

Family Policies and Fertility in Norway

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Abstract

We address the relationship between family policies and fertility in Norway, including three somewhat different policies: parental leave, formal childcare, and the childcare cash benefit. We use administrative register data covering the period 1995–2004. Norwegian family policies are designed both to improve reconciliation of work and family and to improve childcare choices for parents. The analysis shows different patterns of work-family reconciliation and fertility choices among one-child couples and two-child couples. The parental leave policy is the most influential of the three policies on second-birth intensities, especially if parental leave is also taken by the father. The introduction of the childcare cash benefit is most influential on third-birth intensities. This means that policies that promote paternal involvement in childcare and gender equality are positively associated with second births, while policies giving more general family support are positively associated with third births.

Introduction

The role of institutional support of fertility behaviour has been given considerable attention now that societies with the highest level of female employment also have the highest level of fertility (e.g., Esping-Andersen 2002; Rindfuss et al. 2003; Billari and Kohler 2004). The literature has established that institutional influence such as childcare is indeed instrumental in women's participation in the labour force (e.g., Gustafsson and Stafford 1992; Kreyenfeld and Hank 2000; Esping-Andersen 2002; Kornstad and Thoresen 2006, 2007; Del Boca and Vuri 2007). However, less is known about possible links to women's fertility decisions (e.g., Neyer 2003; Sleebos 2003; Gauthier 2007). The general consensus from reviews of the literature is that there is no accurate conclusion about how policies may influence fertility. One reason for this may be found in the measurement of family policies. Some analyses measure the aggregate value of welfare benefits; others are restricted to specific policies (Gauthier 2007). Another reason is that social policies that might influence fertility often have goals other than fertility per se. Reproductive decisions may be influenced indirectly through policies that change the environment in which decisions about children are made by couples (Sleebos 2003). A third reason is the possibility of polarization of families, with different families responding to different policies in different ways (Gauthier 2007).

The aim of this article is to investigate the relationship between family policies and fertility behaviour in Norway, by focusing on three somewhat different policies: the parental leave programme, formal childcare, and childcare cash benefit. We analyse whether couples' individual use of parental leave, availability of formal childcare in the parents' municipality, and the introduction of the childcare cash benefit are related to continued childbearing among one-child and two-child couples. The analytical approach in this article do not take into account the possible feedback or endogeneity between the fertility process and parental leave use, which means that we can not distinguish causality from selection effects. We can nonetheless investigate how couples respond to the extensive policy package offered to parents of young children in Norway in terms of their fertility decisions. We are also able to see whether one policy is more influential than another in couples' decision-making when including all three policies in the analysis. The three policies included represent both work-related benefits and general family benefits. We can assume that the first type of policy instrument is crucial for working mothers, while the latter is more important for homemakers or low-income groups. Using individual register data, including policy information, covering a period of approximately ten years (1995–2004), we can make a detailed analysis of the relationship between the extensive family policy package and continued childbearing in Norway.

Family policies in Norway

The Nordic welfare states pioneered the transformation of parenthood into a political issue, offering extensive policy packages to parents of young children. Such policies have, however, not primarily been motivated by pro-natalist objectives but rather by gender equality ideologies and concern for the general well being of children and their families (Rønsen 2004a). The Nordic countries are distinctive from other industrialized countries, with relatively high female employment, also among mothers of young children, and with relatively high fertility among low-fertility countries (Ellingsæter and Leira 2006). Public policies shape the context in which individual reproductive decisions take place (Sleebos 2003). There has been a long tradition of describing and exploring national differences in gender equality and family policies (Lewis 1992; Orloff 1993; Sainsbury 1994; Korpi 2000). Based on institutional structures of relevance for gender inequality as well as class inequality, Walter Korpi distinguishes between general family support, dual-earner support, and market-oriented support (Korpi 2000). General family support has been referred to as a set of policy instruments directed at nuclear families that might

encourage the reproduction of a relatively traditional division of domestic labour, particularly if they are aimed directly at women (Crompton 2004). The policies included here are presumed to be gender-neutral, but are most likely used by the mother rather than the father. General family support includes cash child allowance and childcare cash benefit. Contrary to general family support, dual-earner support is more likely to encourage women's continuous employment and enable parents, men as well as women, to combine parenthood with paid work, thereby attempting to redistribute caring work within the family (Crompton 2004). Dual-earner support includes parental leave and formal day care for young children (Korpi 2000). Market-oriented state policies are characterized by the relative absence of either general family or dual-earner support (Crompton 2004). The Nordic countries are often characterized as belonging to a single welfare state model, where all countries have policies supporting a dual-earner family model (Korpi 2000; Esping-Andersen 2002). They are also often described as leaders in the process towards gender equality. Nordic family policies and gender equality have been closely intertwined and welfare state interventions in gender and family arrangements have been widely accepted (Nordic Council of Ministers 1995; Ellingsæter and Leira 2006). Norway, however, represents a more dualistic family policy than other countries (Ellingsæter and Leira 2006), and has been ranked high on policies that give both dual-earner support and policies that give more general family support (Korpi 2000).

