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Gender equality in the family and childbearing

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Gender equality in the family and childbearing

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Abstract:

This study focuses on the possible effect of gender equality and equity in the family on the transition to first, second and third births. The analysis includes the division of housework and childcare as well as the perception of whether this division is fair and just. We use a unique dataset combining data from the Norwegian GGS (2007) with information from population register on subsequent childbirths. Results indicate a varying effect of gender equality in the family on childbearing. An unequal division of housework has a negative effect on first and subsequent births. Couples where men contribute more to housework than women, have lower likelihood of first and second births compared to couples with a more typical division where women do more but men contribute substantially. In the same way, couples where the woman does almost all housework has lower likelihood of a third birth. Even though the division of childcare has no substantial impact on continued childbearing, the perception of this division is relevant for parents with one child. Couples in which the respondent perceives the division of childcare as less equitable are less likely to get a second child.

Keywords: Childbearing, gender equality, gender equity, division of housework, division of childcare

JEL classification: N34, Z10, Z13

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Sammendrag

I denne studien ser vi på ulike sammenhenger mellom likestilling i familien og fruktbarhet. Analysen inkluderer ulike aspekter av likestilling som deling av husarbeid og barneomsorg og respondentenes tilfredshet med arbeidsdelingen. Vi kombinerer data fra norske GGS (2007) med informasjon fra administrative registre om barnefødsler inntil tre år etter intervjuet. Analysen viser at sammenhengen mellom likestilling i familien og fruktbarhet varierer. En ujevn deling av husarbeid virker negativt på fruktbarheten enten det gjelder overgangen til å bli foreldre eller videre barnefødsler. Deling av barneomsorg har lite å si for videre barnefødsler, men tilfredshet med delingen (uavhengig av praksis) gir en høyere sannsynlighet for å få barn nummer to.

1. Introduction

Developed countries have been moving towards greater gender equality. It's relation with fertility is contested and empirical studies show mixed effects (e.g. Neyer et al. 2013). Comparing societies, a gap between high levels of societal gender equality, in particular in employment, and low levels of gender equality within the family have been considered as producing an extra burden on women – a burden which puts families under pressure and may limit their fertility (Goldscheider et al. 2010; McDonald 2000). According to the gender equity theory, “perceptions of unfairness arise because individually oriented institutions such as education and market employment open up new opportunities for women, and if those new opportunities are not supported if they become mothers – by family-oriented institutions – many women will reduce the number of children they might otherwise have had” (McDonald 2013, p. 983). This means that if the gender system of the cultural context is considered as unfair by women, they may react by having fewer children. At the individual level however, the effect of gender equality on fertility is not uniform and may depend on a variety of factors, including the division of household labor, the perception of this division and different childbearing transitions (Westoff and Higgins 2009; Goldscheider et al. 2010; Neyer et al. 2013). To help disentangle these influences, studies of differences between households can shed light on the processes influencing individual fertility decisions, thus providing important information for interpreting cross-national differences.

The aim of this study is to investigate how household-level gender equality and equity influence childbearing in different birth transitions in Norway. This means that we are not only looking at the actual division of household labor (*equality*), but also the perception of whether the division is fair and just (*equity*). Our analysis is distinctively comprehensive in five ways: First, we focus on both housework and childcare, two linked yet separate aspects of household labor. Second, we examine a range of divisions of labor, including equal, women doing more, and men doing more. Third, we include both equality in the division of housework and childcare, and the perception of fairness of both, as well as gender ideology. Fourth, we focus on the timing of childbearing in different childbearing transitions, studying couples with no children, one child, and two children. Fifth, we examine actual births, rather than intentions. To accomplish this, we use a unique dataset that combines data from the Norwegian Generations and Gender Survey in 2007 with information from the Norwegian population register on subsequent childbirths, giving us longitudinal birth histories after the survey for the entire original sample.

2. Background

Household labor

Previous research suggest that the division of both housework and childcare has an impact on childbearing and fertility intentions. When housework is shared, couples are more likely to intend a(nother) child and to transit more rapidly to a second child (Buber 2002; Mencarini and Tanturri 2005; Mills et al. 2008; Oláh 2003; Tazi-Preve et al. 2008; Torr and Short 2004). For childcare, intentions for another child are higher and the likelihood of having another child is greater with increasing father involvement (Brodmann et al. 2007; Cooke 2009; Duvander and Andersson 2006; Duvander et al. 2010; Fiori 2011; Kotila and Camp Dush 2011; Neyer et al. 2013; Pinelli and Fiori 2008).

Often housework and childcare are examined separately meaning that the question which has yet to be fully resolved is whether the division of housework and childcare has differing effects on fertility. The few studies which have compared housework and childcare suggest that both are important yet distinct, and that shared childcare may have a stronger effect on parents' fertility intentions than shared housework (Buber 2002; Neyer et al. 2013). These studies have not examined actual births, however. This study extends this prior research by comparing the division of housework with the division of childcare in their effects on actual births.

