Does parenthood impact the household division of labour less than before?

Evidence from the Norwegian time use surveys 1980-2010

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Abstract

The presence of children still tends to reinforce a traditional division of labour in couples in many countries. This paper explores possible changes in the relationship between parenthood and the division of labour in Norway from 1980 to 2010 – a period with considerable changes in men's and women's time use and the implementation of several work-family policy reforms. Parenthood intensified the division of labour less in 2010 than in 1980, but there is no linear time trend. In 2010, only parents with very young children (0-1 years) had a more gendered division of paid work than those with no resident children, and even for this group, the difference was more modest than previously. As for household work, the presence of children in most age groups still implies a more traditional division of labour, although less so than before.

Introduction

With the advance of the dual-earner family, many Western countries have witnessed a notable reduction in gender differences in paid and unpaid work in couples in recent decades. Still, women on average spend more time on domestic work and less time on paid employment than men (Anxo et al. 2011, Fisher et al. 2007, Gershuny 2000), and in most countries, parenthood still seems to reinforce a traditional division of labour. The presence of children in the household, and particularly small children, tends to imply more paid work for fathers, while mothers usually decrease their paid work and increase their domestic work, and sometimes also spend less time on leisure activities (Anxo et al. 2011, Stalker 2011, Craig et al. 2010, Craig and Bittman 2008, Sayer 2005, Blossfeld and Drobnic 2001, Sanchez and Thomson 1997). However, the gender difference in time allocated to employment and unpaid family work has been shown to vary significantly across countries depending on societal and institutional factors (Hook and Wolfe 2012, Hook 2006, Geist 2005, Fuwa 2004), and the same is true for the extent to which parenthood intensifies a traditional division of labour (Anxo et al. 2011). In particular, work-family policies that promote mothers' paid work and fathers' family involvement are seen as important in order to lessen the impact of children on gender differences in time allocation (Cooke and Baxter 2010, Gornick and Mayers 2008). As for Sweden, a typical social democratic society with high gender-equality ambitions and generous work-family reconciliation policies, Dribe and Stanfors' (2009) showed that although there were still notable gender differences in time use in 2000, parenthood did not augment a traditional division of labour to the same extent as in 1990. In 2000, fatherhood changed the time use for men more similarly to the way motherhood changed the time use for women, with less time in paid work and more time in unpaid family work.

In Norway, as in many other countries, politicians and researchers have been concerned with the crystallization of more traditional gender roles in couples when children arrive, since reduced employment for mothers may have significant negative consequences such as poorer career prospects, lower lifetime earnings and smaller pension disbursements. Besides, both fathers and children are believed to benefit from more involved fathering practices (NOU 2012:15, St. Meld 44 (2012-2013), St. Meld 6 (2010-2011), Halrynjo and Lyng 2009, NOU 2008:6). Inspired by Dribe and Stanfors (2009) the present paper employs time use surveys to explore whether, and to what extent, the association between parenthood and the time allocation of men and women has changed in Norway in recent decades. We examine changes from 1980 to 2010, and focus on paid labour and unpaid family work. Since some work-family policy measures such as extended parental leave rights and the father's quota in the parental leave scheme have been directed particularly at parents with small children, we single out parents with children aged 0-1 years in the analysis. This may give a more nuanced and complex picture of changes in the association between parenthood and couples' time allocation than one gets with a broader category for the age of the youngest child, which is often used in analyses in the field (e.g. Dribe and Stanfors 2009, Anxo et al. 2011 and Esping-Andersen et al. 2013).

Although Norway and Sweden are both regarded as social-democratic welfare states with a strong commitment to egalitarian ideals, universal social services and the goal of full employment (Esping-Andersen 1990), Norwegian work-family policies have been characterised as more ambivalent than those in Sweden (Ellingsæter 2003). Alongside policies that promote gender equality in the division of labour, such as subsidised childcare, generous parental leave schemes and individual taxation, there are also policies that may facilitate a more traditional division of labour in couples, such as a cash for childcare benefit (ibid) and the possibility to claim larger deductable allowances in the taxes for couples where one partner has no income or a very low income (Thoresen, 1996). Moreover, the expansion of the parental leave scheme and the childcare sector has been slower in Norway than in Sweden. The changes in parents' distribution of paid and unpaid labour may therefore be more complex and less linear than in a country like Sweden that opted for more unambiguous dual-earner policy measures already in the early 1970s (Dribe and Stanfors 2009). At present, however, Norway offers generous public childcare facilities and parental leave opportunities and was also the first country in the world to introduce a father's quota in the parental leave scheme in the early 1990s.

Diary based time use surveys, where people report their activities in the course of one of more days offer a unique opportunity to study the allocation of paid and unpaid work in different population groups (Robinson and Godbey 1997). In Norway, representative time use studies have been conducted every tenth year since the early 1970s. In the present paper, the studies from 1980, 1990, 2000 and 2010[1] are used to explore possible changes in the relationship between parenthood and the gendered division of labour in couples in the course of a thirty year period with huge changes in both women's and men's time use patterns and in parents' organization of daily life, and with the introduction of several work-family-policy measures that may affect parents' time allocation. Like in many other countries, women in Norway spend more time in the labour market than previously and less time on domestic work, particularly routine housework, while men' time use has moved in the opposite direction (Vaage 2012). Similar changes have been observed for parents, but, as will be discussed in more detail later, the patterns vary across decades, depending on the age of the youngest child and between mothers and fathers (Kitterød 2013).

Theoretical perspectives

Theories that try to explain couples' division of labour usually predict a traditional distribution of employment and family work. Since the arrival of children involves a need for more childcare as well as income, it is likely to strengthen such an arrangement. This may particularly be the case in countries with few policy measures to

[1] Since the 1970-survey has less detailed information on the age of the youngest child residing in the household, we do not use it in the present paper.

facilitate the combination of paid work and family involvement for both women and men. According to Becker (1991), partners specialize in the domains in which they have a comparative advantage to maximize the household's joint utility. By comparing their marginal utility in paid and unpaid production, the partners decide how to allocate market work and unpaid family work between them. It is assumed that a person's labour market participation and work hours are positively affected by his or her own labour market resources and negatively affected by those of the partner. The partner with lower labour market resources relative to domestic resources is likely to perform most domestic work. The partners' labour market resources are usually measured by the relative wage rates. Since men often have higher wages than women, while women acquire grater skills in housework and childcare, men often spend more time in the labour market and women more time in the home.

In sociology literature, couples' distribution of unpaid work, particularly routine housework, has often been explained by the so-called relative resource perspective (for instance Coltrane 2000). It assumes more disagreement between the partners than the theory on comparative advantages. However, the two perspectives tend to produce similar predictions regarding couples' housework allocations, although the mechanisms assumed to generate the outcomes are different. According to the relative-resource perspective, housework is boring and something that both partners seek to avoid. The partner that brings most resources to the negotiations is likely to do less housework. The partners' resources are usually measured by income or education, but in principle, all types of resources may be relevant. Since most parents perceive childcare as more enjoyable than routine housework, the relative resource perspective is less applicable when it comes to the distribution of childcare in couples (Bianchi et al. 2012).

The so-called doing gender perspective has also been central in studies of couples' allocations of work (West and Zimmermann 1987). It assumes that both women and men continuously construct and reconstruct their gender identity. For men, this involves performing typical masculine tasks and avoiding activities with female connotations, such as routine housework. Household chores may, on the other hand, strengthen women's gender identity. The theory has received some support in studies of couples' division of family work (Bittman et al. 2003), and may also have some relevance when it comes to understanding the allocation of paid work. If paid work is still more important in men's than in women's identity construction, and men are expected to be the main breadwinners in families, they may prefer to work longer hours than their partners. While the doing gender perspective applies to the distribution of work among all couples, Walzer (1997) argue that new parents also "do parenthood" in that mothers adhere to the cultural ideals of good mothering and fathers to the ideals of good fathering. Mothers and fathers still often face different normative expectations when it comes to childcare and breadwinning responsibilities (Wall and Arnold 2007).

