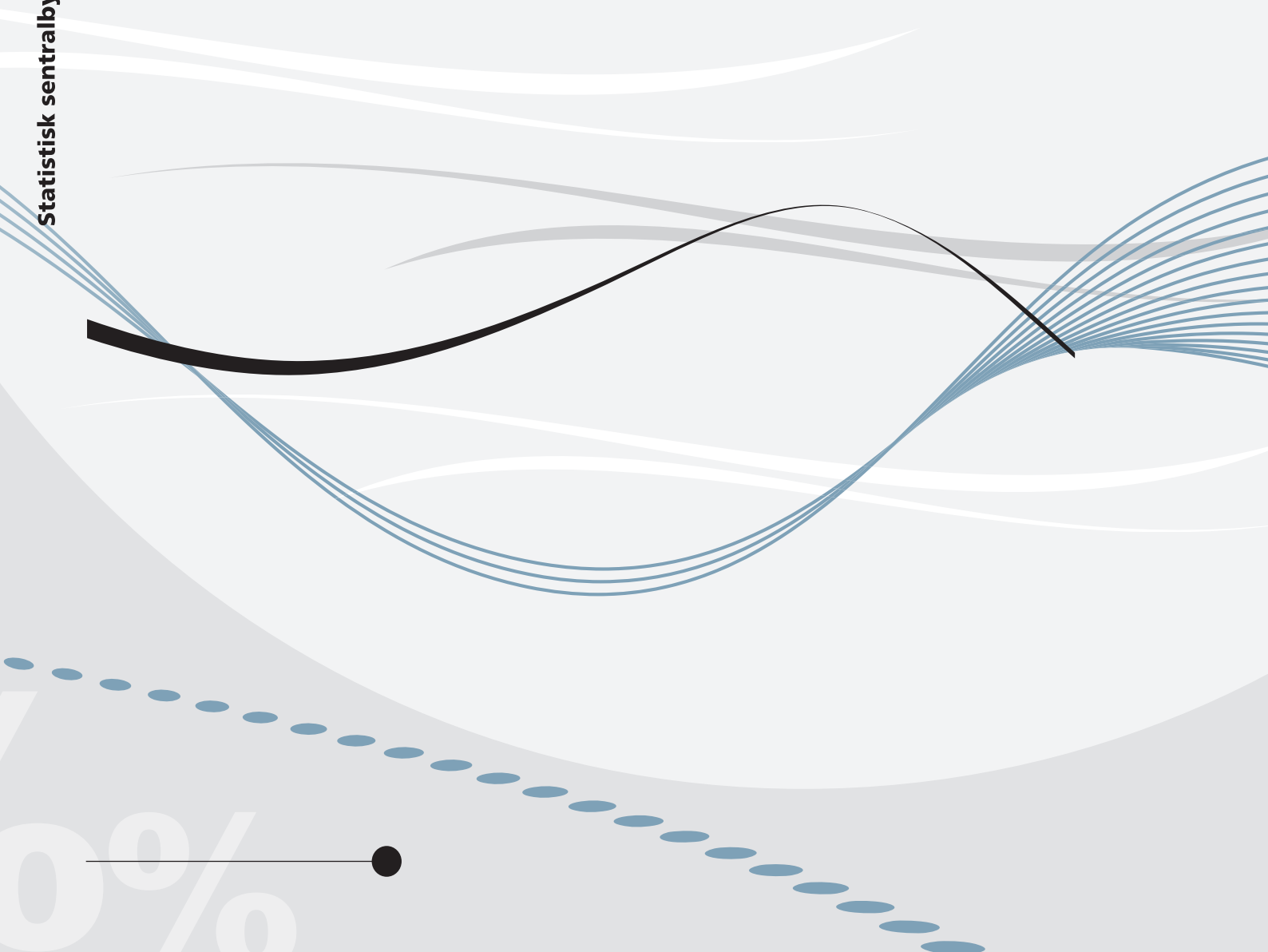


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The division of housework

Does regional context matter?



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Abstract:

This study investigates the relationship between the division of housework in couples and the local gender equality context. We use data from the Norwegian Generations and Gender survey 2007 combined with a range of macrolevel measures on gender equality in the municipality where the respondents live. Results show that in married and cohabiting couples, the division of housework is associated with local gender equality context. Irrespective of their individual characteristics, couples living in municipalities with high gender equality have more equal division of housework. The within country regional variation in women's status and participation on various arenas as compared to men's, seems to influence housework arrangements in the family. This corresponds to findings from previous studies comparing countries, hence indicating that several of the operating mechanisms are also present at a lower aggregate level. However, in contrast to cross-national comparisons, we find that individual characteristics are not associated differently with the division of housework according to regional gender context. This might be due to the fact that Norway is a relatively homogeneous and egalitarian country at both the regional and individual level.

Keywords: division of housework, regional gender equality index, multilevel analysis, Norway

JEL classification: J22

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Sammendrag

Denne studien ser på sammenhengen mellom deling av husarbeid og local kjønnslikestillingskontekst. Vi bruker data fra den norske Generations and Gender survey 2007 i kombinasjon med med ulike makromål på kjønnslikestilling i kommunen hvor respondenten bor. Resultatene viser at deling av husarbeid blant gifte og samboende par er relatert til den lokale likestillingskonteksten. Uavhengig av individuelle kjenntegn, par som bor i kommuner med høy likestilling deler husarbeid likere enn par som bor i kommuner med lav likestilling.