Gender equality

Numerous studies have focused on equality, or the actual division of household labor between partners. These studies consistently find that the most common division of both housework and childcare is for the woman to be taking a greater share of the tasks than the man, usually seen as reflective of gender ideology, time availability, or relative resources (Bianchi 2000). A situation where men take a greater share of household labor than their female partner is rare. This can be difficult to identify, as many studies of relative responsibility for household labor use an indicator measuring the mean level of his or her share (i.e. Batalova and Cohen 2002; Fuwa 2004), which can obscure important distinctions between groups (Mancini 2013). One study examining a number of European countries (although no Nordic countries) indentified different groups and finds that those with the highest proportion of men who usually or always do the housework included the UK (highest with 5.8%), as well as Eastern European countries of Slovenia, Estonia, Bulgaria, and Poland (Davis and Greenstein 2004). The number of men who do more may be increasing, as a study from the UK showed steady growth since the 1960s to the 1990s in the percentage of families where the man

contributed more time to family work (including housework, shopping and child care) than the woman (Sullivan 2006).

An interesting question is whether an unequal division of household labor may have an impact on fertility regardless of which partner is doing more. That is, do men do more because they are more family-oriented and thus are more likely to have a(nother) child? Or do men who do more, similarly to women who do more, reduce their fertility in response to a heavier household burden? The current study aims to answer this question by identifying households with unequal divisions of labor, including both those where the woman does more and those where the man does more.

The division of household labor may have different meanings at different parities. Studies which focused on intentions found that the division of household labor is much more important to those with children than to those without children (Mills et al. 2008; Neyer et al. 2013). It may also be that the division of childcare has distinct implications for those with one and those with two children, but this has not yet been studied. The current study extends this prior work by examining the division of household labor for different birth transitions, including those with no children, those with one child, and those with two children.

Gender equity versus gender equality

Partners' perceptions of the equity or fairness of the division of household labor may be at least as important as the equality of the division itself (Fraser 1994; McDonald 2000). This idea suggests that divisions of household labor and childcare might be unequal in practice but as long as such a practice is perceived as equitable and fair this might be seen as more influential on childbearing. Equity has been compared with equality in several European countries (e.g. Bernhardt and Goldscheider 2008; Neyer et al. 2013; Buber 2002), finding slightly different patterns which may be accounted for by differing measurements of equity and equality and/or differing country contexts.

The effects of equity on fertility in Sweden were explored by Bernhardt and Goldscheider (2008) by contrasting long-held attitudes about the division of labor with the reality of housework and childcare when children arrived. They found that, indeed, a clash between expectations and reality resulted in lower chances of having another child. By contrast, those couples with unequal divisions of labor were just as likely as those with equal divisions to have another child if they viewed this division as equitable.

In a study which compared equality and equity of housework and their effects on intentions for a(nother) child across ten European countries, effects differed by parity and gender (Neyer et al. 2013). For those with no children, neither equity nor equality of the division of housework had an influence on their childbearing intentions. However, for parents the division of housework had an impact on intentions for another child. For mothers, equality was most important, whereas for fathers equity mattered more. For the division of childcare, both mothers and fathers were more likely to intend another child if they perceived the division as equitable. Fathers and mothers of two children were also more likely to intend another child if they had an equal division of childcare. Buber (2002) also compared equity and equality in childcare, and found that both equity and equality increased the likelihood of Austrian mothers' intentions for a second child. Reflecting the Neyer et al. (2013) study, there were smaller effects for equity than for equality.

The views of both men and women are important to consider, because in developed countries both men and women have input into childbearing decisions (Thomson 1997; Thomson and Hoem 1998; Jansen and Liefbroer 2006; Miller and Pasta 1995). Studies of fertility intentions also find different effects of men's and women's perceptions of equality and equity on individually-held intentions (Neyer et al. 2013). This study includes the characteristics of both partners in each relationship, as well as the perceptions of both men and women.

Egalitarian Beliefs

Fertility may also be influenced by the values or beliefs held by individuals. A number of studies on gender equality and fertility intentions use gender role attitudes as indicators of gender equality (Kaufmann 2000; Philpov 2008; Puur et al. 2008; Westoff and Higgins 2009; Goldscheider et al. 2010; Miettinen et al. 2011). Two recent studies investigating the link between gender role attitudes and people's desire for children draw different conclusions. While the first study suggests a positive relationship between men's egalitarian attitudes and fertility (Puur et al. 2008), the second study suggests a negative relationship (Westoff and Higgins 2009). It was soon pointed out that the two studies captured different aspects of gender roles, i.e. gender roles in the public sphere and gender roles in the private sphere (Goldscheider et al. 2010). A recent comparative study suggests that the relationship between gender ideology and childbearing intentions is a complex issue with extensive variation across gender role dimensions, gender and societies (Lappegård et al. 2012). Our study takes this into account and focuses on gender attitudes towards mother's role in the family which is closely related to family behavior.

3. The Norwegian context

Both housework and care of children are key aspects of the division of household labor. In Norway, as in many developed countries, men's involvement in the care of children has been increasing more rapidly than their participation in housework. This may be because involvement with children has risen in status and is more highly valued. As women in Norway still use about the same time for childcare as 30 years ago, this means that the total amount of provided care has increased (Kitterød 2012). In contrast to this, the total amount of housework in Norway has decreased, particularly for women, who do less housework today than 30 years ago. Even though men take a higher share of housework today, women still do most (Kitterød 2012; Kitterød and Pettersen 2006).