The three policies included in this article represent both dual-earner policy instruments and general family policy instruments. First, the Norwegian parental leave programme entitles working parents to paid leave for 54 weeks with 80 per cent wage compensation, or 44 weeks with 100 per cent compensation in connection with childbirth.¹ Only persons who have worked for at least six of the last 10 months prior to birth are eligible for leave, and mothers not entitled to parental leave benefits receive a tax-free lump-sum cash payment at birth that in 2007 was \$6,700 or €4,700. Around 20 per cent of mothers belong to this group. The parental leave benefits are financed through general taxes with no direct costs to employers. If the parent's income exceeds a fixed ceiling (six times the National Insurance basic amount, 6G—2001, EURO = 40,020), the parental benefit will not cover the excess amount² (in 1995, 8% of mothers and 33% of fathers had income above the ceiling of 6G). With such generous wage compensations, most mothers take the allowed leave and do not return to work (for financial reasons, for example) before the end of their leave entitlement. The governmental intention behind the parental leave programme has been to make the combination of female employment and family life more feasible. First, the programme secures mothers' rights in the labour market, i.e., gives mothers the right to return to the same position after both the paid leave period and a possible additional unpaid leave period of one year. The policy also reduces the direct costs of lost income due to absence from work in connection with childbirth. In 1993, Norway was the first country to introduce an earmarked part of the leave for the father, which is lost if not used by the father. The governmental intention behind "father's leave" was to contribute to a real change in the gendering of caring responsibilities and a restructuring of the gendered division of unpaid work. Until 2005, "father's leave" was four weeks.³ The father's eligibility for "father's leave" depends on the mother's work status and her eligibility for leave benefits, which means that working fathers with a partner not eligible for leave benefits do not have access to "father's leave".

Secondly, the Nordic countries have more extensive formal day care facilities than most other European countries (Rønsen and Sundström 2002), but demand in Norway is still larger than the supply of available places (Ministry of Education and Research 2009). Day care centres in Norway may be owned and run as either public or private enterprises, but both forms of ownership receive government subsidies as long as the local government approves the centre. The expenses for a publicly approved day care place are shared between the state, the municipalities, and the parents. The owners, i.e., the municipality or the private enterprise, set the

parental fee, which covers only a fraction of running costs. In 1998, average parental payment in large cities and suburbs was about \$704 or €440 per month in private centres and slightly less in public centres. Some of the municipalities charge reduced fees for low income families, e.g. 30% lower fee in a low income family than a high income family (Hovland and Beniksen 1999). Before a new regulation came into force, there was also a 50% reduction for siblings. After much focus on the relatively high parental price, the state has gradually increased its subsidies to day care centres. A new regulation on maximum fees came into force in 2004, reducing the parental payment gradually to \$448 or €280 per month for an ordinary fulltime place from January 2006. The government's motivation for public transfers to day care centres is to facilitate parent's employment, but is also intended to provide the child with a maturing, stimulating, and safe preschool period.

The childcare cash benefit was introduced in 1998 and provides a tax-free cash transfer to couples with children aged between 12 and 36 months.⁴ The benefit is generally available as long as state-subsidized day care facilities are not used, and care exceeding 32 hours per week at day care centres makes the family ineligible for the cash benefit. Through this scheme, the government's main purpose was to (i) give families more flexibility with respect to their own childcare, (ii) provide a cash benefit to parents who preferred to care for their children at home, and (iii) compensate those who were not offered external childcare provision. The cash benefit was introduced after considerable political debate. Those in favour argued that the reform would give families "real freedom of choice" regarding the form of care they wanted for their children, while critics argued that the reform created reduced incentives for women to participate in the labour market and therefore encouraged a more traditionally gender-differentiated family (Ellingsæter and Leira 2006).

Family policies and fertility hypothesis

The three policy instruments included in the analysis represent opposite views of mothers and fathers as bread-winners and caregivers: one that implies a strengthening of the traditional gender-differentiated family and another that aims at challenging and changing it (Leira 2002). Based on preferences for motherhood, fatherhood and work–family adjustments, we believe that families respond differently to the policy instruments in terms of their fertility decisions.