The social and cultural context is important for the gender division of household labor and more equal sharing is observed in countries with more gender equality (Fuwa 2004; Geist 2005; Hook 2006, 2010; Knudsen and Wærnes 2008; Ruppaner 2010). Whereas macro–micro studies of coherence between national gender equality contexts and the division of household tasks within the family are relatively new, the underlying theoretical arguments are not. One classic study by Blood and Wolfe (1960) shows that the allocation of family labor is affected by the individual resources of each partner as well as the specific social and cultural context.

Fuwa (2004) shows how cross-national gender equality contexts are related to the time- and job-task bargaining of spouses, in the way that individual resources affect the division of housework more significantly in more gender equal countries. Women living in relatively gender equal environments may be able to negotiate the division of housework more effectively according to their relative resources. While previous studies use national-level data, the suggested mechanisms are likely to operate in more immediate social contexts. Thus, the relationships found in cross-national studies should also be present at the regional/local level *within* a country.

The dimensions of gender equality in an area include among other government policy, industrial structure and political influence. While previous cross-national studies have relied on a single index to measure gender equality, cross-national disaggregation procedures has been suggested as the best way to examine specific aspects of gender equality contexts in order to improve our understanding of contextual effects in relation to public policies (UNDP 2009). However, we are not aware of this having been carried out thus far because of a lack of comparable data across countries.

The present study aims to determine if the findings of cross-national studies can be paralleled by similar results at the regional level within one country. We will extend existing research by introducing macrolevel indicators on Norwegian municipalities, using Statistics Norway's regional gender equality index, and explore whether the mechanisms that are present in national comparisons are also present between regions within one country. Because Norway is a relatively small and homogeneous country with predominantly uniform legal and institutional conditions in all regions, our study will relate to feasible economic and cultural variation rather than to institutional variation and policies.¹ This article contributes a detailed analysis of contextual influences on the division of housework within one “gender equal” country and provides insight into the character of gender equality in the family through individual and contextual pathways.

We raise three main questions. First, we ask whether various regional gender equality contexts can be associated with various regional patterns of housework division within families. Second, we ask whether individual characteristics are differently related to the way married and cohabiting women and men apportion daily housework chores in different local settings. Third and last, we disaggregate the regional gender equality index, and ask how the various dimensions of the index are associated, on the one side with the division of housework in the families, and on the other side with the relationship between the characteristics and the resources of each partner and their role in the division of housework. Thus, the novelty of our contribution is twofold: by focusing on *local* contexts and by explicitly investigating the specific *dimensions* of local gender equality context. We used data from the Norwegian Generations and Gender survey 2007 (N=8,021 couples across 250 municipalities) and macrolevel factors included in the regional gender equality index.

Individual resources and the division of housework

Researchers have developed a series of approaches to explain differences in the allocation of household tasks between spouses. The most relevant approaches to the present analysis focus on partners' relative resources, the time availability of each partner and their gender ideology. The *relative resources* approach assumes that most people avoid housework, and that housework allocation is governed by the rules and principles of exchange relations in which partners negotiate implicitly or explicitly the allocation of paid and unpaid work and the partner holding the stronger bargaining power does the least household work. Bargaining power comprises the (potential) economic resources of the partners, education, labor market position and income. Several studies support this perspective (Bianchi, Milkie and Sayer 2000; Coltrane 2000; Greenstein 1996; Ishii-Kuntz and Coltrane 1992).

The *time availability* perspective relates the allocation of domestic work to the couple's time spent in paid work, and thereby to the amount of "spare time" each has available for household tasks. It is assumed that individuals respond pragmatically to the demands of doing housework, and that the partners distribute workloads equally relative to their availability to respond (Blood and Wolfe 1960; Hook 2004, 2006). Although gender neutral in principle, time availability analyses generally focus on the female partner's work and working hours outside the home, while the husband's relative involvement in the household is assumed to be associated with the wife's involvement in paid work. Several studies support this perspective and suggest a positive relationship between women's work hours and men's housework time (Bianchi et al. 2000; Coltrane and Ishii-Kuntz 1992; Hook 2006).

The *gender ideology* approach focuses on partners' attitudes towards gender roles. It assumes that more egalitarian beliefs about men's and women's roles lead to a more egalitarian division of labor in the home (Bianchi et al. 2000). This assumption is confirmed by numerous studies (e.g. Blair and Lichter 1991; Bianchi et al. 2000; Nordenmark 2004; Ross 1987), but the relationship between attitudes towards gender roles and the division of household labor seems to vary according to the attitudes of each of the two partners. According to Bianchi et al. (2000) and Poortman and Van der Lippe (2009), men's attitudes are more significant than women's attitudes in explaining apportionment of household chores, whereas Jansen and Liefbroer (2006) found each partner's attitudes to be equally important.

Gender equality context and the division of housework

Decision making about the division of housework in the family is embedded in a social gender context and is likely to be influenced by the norms, values and culture within a given society. This social and cultural context affects how families organize everyday duties independently of individual characteristics. According to Fuwa (2004), Western cultures are predominantly male dominated. This gives men authority in decision making, with a more traditional division of labor observed in more male-dominated cultures. Recent studies using the UNDP Gender Empowerment Measure confirm this assertion at the national level, where an egalitarian division of housework is associated with egalitarian public policies and egalitarian cultures regardless of the characteristics of the partners (Batalova and Cohen 2002; Fuwa 2004; Knudsen and Wærnes 2008). Geist and Cohen (2011) argue that normative and cultural contexts demonstrate a historical "path dependency" in housework patterns that reflect former and persistent national housework "standards." Comparing countries with a (recent) history of relative gender egalitarianism with traditionally unegalitarian countries, however, reveals stronger path dependency among the egalitarian countries.