Although Norway is found at the upper end of the gender equality scale, gender equality in the society is more advanced than gender equality in the family. Over the last decade there has been a strong gender equality discourse at the societal level and the aim of gender equality has been implemented in family policy programs directed at families with young children. In particular, public childcare is widely available. Children typically enter kindergartens when they turn one year old, and both kindergartens and schools provide full time care. From this perspective, parents in Norway have to provide less childcare themselves than parents in most other countries. Despite this, many mothers are employed part-time and continue to perform a larger share of both childcare and household labor than fathers (Kitterød and Pettersen 2006). Norway thus combines a high level of societal gender equality with variability in the household division of labor, offering an ideal context in which to test household-level fertility decision making.

4. Research Questions

The overarching aim of the study is to investigate how household-level gender equity and equality influence childbearing in different birth transitions. We have three main research questions. The first compares housework with childcare, the second compares equity with equality, and the third compares the results across different birth transitions.

- Does the division of housework and the division of childcare affect childbearing differently?
- Do equity and equality in the division of household labor affect childbearing differently?
- Do equity and equality of housework and childcare affect childbearing for those with no children, one child, and two children differently?

5. Data and methods

Data

We use data from Norwegian Generations and Gender Survey (GGS) conducted in 2007 (Vikat et al. 2007) and subsequent birth histories from administrative registers within three years after time of the interview. The Norwegian GGS is a nationally representative survey, conducted by telephone and with a response rate of 60%. The final dataset comprises 14,892 respondents (Lappegård and Veenstra 2010). The survey includes multiple measures of household and family work, including responsibility for household and childcare tasks and the satisfaction with these arrangements. In addition to the information obtained directly from the respondent, the Norwegian GGS includes individual level data from administrative registers linked by a system of universal ID numbers (Røed and Raaum 2003). In Norway, births are reported to the Population register, which uses the same universal ID for the parents. This allows us to include all births of all respondents for the three years subsequent to the initial survey. This system means that our data do not suffer from the usual problem of attrition in panel data.

Sample

Our selected sample includes men and women living in a co-residential heterosexual union where the woman (respondent or partner of the respondent) was aged 18-40 years at the time of the interview and was physically able to have children but not currently pregnant. Couples were divided between those with no children, one child or two children when the respondent was interviewed in 2007. Among the parents, only those with children from the current partnership are included in our sample. We also made the restriction that the youngest child was aged three years or younger at the time of the interview. Thereby these families are in a relatively similar situations and subsequent childbearing normally happens within a few years. Our selected sample consists of 1,537 individuals (see Table 1 for an overview over the dataset and the dependent and independent variables).

Dependent variable

The birth of a(nother) child within three years after the interview is the dependent variable in our analysis. The time window of 36 months (3 years) is the same for all respondents included in our sample. The variable is coded as a dummy-variable and Table 1 gives an overview over the proportion of respondents that got a(nother) child.

Explanatory variables

Our model includes four main explanatory variables: division of housework and childcare (equality), and perception of fairness (equity) of such division. Our first variable is equality in housework. The indicator of the division of housework is based on four different housework tasks: cooking, doing the dishes, shopping for food and cleaning the dwelling. For each item respondents were asked to indicate who usually does the specific task on a five-point scale (*always respondent*, *usually respondent*, *respondent and partner about equally*, *usually partner*, *always partner* and an additional sixth category *usually someone else* which was not used by any respondent in our sample). To investigate the gender roles in the housework, these answers were recoded into a five point scale, where “1” indicates that *always the woman* does the task, “3” they *share it about equally* and “5” *always the man* does the task. A sum score of these four tasks leads to a variable with a theoretical range from 4 to 20. In our data the maximum value is 18, indicating that no men were doing all household tasks. This sum score variable was standardized in a variable with values from 0 to 1, where 0.5 indicates a balanced division of household tasks. As we do not expect a linear effect of men’s involvement in housework on childbirth, we distinguish between four categories that are included as dummy variables in the analysis. Values below 0.4 were coded as *unequal, woman most*, values from 0.4 and below 0.5 as *semi-equal* (i.e. the woman does more but the man contributes), 0.5 as *equal*, and values higher than 0.5 as *unequal, man more* (the actual maximum value of the standardized variable was 0.875). An overview of the distribution of the four categories by parity is given in Table 1.

Our second explanatory variable is equality in childcare. A similar indicator as for housework was created for the division of childcare among parents with one or two children. This is based on four specific tasks: responsibility for dressing the children, putting the children to bed, staying at home with the children when they are ill, and playing with the children and/or taking part in leisure activities with them. The same response choices as for the household tasks were used in the survey. We recoded them in the same way as the division of household tasks and are again distinguishing between the four categories in how the couples share the childcare duties. An overview of the distribution of the different categories of both variables by parity is given in Table 1.

Our variables on equity are represented in this study by satisfaction with the division of labor. We follow others in using satisfaction with the division of household labor as an indicator of equity (i.e. Buber 2002; Neyer et al. 2013). Being satisfied with the division is not the same as perceiving it as fair, but satisfaction proxies fairness by assuming that people would not be satisfied if they perceived the division as unfair and unjust. For the division of household tasks and the division of childcare

tasks, the respondents were asked their level of satisfaction with the division of labor in each of these two areas. The scales for these variables ranged from 0 to 10 where 10 indicated ‘*very satisfied*’ with the division. We created two categories of equity, where equitable division is represented by responses 7-10 (more satisfied) and inequitable division is represented by responses of 0-6 (less satisfied). This coding was used for the division of housework as well as for the division of childcare. In both cases, the inequitable group comprise about 10 - 15% of the sample (see Table 1).