Although the above theories tend to predict a traditional division of labour in couples, comparative studies show that the national context affects couples' time allocations by influencing the benefits of specialization, the terms

of bargaining and the possibility to adhere to, or diverge from, gender ideologies and norms (Esping-Andersen et al. 2013, Anxo et al. 2011, Cooke and Baxter 2010, Hook 2006, Geist 2005, Fuwa 2004). The type of employment regime, the design of work-family policies and the tax system as well as prevalent social norms concerning the appropriate roles for men and women may affect gender differences across countries. For instance, generous work-family reconciliation policies such as long parental leaves with wage compensation and ample provision of subsidised childcare facilitate mothers' full-time employment and boost their career and income prospects. In addition, a long paid parental leave period for parents reduces the need for fathers to generate more income when children arrive. Policy measures that stimulate an enhanced father's role may further promote more active fathering practices and less gendered expectations directed at parents. It has also been pointed out that women's higher educational level in recent decades decreases the benefits of specialization in couples (Dribe and Stanfors 2009), and that the doing gender perspective may be less relevant in countries with a high level of gender equality, than in countries with more traditional gender practices and norms (Cooke and Baxter 2010, Deutsch 2007, Cooke 2006).

Recent family-policy initiatives in Norway have strengthened measures that promote a so-called dual-earner/dual-carer model of parenting (Gornick and Mayers 2008), which could lead to more symmetrical gender roles for parents. However, as will be discussed below, some measures may also stimulate more traditional gender practices, at least when the children are small. Hence, it is not obvious what patterns we may expect when it comes to the association between parenthood and specialization in Norway in recent decades.

Work-family policies and practices in Norway

Gender equality in paid and unpaid work has long been an important goal of Norwegian work-family policies. In the 1970s and 1980s, the combination of employment and children was usually framed as a challenge for mothers, but now, fathers, too, are expected to combine paid work and childcare and more involved fathering practices are encouraged. However, since the work-family policy measures that have been introduced in recent decades are meant to serve a mixture of purposes, they do not necessarily lead to more symmetrical gender roles for parents. In addition to stimulating a more equal sharing of paid and unpaid work between mothers and fathers, important aims have been to ensure parents' flexibility and freedom of choice regarding time spent in employment and childcare, enabling parents to spend considerable time with their children and conferring increased recognition to unpaid family work.

Historically, there has been a large excess demand for formal day-care in Norway, particularly for the youngest children, and in this regard, Norway lagged behind the other Nordic countries (Leira 2002). However, the coverage has greatly improved, particularly in the last decade. In 1980 only 7 percent of children 1-2 years attended a day-care centre, while in 1990 and 2000 the corresponding proportions were 15 and 37 percent.

Following a political agreement in 2003 that resulted in an ambitious plan for the escalation of publicly subsidised childcare, Norway witnessed a tremendous growth in children's day-care attendance. The parental payment for a place in the day-care has also been substantially reduced. From 2009, all children who became one year old by the end of August in the year of application were guaranteed a place in publicly subsidised day care. In 2010 as much as 79 percent of children 1-2 years and 97 percent of children 3-5 years attended a day-care centre, mostly on a full-time basis. It is now widely recognized in Norway that publicly subsidised day-care centres are good pedagogical institutions that provide ample opportunities for development, activity and socialisation, give vital preparation for formal schooling and contribute to reducing social inequality (St.meld. No 41:2008-2009, NOU 2009:10, Drange and Telle 2010). Parents have also become more positive to very young children being cared for in day-care centres (Kitterød et al. 2012, Ellingsæter and Gulbrandsen 2007) and children sometimes attend day-care even though one of their parents (usually the mother) is not in paid employment (Kitterød et al. 2012, table 1b).

In Norway, both mothers and fathers have had the right to job-protected paid leave in connection with childbirth since 1977, but the leave period was very short at that time and was rarely used by fathers. It was considerably extended in the late 1980s and early 1990s, from 18 weeks to 42 weeks with full pay or 52 weeks with 80 percent wage compensation in 1993. In connection with the extension in 1993, four weeks were reserved for the father (the father's quota), nine weeks were reserved for the mother while the parents could choose how to share the remaining 39 weeks. All further extensions have been reserved for the father, resulting in a father's quota of five weeks in 2005, six weeks in 2006, 10 weeks in 2009, 12 weeks in 2011 and 14 weeks in 2013. At present, the total leave period amounts to 49 weeks with full pay or 59 weeks with 80% pay. Like most of the parenta leave, the father's quota is flexible in that it may be divided into shorter blocs or even single days that can be spread out until the child is three years old. An important aim of the father's quota is to enhance men's involvement in unpaid family work both during his reserved period and beyond. Moreover, the quota is supposed to facilitate mothers' return to paid work following childbirth (NOU 2008:6). In addition to the paid parental leave, each parent is entitled to one year of unpaid leave. The father's quota has been a success in the sense that the large majority of eligible fathers use the whole quota or at least a part of it, and each extension of the quota has resulted in fathers taking a longer leave (Bringedal and Lappegård 2012, Fougner 2012, Brandth and Kvande 2013). There are also studies that point to a positive long-term effect on fathers' family involvement in that men who became fathers after the implementation of the father's quota in 1993 had lower income in subsequent years than those who became fathers before the reform (Rege and Solli 2013).

In the late 1990s, a cash-for-childcare benefit was introduced.[2] The stated purpose was to enable parents to spend more time with their children, give parents more flexibility in their work and childcare choices, and

[2] The benefit was introduced for one year old children in 1998 and for two years old children in January 1999.

distribute public transfers more equally between users and non-users of subsidised childcare, which at the time was in short supply (Ministry of Children and Family Affairs, 1998). It has also been argued that the benefit would upgrade the status of women's traditional unpaid work (Ellingsæter 2003). All parents of 1-2 years old children who did not use state-sponsored childcare were entitled to the benefit, and children in part-time care received a reduced benefit proportional to stipulated weekly attendance. Prior to the implementation of the reform, voices in the public debate argued that parents should spend more time with their children and that full-time work for both parents might be stressful for the family (Ellingsæter 2005). However, parents were not required to look after children themselves in order to receive the benefit. The great majority of parents of eligible children did indeed use the benefit, but the high take-up rate was associated with the low coverage of public childcare in the late 1990s. Many parents actually spent the benefit on private nannies (Pettersen 2003). Still, most researchers agree that the introduction of the cash-for-childcare benefit had a negative effect on mothers' labour supply (Rønsen 2009, Naz 2004, Schøne 2004, Håkonsen et al. 2001). In 1999, the parents of 73 percent of 1-2 years old children received the benefit, but later, the percentage has diminished in tandem with the growth in publicly approved childcare places. In 2012, the parents of 22 percent of 1-2 years old children received the benefit (Egge-Hoveid 2012). In 2006, the maximum age for eligible children was reduced from 36 to 35 months, and in August 2012 it was further reduced to 24 months. However, the size of the benefit was substantially increased for children 13-18 months.