Under the Norwegian parental leave programme, mothers' leave entitlement is directly connected to their labour market situation, which means that there is an important distinction between those entitled and those not entitled to leave. Generally, we assume that couples in which the woman is not economically active are pursuing a more traditional division of labour in the family. There are good reasons to believe that mothers not entitled to parental leave have a stronger preference for a male-bread-winner/female-carer family. These mothers also differ in their family orientation, and in so far as there is a positive correlation between family orientation and overall fertility, we could assume that mothers not entitled to parental leave have a higher fertility than others. For working women, paid parental leave makes the combination of female employment and family life more feasible. This is because it provides both incentives for women to become established in the labour market before considering childbearing, and allows women to keep a foothold in the labour market while taking care of a newborn child, which means that they can return to employment after leave. A previous analysis of the relationship between parental leave extensions and fertility in Norway and Finland suggests a positive policy impact, as maternity leave extensions are estimated to raise birth rates, although mainly higher parity births and mainly in Finland (Rønsen 2004b). Further, it has been argued that the dual-earner/dual-carer family challenges the gender typing of parental practices and presumes a more egalitarian partnership between mothers and fathers (Leira 2002). One part of the parental leave is earmarked for the father and is used by four out of five fathers. This "father's leave" encourages fathers to be more involved in childcare and is associated with gender equality in the couple.

Critics have argued that the equal opportunities content of the parental leave regulations is rather dubious, as the majority of leave-takers appear to be women (Bruning and Plantenga 1999). Nevertheless, there are good reasons to believe that gender equality in the family sphere (at different levels) may give the father a chance to participate in childrearing, which may both increase interest in children and ease women's burden of responsibility in the family sphere (Duvander et al. 2008). Several analyses suggest positive statistical associations between fathers' parental leave use and continued childbearing in Sweden and Norway (Olah 2003; Duvander and Andersson 2006; Duvander et al. 2008), and we should also observe a positive association between father's use of parental leave and continued childbearing.

Generally, we assume that work-related benefits reduce the incompatibility between mothers' employment and family life. The opportunity costs of having a child consist basically of two types—the mother's direct wage loss during labour force withdrawal and her loss of human capital investment and returns on these investments. It has been argued that increasing the supply of more strongly subsidized day care has made it easier for women to stay in touch with the labour market when they become mothers (Rønsen and Sundström 2002). Available day care can thereby be seen as a way of reducing the opportunity costs of childbearing and childrearing, hence the availability of high-quality subsidized day care can be positively associated with continued childbearing. However, as previous empirical findings show mixed results, the direction of the relationship between availability of formal childcare and continued childbearing is rather unclear. A recent Swedish study does not find that local variations in day care characteristics (the proportion of children enrolled in day care, the child-to-staff ratio, and the prices of day care) contribute to a better explanation of patterns in continued childbearing in Sweden (Andersson et al. 2004). These findings were linked to the fact that there are generally small local variations in an overall high coverage, allowing parents to make fertility decisions independent of regional variations (Andersson et al. 2004). Also, a study in Western Germany found no effect of the availability of formal childcare on childbearing, which was linked to an overall low coverage of available formal childcare in Western Germany (Hank and Kreyenfeld 2003). Positive effects of the availability of formal childcare on childbearing have been found in Italy (Del Boca 2002) and on first-birth timing in Norway (Rindfuss et al. 2007). For higher parities, only a weak effect of the proportion of children in formal day care is shown on third births in Norway (Kravdal 1996).

As previously mentioned, the childcare cash benefit is a cash transfer to parents whose child is not attending formal childcare at ages 12–36 months. This means that parents can use the benefit either to pay for alternative childcare or as income compensation for those staying at home with their child. Thus, the cash benefit reduces the cost of alternative childcare (if there is a lack of formal childcare) when mothers return to work after childbirth, and it reduces the costs of parental childcare. In both scenarios the childcare cash benefit will reduce the economic cost of children and thereby one could expect increasing fertility. However, if parents have preferences for formal childcare, a lack of available places in day care might in any case create a stressful situation, which might delay or reduce childbearing. However, a recent analysis suggests that couples receiving the cash benefit progress more quickly onto subsequent childbearing (Aassve and Lappegård 2009). Although the analyses do not imply any causal relationship, cash-benefit users might be a selected group of parents with generally higher preferences for children.