Other variables

In addition to our main explanatory variables, we included a number of variables in our model: To evaluate the possible importance of egalitarian beliefs on gender roles in housework and childcare, we included a variable that is based on the question: “Preschool children suffer if their mother is employed”. Respondents could agree or disagree to this statement on a five point scale. Those disagreeing to the statement (4-5) were coded as expressing egalitarian beliefs. Those agreeing (1-2) or neither agreeing or disagreeing (3), were coded as expressing less egalitarian beliefs.¹ Other variables included that may impact childbearing were woman’s age, the age difference between the partners, union status, union duration, level of education, and employment situation of the partners – all measured at the time of the interview. We also controlled for the sex of the respondent and age of the youngest child. Table 1 provides a descriptive overview over all variables used in the multivariate analyses.

Method

We conducted logistic regression analysis to study the effect of equality and equity of housework and childcare on childbearing. The models were run separately by parity as we want to examine if and eventually how the effect of gender equity and equality of the division of household labor varies across different birth transitions.

Descriptive statistics

Table 1 shows that in most Norwegian couples, men contribute at least to some extent to the daily housework. In only a fifth of the couples do the women do all or most housework, but the proportion of this category is higher in families with children compared to couples without children. Across all

¹ In contrast to the other variables used in this paper, this item was evaluated in a self-administrated paper survey in the Norwegian GGS, which had a lower response rate (43%) than the telephone survey. Missing values were imputed based on respondent’s sex, highest level of education and age.

parities, the semi-equal category where women do more than men, but men contribute, is the biggest group (38% of the total sample). An equal division of household labor is found in over a fifth of all couples, but this proportion decreases when children are part of the household. In slightly less than a fifth of the couples, men do more housework than women. For this type, a closer look at the single items reveals that when men are more involved it is in the areas of cooking, doing the dishes, and buying food, but rarely housecleaning (only 5% of all couples). Men more often do more in households without children, compared to households with children.

More than four fifths of all respondents perceived their division of housework as equitable (i.e. expressed high levels of satisfaction). Although the differences are not very high, the highest levels of equity were found among those with no children, and lowest among those with two children. It may be that the increasing amount of housework in a bigger household is one reason for this difference. Turning to the division of childcare tasks among parents, we find that the two most unequal categories (those at the lower and upper ends of the scale) are smaller compared to the division of housework. In line with this, the semi-equal group (where the woman does more but the man is also involved) and the equal group are somewhat larger for childcare than housework. This indicates that, relative to housework, both parents are usually involved in childcare. Only in few cases do fathers provide more childcare than mothers (about 8%, compared to 18% of men doing more housework than their female partner). One reason might be that mothers are more willing to reduce time spent in housework than time spent with their children.

When it comes to satisfaction with the division of child related tasks, most saw them as equitable. Only about 10% of the parents had inequitable divisions, as expressed by low levels of satisfaction with their arrangement. Here the difference between those with one and two children was quite small. This may reflect both the more equal sharing, as well as the perception of childcare as more fulfilling than housework.

Slightly under a third of the respondents expressed less egalitarian gender beliefs by agreeing to the statement that pre-school children suffer when mother works. Over two thirds of all respondents disagreed with this statement. The highest level of egalitarian beliefs (i.e. disagreement with the statement) was found among couples with two children (73%), compared to 69% among one child parents and childless respondents.

Table 1. Descriptive statistics of variables included in the analysis for the whole sample and by parity (measured at time of the interview)

	No Children	One child	Two children	All
Birth of a(nother) child within 3 years after the interview	37%	64%	22%	38%
Division of housework				
Unequal, woman most	15%	23%	29%	21%
Semi-equal	35%	41%	41%	38%
Equal	27%	20%	18%	23%
Unequal, man more	23%	16%	12%	18%
Division of childcare				
Unequal, woman most		21%	11%	15%
Semi-equal		41%	40%	40%
Equal		31%	40%	36%
Unequal, man more		7%	8%	8%
Equitable division of housework	89%	88%	85%	88%
Equitable division of childcare		91%	92%	91%
Less egalitarian gender role beliefs	31%	31%	27%	30%
Respondent is a women	53%	52%	48%	51%
Couple is married (vs. cohabiting)	22%	46%	65%	41%
Mean duration of union in years	3,9	5,6	8,6	5,8
Mean age difference between partners (years)	-0,33	-0,27	-0,38	-0,33
Her age at the interview				
18-25 years	39%	19%	6%	23%
26-30 years	34%	37%	27%	32%
31-35 years	20%	33%	45%	31%
36-40 years	8%	11%	22%	13%
Her highest level of education				
Compulsory education	11%	17%	9%	12%
Secondary education	33%	32%	33%	33%
Tertiary education	56%	51%	59%	56%
His highest level of education				
Compulsory education	12%	11%	9%	11%
Secondary education	41%	44%	46%	43%
Tertiary education	47%	45%	45%	46%
Her employment situation				
Full-time employment	62%	38%	39%	49%
Part-time employment	13%	21%	26%	19%
Currently not working ¹	25%	41%	36%	32%
He working full time (vs. part-time or other)	76%	80%	86%	80%
Age of youngest child				
0 years		32%	28%	29%
1 year		30%	25%	27%
2 years		26%	27%	27%
3 years		12%	20%	17%
N (% of total)	691 (45%)	348 (23%)	498 (32%)	1537 (100%)