In Norway, women's employment rate has risen significantly in recent decades and is now almost as high as men's. In the age group 25-54 years, 82 percent of women and 87 percent of men are employed (Statistics Norway 2013). However, as much as one third of the women work part time, and few, only about one out of ten, work longs hours, i. e. at least 40 hours per week. For men, the corresponding figures are 7 and 24 percent (Statistics Norway 2012). In dual-earner couples, it is now quite common that both partners spend approximately the same amount of time in the labour market, but still, few women work more than their partner and about half work less (Kitterød and Rønsen 2012a). As for married/cohabiting mothers with a youngest child below 16 years of age, 62 percent was in the labour force in 1980 compared to 87 percent in 2010. For mothers with a youngest child 0-2 years old, the corresponding figures were 46 and 83 percent respectively (Kitterød and Rønsen 2012b), but a significant proportion of employed mothers with young children is on parental leave and does not actually perform any paid work (ibid). Although most fathers now make use of the father's quota in the parental leave scheme, and some take even longer leaves, mothers still take a longer leave than fathers in most couples (Bringedal and Lappegård 2012). Recent analyses suggest that mothers enter paid work faster after birth at present than at the turn of the century. However, after the introduction of the cash-for-childcare benefit in 1998/99 the trend in mothers' work entry following birth was actually negative and quite stable until a turn-around in the mid 2000s (Rønsen and Kitterød 2012). Attitudes towards working mothers have become more positive recently (Ellingsæter and Gulbrandsen 2007) and there is now less focus on time pressure in dual-

earner families than in the late 1990s. Life-long full-time careers for both women and men are now encouraged by the authorities (NOU 2004:1).

Like the other Scandinavian countries, Norway has a strongly gender-segregated labour market with high percentages of women in the public sector and in education, health and social work, and men more concentrated in the private sector and in manufacturing and finance (Jensberg et al. 2012). Public sector jobs are usually portrayed as more family-friendly than private-sector jobs, with more flexibility and less expectations of very long work hours (Halrynjo and Lyng 2009). The Norwegian Working Environment Act guarantees parents' rights to reduced hours, unless this puts the interest of the employer at risk. Although many mothers work part time in Norway, this is usually long part time, i. e. at least 20 hour per week (Kitterød and Rønsen 2012b). As for fathers, very long work hours are less common than previously, but still, few fathers work part time (Kitterød and Kjeldstad 2006). As more fathers than mothers work in the private sector, they are often better paid. Thus, the couple may lose less if the mother rather than the father works reduced hours.

Previous analyses of the Norwegian Time Use Surveys show that fathers' and mothers' time-use patterns have become more similar in recent decades although there are still significant gender differences. Fathers have reduced their time on paid work and enhanced their family work, while the opposite changes have taken place in mothers' time-use patterns (Kitterød 2013). For mothers, the re-adjustments were particularly large in the 1970's with a significant reduction in routine housework and a considerable increase in paid work hours. The decline in housework has levelled off in the last decade, but mothers' paid work hours continued to increase. After some levelling off in the 1990s, fathers' paid hours decreased again from 2000 to 2010, while their unpaid hours expanded significantly. In previous decades, smaller gender differences in household work has been more due to changes in mothers' than in fathers' time use, but since the turn of the millennium the diminishing gender gap is solely due to the increase in fathers' household work. The increase was most notable for fathers with children below school age (ibid).

Comparisons of the time use patterns of parents with older and younger children show a weaker association between the age of the youngest child and mothers' paid and unpaid work than previously, but the pattern varies depending on the child's age (Kitterød 2013). Mothers with the youngest children (0-1 years) still spend significantly less time on paid work and more time on household work than those with the oldest children (13-19 years of age), but mothers with older pre-schoolers spend almost the same amount of time in employment as those with older children. In 1980, fathers with small children devoted approximately the same hours to paid work as did fathers with older children, while in 2010, fathers with small children (0-1 years of age) spent less time on paid work than those with the oldest children. Fathers with small children spend more time on household work than those with older children, and the association between age of youngest child and fathers' household work was stronger in 2010 than in previous surveys.

Whether the relationship between parenthood and couples' division of labour has changed or not, depends on the time use patterns of people without resident children as well as people with resident children. In this paper we explore whether parenthood strengthens a traditional division of labour in couples less at present than in previous decades, by comparing the distribution of labour among married or cohabiting fathers and mothers with children in different age groups with that of married or cohabiting men and women with no resident children. We look at the period 1980 to 2010, which is a longer time span than has been included in previous analyses in the field. Moreover, we use a more detailed categorisation of the age of the youngest child.

Data, measurement issues and analysis strategy

Data source

The empirical analysis is based on the Norwegian time use surveys 1980, 1990, 2000 and 2010. Time diaries are usually regarded as a superior source of data on people's time allocation because all types of activities are recorded, including paid and unpaid work, and because the diary format forces respondents to adhere to a 24 hours time constraint (Robinson and Godbey 1997). The Norwegian surveys have captured people's time use by asking a representative sample of individuals to keep a diary for two consecutive days. The total samples have been spread evenly throughout the year so that all days are equally represented. The diaries had fixed time intervals (10 or 15 minutes depending on the survey), and for each time-slot participants were asked to write down their most important activity and possible simultaneous (secondary) activities. Activities where subsequently coded according to a detailed coding list. For each time-slot, respondents were also asked to indicate whether they were alone or with other people. The four time use surveys differ somewhat when it comes to sample size, response rate, diary design and some other aspects, but the comparability across surveys is fairly good, at least as regards the broader activity categories.

Prior to keeping the diary, an interview mapping demographic and socio-economic background information was carried out, either by telephone or by a personal visit. In the 2000- and 2010-surveys some background information was linked to the survey data from Statistics Norway's registers. Such interview or register information is used to construct our independent variables. The dependent variables in the analyses, namely parents' time spent on paid work and household work, are taken from the time diary. Only information on main activities is used.

The unit of analysis is the single day. Since each participant kept a diary for two days, the number of days is twice the number of respondents. In each survey, a small number of respondents completed only one day. In the

interview section, there is, of course, only one observation per respondent. We present people's time use as the average number of minutes per day spent on specific activities. The average covers all days of the year, including weekdays, weekends and holidays. We also present some results for weekdays and weekends separately.

Analysis sample

From each of the four time use surveys we use a subsample of married/cohabiting women and men in couples where both partners are in the age group 20-59 years. The upper age limit is chosen in order to exclude retirees. We considered using a lower age limit of 25 years in order to exclude students, but since people married and had children earlier in the 1970s and 1980s than in later decades (Rønsen 2005), we might exclude more young couples in the first than in later surveys. Since the survey samples comprise individuals rather than households, we have information from only one of the partners in a couple and not from both partners, which would, of course have been preferable. Our analysis samples comprise 3472 diary days from the 1980-survey, 3191 diary days from the 1990-survey, 2978 diary days from the 2000-survey and 3319 diary days from the 2010-survey.

Dependent variables

In addition to time spent on paid work and household work, we also look at two subcategories of household work, namely routine housework and direct childcare.

Paid work comprises time spent on work in main and secondary occupations (including overtime and paid work done at home), meals at the workplace and travelling time to and from work. Since both holidays and weekends are included in the averages, and the analysis sample comprises employed as well as non-employed respondents, the average time spent on paid work is considerably lower than the time people usually spend on work on a normal working day.[3]

Household work encompasses routine housework, family care (children as well as adults who need help), purchase of goods and services (mainly shopping), maintenance work (mainly repairs, construction work and

[3] Researchers sometimes exclude commuting time in analyses of specialization in couples. Some argue that it cannot be considered as paid work time in a proper sense (Anxo et al. 2011) and others hold that travel time tends to inflate working time for part timers disproportionally (Dribe and Stanfors 2009). However, we prefer to include travel time since it is the total amount of time that people spend on paid work and commuting that restricts the time they can allocate to other activities. Moreover, one partner's travel time may impact the other partner's time allocation. For instance, if one partner spends much time commuting, the other partner may have to take more responsibility for domestic duties.

gardening), travels in connection with household work, and other household work such as the administration of daily routines etc. All these are unpaid duties related to the management and up-keep of a household.