Data

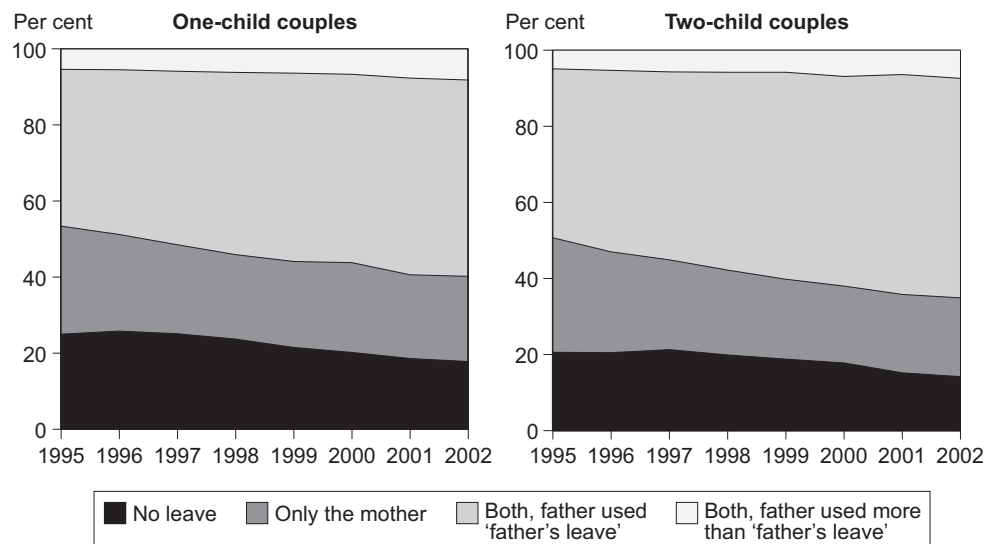
The individual data for the analysis were derived from the Norwegian population register. The data set comprises demographic information on all co-residing couples (cohabitants and married) that had their first or second common child during the period 1995 to 2002. The study population covers all couples where the parents are Norwegian born and where the couple's first common child is also the first child of the mother, or where the couple's second common child is

also the second child of the mother. This gives a data set of 159,430 one-child couples and of 116,589 two-child couples. Observations are censored where parents separate. The end of the study period is 2004, which means that we follow couples until they have another child or until the end of 2004. The demographic data are merged with information on registered earned income from the Norwegian tax register, and information on educational attainment is added from the Norwegian educational register. Information on parental leave use was made available from the Norwegian Labour and Welfare Organisation (NAV). Data on childcare coverage by municipality are derived from StatBank Norway operated by Statistics Norway.

Variable measurement

The three family policies included in the analysis are measured in different ways. Parents' use of parental leave is constructed as couples use and share parental leave during the first or second child's first year. We divided the couples into four groups, depending on mothers' and fathers' leave use: (i) no leave, i.e. couples in which the mother are not eligible for leave benefit and thereby nor is the father (as explained above); (ii) only the mother, i.e. couples in which both are entitled to leave benefit, but only the mother uses the parental leave while the father does not use any leave days (the four weeks of "father's leave" are thereby "lost", i.e. not transferable to the mother); (iii) both parents, with the father using his "father's leave", i.e. couples in which the mother uses all the common leave and the father uses the "father's leave"; (iv) both parents, with the father using more than the "father's leave", i.e. couples in which both the mother and father use leave days and also share some of the common leave. Figure 1 presents the distribution of couples' use of parental leave over time and shows an increase in the numbers of fathers taking parental leave.

Figure 1. Distribution over time of parental leave use

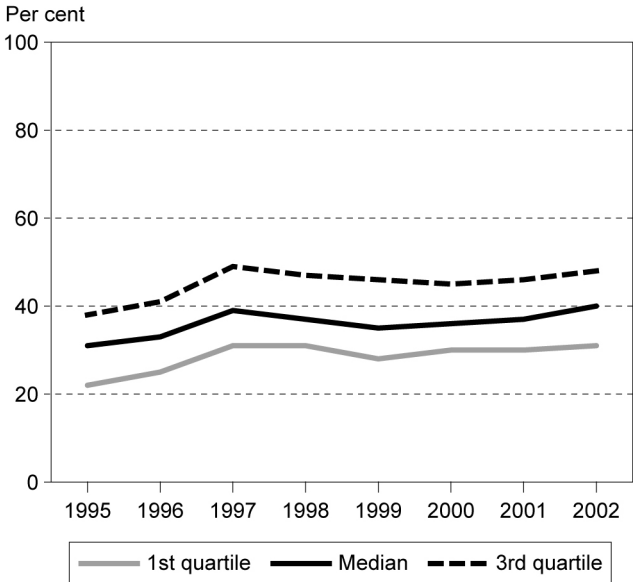


Availability of formal childcare is constructed on the number of children attending kindergarten in the municipalities where couples live in the year their previous child was born. Availability of formal childcare is defined as the actual percentage of children who attend kindergarten for the relevant age group by year. Since there is generally more demand than supply for formal childcare in municipalities, our variable can be seen as both a measure of availability and of coverage. Coverage statistics in the municipalities were used to divide parents into four groups depending on distribution of the first, second, and third quartiles. This means that the first group of parents