¹Including under education, parental leave, homemakers and others

The dataset includes slightly more women than men. When comparing the childless with the parents (with either one child or two children) we find only slight differences in the highest level of education of the couples. Other variables vary as expected across the three defined groups: Parents were more

often married than couples without children; they had on average been together longer and the women were older. In line with these age differences, men without a child were less often full-time employed at the time of the interview. Among women, the proportion with full-time employment is lower and that with part-time employment is higher when they have children. Women that were not working at the time of the interview, includes those under education, on parental leave, homemakers and unemployed. The composition of this group varies by their family situation. The main difference is that women without children mainly are under education (80%). Mothers are mainly on parental leave (57% and 62% among one and two child mothers respectively). Some are under education (15% and 6% among one and two child mothers respectively) or they are homemakers (13% and 17% among one two child mothers respectively). There are very few that are either unemployed or on long term sick leave.

6. Results

Before turning to our three research questions we will first take a look at the childbearing for the three groups of interest (childless couples, one child couples and two child couples). Table 1 shows that the majority (64%) of one-child couples made the transition to a second child within three years after the interview, while 22% of two-child parents made the transition to a third child. This picture is in line with earlier findings, showing that comparatively few parents proceed from two to three children in Norway (Lappegård 2000). In the same period, only 37% of the childless couples made the transition to parenthood. This is somewhat low, but it should be noted that 39% of this group is below 25 years and the mean age at first childbirth in Norway is around 28 years, which means that this percentage is reasonable.

The results from the logistic regression models are displayed in Table 2, showing the complete models including all explanatory variables (gender equality and equity of housework and childcare) and other independent variables (respondent's sex, egalitarian beliefs, union status, duration of the union, age difference between the partners, woman's age at the interview, highest level of education and employment status of both partners and age of youngest child). As earlier lined out we estimated by parity to compare the effect of equity and equality in the division of household labor across different birth transitions.

The results from the regression models show the impact of gender equality and equity in housework and childcare on childbearing for couples without children, with one child and with two children. Gender equality is measured by the division of housework and childcare between the female and male

partner in a union. In the model we used as the reference semi-equal couples where women do more of the task but men are substantially involved. The descriptive analysis (Table 1) shows that this category has the highest proportion and represents a typical division of housework in Norway today.

Table 2. Logistic Regression Coefficients (standard error): Birth of a(nother) child by number of children at the interview

	No Children	One child	Two children
Intercept	-0.56 (0.41)	1.26 (0.81)	0.33 (.076)
Division of housework			
Unequal, woman most	-0.25 (0.28)	0.02 (0.37)	-1.04** (0.34)
Semi-equal	Ref.	Ref.	Ref.
Equal	-0.03 (0.22)	-0.25 (0.35)	0.03 (0.32)
Unequal, man more	-0.48* (0.23)	-0.88* (0.54)	-0.32 (0.39)
Division of childcare			
Unequal, woman most		0.33 (0.39)	0.46 (0.42)
Semi-equal		Ref.	Ref.
Equal		0.35 (0.30)	0.11 (0.27)
Unequal, man more		0.53 (0.54)	0.16 (0.45)
Equitable division of housework	0.25 (0.29)	-0.02 (0.46)	-0.13 (0.37)
Equitable division of childcare		1.21* (0.52)	-0.34 (0.48)
Less egalitarian gender beliefs (vs. egalitarian)	0.44* (0.19)	-0.15 (0.27)	0.47 [†] (0.28)
Respondent is a man	0.12 (0.22)	-0.09 (0.32)	-0.12 (0.32)
Couple is married (vs. cohabiting)	0.41 [†] (0.22)	0.04 (0.26)	0.67* (0.28)
Duration of union in years at interview	-0.1** (0.03)	-0.05 (0.05)	-0.05 (0.05)
Age difference between the couple	0.00 (0.02)	-0.01 (0.03)	0.01 (0.03)
Her age at the interview			
18-25 years	-0.12 (0.22)	-0.46 (0.37)	0.62 (0.49)
26-30 years	Ref.	Ref.	Ref.
31-35 years	-0.14 (0.24)	-0.95** (0.32)	-0.95** (0.30)
36-40 years	-0.87 (0.41)	-1.44** (0.44)	-1.68 (0.41)
Her highest level of education			
Compulsory education	-0.34 (0.35)	-0.80* (0.40)	-0.58 (0.50)
Secondary education	-0.36 (0.23)	-0.53 (0.32)	-0.15 (0.31)
Tertiary education	Ref.	Ref.	Ref.
His highest level of education			
Compulsory education	-0.31 (0.35)	0.02 (0.50)	-0.41 (0.46)
Secondary education	-0.29 (0.22)	-0.81* (0.33)	-0.30 (0.28)
Tertiary education	Ref.	Ref.	Ref.
Her employment situation			
Full-time employment	Ref.	Ref.	Ref.
Part-time employment	-0.32 (0.26)	0.41 (0.35)	-0.81* (0.33)
Currently not working ¹	-0.95*** (0.23)	-0.57 (0.35)	-0.07 (0.36)
He working full time (vs. part-time or other)	0.91*** (0.23)	0.24 (0.32)	-0.13 (0.34)
Age of youngest child at interview			
0 years		Ref.	Ref.
1 year		-0.22 (0.36)	0.18 (0.38)
2 years		-0.36 (0.37)	0.19 (0.40)
3 years		-0.50 (0.45)	0.54 (0.44)
N	691	348	498
n with birth (% with birth)	253 (37%)	221 (64%)	110 (22%)