Routine housework is one subcategory of "household work" and comprises food preparation, baking, dish washing, laundry, house cleaning and mending cloths.

Direct childcare is also as subcategory of "household work" and encompasses time-slots when the main activity is caring for children in the household. Activities such as nursing and dressing children, putting children to bed, escorting children to and from various activities, helping children with homework, reading for children, playing and talking with children etc. are included.[4]

Independent variables

Our main explanatory variables are *gender* and *age of the youngest child in the household*. As for youngest child in the household, it is important to single out parents with very small children, since many work-family-policy measures have been directed particularly at this group. For instance, parental leave policies, including the father's quota, probably have most influence on the time allocation of parents with children 0-1 years of age, the cash-for-childcare benefit has most influence on parents with somewhat older children, while improved public childcare policies influence all parents with children below 6 years. We distinguish between those with a youngest child 0-1 years of age, 2-3 years of age, 4-6 years of age, 7-19 years of age and those with no resident children (reference category). In order to capture possible gender differences in the association between parenthood and time use, we include interaction terms between gender and age of youngest child. The interaction effects capture the degree of specialization of paid work and household work, and by comparing how these estimates develop across time we get an impression of changes in the association between parenthood and the division of labour during the three decades from 1980 to 2010.

In order to adjust for compositional changes in the analysis sample (for instance, for higher levels of education and employment in the more recent surveys) and for factors that may affect the relationship between parenthood and the extent of specialization, we include the following control variables:

Day of week: We distinguish between weekdays (Monday-Friday) and weekends (Saturday-Sunday).

[4] This is, of course, a very narrow measure of parents' childcare time. It does not capture childcare done as secondary activities (for instance if meal preparation is the main activity), activities done on behalf of children (for instance washing cloths), parents' on-the-call time or periods when children have been put to bed and the parents have to stay at home to supervise them (see Craig 2006 and 2007, and Folbre et al. 2005 for further discussions). Moreover, parents are usually responsible for their children during the night when they themselves are sleeping.

Respondent's age and *age squared* are used as continuous variables.

Respondent's education is based on register information for the 2000- and 2010-surveys and on the interview section for the 1980-and 1990-surveys. We differentiate between primary or secondary school (≤ 13 years), short university education (14-17 years) and long university education (≥ 18 years). In addition, we include a category for missing values.

Partner's employment is taken from the interview part of the surveys. In the 1980-, 1990-, and 2000- surveys it was asked whether the partner had income producing work at present (at the time of the survey), and in the 2010-surevy respondents were asked whether the partner had spent at least one hour on income-producing work last week, and if not, whether he/she was absent from a job because of holidays, sickness or some other reason last week. Partners who either had performed income producing work, or were temporarily absent from such work, were categorized as employed.

We have considered including more control variables such as whether the respondents are students or not and whether they receive a disability pension or not.[5] However, we regard these variables as endogenous since they are strongly correlated with people's time use, particularly with time spent on paid work. We trust that the variables age and age squared adjust for compositional changes in the analysis sample as well as for differences in employment status across respondents with and without resident children. As for the partner, we would have preferred to control for his/her age and/or educational level. However the partner's age is strongly correlated with respondents' age, and the variable on partner's education has a high number of missing observations in some surveys. We therefore include a variable on partner's employment (whether he/she is employed or not), in order to adjust for compositional changes over time and across groups of women and men with and without resident children. However, the partner's employment status turns out to have only modest impact on both women's and men's time use patterns in most models and also rarely impacts the estimators of principal interest, namely the interaction terms between gender and age of youngest child.

Analysis strategy

After presenting some descriptive statistics for the sample, we describe changes in time use patterns from 1980-2010 for men and women with children in different age groups as well as for those with no resident children. We then present the analyses that explore possible changes in the association between parenthood and the

[5] We have experimented with models that include variables on whether the respondent is a student or not and whether he/she receives a disability pension or not. Although these variables had significant effects on the time spent on most activities, they did not significantly alter our main estimators, namely the interaction terms between gender and age of youngest child.

division of labour from 1980 to 2010. Finally we present some results for weekdays and weekends separately. Since each respondent kept a diary for two consecutive days, we controlled for this dependence by using an estimation procedure that yields robust standard errors.[6]

Results

Descriptive statistics

Some descriptive statistics on the dependent and independent variables in the analysis are provided in Table 1. Both for men and women the proportion of respondents with no resident children was somewhat lower in the 1980-survey that in the subsequent surveys. On average, respondents were older in the two latest than in the two first surveys, and the proportion with a university education rose substantially in the period, particularly for women.

While men, on average, spent somewhat less time on paid work in 2010 than in 1980, women increased their paid work substantially, from 153 minutes per day in 1980 to 229 minutes per day in 2010. Men's household work rose from 162 minutes per day in 1980 to 203 minutes per day in 2010, and the growth was particularly strong in the last decade. Men now spend more time on both routine housework and childcare than previously. Women's time devoted to household work decreased considerably from 332 minutes per day in 1980 to 261 minutes per day in 2010, and it is above all routine housework time that has been reduced.

Possible changes in the association between parenthood and the division of labour is a result of changes in both fathers' and mothers' time use, as well as in the time-use patterns of those with no resident children. Tables 2 and 3 provide an overview of changes in time spent on various activities for men and women with children in different age groups and also for men and women with no children in the household. The results are estimates from a series of separate regression analyses with the 1980-survey as reference and without any controls. When it comes to men's paid work time, the picture is rather complex. The pattern varies across decades and depending on the age of the youngest child (table 2). For instance, for men with a youngest child aged 0-1 years,

[6] Because time use data often contain a high number of zero observations, researchers often use Tobit regression modelling (for instance, Dribe and Stanfors 2009, Anxo et al. 2011). However, many experts on time use research recommend OLS rather than Tobit, because the zero observation data based on time diaries are usually not a result of censoring or truncation, but rather stems from the fact that the respondent did not conduct a certain activity on the diary day. For instance, even though most men perform some housework in the course of a week, they may not have done housework on the assigned diary days. According to Steward (2009) and Brown and Dunn (2011), OLS is more appropriate than Tobit in analyses of time use data since Tobit models may produce biased results.

there was an upward (although not significant) trend in time spent on paid work from 1980 till 2000, but a steep downward trend from 2000 till 2010. Additional analyses (not shown) revealed that the latter trend is statistically significant. Compared with 1980, men with a youngest child 7-19 years of age spent less time on paid work at all subsequent time points, although the changes are not statistically significant. Most groups of men spent more time on household work in 2010 than in 1980. The growth was most remarkable for those with young children and resulted from an increase in routine housework as well as direct childcare. Also men with no resident children spent considerably more time on household work in 2010 than in 1980.

Most women spent more time on paid work in 2010 than in 1980, but the pattern of change varies across decades and different groups of women (table 3). For the 30-years period as a whole, paid work time increased most for women with a youngest child 4-6 years of age and those with a youngest child 2-3 years of age. In spite of extended parental leave rights, mothers with a youngest child below 2 years of age spent more time on paid work in 1990, 2000 and 2010 than in 1980, but there was no further increase after 1990. Irrespective of the age of the youngest child, all women spend less time on household work than previously, and the reduction is mainly related to a decrease in routine housework. It is worth noticing, however, that women in most groups devoted at least as much time to household work in 2010 as in 2000, which indicates a levelling off, and perhaps even a turnaround, in women's, and particularly mothers', shrinking household work.

