly educated fathers are more inclined to share childcare than less educated fathers (Rønsen 2001; Flood and Gråsjö 1997). Moreover, the positive effect of fathers' education is also consistent with previous research on fathers' use of parental leave (see Brandth and Øverli 1998; Näsman 1992; Hoem 1995).

We find that fathers' share of leave increases at a decreasing rate with an increase in mothers' earnings. The effect of mothers' earnings is much higher if fathers also take gender-neutral parental leave. This result supports our hypothesis that mothers with higher earnings prefer to return to work as soon as possible, leading to more use of leave by fathers. As far as the effect of fathers' income is concerned, we proposed that fathers' income may have a positive or negative effect on his use of leave. Our results suggest that the net effect of fathers' income is zero. This result is not consistent with previous research on fathers' take-up of parental leave. Previous research reports both positive and negative effects. Brandth and Øverli (1998) found a negative association between fathers' income and leave in Norway, whereas Sundström and

Duvander (2002) using Swedish data show a positive effect of fathers' income on their use of leave.

We also evaluate the effect of mothers' working time on fathers' use of leave. In line with our expectations, we find that the effect on fathers' leave is positive if mothers worked full time prior to childbirth. However, in contrast to our expectations, mothers' workplace does not affect fathers' leave. The effect of fathers' workplace is also not important for the use of paternity quota. However, fathers' workplace is highly significant for the take-up of gender-neutral parental leave. Fathers take more leave than the paternity quota if they are working in teaching, health or social service sectors (female-dominated professions), indicating that norms in the workplace can be one of the most important determinants of fathers' use of gender-neutral parental leave. This finding appears to support the notion by Bygren and Duvander (2006) that fathers may be influenced by the patterns of leave use of other fathers in the workplace. However, it is also quite possible that men who are inclined to use more parental leave may self-select to work in female-dominated professions. Thus, our findings of variation in fathers' use of leave may have originated from the different preferences of individual employees instead of being influenced by the leave use of other fathers in the workplace.

The effect of families having more than two children on fathers' use of leave is negative. This result supports our hypothesis that the division of household work and childcare is more gendered where parents have more children. As far as the number of preschool children is concerned, we argued that their effect on fathers' participation in childcare would be both positive and negative. Our findings show that fathers' share of leave increases with an increase in the number of preschool children. This effect is higher if fathers take more leave

than the paternity quota, whereas the effect of having more than two children is almost the same for the two levels of parental leave.

We also evaluate the effect of parents' marital status on fathers' use of leave. We find that married fathers take more weeks of leave than cohabitants, indicating that married fathers are more committed to their union and more inclined to invest their time in childcare. Hence, like Sundström and Duvander (2002), we reject the hypothesis of a more gendered division of childcare among married couples as compared to cohabitants. However, the effect of marriage is larger for fathers' use of leave up to the paternity quota, whereas for use of gender-neutral leave, the difference between married and cohabitant fathers decreases.

Our hypothesis of a positive impact for egalitarian orientation is supported only for fathers' ethnic background. We find that fathers with non-Western backgrounds use less leave than fathers from OECD countries. Non-Western fathers even have a lower take-up of the paternity quota. We do not find any cohort effect, which contrasts with findings by Sundström and Duvander (2002).

Sundström and Duvander (2002) also report that parents' work experience, fathers' income above the ceiling and birth order of the child have significant effects on fathers' use of parental leave in Sweden. We also run regressions using parents' work experience during the last three years, whether parents' income is above the ceiling and the birth order of the child but none of these variables is statistically significant (results not shown).

6. Conclusion

An important feature of parental leave in Scandinavian countries is that it allows significant sharing of leave between parents, thereby establishing the preconditions for both mothers and fathers to be involved in the care of children. However, in practice, this policy has proved ineffective in encouraging fathers to share childcare responsibilities. In response to fathers' reluctance to take parental leave, Scandinavian countries have instituted defined periods of leave reserved for fathers, known as the paternity quota. Most fathers use their paternity quota but their share of the total leave taken remains very low. To increase fathers' share of leave, it is important to know which factors determine whether fathers take leave. Most of the existing literature on determinants of fathers' use of leave in Scandinavia is based on Swedish data. In this paper, we supplement the existing studies by using register data from Norway. Norway was the first country to introduce a paternity quota. Parents in Norway can also choose to take leave with 100 per cent compensation of their previous earnings. Our main aim is to differentiate between fathers' use of paternity quota and leave in excess of the paternity quota, as it is important to know which factors influence fathers' share of gender-neutral parental leave.