[†]p < .10. *p < .05. **p < 0.01. ***p < 0.001.

¹Including under education, parental leave, homemakers and others

We find a significant effect of the division of housework in all three groups of couples. For both the transition to first parenthood and for second births the unequal couples where the man does more housework than the woman have a significantly lower chance of having a child compared to semi-equal couples. Among two-child couples, we find that unequal couples where the woman does all or most of the housework have a significantly lower chance of having a third child compared to the semi-equal reference group. In total it seems that unequal couples are less likely to have a(nother) child-regardless of whether more is done by the man or the woman.

The division of childcare among couples that had one or two children, had no significant influence on second or third births. Descriptive analyses (Table 1) showed that here the categories at the upper and lower end, where she does all or he does more, are more infrequent than for the division of housework. Usually partners share childcare tasks to a high degree and if this is not the case, it might be the result of specific agreements which do not affect further childbearing. From this perspective it seems that the division of housework has more relevance for childbearing than the division of childcare.

Equity was included through two dummy variables in our models, measuring satisfaction with the division of household labor and satisfaction with the division of childcare. While the actual division of housework had a significant impact in all three groups, we did not find any significant effect of satisfaction or dissatisfaction with this division. By contrast, being satisfied with the division of childcare had a positive and significant effect on second births.

According to our models, gender role beliefs towards mother's role in the family have a significant impact on different childbearing transitions. More specifically, we find that respondents with less egalitarian beliefs have a statistically higher chance for a first birth and a third birth within three years after the interview, compared to respondents that express egalitarian beliefs. The transition to having a second child is not influenced by gender role attitudes. In Norway there is a strong two-child norm and most couples having one child will proceed to having at least another child which means that there may be less variation in their decision-making. That egalitarian gender role attitudes are negatively associated with transition to parenthood and the birth of a third child may be linked to arguments saying that a gap between gender equal ideology and gender equal behavior may result in lower fertility (Lappegård et al. 2012).

The effects of the other variables included in the model are in line with findings from previous research. The effect of women's age on childbearing varies by birth transition. Among childless

couples we find no significant difference between the four defined age groups. Among parents with one child, couples where the women is aged between 26 and 30 years (reference group) have the highest likelihood for a second birth and this difference is significant compared to the two older age groups. The pattern is similar among two child parents, but here the difference between the reference group and the oldest age group even stronger.

His and her highest levels of education are included as control variables. Differences among different educational groups are only statistically significant for the transition to second births. For this group our findings indicate that women with compulsory education and men with secondary education have a lower chance for a second birth than women and men with tertiary education.

The effect of the employment situation differs by parity. His employment situation has only a substantial effect on the transition to parenthood. This is mainly due to the different composition of the two groups that are compared. Full-time employment is the typical pattern among men (see Table 1). Among childless couples, men not working full-time are mostly under education. Compared to men working full-time, couples where he is not working full-time have a significantly lower chance to become parents within three years after the interview. Among parents, there is no significant effect of fathers employment status on second or third births. For women we differentiated between full-time employment, part-time employment and currently not working. Among childless couples, her not working was negatively associated with becoming parents compared to couples where she was working full-time, while among two-child parents, her being part-time rather than full-time employed was negatively associated with having a third child.

Being married compared to being cohabiting is positively associated with the transition to parenthood and the transition to a third birth, but there are no significant differences among one-child parents. Almost all young couples in present Norway start their co-residing partnership in cohabitation and the majority of first births are within cohabitation. Still, entering marriage is to a larger degree associated with family formation and higher chances of becoming parents. Among parents with two children, being married might to a larger degree is associated with a stronger family orientation and stronger preferences for more children. For childless couples, the longer the union duration the lesser the chance for a transition to parenthood. Possible explanations for this might be a decision not to have children, continuous postponement of parenthood or involuntarily childlessness. Neither the age difference between the couple nor the sex of the respondent has any significant effect on childbirths. The age of the youngest child also has no significant effect.

Robustness checks

To see whether our results were stable and robust we ran several tests. First, we singled out our four main explanatory variables (division of housework and childcare, satisfaction with the division of housework and childcare) and checked whether they were independent of each other. When including several measures of gender equality in the family, the relationship between our explanatory variables and childbearing could be a result of multicollinearity. To test for this we ran the models including each explanatory variable separately and additional models that either included division of housework and satisfaction with housework or division of childcare and satisfaction with childcare (see Table A.1 in Appendix). The effects of our explanatory variables remained the same as in our complete models (see Table 2) and also when we ran robustness checks without the indicator for gender beliefs. We also tried to test for interaction effects between gender equality in housework and childcare and gender equity, but the small sample size and small numbers of respondents in some of the cells did not make this feasible.