Associations between parenthood and gender differences in time use

Although we are primarily interested in the effects of the interaction terms between gender and age of the youngest child, we also provide results from models for men and women separately and from models for both men and women, but without interaction terms. We have run separate regressions for each year and for each activity. Results from models with all controls included are shown in tables 4-7. Although the control variables produce some interesting effects, they will not be commented upon here. Moreover, we have tested whether the interaction terms in 2010 differ significantly from those in previous surveys. These results are reported in table 9.

As for men's time spent on paid work, there are no significant effects of age of youngest child in 1980 and 1990, but in 2000 fathers with a youngest child 0-1 years of age spent more time on paid work than men with no resident children (significant at the 10% level), and in 2010, they spent less time than men with no resident children (significant at the 10% level) (table 4). While the latter relationship may be a result of the father's quota, the positive effect of youngest child's age in 2000 is not easily explainable. The introduction of the cash-for-care-benefit in the late 1990s may be a factor, though, in that the father may have spent more time on

employment as a response to mother's reduced labour supply in some couples. For women, there is a negative association between time spent on paid work and age of the youngest child both in 1980, 1990, 2000 and 2010, but the effects become smaller over time. In 2010, women with a youngest child 2 years or older did not spend significantly less time on employment than women with no resident children, while there was a significant negative effect for women with children 0-1 years of age. The latter probably mainly reflects that many mothers were on parental leave. Regression results from models for men and women taken together suggest that the gender difference in paid work time has been somewhat reduced, although the trend is not linear.

Looking at the interaction terms between gender and age of youngest child, we see that having children did not strengthen the gendered division of paid work to the same extent in 2010 as in previous decades, but the trend is not linear, at least not for those with a youngest child 0-1 years of age (table 4). The interaction term between gender and having a youngest child 0-1 years of age was actually larger in 2000 than in 1980. However, in 2010 it was smaller than in all pervious years, but the difference between 2010 and 2000 is the only one that is statistically significant at conventional levels (see table 9). Those with older children did not have a significantly more gendered division of paid work than those with no resident children in 2010, while this was clearly the case in 1980. The changes are statistically significant for parents with a youngest child 2-3 years and 4-6 years (see table 9).

The analyses reported in table 5 suggest a somewhat stronger association between parenthood and time spent on household work for men in 2010 than in 1980, but the trend is not strictly linear and the effects vary depending on age of youngest child. For women there is a strong positive association between age of youngest child and time spent on household work at all the time points studied, and contrary to expectations, the estimated effects were almost as large in 2010 as in 1980. The gender difference in household work time was, however, smaller in 2010 than in 1980, although women still spent considerably more time on household work than men. The declining interaction terms between gender and age of youngest child indicate that parenthood intensified a gendered division of household work less in 2010 than in 1980. Again, the trend is not linear and does not apply to all groups of parents. However, children below two years of age clearly reinforced a gendered division of household work less in 2010 than in 1980, although the gender difference in time spent on household work was still considerably larger for people with small children than for people with no resident children. The change mainly took place in the 1980s. The interaction term in 2010 differs significantly from the one in 1980, but not from those in 1990 and 2000 (see table 9). The presence of children 2-3 years and 4-6 years also implied less specialization in 2010 than previously, but the interaction terms in 2010 differ significantly only from those in 1990.

The gender division of time devoted to routine housework was smaller in 2010 than in 1980 (table 6), which stems from a downward trend in women's housework and an upward trend in men's housework. For men, there

are only modest and mostly insignificant associations between parenthood and time spent on housework in all the years studied, while for women, having resident children implied more housework at all the four time points. However, there is no clear pattern of very young children involving considerably more housework than older children. Shrinking interaction terms in later years compared to 1980 may suggest that having young children impacts the gendered division of routine housework less than previously, but few of the differences are statistically significant at conventional levels (see table 9). The interaction terms between gender and having a child below 2 years of age were small and insignificant both in 1990, 2000 and 2010 and larger and clearly significant in 1980, but the difference between 2010 and 1980 is not statistically significant. The interaction terms between gender and having a youngest child 2-3 years of age were small and insignificant in 2000 and 2010, but larger and significant in 1980 and 1990. However, the 2010-estimate differs significantly only from the 1990-estimate. Having older children (4-19 years of age) still seems to imply a less gender equal division of housework compared to not having resident children and the difference between those with and without children in the household was not reduced in 2010 compared to 1980 and 1990. A different pattern is observed for the 2000-survey, though, in that there were no significant interaction terms between gender and age of youngest child.

Concerning direct childcare, the presence of children in the household affected men's time use almost in the same ways in 2010 and in 1980, although the estimates may have become slightly larger over time (table 7). For instance, in 2010, men with a youngest child 0-1 years spent 97 minutes more per day on direct childcare than men with no resident children, while the corresponding difference in 1980 was 71 minutes. Women's childcare time is more strongly affected by the presence of children than men's, and the effects of the age of the youngest child for women were mainly unaltered from 1980 to 2010. For instance, in 2010, mothers with a youngest child 0-1 years of age spent 224 minutes more per day on childcare than women with no resident children, and in 1980, the corresponding difference was 225 minutes. Although the trends vary somewhat across decades and depending on the age of the youngest child, the presence of children seems to affect women's direct childcare time almost as much in 2010 as in 1980. Since there have been only modest changes in the way children affect both men's and women's time spent on direct childcare, the presence of children strengthens a gendered division of childcare almost to the same extent at present as in 1980. The presence of a youngest child 4-6 years old may be an exception, though. The interaction term between gender and having a youngest child in this age group was small and insignificant in 2010, but fairly large and significant in 1980 and 1990, and the difference between the 2010-estimate and those for 1980 and 1990 are statistically significant (see table 9). The interaction term between gender and having a youngest child 0-1 years showed a downward trend in the two first decades of our study period, but not in the third one. If anything, there was a turnaround in 2000, but the change from 2000 to 2010 is not statistically significant.

Since people's time use differ significantly across weekdays and weekends, and patterns of change may vary for women and men and depending on the age of the youngest child, we show some results for weekdays and weekends separately. The number of observations is, of course, lower for weekends than weekdays, since all days of the year have been equally represented in the survey samples and respondents have kept time diaries for two consecutive days. The models include the same explanatory as in tables 4-7, but here we only report the interaction effects between gender and age of youngest child (table 8).

As for paid work, there are a lot of strong and significant interaction terms between gender and age of youngest child on weekdays, while the there are few significant interaction terms on weekends (table 8). The interaction terms are also somewhat larger on weekdays than for all days taken together (table 4), which suggests that the gender difference in the impact of children on time spent on paid work is mainly present on weekdays. On weekends, the presence of children in the household impacts men's and women's paid work hours fairly similarly, and the pattern is largely consistent across studies. The interaction term between gender and having a youngest child 4-6 years of age was still negative, large and significant in 1980, but positive, small and insignificant in 2010, which points to a smaller gender difference in the impact of children 4-6 years on people's working time in 2010. The difference is not statistically significant at conventional levels, however (see table 10). As for weekdays, the presence of children 0-1 years of age still strengthened the gendered division of paid work in 2010. This is consistent with expectations since mothers usually take more parental leave than fathers, but the presence of older children did not reinforce a gendered division of paid labour in 2010, which is different from the patterns observed in previous years.