lives in municipalities with the worst formal childcare coverage and the last group in municipalities with the best coverage. This approach means that we can investigate whether particularly good or relatively poor childcare coverage is related to fertility decision-making (Andersson et al. 2004). We used coverage for children aged 1–2 years in day care. There is generally higher childcare coverage for the oldest age group (3–5 years) than the youngest age group (1–2 years). As a result of generous parental leave benefits for approximately one year, there is practically no supply of formal childcare for children under the age of one. Availability of childcare is important to enable women to return to work after childbirth. We have included coverage for the youngest age group in our model, as we believe that lack of formal and stable childcare can create a stressful situation for the mother's return to work after child-birth, which might lead to delayed or even avoidance of further childbearing. The median childcare coverage for 1–2 year olds is 40 per cent in 2002, an increase of almost 10 per cent during the period studied here (see Figure 2). It is important to underline that this is not an exact measure of capacity constraints and parents living in different areas might have different preferences concerning use of formal childcare. It has been argued that to understand the relationship between children's day care and women's fertility decisions, the three basic dimensions of cost, quality, and availability should be analyzed jointly (Andersson et al. 2004). We use availability of childcare, but we do not have measures for the other three dimensions (for a discussion of why this can be considered less problematic for Norway in the period studied, see Rindfuss et al. (2007)).

The introduction of the childcare cash benefit is measured as a time trend variable for children born before and after the introduction of the policy in 1998. We divided the periods as follows: (i) the period before the reform, when parents in the analysis did not have access to the policy, (ii) the introduction period, when the parents are the first group entitled to receive the cash benefit, and (iii) the period after the reform, when the parents have children born some time after the policy was introduced (children born 2000–2002). We use the time trend variable rather than actual use of the benefit to avoid endogeneity.

Figure 2. Formal day care coverage in municipalities for children aged 1-2. Per cent



Methods

The analysis is based on a discrete-time hazard model. In discrete time, the hazard is the conditional probability that an event (in our case, the birth of the second or third child) will occur at a particular time to a particular individual, given that the individual has not experienced the event before. We assume that the hazard rate varies with a couple's use of parental leave, availability of formal childcare, and time period before and after the introduction of the childcare cash benefit and, in addition, with the current age of the mother and educational attainment. There might be possible endogeneity between family policies and the fertility process. From the analytical approach used here we cannot say whether possible effects of parent's use of parental leave on continued childbearing are a result of causality or selection. We do, however, take into account that there might be local factors that affect both fertility behaviour and the supply of childcare. For instance, there are regional differences in ideas and values, whereas some municipalities are more influenced by religious ideas, and hence traditional family values than others (Rindfuss et al. 2007). In the analysis we use a fixed-effect procedure where variables that pick up and control for such effects are included, i.e. municipality dummies that represent unobserved time-invariant municipality factors. The municipality variables refer to the situation in the (observed interval) in the municipality in which the person lived (at the beginning of that interval) (Rindfuss et al. 2007). This variable is constant while the variable of the availability of formal childcare varies within the municipalities. We present both a fixed-effects model with municipality dummies, and a naïve model without municipality dummies. Using a logit transformation, the specification of the model can be expressed as:

$$\log\left(\frac{P_{ijt}}{1 - P_{ijt}}\right) = \mu_t + \beta X_{ijt} + \gamma Z_{ij} + \alpha_{ij}, \quad (1)$$

where P_{ijt} is the conditional probability that a birth occurs at time t (here measured in person months) for couple i from municipality j and $1 - P_{ijt}$ is the probability that no birth occurs in time t , Z_{ij} is a vector of variables that describes the individuals but does not vary over time (e.g., use of parental leave), and X_{ijt} is a vector of variables that varies over time for each individual (e.g., educational attainment), μ_t is an intercept that is allowed to vary with time, and β and γ are vectors of coefficients. The α_{ij} represents an unobserved, fixed, municipality-level variable that affects the timing of birth, see e.g., (Allison 2005). We follow the couples from the first birthday of the first or second child and until the women gives birth to their second or third child (or end-of-study, i.e. 2004). This starting point is chosen because we have included couples' use of parental leave in the model, which occurs during the child's first year. This means that births that take place during this year are excluded from the analysis (this only applies to a very small subpopulation of women).