Second, when measuring the division of household and childcare within a couple using several items we might get a bias in our measurement as some tasks are more time-consuming than others and men and women divide these tasks differently. For example, men are more involved in cooking and doing the dishes than cleaning the dwelling. One could argue that these tasks should not be weighted equally, as cleaning the house is more time-consuming than buying food and thus disguises the investment of men and women in housework. In order to test whether the effects were consistent when taking this into account we weighted the items by time spent on the tasks using data from the Norwegian Time Use Survey 2010 (Vaage 2012). The time use survey shows that individuals aged 25 to 44 years spend on average 33 minutes per day preparing food, 25 minutes cleaning the house, 13 minutes doing the dishes and 8 minutes buying food (Vaage 2012). Including such weights in our index we find a higher share in the category where women are doing all or most of the tasks and fewer men that are doing more than women.

The tasks that are used to describe childcare are not completely the same in the Time Use Survey and the GGS. The Time Use Survey shows that parents of small children spend on average 31 minutes per day taking care of children (used as weight for dressing children and putting them to bed), 12 minutes on playing with children and 6 minutes on other care (used as weight for staying at home when children are ill). Including the weight in the model gives us a higher proportion of couples with an equal division and fewer with a semi-equal division.

Applying these time-adjusted indexes for the division of housework and childcare in Logistic Regression Models (results not shown here) leads to almost the same results as presented in Table 2. For childless couples the only difference is that the coefficient of the category “unequal, man more”, is not significant when compared to the reference category of semi-equal. However, the estimate still peaks in the same negative direction as we find in the results presented above. In a model including only time-adjusted explanatory variables, the difference is significant at the 0.05 level. For those with one or two children, the results of the explanatory variables are the same when we use the time-adjusted indexes. Among the other control variables, we find that the effect of egalitarian beliefs is no longer significant for those with two children, when including time-adjusted indexes.

As a last robustness check, we used Cox-Regression Models instead of logistic regression models. Based on the date of a(nother) birth, we created a dependent variable counting the months after the interview to a possible birth. We applied the same explanatory and control variables as shown in Table 2. The results of the Cox-Regression Models (not shown) are similar to the results of the Logistic Regression Models. As we would have a problem with left-censoring using hazard model and that the exposure time is quite short, we chose to use the method presented here.

7. Discussion

In this study we have investigated the impact of gender equality and gender equity of the division of housework and childcare on childbearing. That is, we have not only looked at how couples are actually sharing housework and childcare, but also whether they perceive the division as fair and just. There is still little research comparing these two concepts, although it has been suggested that both equality and equity may have a positive impact on fertility intentions and that their effect varies depending on whether the intention is related to first or later children. Based on survey data from Norway where we were able to follow up the childbearing behavior of the entire original sample using population register on subsequent childbirths giving us longitudinal birth histories after the survey. We compared the impact of gender equality and equity in housework and childcare on childbearing for couples without children, and with one and two children respectively. Our results show somewhat different patterns among families depending on the fertility transition studied.

Our first research question concerns whether the division of housework and the division of childcare affect childbearing differently. An unequal division of housework has a negative effect on first and subsequent births. Couples where men contribute more to housework than women, have lower likelihood of first and second births compared to couples with a more typical division where women

do more but men contribute substantially. In the same way, couples where the woman does almost all housework have lower likelihood of a third birth. Division of childcare had however no significant effect on the transition to a second or a third birth. In general, couples show moderate levels of equality in their actual division of housework, while couples' division of childcare tends to be more equal, reflecting research showing the growing involvement of fathers (Kitterød 2012; Kitterød and Pettersen 2006). When looking at equality, the largest group across all parities were those who are semi-equal, i.e. where women do more of the housework but men contribute. Among those with no children, unequal divisions where the man does more than the woman were a sizeable minority, and among those with children we found larger numbers of unequal divisions where the woman is doing all or most.

Our second research question asks more specifically whether gender equality and gender equity affect childbearing differently. We found a somewhat different pattern for housework and childcare. For housework, it is equality rather than equity which influences a couple's childbearing, as those with an unequal division of housework were less likely to have a(nother) child. For couples with no children or one child, those where the man does more housework than the woman was less likely to have a first or second child compared to couples with a semi-equal division of housework. Couples with two children, by comparison, were less likely to have a third child when the woman does all or almost all of the housework, relative to those with a semi-equal division.

For childcare, we found that couples who were satisfied with their division of childcare were more likely to have a second child than couples who are dissatisfied, regardless of their actual division of childcare. Despite these inequalities, the large majority of respondents expressed satisfaction with their division of housework, indicating high gender equity. The vast majority show equity in their division of childcare by expressing satisfaction, and the highest satisfaction were among those with two children. Although very few couples were dissatisfied, but given perceptions of inequity, this lead to a strong disinclination for an additional child.