In line with previous research by Sundström and Duvander (2002), we find that a father's leave is the outcome of two bargaining and adjustment processes, one between him and the mother and one between him and his workplace. Our findings indicate that mothers' income, fathers' education and the time demands created by preschool children increase fathers' share of gender-neutral leave as well as their use of the paternity quota. However, the effect of these variables is higher for leave in excess of the paternity quota compared with leave up to the paternity quota, indicating that these factors are more important for the take-up of gender-

neutral leave by fathers. Taking into consideration the effect of mothers' income, we may say that a decrease in the gender wage gap will increase fathers' share of parental leave. This increase will in turn extend mothers' time in the labour market and will minimize employment gaps between women with childcare responsibilities and those without them. Hence, decreasing the gender wage gap will improve women's economic status directly and indirectly by affecting men's take-up of parental leave.

We also find that married fathers use more parental leave than cohabitants. Fathers' ethnic background is also important in determining their use of leave. Our findings indicate that non-Western fathers are reluctant to use their paternity quota. The most important finding of our research is that fathers' workplaces have no effect on the use of paternity quota but have a very large influence on their share of gender-neutral leave. The majority of fathers use their paternity quota irrespective of their workplace, probably because it is an established norm that the paternity quota is a right given to fathers by the state. Our finding that fathers take leave in excess of the paternity quota if they are working in female-dominated professions (teaching, health or social services) may be a result of many factors. For instance, our findings may be the outcome of norms against fathers taking more leave than the paternity quota. It is likely that fathers may decide not to take gender-neutral leave because of negative reactions from colleagues and employers. In this case, we believe that the development of policies that contribute to reducing sex segregation in the labour market may improve fathers' participation in parental leave. The presence of more women in male-dominated professions will change the prevailing norms in favour of using more parental leave. On the other hand, it is also possible that men who are inclined to use more parental leave may self-select to work in female-dominated professions. Thus, our findings of variation in fathers' use of leave may have originated from the different preferences of individual employees instead of being the

outcome of reactions from colleagues and employers. A full analysis of associations between fathers' use of leave and their places of work requires a richer data set than the one we used. Hence, further research is needed to explore more accurately the effects of fathers' workplaces.

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Table 1: Extension of Parental Leave in Norway

Year	# of weeks		Paternity quota	Other changes
	100%	80%		
1977	18			
1987	20			
1988	22			
1989	24	30		
1990	28	35		
1991	31	38		
1992	33	42		Right to pregnancy allowance
1993	42	52	4 weeks	9 weeks reserved for the mother
1994				Time account scheme
2000				Amendment in basis for Father's leave
2005	43	53	5 weeks	
2006	44	54	6 weeks	

Source: National Insurance Board, Oslo

Table 2: Use of Leave by Fathers

Year	Percentage of Fathers who used Leave	Average Number of weeks used	Percentage of all benefit weeks
1988	0.6	n.a.	
1989	1.0	n.a.	
1990	1.7	n.a.	
1991	2.0	n.a.	
1992	2.3	n.a.	
1993	4.1	7.8	23.6
1994	45	4.8	14.5
1995	57	4.8	14.5
1996	61	4.8	14.5
1997	75	4.8	14.5
1998	85	4.8	14.5
1999	85	4.8	14.5
2000	85	4.6	13.9
2001	85	5.2	15.8

Source: National Insurance Board, Oslo

Table 3: Sample and Exclusions

Original sample	24,678
Non-native	4,570
Mothers did not use parental leave	5,162
Mothers use Leave less than 9 weeks	411
Mother's income missing	12
Father's income missing	169
Fathers did not have any income	800
Mother's education missing	216
Father's education missing	263
Parents using time account scheme	400
Remaining sample	12,670

Table 4: Distribution of Father's Leave

	# of observations	*Percent*
No leave	3,341	26.37
Leave equal to or less than Paternity Quota	7,217	56.96
Leave more than Paternity Quota	2,112	16.67
Total	12,670	

Table 5: Mean and Frequencies of Variables

	No leave	Paternity Quota	More than Quota
Number of years of Mother's education	13.80	14.41	15.04
Number of years of Father's education	14.25	14.97	15.55
Mother's year of Birth	1969	1970	1969
Father's year of Birth	1966	1967	1967
Number of preschool children	1.46	1.48	1.82
Total number of children>2, %	36	28	26
Parents Married %	80	99	99
Mother's last year's income in NOK 100	2,049	2,222	2,388
Father's last years income in NOK 100	3,542	3,547	3,535
Mother worked full time last year, %	73	77	85
Mother teacher, health or social service, %	13	15	13
Father teacher, health or social service, %	2	6	9
Non-western Father, %	2	1	1