Results

The estimated results are shown in Table 1. We start by discussing the findings for couples' use of parental leave, proceeding to those of availability of childcare and in the end those of the introduction of the childcare cash benefit. The results for couples' use of parental leave show opposite effects for second- and third-birth rates. Generally, the estimates for one-child couples reveal a positive association between use of parental leave and second-birth rates compared to couples where there was no use of leave. Second-birth intensities were 14 per cent lower among couples where there was no use of parental leave than among couples where at least the mother used parental leave. Further, couples where the father takes parental leave have considerably higher second-birth intensities than couples where the father takes no leave at all. The estimates show 16 and 17 per cent higher second-birth rates among couples where the father used the "father's leave" and where the father used more than the "father's leave", than among couples where only the mother took parental leave. The coefficients for two-child couples reveal, on the other hand, a positive association between no use of parental leave and third-birth rates, and a

negative association between use of parental leave and third-birth rates. Couples where there was no use of parental leave had 10 per cent higher third-birth intensities than couples where at least the mother used parental leave. The differences between different use of parental leave are only minor and third-birth intensities were 3 and 5 per cent lower, respectively, among couples where the father takes the “father’s leave” or where he takes more, than among couples where he takes no leave.

Differences in the effect of use or non-use of parental leave on second- and third-birth rates might be linked to the reasons why some mothers have not been in the labour market and have not earned rights to parental benefits, and therefore belong to the group of non-users. One possible reason is that couples are pursuing a traditional division of labour in the family, and another is that the mothers have not yet entered the labour market (and thereby have not yet earned rights to parental benefits) because they are still in, or have just finished, education. It is likely that one-child couples will include both these types and thereby represent a more diverse group than two-child couples. Enrolment in education as a reason for not having entered the labour market, and thereby not being eligible for paid parental leave, is less prevalent among two-child couples, and consequently, the effect is more likely to come from the fact that couples pursue a more traditional family role set.

The estimates revealing a positive link between fathers' use of parental leave and second birth can be seen as an outcome of two possible scenarios. First and foremost, fathers' involvement in childcare can make it more feasible for mothers to combine work and children, and thereby increase the likelihood of proceeding to a second child faster than other mothers. However, men who use parental leave might be more child-oriented than others and thereby more interested in having a second child, which might influence mothers' preferences for proceeding to a second child. One reason why we find higher second-birth rates among couples using parental leave than among couples who do not is that that working mothers proceed more quickly to the second child than mothers who are economically inactive. There is a strong two-child norm in Norway and most women who become mothers proceed to having a second child (around 80 per cent), which means that the question concerning second births is mainly about choosing the appropriate spacing. Timing is much less of an issue for third births, in which case it is not only a question of timing, but also about whether to have the child. Higher third-birth intensities among couples where the mother does not use parental leave can be related to preferences for work and family life. In analysis from Norway and Sweden looking at leave takers (at least the mothers) only, we do, however, find a positive association between use of parental leave and third birth rates (Duvander et al. 2008).

Different couples might respond differently to different policies and possible correlations between the policies and continued childbearing could vary according to the way they respond. One way to disentangle such possible mechanisms is to see if the effect on fertility varies by educational attainment. Tables of such are not reported in this paper but reveal a more or less consistent pattern across educational groups for second-birth intensities, but a less clear picture for third-birth intensities. When running the models separately by mother's educational level it is important to stress that we do not know whether the different coefficients are statistically different across educational groups. Nonetheless, a positive link between fathers' use of parental leave and second-birth intensities is found among couples with working mothers in all groups of education. On the other hand, no use of parental leave is positively associated with third-birth intensities for couples where the mother does not have higher education. This indicates that there are more heterogeneous patterns of work and childbearing preferences among two-child couples.

We now proceed to the estimated results of the correlation between availability of childcare in municipalities and continued childbearing. Since there might be local factors that affect both fertility and the supply of childcare in the municipalities, we have included a fixed-effects model in our analysis. For the other policies, parental leave use, and the introduction of

the childcare cash benefit, there are no differences between the coefficients in the naïve model and the fixed-effects model, which is the case for the correlation between availability of formal childcare and continued childbearing. In the naïve model, the estimates show a linear pattern of a negative association between availability of formal childcare and both second and third births. There is a difference of approximately 13 and 14 per cent, respectively, in second-birth and third-birth intensities between couples living in municipalities with the worst availability of childcare and couples living in municipalities with best availability. However, in the fixed-effects model there are significant changes in the coefficients, which means that including municipality dummies we are able to pick up and control for effects that do affect both childcare supply and childbearing behaviour. The estimates for availability of childcare are no longer statistically significant. Nevertheless, while there are no differences in availability of formal childcare and second birth- rates, there is a slightly positive association between availability of formal childcare and third birth- rates, with only 4 per cent higher third-birth intensity among couples living in municipalities with best childcare availability compared to those living in municipalities with worst availability. These findings are, however, in line with recent findings from Sweden concluding that variations in formal childcare availability do not give a better explanation of the pattern of continued childbearing (Andersson et al. 2004).