Our third research question concerned at how these patterns vary for couples with no children, one child and two children. We found that equality in housework was important for all couples, regardless of the number of children. In particular, we found that highly-unequal couples are less likely to have a(nother) child than more-equal couples. There was an important gender difference, however. When men were doing more housework; those with no children or one child were less likely to have a first or second child, whereas couples with two children were less likely to have a third when the woman was

doing most of the housework. The fact that households where men take on more housework are less likely to have a first or second child, indicate perhaps that men are being confronted with a similar conundrum as women when they contemplate the effect of a child on their career. Equity of childcare was particularly important for those with one child, but did not influence those with two children. Likewise, couples with highly-inequitable divisions of childcare are less likely than those that are satisfied with the division of childcare to have a second child. Thus, unequal divisions of housework and inequitable divisions of childcare each reduce childbearing.

This study used a dataset with the unique advantages of being able to include all births subsequent to a national survey, to compare equity and equality of housework and childcare, and to examine these for different childbearing transitions. The dataset was limited, however, by not having longitudinal information beside childbearing. That means that we do not know whether the partners remained together after the survey, whether the division of housework or satisfaction with the division changed substantially or whether there have been other life changes that may influence their childbearing. As couples were followed for only three years after the interview, it is most likely that these factors remained relatively stable. The data also rely on a survey that interviewed one person in the household, which means that we do not know whether the partners have the same perception of the division of housework and childcare and whether they are more or less satisfied with the division than their partner. Although we do not have this information, we do have other characteristics of partners which may influence their childbearing behavior. Lastly, we have not been able to examine any interaction effects between equality and equity due to small size of the combined groups when splitting up the sample into different birth transitions.

Our examination of the effects of household-level equity and equality on couples' childbearing focused on Norway, a country with high levels of national-level gender equality but varying levels of household-level gender equality. This finding contributes to an understanding of why and how household-level gender equality and equity impact childbearing in countries with differing national-level gender equalities. A key question is whether gender equality has become a pre-requisite for increased fertility. At the macro level, a positive relation between high gender equality in a country and increasing fertility level has been found (Myrskälä et al. 2011). In Norway gender equality has become a social norm and gender equality is high in political empowerment, economic participation and opportunity, health and survival, and educational attainment. As revealed in this study, Norway is far from a country where men and women have a completely egalitarian division of housework and childcare. The situation can rather be described as gender equality-light (Rønsen and Skrede 2006),

which means that men take an active part in the family, but women are doing the lion share of household work. When couples are deciding about childbearing there are many factors that influence their decision-making, and the division of housework and childcare, as well as their perception of the division, only plays one part. Nevertheless, from our study we can conclude that gender equality in the household, either through completely egalitarian sharing or through semi-egalitarian sharing as well as gender equity, is associated with higher fertility at the household level in Norway.

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Appendix

Table A.1. Logistic Regression Coefficients (standard error): Birth of a(nother) child by number of children at the interview. Stepwise inclusion of explanatory variables

A. Couples without children

	Model I	Model II
Division of housework		
Unequal. woman more	-0.34 (0.31)	
Semi-equal	Ref.	
Equal	-0.31 (0.27)	
Unequal. man more	-0.47* (0.23)	
Equitable division of housework		0.29 (0.28)

[†] $p < .10$. * $p < .05$. ** $p < 0.01$. *** $p < 0.001$. Note: models include the same control variables as in Table 2.

B. Couples with one child

	Model I	Model II	Model III	Model IV	Model V	VI
Division of housework						
Unequal, woman more	-0.08 (0.32)		0.03 (0.35)			
Semi-equal	Ref.		Ref.			
Equal	-0.21 (0.34)		-0.32 (0.34)			
Unequal, man more	-0.80* (0.36)		-0.80* (0.36)			
Division of childcare						
Unequal, woman more				0.04 (0.34)		0.36 (0.37)
Semi-equal				Ref.		Ref.
Equal				0.37 (0.29)		0.31 (0.29)
Unequal, man more				0.25 (0.51)		0.27 (0.51)
Equitable division of housework		0.27 (0.40)	0.35 (0.43)			
Equitable division of childcare					1.06* (0.44)	1.16* (0.49)

[†] $p < .10$. * $p < .05$. ** $p < 0.01$. *** $p < 0.001$. Note: models include the same control variables as in Table 2.

C. Couples with two children

	Model I	Model II	Model III	Model IV	Model V	Model VI
Division of housework						
Unequal, woman more	-0.90** (0.31)		-0.92** (0.32)			
Semi-equal	Ref.		Ref.			
Equal	0.03 (0.31)		0.03 (0.31)			
Unequal, man more	-0.34 (0.39)		-0.34 (0.39)			
Division of childcare						
Unequal, woman more				0.16 (0.39)		0.14 (0.40)
Semi-equal				Ref.		Ref.
Equal				0.12 (0.26)		0.14 (0.27)
Unequal, man more				0.12 (0.44)		0.14 (0.44)
Equitable division of housework		-0.01 (0.34)	-0.17 (0.35)			
Equitable division of childcare					-0.15 (0.43)	-0.16 (0.44)

[†] $p < .10$. * $p < .05$. ** $p < 0.01$. *** $p < 0.001$. Note: models include the same control variables as in Table 2.



B

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