Gender equality at the macro level then, both encourages and modifies the effects of individual resources, as various institutional settings bring about leverage or impediments to negotiations and decisions of partners (Blumberg and Coleman 1989). Contextual factors affect not only the terms of bargaining (relative resources), but also the benefits of specialization (time availability) and the ease or difficulty of adhering to gender ideologies and norms (Hook 2006). Women in relatively gender egalitarian countries that feature egalitarian employment and career opportunities, presumably have a better bargaining position when negotiating paid versus unpaid work with their partners (Fuwa 2004). Women's working hours relative to men's have more influence on the negotiation of housework in more gender egalitarian countries. As a result, couples will "rationally" share housework more

equally. Also, the positive link between gender ideology and the division of housework is assumed to be associated with women's empowerment in a society. According to Fuwa, since male domination affects the prevailing gender ideology, in countries where women's status in public life is relatively strong, gender ideology that encourages a traditional division of housework will be weaker. Hence, individuals with egalitarian attitudes are more able to realize their attitudes in these countries.

Gender equality dimensions and the division of housework

While the term gender equality is used in general discourse, it is a multidimensional term and not all relevant dimensions carry equal importance in all settings. Factors such as kindergarten availability, the local industrial and occupational structure and general employment level may have heterogeneous effects on a couple's division of housework. Also, the effects of public policies, gender cultures and the status of women and men in a society on housework arrangements are not clearly understood.

The distribution and access to subsidized public childcare might have countervailing effects on the division of housework. On the one hand, publicly subsidized childcare relieves mothers of some childcare responsibility in the family. On the other hand, it makes it easier for men to remain in the role of secondary caregiver. As a rule, publicly funded childcare reduces women's time in doing domestic work, but it does not increase men's time in doing domestic work. Hence, the supply of public childcare does not necessarily challenge gender specialization in housework. Cross-national analyses find no significant effects of publicly funded childcare on housework arrangements (Hook 2006, 2010; Geist and Cohen 2011). A comparative study of welfare regimes suggests that the absence of state-subsidized childcare in liberal regimes may instead increase husbands' contribution to housework as an economic necessity (Winderbank 2001).

As *parental leave* is primarily used by women, as a rule it reinforces gendered specialization in the family. Countries with extended parental leave policies have been associated with less egalitarian housework arrangements (Geist and Cohen 2011). Where men are eligible for parental leave, women do less housework, but according to Hook (2010), there is no associated increase in men's housework time. Generally, one would expect that paternity leave would reduce sex specialization between partners. Hook argues that it challenges both the ideal-worker norm in the labor market and the mother's sole responsibility for childcare. Norway was among the first countries to introduce "mandatory" paternity leave as a portion of parental leave reserved for the father. This arrangement reflects strong ideals and social norms that fathers should be involved actively in the care of their children. It places pressure on fathers to take on their share of domestic work, and on the employers to

accommodate the absenteeism of fathers (Lappegård 2012). Time-use studies show increasing and relatively extensive engagement in childcare among Norwegian men, but significantly less engagement in housework (Vaage 2012).

Women's employment has also been found to correlate with housework arrangements at the contextual level. Geist and Cohen (2011) find a positive relationship nationally between egalitarian housework reports and female labor force participation. Hook (2006, 2010) finds increased time spent on unpaid work among men in countries where married women's employment is common, but no reduction among women. Noticeably, she also finds that single men spend more time on housework in these contexts, and maintains that the influence of women's employment goes beyond individual negotiations between partners to shaping gender norms more broadly (Hook 2010). On the other hand, Fuwa (2004) finds that the employment rate for women at the country level does not have an equalizing effect on the average division of housework. However, in countries with a high level of employment for women, she finds a weaker association between women's full-time employment and more egalitarian division of housework (Fuwa 2004). Women's employment is a necessary condition for attaining higher social status, but without control over resources, women's employment may not be sufficient to realize a more egalitarian relationship within the family (Fuwa 2004).

Research questions

Previous analyses have revealed extensive cross-country variation in gender equality and the allocation of housework. However, it is not clear whether the association between macrolevel gender equality and the division of housework between partners is maintained across smaller geographical areas. We assume that the theoretical arguments discussed above are not restricted to the country level and expect the association in the local context (municipality) and the broader national context to be equally important. In the present study, we focus on local gender equality contexts and examine whether we find similar patterns at regional and local levels. Following the same argument, we propose that the various levels of gender equality in Norwegian municipalities constitute different framework conditions and influence the division of housework in the family: that is, there is a correlation between the level of gender equality at the local level and the division of housework within couples.

According to the reasoning that context affects leverage of arguments in negotiations over housework, we would expect the effect of individuals' relative resources, time availability, and gender ideology to vary regionally in accordance with local gender equality. Thus, we test for cross-level interactions

between these variables for indications that an individual's resources might influence their share in the division of housework according to the level of gender equality in the local municipality.

Further, we incorporate arguments around gender equality from cross-national comparisons testing for associations between various macrolevel factors and the domestic division of labor, and for the relationship between housework division, relative resources, time availability and gender ideology of the partners. The Norwegian regional gender equality index is comprised of a range of municipal indicators reflecting institutional, economic and cultural dimensions and the labor force participation and social status of women and men. To confirm the influence of each dimension, we repeat the analysis substituting the overall index with each of these indicators.