The gender differences in time spent in household work seems to be more affected by the presence of children on weekdays than on weekends (table 8) although the presence of small children (0-1 years of age) has a stronger positive effect on women's than on men's household work also on weekends. The interaction term between gender and having small children was, however, clearly lower in 2010 than in 1980, which points to a more modest gender difference in the effect of having small children on weekends in 2010 than previously (see table 10). However, in 2010 the presence of older children (7-19 years of age), had a significantly stronger positive effect on women's than on men's household work time on weekends. This pattern was not observed in the previous surveys. On weekdays, the presence of children in most age groups still clearly intensifies a traditional division of household labour in Norway, although the effects may have become somewhat smaller than previously. There is, however, no linear downward trend, and the patterns of change differ depending on the age of the youngest child.

Summary and discussion

Although gender differences in time spent on paid and unpaid labour have been considerably reduced in many Western countries in recent decades, men's and women's time-use patterns still tend to diverge when children arrive. The birth of a child usually implies more paid work for men, while women scale back on their employed hours and increase their domestic work. Since reduced employment for mothers may lead to lower lifetime earnings and poorer career prospects, and long paid hours may result in less time with children for men, researchers and politicians often look for policy measures that may counteract the strengthening of traditional gender roles among parents (for instance Gornick and Mayers 2008). However, the degree to which children involve an intensification of traditional gender roles in couples differ across countries depending on a range of contextual factors. In particular, policy measures that encourage mothers' labour market participation and fathers' family involvement are seen as central for lessening the influence of children on gender differences in time allocation (ibid). For example in Sweden - a typical social democratic society with high gender-equality ambitions and extensive work-family-reconciliation policies that promote gender-equal time-use practices for parents - parenthood did not reinforce a traditional division of labour to the same extent in 2000 as in 1990, although there were still significant gender differences in time use (Dribe and Stanfors 2009).

In Norway, too, a more equal division of labour in couples has been a central political goal in the work-family policies, but the importance of parental choice and flexibility has also been emphasized. Using four Norwegian time use surveys, we explore possible changes in the association between parenthood and the division of labour in Norway from 1980 to 2010, a period with significant changes in both men's and women's time use patterns, and with the implementation of numerous work-family-policy reforms. Along with policy measures that facilitate mothers' employment and fathers' family involvement, there are also measures that promote a more traditional division of labour, and the expansion of parental-leave schemes and the childcare sector have been slower in Norway than in Sweden. However, by 2010 parents in Norway had extensive parental leave rights and good access to high-quality day-care centres at a reasonable price. Since some family-policy measures are directed primarily at parents with very young children, we single out parents with the smallest children in the analysis.

Possible changes in the relationship between parenthood and the division of paid and unpaid labour is a result of changes in both fathers' and mothers' time use in both areas, as well as in the time use of people with no resident children. The empirical analyses show that there was clearly a weaker association between parenthood and the division of labour in 2010 than in 1980, but the presence of children still reinforces a traditional distribution of work, particularly unpaid family work. The pattern of change varies significantly across decades and depending on the age of the youngest child. For parents with resident children, the gender difference in time spent on both paid work and household work was clearly smaller in 2010 than in 1980, but this was also the

case for coupled men and women with no resident children, particularly when it comes to time spent on household work.

As for paid work, large interaction terms between gender and the age of the youngest child suggest that in 1980, the presence of children in all age groups strengthened a gendered time allocation in couples, although the association was particularly strong for couples with a youngest child 0-3 years of age. In 2010, however, it was only the presence of children 0-1 years of age that reinforced a gendered division of paid work. Even the effect of having such small children has been reduced compared to what was found in previous decades, but only the reduction since 2000 is statistically significant. This is, among other things, a result of a decrease in fathers' time spent on paid work combined with an increase in mothers' paid work time. Although we cannot single out effects of particular family-policy measures on the basis of our data, we argue that the extension of the father's quota combined with strong expectations of involved fathering practices both during the paternity leave and beyond, have probably played an important role. As for paid work, then, we may conclude almost like Dribe and Stanfors (2009), that even though there are still considerable gender differences in time use in Norway, parenthood does not intensify a gendered division of labour as much as it did previously. However, while Dribe and Stanfors' conclusion applied to the 1990's in Sweden, it is not until the subsequent decade that a similar trend may be discerned in Norway for parents with the smallest children. Having children older than one year, however, seemed to strengthen a traditional division of labour somewhat less in 2000 than in 1990. While Dribe and Stanfors lump together all parents with a youngest child below 5 years of age, we single out parents with a youngest child 0-1 years of age. This allows for a more detailed analysis of the effect of age of youngest child, and may capture the major part of both parents' parental leave time.

Concerning household work, the presence of small children reinforced a gendered division of labour less in 2010 than in 1980, but the trend over time is not linear and also varies depending on the age of the youngest child. The shrinking effect of having very young children (0-1 years of age) was most prevalent in the 1980s and resulted from a considerable increase in fathers' household work combined with a noticeable decrease in mother's household work. Although fathers with small children spent much more time on household work in 2010 than in 2000, there was only a modest reduction in the effects of having small children on the gendered division of household work in this decade. This is, among other things, a result of a levelling out, or even turnaround, in mothers' household work time in this decade. In spite of a diminishing effect of having resident children since the early 1980s, the presence of children in the household, and particularly children below 2 years of age, still involves a more traditional division of household labour in couples in Norway. The fact that having very small children still reinforces a traditional division of labour is as expected since mothers still take more parental leave than fathers in most couples.

Household work encompasses different types of unpaid family work, of which routine housework and direct childcare constitute the larger part for parents. The reduction in mothers' household work mainly results from a considerable decrease in time spent on routine housework, while fathers spend more time than previously on both routine housework and childcare. The gender difference in time spent on routine housework has been reduced in Norway, but women still spend some more time than men. However, the presence of children 0-3 years does not any longer intensify the gendered distribution of housework, while having older children still does to a certain extent. The presence of children below 2 years of age still significantly reinforces a gendered division of time spent on direct childcare almost as much as it did in 1980. There is some variation across decades, though. The presence of a child aged 2-4 years also enhances the gender division of childcare, while this is hardly longer the case for the presence of older children.

As for paid work, the gender difference in the impact of children is mainly present on weekdays and the same is true for household work. However, the presence of children 0-1 years of age implies a more gender traditional allocation of household work on weekends as well.

The present paper contributes to the discussion on parenthood and specialization by showing a more complex picture than what is found in previous studies. We analyze a longer time span and single out parents with very small children, and also use data from a social democratic country with more ambivalent work-family policies than Sweden. Although the broad picture shows that the presence of children in the household involves less specialization in couples than in 1980, the trends vary across decades, for paid and unpaid work, and also depending on the age of the youngest child.

However, the analyses in the paper have certain limitations. Since we do not have longitudinal data, we cannot follow individuals over time, but have to compare people with and without children in the household based on cross-sectional data. In particular, we cannot fully distinguish time, age and cohort effects. It would also be advantageous with real couple data and not data from individuals, as we have in the Norwegian time use studies, and of course, larger samples would give more precise estimates.