Table 6: Determinants of Fathers' Leave: Order Logit Regression

	Model 1		Model 2		Model 3	
	Marginal Effect	Z ratio	Marginal Effect	Z ratio	Marginal Effect	Z ratio
Paternity Quota						
Mother's education Collage	-0.004	-0.68	-0.003	-0.47	-0.003	-0.54
Mother's education university(>15)	0.016	2.74	0.011	1.7	0.010	1.62
Father's education Collage	0.020	3.39	0.021	3.43	0.021	3.38
Father's education university	0.028	9.96	0.027	9.42	0.026	8.35
Mother's year of Birth	-0.001	-1.55	0.0004	0.87	0.0003	0.72
Father's year of Birth	0.0004	1.34	0.0003	1.28	0.0005	1.62
Number of preschool children	0.040	12.33	0.041	12.56	0.041	12.59
Total number of children>2	-0.029	-7.03	-0.019	-5.04	-0.021	-5.32
Parents Married	0.497	37.06	0.506	38.29	0.506	37.74
Log of Mother's income			0.074	6.12	0.075	6.16
Log of Mother's income square			-0.168	-4.59	-0.170	-4.62
Log of Father's income			-0.005	-0.68	-0.003	-0.47
Log of Father's income square			0.020	0.96	0.015	0.71
Mother worked full time last year			0.021	4.85	0.020	4.66
Mother teacher					-0.002	-0.22
Mother in health or social service					-0.003	-0.61
Father teacher					0.001	0.17
Father in health or social service					0.007	1.46
Non-western Father					-0.066	-2.3
Leave More than Paternity Quota						
Mother's education Collage	-0.008	-0.67	-0.005	-0.47	-0.006	-0.54
Mother's education university(>15)	0.031	2.59	0.020	1.73	0.018	1.56
Father's education Collage	0.033	3.79	0.033	3.84	0.032	3.78
Father's education university(>15)	0.080	7.03	0.074	6.63	0.070	5.95
Mother's year of Birth	-0.001	-1.55	0.001	0.86	0.001	0.71
Father's year of Birth	0.001	1.34	0.001	1.28	0.001	1.62
Number of preschool children	0.072	15.01	0.072	15.59	0.072	15.67
Total number of children	-0.042	-8.91	-0.029	-5.97	-0.031	-6.36
Parents Married	0.156	47.15	0.154	47.01	0.153	46.61
Log of Mother's income			0.131	6.32	0.130	6.43
Log of Mother's income square			-0.297	-4.67	-0.296	-4.72
Log of Father's income			-0.008	-0.68	-0.006	-0.47
Log of Father's income square			0.035	0.96	0.026	0.71
Mother worked full time last year			0.029	5.99	0.028	5.7
Mother teacher					-0.003	-0.23
Mother in health or social service					-0.004	-0.64
Father teacher					0.111	5.27
Father in health or social service					0.092	5.09
Non-western Father					-0.055	-3.96

Appendix

Table A: Order Logit Regression

	Model 1		Model 2		Model 3	
	Marginal Effect	Z ratio	Marginal Effect	Z ratio	Marginal Effect	Z ratio
No leave						
Mother's education Collage	0.004	0.22	-0.001	-0.07	0.0004	0.03
Mother's education university(>15)	-0.050	-2.78	-0.035	-1.95	-0.032	-1.76
Father's education Collage	-0.053	-3.49	-0.053	-3.51	-0.052	-3.46
Father's education university	-0.106	-7.68	-0.098	-7.12	-0.088	-6.3
Mother's year of Birth	0.002	1.48	-0.001	-0.94	-0.001	-0.76
Father's year of Birth	-0.001	-0.86	-0.001	-0.9	-0.001	-1.2
Number of preschool children	-0.123	-17.91	-0.126	-17.84	-0.126	-18.73
Total number of children	0.043	8.86	0.022	4.35	0.024	5.01
Parents Married	-0.657	-45.49	-0.663	-46.77	-0.662	-45.93
Log of Mother's income			-0.201	-6.21	-0.201	-6.15
Log of Mother's income square			0.439	4.34	0.438	4.33
Log of Father's income			-0.055	-0.43	-0.051	-0.41
Log of Father's income square			0.225	0.45	0.208	0.41
Mother worked full time last year			-0.050	-5.41	-0.048	-5.19
Mother teacher					0.016	0.8
Mother in health or social service					0.006	0.54
Father teacher					-0.111	-7.76
Father in health or social service					-0.096	-6.83
Non-western Father					0.130	2.9

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