Data and measures

Data are taken from the 2007 Generations and Gender survey in Norway. Respondents aged 18–62 years living in a heterosexual marriage or cohabitation are included in the analysis. To estimate the significance of contextual characteristics, we only included couples in municipalities where there were at least three respondents in the sample. The sample is of 8,021 couples living in 250 of a total of 429 municipalities. The minimum number of couples in a municipality is thereby three couples and the maximum number 1,362 couples. In order to include cases with missing data on one or more variables, we used a multiple imputation procedure following Rubin (1996).

We use Statistics Norway's regional gender equality index (GEI) as the key contextual measure at the municipal level. First published in 1999, the index contains a series of municipal-level indicators of public day care, women's and men's human capital and participation in politics and the labor market (Kjeldstad and Kristiansen 2001). The index was further improved in 2009 by including a greater variety of indicators (Hirsch and Lillegard 2009). Because the Generations and Gender survey was carried out in 2007, we created an index using data from 2006 and the procedures for Statistics Norway's new index.²

Division of housework

Our dependent variable is *division of housework between partners in a couple*. The respondents were asked to answer the question, "Who does the following tasks in your household?" on each of the following tasks: preparing daily meals, washing dishes, washing clothes, shopping for food and cleaning the house. These tasks are all considered routine daily tasks mainly done by women. We included neither questions about maintenance work as this task occurs less frequently, nor those about

childcare because restricting the analysis to those with small children would narrow the sample significantly. The possible response categories for each task were: always respondent, usually respondent, respondent and partner often equally, usually partner, always partner, and always or usually another person. Tasks done by a third person were considered to be shared equally. Depending on the gender of the respondent, we rearranged these responses. A value of -2 was assigned to a response if a task was always performed by the woman and a value of -1 was assigned if a task was usually done by the woman. If a task was equally shared or performed by a third person, it was given the value of 0. Values of 1 and 2 were assigned if a task was usually and always done by the man, respectively. We summed up the values from the five tasks so that our measure on housework had possible scores of from -10 to 10, where negative values indicate that women do the most, and values close to 0 approximate an equal division of labor between the partners. Similar measures were used in a recent comparative study on housework change (Geist and Cohen 2011).

Individual-level measures

Pursuant to the theoretical framework outlined above, we included three individual-level measures assumed to affect or correlate with the division of housework between partners: the partners' relative resources, a measure of time availability and the partners' gender ideology. Our measure of *relative income* as relative resources is linked to the survey from administrative registers. It constitutes the wife/female partner's share of the couple's total earned income in the survey year. *Time availability* is measured as the wife/female partner's working hours. Husband/male partner's working hours are included as a control.

Gender ideology is an index composed of statements about gender attitudes: (a) "In a couple it is better for the man to be older than the women," (b) "If a woman earns more than her partner, it is not good for the relationship," (c) "On the whole, men are better political leaders than women," (d) "A pre-school child is likely to suffer if his/her mother works," (e) "When jobs are scarce, men should have more right to a job than women," and (f) "If parents divorce it is better for the child to stay at home with the mother than with the father." Respondents were asked to respond to each statement on a 5-point scale, where 1 = strongly agree and 5 = strongly disagree. We added up the values from the six items, resulting in a range of possible scores from 6 to 30, where 6 indicate the least egalitarian gender ideology and 30 the most egalitarian gender ideology. Because Cronbach's alpha of the index was .72, the six items can be treated as one factor.

We include a control for the gender of the respondent, as it has been shown that both women and men tend to overreport their own contribution and underreport their partner's contribution (Kamo 2000). Because previous studies suggest that men's gender ideology has a stronger influence on the division of housework than does women's (Fuwa 2004; Kamo 1988; Shelton and John 1996), we include an interaction term between male respondent and gender ideology. We also distinguish between married and cohabiting couples, as cohabiting couples have been shown to have a more liberal orientation than married couples (Batalova and Cohen 2002), although this has not been confirmed in the Nordic countries (Bernhardt, Noack and Lyngstad 2008). Education is coded from 0 to 8, where 0 = no education and 8 = postgraduate education. Respondents' age, including a square term, and whether there are children aged 0–19 years living in the household were included as controls. Individual-level descriptive statistics are presented in Table 1.

Table 1. Individual-level Descriptive Statistics

Variable	Means	SD	Minimum	Maximum
Division of housework	-2.86	2.70	-10	10
Relative income ^a	60.36	23.77	0	100
Time availability ^b	28.20	15.03	0	90
Gender ideology	23.18	3.80	6	30
Male respondent	0.48	0.50	0	1
Male working hours	36.78	15.67	0	100
Age	43.53	10.75	18	62
Education	4.40	1.70	0	8
Children in household	0.55	0.50	0	1
Married	0.73	0.44	0	1

^a Male share of the couples' earned income.