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Table 1. Descriptive statistics for men and women in the analysis sample. Percentage and average

	Men				Women			
	1980	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**
Age of youngest child								
0-1 years	10	12	10	11	9	10	12	9
2-3 years	13	11	11	11	12	13	9	10
4-6 years	14	11	11	10	13	12	12	12
7-19 years	41	35	30	34	41	36	32	36
No resident children	23	31	37	34	24	30	35	34
Respondent's age, average	40.5	40.4	42.12	42.5	38.6	37.0	39.6	41.0
Respondent's age square, average	1742.1	1729.1	1869.7	1888.8	1589.0	1461.9	1659.5	1772.3
Respondent's education								
Secondary school or less	75	70	56	60	83	74	66	54
University, short	17	21	29	28	15	22	29	34
University, long	6	7	10	8	1	3	4	6
Unknown	1	2	1	4	1	1	1	6
Partner employed	65	77	84	87	96	91	93	93
Day of week								
Weekday (Monday-Friday)	72	71	68	72	74	72	72	73
Weekend (Saturday-Sunday)	28	29	32	28	26	28	28	27
Time spent on various activities.								
Average per day in minutes								
Paid work	341.0	340.8	330.4	314.1	152.5	190.5	221.1	228.9
Household work	161.7	168.2	177.2	203.0	332.4	301.4	259.5	261.1
Routine housework	44.4	44.5	50.2	60.8	200.5	153.1	123.9	114.6
Direct childcare	26.9	31.5	27.0	35.3	62.4	71.2	54.7	56.4
N	1642	1488	1514	1670	1830	1703	1464	1649

Table 2. Regression estimates (minutes per day) that show changes in men's time spent on various activities from 1980-2010. Average, all days.[1, 2]

	Youngest child 0-1 years	Youngest child 2-3 years	Youngest child 4-6 years	Youngest child 7-19 years	No resident children
Paid work					
Intercept (=baseline 1980)	295.7	350.4	319.5	366.1	323.3
1990	19.7	17.8	19.1	-30.9	24.6
2000	23.0	-20.0	44.9	-28.2	-5.9
2010	-56.8	-53.0	4.2	-18.6	-16.2
Household work					
Intercept (=baseline 1980)	182.4	184.8	190.0	156.2	131.8
1990	**45.8**	11.2	3.7	-0.3	9.3
2000	**53.0**	22.2	17.4	16.8	15.7
2010	**101.3**	**88.6**	**64.6**	15.1	**38.1**
Routine housework					
Intercept (=baseline 1980)	39.5	38.1	49.8	45.2	45.0
1990	4.6	-7.0	0.4	5.6	-4.6
2000	10.8	**19.3**	-0.7	**10.2**	-1.1
2010	**28.2**	**32.3**	10.4	**15.3**	**10.8**
Childcare					
Intercept (=baseline 1980)	75.9	67.4	38.5	13.1	0.7
1990	**23.3**	5.1	**20.2**	2.7	-0.4
2000	**31.3**	-3.6	**13.2**	-2.4	0.4
2010	**29.6**	**26.3**	**38.0**	0.6	2.0
N	638	713	736	2258	1969

[1] Estimates in bold are significant at the 5%-level, and estimates in italics are significant at the 10%-level. [2] We have run separate regression analyses for each activity and for each group of respondents. There are no control variables in the models.

Table 3. Regression estimates (minutes per day) that show changes in women's time spent on various activities from 1980-2010. Average, all days.[1, 2]

	Youngest child 0-1 years	Youngest child 2-3 years	Youngest child 4-6 years	Youngest child 7-19 years	No resident children
Paid work					
Intercept (=baseline 1980)	42.6	98.5	106.7	173.3	210.0
1990	**53.8**	-4.5	*43.7*	**50.0**	29.7
2000	**43.0**	**60.1**	**127.6**	**75.5**	**45.8**
2010	**56.3**	**114.7**	**155.7**	**71.6**	29.9
Household work					
Intercept (=baseline 1980)	511.2	401.1	362.1	313.3	247.8
1990	**-71.0**	-1.7	-11.6	**-27.6**	**-35.3**
2000	**-90.1**	**-76.3**	**-68.3**	**-71.8**	**-56.8**
2010	**-74.6**	**-54.7**	**-68.1**	**-61.7**	**-60.2**
Routine housework					
Intercept (=baseline 1980)	208.6	200.9	204.8	209.8	178.8
1990	**-73.8**	**-36.8**	**-42.3**	**-39.3**	**-49.6**
2000	**-80.0**	**-72.5**	**-82.9**	**-79.4**	**-62.8**
2010	**-97.5**	**-81.6**	**-81.7**	**-81.1**	**-82.6**
Childcare					
Intercept (=baseline 1980)	233.6	126.2	90.7	33.7	0.4
1990	1.3	**38.2**	**23.3**	4.2	*-0.3*
2000	-23.5	-10.5	**-15.3**	**-7.0**	2.4
2010	7.7	13.3	1.3	**-8.4**	2.4
N	670	738	816	2423	1999

[1] Estimates in bold are significant at the 5%-level, and estimates in italics are significant at the 10%-level. [2] We have run separate regression analyses for each activity and for each group of respondents. There are no control variables in the models.

Table 4. Estimates (minutes per day) from regressions on time spent on paid work . 1980-2010 . Average all days. [1, 2]

	Men				Women				All				All, with interactions			
	1980	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**
Intercept	157.4	321.1	-49.4	314.6	144.2	77.2	-49.1	67.2	298.4	257.3	-54.3	202.0	277.3	263.0	13.6	192.0
Age of youngest child (ref: none)																
0-1 years	-8.1	-35.7	*61.0*	*-57.8*	**-196.2**	**-197.6**	**-182.3**	**-137.9**	**-110.2**	**-120.6**	**-68.8**	**-91.4**	-36.4	-43.4	39.4	*-59.2*
2-3 years	26.7	18.0	27.3	11.6	**-152.1**	**-179.7**	**-107.2**	-24.7	**-69.1**	**-92.3**	-35.2	-7.6	6.8	6.0	16.7	1.3
4-6 years	-4.2	5.6	33.3	13.1	**-126.2**	**-132.5**	**-49.8**	3.0	**-64.6**	**-76.0**	-11.2	4.9	-16.5	-7.9	27.5	5.5
7-19 years	22.0	-4.0	0.9	31.2	**-54.3**	**-61.4**	-32.1	-9.1	-12.7	**-37.6**	-18.7	8.1	30.5	-9.6	1.5	26.2
Gender (ref: men)																
Women									**-109.7**	**-153.0**	**-117.9**	**-87.7**	**-122.9**	**-88.6**	**-69.3**	**-64.5**
Interaction gender *																
age of youngest child																
Woman * child 0-1 years													**-135.0**	**-146.6**	**-200.9**	**-74.7**
Woman * child 2-3 years													**-140.3**	**-169.5**	**-101.0**	-20.0
Woman * child 4-6 years													**-85.9**	**-117.5**	*-66.5*	-3.6
Woman * child 7-19 years													**-76.4**	*-47.6*	-29.6	-38.3
Respondent's age	**13.8**	7.7	**20.4**	4.5	9.4	**14.8**	**18.7**	9.7	**9.1**	**13.0**	**22.8**	8.9	*7.8*	**10.1**	**17.3**	9.0
Respondents' age squared	*-0.2*	-0.1	**-0.2**	-0.1	-0.1	**-0.2**	**-0.2**	-0.1	**-0.1**	**-0.2**	**-0.3**	-0.1	*-0.1*	**-0.1**	**-0.2**	-0.1
Respondent's education																
(ref: secondary school or less)																
University 1-4 years	**-43.6**	-1.4	-19.7	-27.4	16.1	**46.8**	27.51	**43.9**	-13.3	*21.8*	-0.4	5.8	-12.6	**24.9**	1.8	6.4
University 5 years +	**0.2**	**75.0**	9.3	-4.3	**168.5**	**121.7**	*51.1*	**67.7**	30.7	**97.6**	31.3	25.9	27.9	**95.7**	*35.5*	27.3
Unknown	**77.2**	-71.0	5.5	**-180.0**	*122.2*	53.7	176.7	41.0	**110.7**	-45.7	48.3	*-60.9*	**108.6**	-35.0	80.0	*-61.6*
Partner employed (ref: no)																
Yes	11.3	-7.9	**51.4**	13.1	-21.7	1.0	10.6	12.0	-11.3	-17.8	*34.6*	14.5	-1.1	-6.6	**44.3**	13.9
Day of week (ref: weekday)																
Weekend	**-367.1**	**-338.2**	**-361.4**	**-341.1**	**-137.6**	**-202.2**	**-216.6**	**-222.4**	**-249.5**	**-262.8**	**-292.6**	**-286.2**	**-249.6**	**-267.4**	**-294.4**	**-286.2**
R^2	0.36	0.30	0.34	0.30	0.15	0.23	0.20	0.19	0.32	0.30	0.28	0.25	0.33	0.31	0.30	0.26
N	1642	1488	1514	1670	1830	1703	1464	1649	3472	3191	2978	3319	3472	3191	2978	3319

[1] Estimates in bold are significant at the 5%-level, and estimates in italics are significant at the 10%-level. [2] Estimates from all controls are reported. We have run separate regressions for each year for 1) all men in the analysis sample, 2) all women in the analysis sample, 3) all men and women in the analysis sample with gender as a control variable but no interactions, and 4) all men and women in the analysis sample with interactions between gender and age of youngest child.