Before concluding, some issues should be addressed. First, our analysis includes the period 1995–2004, a period with a strong focus on public day care facilities and with extensive growth in day care supply. Even though coverage is not full, it is relatively high, which gives mothers the opportunity to return to work after childbirth and make new fertility decisions. We have chosen to use childcare coverage for 1–2 year olds instead of a more general coverage for all young children (aged 1–5) as we believe that availability of childcare for the youngest children is important for the return to work. However, there might be different preferences for the timing of the return to work after childbirth and after paid parental leave period that might be reflected in the lack of differences in our analysis. For instance, full coverage could be more important for couples' fertility decisions than coverage for the youngest children, as an expression of the general "climate" of family friendliness in the municipalities. To exclude this interpretation, we ran the models using the coverage for children aged 1–5 years instead of the coverage for children aged 1–2 years, without getting any different results. Secondly, since we included three different policies in the analysis, it is possible that the other two policies—parental leave use and the introduction of childcare cash benefit—are more important than the availability of formal childcare, and that when controlling for these policies, possible effects of availability of formal childcare disappear. To exclude this possibility, we ran the models without the variables of parents' leave use and the time trend variable of the introduction of childcare cash benefit. The results from these analyses are consistent with findings when including all three policies in the models.

Availability of formal childcare and the introduction of the childcare cash benefit are closely intertwined, as parents who either choose not to use day care or are not offered a place will receive the cash benefit. Last we discuss the estimates for the introduction of the childcare cash benefit. The coefficients for this policy show different results for second- and third-birth rates, and the effects are strongest for the third birth. For second-birth intensities there is a reversed U-shape pattern, with 6 per cent higher birth rates in the period when the reform was introduced than before the reform and 3 per cent lower birth rates in the period after the introduction of the policy. In the period when the policy was introduced there was strong public focus on work-family arrangements and children in general, which might have led to a positive association in this period. On the other hand, the magnitude of the effects of the introduction of childcare cash benefit is much stronger for third-birth intensities and shows an increasing linear pattern. Third-birth intensities are 9 per cent higher in the period when the reform was

introduced and 21 per cent higher in the period after the reform compared to the period before the reform.

There may possibly be interaction between the availability of childcare and the introduction of the childcare cash benefit, which means that possible associations between availability of formal childcare and continued childbearing could be different before and after the introduction of the cash benefit policy. To exclude this possibility, we ran the models with an interaction variable for availability of formal childcare and the introduction of childcare cash benefit. The results of these analyses showed few significant correlations between the two policies. Also, different groups might respond differently to the childcare cash benefit. To look for such a mechanism we ran the models separately by mothers' educational level as described above. The results show a consistent picture across educational groups. A recent analysis shows that the cash benefit policy is first and foremost used by mothers with low education and is most suited to their preferences for work and childcare, but the effect of using the cash benefit on fertility timing is most pronounced among those with the highest level of education (Aassve and Lappegård 2009).

Table 1 Relative risk of second birth and third birth for selected family policy measures and mother's educational attainment: Naïve and Fixed-effects models

	Second birth		Third birth	
	Naïve	Fixed-effects	Naïve	Fixed-effects
Couple's use of Parental Leave				
No use	0.86**	0.86**	1.12**	1.10**
Only the mother	1	1	1	1
Both, father used "father's leave"	1.17**	1.16**	0.98ns	0.97*
Both, father used more than "father's leave"	1.16**	1.17**	0.93*	0.95*
Availability of childcare				
0 – 1 st quartile	1	1	1	1
1 st quartile - median	0.93**	0.99ns	0.92**	1.02ns
median – 3 rd quartile	0.92**	1.00ns	0.90**	1.01ns
3 rd quartile - 100	0.87**	0.99ns	0.86**	1.04ns
Childcare cash benefit				
Period before the reform	1	1	1	1
Period introducing the reform	1.07**	1.06**	1.09**	1.09**
Period after the reform	0.97*	0.97**	1.23**	1.21**
Mother's Education				
Primary	0.82**	0.83**	0.87**	0.89**
Secondary	1	1	1	1
University, 1 st stage	1.25**	1.26**	1.54**	1.54**
University, 2 nd stage	1.34**	1.37**	1.84**	1.87**
Father's Education				
Primary	0.86**	0.87**	0.90**	0.92**
Secondary	1	1	1	1
University, 1 st stage	1.15**	1.17**	1.24**	1.28**
University, 2 nd stage	1.27**	1.31**	1.47**	1.59**

** p <= .001; * p <= .05; ns = not significant

NOTE: All models are controlled for mother's age.