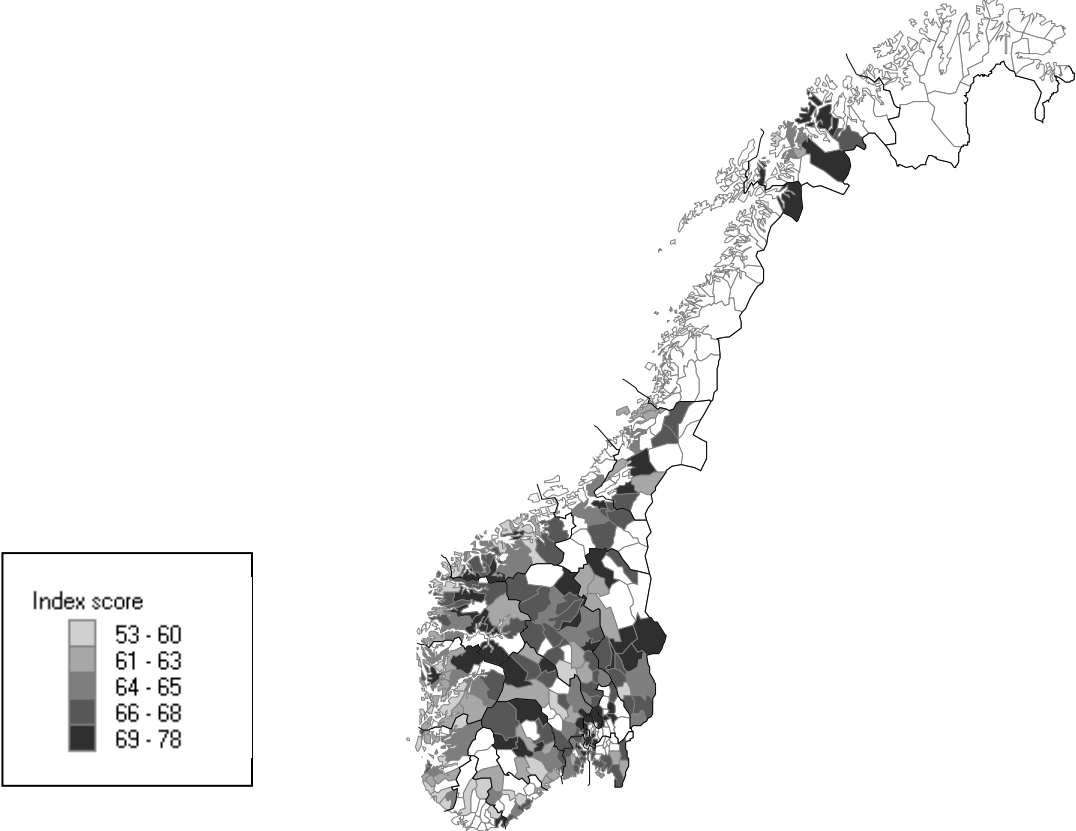
^b Female working hours

Macrolevel measure

The Nordic countries rank at the top of existing international comparative gender equality measures (UNDP 2009 and 2010), and the division of housework is also more egalitarian in these countries (Fuwa 2004; Knudsen and Wærnes 2008). Although Norway might be perceived as being largely egalitarian, there is much local variation in gender equality. All indicators included in the regional gender equality index have a range from 0 to 100. The value 0 indicates no equality, and the value 100 indicates maximum equality. Figure 1 gives an overview of the variation of the gender equality index across the municipalities represented in the study. The index score varies between 53 and 78 (see Table 2).

We disaggregated the index into six indicators or *contextual dimensions* in order to explore the relationship between the various contextual gender equality dimensions and the division of housework within couples. The first dimension, *Kindergarten coverage*, constitutes the share of children 1–5 years old in (publicly subsidized) formal day care. The second, *Industrial structure*, is measured as the ratio between men and women in the public sector vs. private sector. *Time use on work and care* is measured as the ratios of men and women in the labor force and in part-time employment plus the proportion of eligible fathers taking their “mandatory” paternity leave or more. *Empowerment* is measured as the ratios of men and women with higher education and female managers. *Political influence* is measured as the share of women in the municipal council. *Economic resources* are measured as the ratio of the average gross income of men and women in the economically active population (20–66 years) of the municipality.

Figure 1. Regional Gender equality index 2006 for municipalities included in the study.



Note: The index score for the municipalities have a theoretical range from 0 to 100, where the value of 0 indicates no equality, and the value 100 indicates maximum equality. Municipalities in white are not included in the present study.

The mean score of the gender equality index and the indicators from the disaggregated index are presented in Table 2. The table shows that the average level of gender equality in Norwegian

municipalities varies substantially depending on which dimension is measured. Measured by *Kindergarten coverage* for instance, the mean score is 80.1, whereas the mean score measured by *Industrial structure* is 32.9. The two measures reflect the uniform Norwegian kindergarten policies on the one hand, and the strongly gender-segregated labor market on the other. It shows also evident regional variation measured by each indicator. The most significant variation is women's *Political influence*, where the score varies between 34 and 98.

Table 2. Macro-level Descriptive Statistics

Variable	Means	SD	Minimum	Maximum
Gender equality index	68.07	5.49	53	78
Kindergarten coverage ^a	80.11	6.11	57	100
Industrial structure ^b	32.86	4.04	23	43
Time use on work and care ^c	63.15	5.22	49	74
Empowerment ^d	69.19	9.52	40	93
Political influence ^e	75.33	14.19	34	98
Economic resources ^f	63.54	5.38	44	79

^a Share of children 1-5 years in formal day care.

^b Ratio between men and women in the public/private sector.

^c Ratio between the share of men and women in part-time employment; share of fathers taking paternity leave or more; ratio between men and women's share in the labour force.

^d Ratio between share of men and women with higher education; female share of managers.

^e Share of women in the municipal council.

^f Ratio between men and women's average gross income.

Analytical strategy

We used hierarchical linear models including random intercept and random slope to examine if the effects of individual-level factors differ by municipality and whether those differences correlate with macrolevel factors. We followed a five-step strategy. First, we estimated a random intercept model allowing variation in housework averages across municipalities. Second, we estimated a random slope model that allows the effect of relative income, time availability and gender ideology to vary across municipalities. In the third model, we controlled for individual characteristics. In the fourth, we included the effect of the GEI on the intercept. In the last model, we also included the effect of the GEI effect on the slopes of the three individual-level variables. A similar design was used by Fuwa (2004) in her study of macrolevel gender inequality and the division of household labor in 22 countries. We have centered all individual-level and municipal-level variables on their grand means. The intercept can thus be interpreted as the predicted household division of a couple with average characteristics in a municipality with an average GEI score. Relative model fit was assessed using the Bayesian Information Criterion (BIC), and reduction in intraclass correlation was calculated from the estimated level 2 (municipality level) and level 1 residuals (individual level).

The basic multilevel model is written as:

$$(1) \quad \begin{aligned} Y_{ij} &= \beta_{0j} + \beta_{1j}RI_{ij} + \beta_{2j}TA_{ij} + \beta_{3j}GI_{ij} + \beta_{4j}X_{ij} + \varepsilon_i \\ \beta_{0j} &= \gamma_{00} + \zeta_{0j} \end{aligned}$$

The first line is the individual-level equation where Y_{ij} is the division of housework in couple i in municipality j . RI is relative income, TA is time availability, and GI is gender ideology for respondent i with corresponding parameters β_{-j} . X is a vector of other individual-level covariates (age, sex, etc.), and ε_{ij} is the individual-level residual. The β_{0j} term is a municipality-level term to be estimated with an intercept γ_{00} and ζ_{0j} is the municipality-level residual which is normally distributed, with variance σ_{01} to be estimated. Thus, σ_{01} captures the variation in division of housework across municipalities, while ε_{ij} is the within-municipality variation (conditional upon covariates).

We can include municipality-level covariates into the equation. In our case, this is the GEI. This is straightforward as an extension of the municipality equation:

$$(2) \quad \beta_{0j} = \gamma_{00} + \gamma_{01}GEI_j + \zeta_{0j}$$

where γ_{01} is the effect of GEI.

We would also like to know whether RI, TA and GI vary by GEI. This implies cross-level interaction terms and the full model is written as follows:

$$(3) \quad \begin{aligned} Y_{ij} &= \beta_{0j} + \beta_{1j}RI_{ij} + \beta_{2j}TA_{ij} + \beta_{3j}GI_{ij} + \beta_{4j}X_{ij} + \varepsilon_i \\ \beta_{0j} &= \gamma_{00} + \gamma_{01}GEI_j + \zeta_{0j} \\ \beta_{1j} &= \gamma_{10} + \gamma_{11}GEI_j + \zeta_{1j} \\ \beta_{2j} &= \gamma_{20} + \gamma_{21}GEI_j + \zeta_{2j} \\ \beta_{3j} &= \gamma_{30} + \gamma_{31}GEI_j + \zeta_{3j} \end{aligned} ,$$

where each of the parameters β_{1j} , β_{2j} , and β_{3j} is free to vary by municipality and the influence of the GEI. For example, the effect of RI is no longer captured by $\beta_{1j}RI_{ij}$ alone, but by $(\gamma_{10} + \gamma_{11}GEI_j + \zeta_{1j})RI_{ij}$.

Results

Model I in Table 3 shows that our estimate of a random intercept allowing variation in housework averages across municipalities is -3.14 . The possible scores on our scale are from -10 to 10 , where negative values indicate more tasks done by women and values close to 0 approximate an equal division of labor between the partners. An intercept of -3.14 indicates that the average reported

housework division is characterized by women doing more housework than men, but far from a situation where she is doing all the housework. The between-municipality variance constitutes about 4.2 percent of the overall variance in the division of housework. While this might be regarded as a fairly small variation across municipalities, Fuwa (2004) found in a cross-national comparison that the between-country share of total variance was about 9.1 percent. However, it is to be expected that the between-regional variance within one country is smaller than the between-country variance.

Model II included the individual-level variables relative income, time availability and gender ideology, which were allowed to vary across municipalities through a random slope for each variable. The significant positive coefficients for each variable are consistent with previous research. That is, the more the woman's contribution to the couple's total earned income and the longer the paid working hours of the female partner, the more equal is the division of housework. Also, a more egalitarian gender ideology is associated with a more egalitarian division of housework. Including the three variables and allowing them to vary across municipalities reduces the municipality-level variance by 11.2 percent (from .2985 to .2651) and the individual-level variance by 4.1 percent (from 6.909 to 6.626). The components of relative income, time availability and gender ideology slopes hardly showed any variance. This means that the association between the three variables and housework arrangements does not differ between municipalities across Norway.

Adding the other control variables in Model III does not affect the estimate of the three main variables at the individual level. However, the intercept now constitutes female respondents, and is reduced from -3.171 to -3.685, while male respondents are associated with more equal housework. This reflects the gender gap in reporting the division of housework discussed above (Kamo 2000, Kjeldstad and Lappegård 2012). Also, the coefficient of gender ideology, now reflecting women's gender ideology, is increased from .039 to .065. However, we did not find an association between men's gender ideology and the division of housework, as found in previous studies (Kamo 1988; Shelton and John 1996). Including the individual-level control variables reduced the municipality-level variance by 24.1 percent (from .2651 to .2012) and the individual-level variance by 9.7 percent (from 6.626 to 5.9851). This reflected a quarter of the municipality variance in division of housework due to municipality differences in individuals' characteristics.