Discussion and conclusion

In recent years, many empirical studies have focused on explaining the relationship between specific family policies and fertility outcomes. In our study, to get an overall insight into the relationship between family policy and fertility, we used three somewhat different policies that are

part of a generous social package offered to parents of young children in Norway. Our analysis covers a period with strong political focus on the issue of reconciliation of work and family life, and during the last decade, the government budget for family policies has increased by more than 30 per cent. Norwegian family policy has been described as "double-tracked", combining dual-earner support with traditional breadwinner elements (Ellingsæter and Leira 2006). For instance, the implementation of "father's leave" in the parental leave system was a political action with a clear intention of influencing the gender balance in the family, while the introduction of the childcare cash benefit was meant to give families "real freedom of choice" regarding childcare in the family. It has been argued that unequal responses of fathers and mothers to the parental leave programme and the childcare cash benefit scheme are an indication that mothers and fathers pursue different combinations of work and parenthood, and invest differently in their families (Leira 2002). The implication of "father's leave" can be considered a success in the sense that the majority of fathers entitled to the leave make use of this, but there have only been minor changes in the share of common leave, i.e., mothers still take the lion's share of the leave. While "father's leave" was clearly gendered, the childcare cash benefit was supposed to be gender-neutral, but evidence suggests that it is not, since 98 per cent of the users are mothers.

In our study, the analyses show that couples have responded differently to different policies in terms of fertility outcomes. Generally, there seem to be a variety of mechanisms at play among one-child couples and two-child couples. Couples in which at least the mother uses the parental leave have higher second-birth intensities than couples in which neither parent uses any leave, and the more leave taken by the father, the higher the birth rate. These findings are in line with other studies from Norway and Sweden which suggest that increased paternal involvement in child rearing is positively related to the timing of the second child (Duvander and Andersson 2006, Duvander et al. 2008). However, fathers' use of parental leave is still far from a level indicating true gender equality, but more egalitarian partnerships between mothers and fathers ease mothers' burden of work at home, and thus enhance the degree of compatibility between family work and employment. In dual-earner/dual-carer families, such compatibility seems to make it easier to have a second child more quickly. We do, however, see opposite findings for third births, where no parental leave use is positively associated with third-birth rates. Also, the introduction of the childcare cash benefit has a stronger positive association with third births than with second births.

Provision of childcare is considered a key instrument for reconciliation of family life and work in western countries. In this study, we do not find any significant associations between availability of formal childcare and further childbearing. The fact that there were no variations in couples' responses to variations in day care coverage in the municipalities in relation to their fertility decisions does not mean that the policy serves no purpose in reconciling work and family. In a Swedish study, Andersson et al. (2004) point out two arguments on this matter that are relevant also in the Norwegian context. First, small variations in an high overall coverage make fertility decisions independent of local differences, and second, the generous overall social family package easily cushions minor deficits in a municipality's childcare infrastructure (Andersson et al. 2004).

Based on this study, after including three somewhat different policies in the analyses, is it possible to conclude that one policy is more influential than another in the couple's decision-making process? It has been argued that one reason for the absence of accurate conclusions about how policies may influence fertility is the possibility of polarization of families, where different families respond differently to different policies (Gauthier 2007). The findings from this study seem to confirm such an argument. As stated above, there seem to be somewhat different mechanisms going on for couples with one child and couples with two children in terms of fertility and work-family choices. However, our first conclusion is that the parental leave policy is most influential for second-birth intensities, with a stronger magnitude of the effect if the father

also takes parental leave. In other words, the policy that promotes paternal involvement in childcare and gender equality is most important for proceeding to second birth. Our second conclusion is that the introduction of the childcare cash benefit is most influential for third-birth intensities. In other words, the policy that has been considered gender-biased is most important for proceeding to third birth. It is, however, important to underline that no causality can be concluded. This means that we cannot claim that our first conclusion reflects a causal impact of gender-equal behaviour on second births. Neither can we claim that our second conclusion reflects a causal impact on third births of gender inequality in parents' time use for work and care. For more sophisticated conclusions about family policies and childbearing behaviour it would be helpful to be able to distinguish causality effects from selection effects. If, for instance, a causal effect of parental leave use on fertility could indeed be found, this would have strong policy impact for many countries that are today struggling with the various consequences of very low fertility (Duvander et al. 2008).

Notes

¹ The parental leave programme was introduced in 1978 and gave working parents the right to 18 weeks of paid leave in connection with child-birth. Since the introduction of the programme, the entitlement period has been increased in stages. Since 1993, the programme has remained more or less the same.

² Special agreements with the employer can provide full payment and this is done within the public sector where such an agreement exists for employees. There is no common agreement for industries in the private sector, but some firms do have agreements, especially the larger ones.

³ In 2005, "father's leave" was extended to five weeks, to six weeks in 2006 and finally to ten weeks in 2009.

⁴ The reform was introduced for families with one-year-old children in August 1998 and for one- and two-year-old children in January 1999.

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