Table 3. HLMs for Individual- and Municipality-level Determinants of Housework Division

	I	II	III	IV	V
Intercept	-3.135***	-3.171***	-3.681***	-3.572***	-3.571***
GEI				0.053***	0.053***
Relative Income					
Intercept		0.011***	0.005***	0.005***	0.006***
GEI					0.0003
Time Availability					
Intercept		0.014***	0.017***	0.017***	0.018***
GEI					-1.73E-6
Gender Ideology					
Intercept		0.039***	0.065***	0.064***	0.064***
GEI					-0.0001
Male respondent			1.389***	1.387***	1.385***
Male X Gender Ideology			-0.017	-0.017	-0.048
Male Working Hours			-0.017***	-0.018***	-0.018***
Age			-0.059*	-0.059*	-0.058*
Age, squared			0.0002	0.0002	0.0002
Education			0.175***	0.172***	0.172***
Children in Household			-0.155*	-0.146*	-0.147*
Married			-0.132#	-0.121#	-0.120#
Variance Components					
Intercept	0.2985	0.2651	0.2012	0.1222	0.1216
Relative-income slope		0.0002	0.0001	0.0001	0.0001
Time-availability slope		0.0001	0.0000	0.0000	0.0000
Gender-ideology slope		0.0000	0.0000	0.0000	0.0000
Level-1 Residual	6.909	6.626	5.9851	5.9952	5.9962
Rho	4.15	3.86	3.25	2.00	1.99
BIC	38423.1	38198.1	37393.9	37378.3	37416.1

Note: GEI = regional gender equality index for Norway; HLM = hierarchical linear models. # $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$. Rho = proportion of total variance explained by between-municipality variation.

Model IV includes the gender equality index, and the centered mean coefficient on the intercept is .053 ($p < .001$). Holding individual characteristics constant, this means that couples living in municipalities that score high on the gender equality index have a more egalitarian division of housework. This is in line with previous research on country differences suggesting a more gender-equal share of housework in egalitarian countries (Batalova and Cohen 2002; Fuwa 2004; Knudsen and Wærnes 2008). Including the gender equality index reduces the variance at municipality level by 39.3 percent (from .2012 to .01222).

In the last model, although none of the coefficients were significant nor showed any improvement in relative model fit, we included the effect of the gender equality index on the slopes of relative income, time availability and gender ideology. As opposed to cross-national studies, where, for example, Fuwa (2004) found that both time availability and gender ideology affect the division of housework

positively in more gender-egalitarian countries, we found no cross-level interaction between municipality and the three variables of the division of housework.

To examine how the different dimensions of the index are associated with the division of housework and with the relationship between the division of housework and relative income, the time availability and the gender ideology of the partners, we disaggregated the GEI. Table 4 shows the results when we substitute the gender equality index with each of the indicators used in the overall index. In all other respects, the model is specified in the same way as Model V in Table 3. The analysis is repeated for each of the six different municipality-level indicators. We only show the effect on the intercept and the slopes of relative income, time availability and gender ideology. First, the association between the proportion of children in kindergarten and the division of housework is not significant. This is in line with previous cross-national studies showing no relationship between level of publicly funded childcare and housework arrangements (Geist and Cohen 2011; Hook 2006, 2010). However, kindergarten coverage has a positive effect ($p < .10$) on the gender ideology slope. That is, in municipalities with more extensive use of kindergartens, individual gender ideology is more strongly associated with division of housework than in municipalities with less use of kindergarten. This means that individuals holding egalitarian gender attitudes living in municipalities that score high on kindergarten coverage report more gender-equal division of housework than those holding egalitarian gender attitudes living in municipalities with lower kindergarten coverage. One way of interpreting this result is that high coverage of publicly subsidized kindergartens gives a better framework for realizing egalitarian attitudes towards gender-equal practices in the family.

Industrial structure is associated with the division of housework with a coefficient of .072 ($p < .001$), but there are no effects on the slopes of the three individual-level variables. Nevertheless, municipalities constituting a relatively gender-balanced industrial structure are associated with a more egalitarian division of housework. This indicates that a relatively low-segregated labor market is associated with relatively low gender segregation in the division of work in the family.

Several studies have found the contextual level of women's labor market participation to be relevant to housework arrangements (Geist and Cohen 2011; Hook 2006, 2010). The indicator "time use for work and care" included in the gender equality index is composed of women's time use in the labor market and men's time use on care through paternity leave (see Note d, Table 2 and Table 4). The indicator is positively associated with the division of housework with a coefficient of .042 ($p < .001$), but has no effect on the slopes of the three individual-level variables. There is also a positive association between

empowerment (.024) and political influence (.012) and the division of housework. There is no significant association between economic resources and the division of housework, but the indicator is negatively associated with the time availability slope ($p < .05$). That is, the positive influence of women's working hours is less pronounced in municipalities where economic resources are more equally distributed. One way of interpreting this result is that when there is a high level of equality in economic resources, working hours become less important for the division of housework. This fits in with the argument that without control over resources, women's employment may not be sufficient to realize a more egalitarian relationship within the family (Blumberg 1984; Fuwa 2004).

Table 4. HLMs for Indicators from Regional Gender Equality Index Decomposed

Kindergarten coverage		Industrial Structure		Time use for work and care	
Intercept	-3.393 ^{***}	Intercept	-3.544 ^{***}	Intercept	-3.613 ^{***}
KC ^a	0.011	SI ^b	0.072 ^{***}	TUWC ^c	0.042 ^{***}
Relative Income		Relative Income		Relative Income	
Intercept	0.005 ^{***}	Intercept	0.006 ^{***}	Intercept	0.006 ^{***}
KC	0.0003	SI	0.0005	TUWC	0.0004
Time Availability		Time Availability		Time Availability	
Intercept	0.018 ^{***}	Intercept	0.018 ^{***}	Intercept	0.018 ^{***}
KC	-0.0005	SI	0.0002	TUWC	0.0002
Gender Ideology		Gender Ideology		Gender Ideology	
Intercept	0.065 ^{***}	Intercept	0.064 ^{***}	Intercept	0.065 ^{***}
KC	0.002 [#]	SI	-0.0008	TUWC	0.0011

Empowerment		Political Influence		Economic Resources	
Intercept	-3.590 ^{***}	Intercept	-3.638 ^{***}	Intercept	-3.689 ^{***}
EM ^d	0.024 ^{***}	PI ^e	0.012 ^{***}	ER ^f	-0.008
Relative Income		Relative Income		Relative Income	
Intercept	0.005 ^{***}	Intercept	0.006 ^{***}	Intercept	0.006 ^{***}
EM	-0.0000	PI	0.0001	ER	0.0001
Time Availability		Time Availability		Time Availability	
Intercept	0.018 ^{***}	Intercept	0.017	Intercept	0.017 ^{***}
EM	0.0004	PI	-0.0001	ER	-0.0009 [*]
Gender Ideology		Gender Ideology		Gender Ideology	
Intercept	0.064 ^{***}	Intercept	0.065 ^{***}	Intercept	0.064 ^{***}
EM	-0.0002	PI	-0.0005	ER	-0.0010

Note: Control variables not shown (same control variables as in Model V in Table 3). HLM = hierarchical linear models. # $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

^a KC = Share of children 1-5 years in formal daycare.

^b SI = Structure of industry (ratio between men and women in the public/private sector).

^c TUWC = The distribution of time use for work and care (ratio between the share of men and women in part-time employment; share of fathers taking paternity leave or more; ratio between men and women's share in the labour force).

^d EM = The distribution of relative resources (ratio between share of men and women with higher education; female share of managers).

^e PI = The distribution of political influence (share of women in the municipal council).

^f ER = The distribution of gross income (ratio between men and women's average income).

Conclusion

Together with the other Nordic countries, Norway is recognized as having a high level of gender equality and women's empowerment, and thus a relatively equal sharing of housework in the family. The present study has investigated how regional gender contexts within Norway are related to couples' division of housework. The answer to our first research question is that, *yes*, regional gender context is associated with the division of housework in Norwegian families. Independent of individual characteristics, couples living in municipalities that score high on the gender-equality index have a more equal division of housework. The regional variation across Norway in women's status and participation on various social arenas as compared with men's, seems to influence housework arrangements in the family. In this respect, our findings correspond to findings from previous studies comparing countries, hence indicating that several of the operating mechanisms are also significant at a lower aggregate level.

The answer to our second research question is mainly that, *no*, individual characteristics are not associated differently with the division of housework between Norwegian partners depending on regional context. This is in contrast with previous cross-country comparisons that maintain individual resources are more positively associated with an egalitarian division of housework in a more egalitarian national context (Fuwa 2004).

Our last research question was about how different dimensions of the local gender equality context are related to the division of housework between partners. On disaggregating the index, we found that the association with housework allocation mainly goes in the expected direction: a higher score on the regional indicators is associated with a more equal division of housework. Two contextual dimensions, however (kindergarten coverage and economic resources), only have an effect through characteristics at the individual level.

We initially assumed that the relationship between the allocation of housework in the family and various regional contexts largely reflects various national contexts as described in former studies. The analysis shows that this is only partly the case. In some areas and on some dimensions, the local setting appears to interact differently with the division of housework in the family than has been shown in cross-national studies. These results indicate that regional variation in family decisions might be affected as much by local normative and cultural conditions as by the local adaption to national

institutions and policies. This conjecture accords with a recent Norwegian study of religiosity and gender equality at home (Kjeldstad 2012), which indicates that the impact of religiosity and religious activities on the division of housework is mediated primarily through local religious norms and cultures.

We are careful not to assign unambiguous causal directions to the revealed macro–micro associations. Nevertheless, our findings suggest that one pathway to increased gender equality in the family is through the cultural and economic influence of a local gender equality context. However, the behaviors of women and men are embedded in a national gender culture. The prevailing noninteraction between contextual and individual/couple characteristics in the distribution of housework may be due to the fact that Norway is a relatively homogeneous and egalitarian country at both the regional and individual/couple levels. Assuming that quite a few countries are less uniform than Norway in these aspects, both regionally and as regards the population in general, it would be of major relevance to assess whether the local-level associations revealed in the present analysis appear in different national contexts.

Endnotes

¹ Some aspects of the national Norwegian political goals and gender equality legislation are intended to be implemented by county and municipal institutions (fylkesmann, fylkeskommune, kommunale likestillingsutvalg). Recent investigations have revealed considerable regional variation in political and institutional engagement in gender equality issues. However, they conclude that there is low correspondence between such local engagement and gender equality in the public sphere at the regional level (Guldvik, Renolen, Psahl, Lauritzen, Mathisen, van der Ros, Orbakk and Ree-Lindstad 2011, NOU 2011:18).

² The indicators “share of pupils in upper secondary school in a gender-balanced education programme” and “share of employees in gender-balanced industries” for 2006 were not available.

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