Table 5. Estimates (minutes per day) from regressions on time spent on household work. 1980-2010. Average all days. [1, 2]

	Men				Women				All				All, with interactions			
	1980	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**
Intercept	126.1	16.3	66.9	11.1	88.9	85.5	38.7	-39.8	9.7	-32.9	70.8	-50.3	5.1	-22.1	17.6	-39.3
Age of youngest child (ref: none)																
0-1 years	**52.9**	**94.1**	**84.0**	**107.7**	**298.5**	**256.9**	**259.5**	**274.2**	**186.4**	**177.8**	**178.2**	**-177.3**	**71.9**	**103.9**	**94.2**	**116.6**
2-3 years	**55.9**	**58.3**	**65.2**	**90.9**	**179.5**	**213.4**	**155.2**	**173.8**	**124.6**	**143.3**	**107.1**	**126.8**	**69.1**	**67.3**	**67.5**	**100.0**
4-6 years	**60.7**	**50.0**	**69.5**	**73.3**	**135.4**	**149.9**	**111.7**	**116.5**	**101.3**	**105.6**	**93.7**	**89.5**	**66.1**	**57.0**	**70.0**	**77.5**
7-19 years	**25.6**	4.9	*24.5*	-7.4	**62.2**	**66.2**	46.4	**53.4**	**44.0**	**36.0**	**38.6**	**19.8**	17.7	2.4	*22.2*	-10.1
Gender (ref: men)																
Women									**168.5**	**136.6**	**84.2**	**62.5**	**116.0**	**75.3**	**47.6**	17.8
Interaction gender *																
age of youngest child																
Woman * child 0-1 years													**211.8**	**143.0**	**155.9**	**140.3**
Woman * child 2-3 years													**97.6**	**133.4**	**77.4**	**59.6**
Woman * child 4-6 years													**58.1**	**85.6**	*39.0*	27.6
Woman * child 7-19 years													**42.3**	**61.1**	24.6	**62.5**
Respondent's age	-1.6	4.7	2.7	7.0	5.0	**3.7**	5.1	**9.1**	1.7	4.5	0.8	**8.6**	4.2	**6.1**	5.0	**9.0**
Respondents' age squared	0.0	-0.0	-0.0	-0.1	-0.0	-0.0	-0.0	-0.1	-0.0	-0.0	0.0	**-0.1**	-0.0	-0.1	-0.0	**-0.1**
Respondent's education																
(ref: secondary school or less)																
University 1-4 years	**45.6**	-14.5	**24.6**	*20.0*	-10.0	**-29.1**	*-19.4*	-16.3	*16.9*	**-19.0**	5.9	3.8	*16.4*	**-22.2**	4.3	2.3
University 5 years +	26.1	-11.3	-5.2	20.6	**-130.9**	**-77.2**	-26.0	**-34.9**	-3.7	**-38.0**	-16.1	-0.3	1.1	**-37.2**	*-19.4*	-2.6
Unknown	*-38.5*	-13.7	44.8	16.4	-6.3	42.2	-105.4	-4.8	-27.0	10.0	1.8	4.5	-32.9	2.5	-22.3	*4.7*
Partner employed (ref: no)																
Yes	1.1	9.3	*-29.2*	1.9	24.0	5.2	16.5	-0.3	**25.2**	*16.8*	-10.3	0.3	10.3	8.4	-17.7	0.5
Day of week (ref: weekday)																
Weekend	**51.6**	**41.3**	**73.2**	**51.7**	**-51.1**	-2.8	**7.8**	**31.7**	-1.3	**15.7**	**42.2**	**42.0**	-0.9	**18.3**	**43.7**	**42.1**
R^2	0.06	0.06	0.10	0.10	0.23	0.23	0.22	0.22	0.30	0.26	0.18	0.16	0.32	0.29	0.20	0.17
N	1642	1488	1514	1670	1830	1703	1464	1649	3472	3191	2978	3319	3472	3191	2978	3319

[1] Estimates in bold are significant at the 5%-level, and estimates in italics are significant at the 10%-level. [2] Estimates from all controls are reported. We have run separate regressions for each year for 1) all men in the analysis sample, 2) all women in the analysis sample, 3) all men and women in the analysis sample with gender as a control variable but no interactions, and 4) all men and women in the analysis sample with interactions between gender and age of youngest child.

Table 6. Estimates (minutes per day) from regressions on time spent on routine housework. 1980-2010. Average all days. [1, 2]

	Men				Women				All				All, with interactions			
	1980	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**
Intercept	60.9	0.5	4.7	14.6	65.6	42.7	4.9	-4.8	-75.8	-93.3	-61.8	-41.3	-60.8	-77.9	-64.6	-29.0
Age of youngest child (ref: none)																
0-1 years	-6.6	3.6	5.2	*13.3*	**69.2**	**36.3**	**41.6**	**37.1**	**32.8**	**19.1**	**21.4**	**21.7**	**14.7**	**17.3**	**15.5**	**19.2**
2-3 years	-7.5	**-10.2**	*13.4*	*13.0*	**56.7**	**62.2**	**35.4**	**39.2**	**24.0**	**25.3**	**20.8**	**23.2**	9.2	0.7	**19.8**	**18.5**
4-6 years	4.3	6.8	6.1	3.0	**52.8**	**49.3**	**19.4**	**40.3**	**24.7**	**25.9**	*10.9*	**17.6**	*12.7*	*14.2*	*11.7*	5.3
7-19 years	1.7	7.0	*9.2*	2.4	**32.4**	**39.2**	*14.3*	**30.1**	**12.0**	**18.3**	**9.2**	**13.6**	-5.2	1.6	7.3	0.2
Gender (ref: men)																
Women									**154.5**	**112.2**	**76.3**	**55.6**	**131.8**	**92.4**	**74.1**	**40.7**
Interaction gender *																
age of youngest child																
Woman * child 0-1 years													**34.0**	3.1	11.1	6.1
Woman * child 2-3 years													**27.9**	**45.2**	1.9	11.2
Woman * child 4-6 years													**22.7**	**23.3**	-1.9	**26.9**
Woman * child 7-19 years													**32.3**	**32.7**	3.4	**29.2**
Respondent's age	-1.3	1.7	1.6	1,2	3.0	1.1	3.0	3.1	**3.8**	**4.6**	**3.9**	**3.3**	**3.7**	**4.3**	**4.1**	**2.9**
Respondents' age squared	0.0	-0.0	-0.0	-0.0	-0.0	0.0	-0.0	-0.0	-0.0	*-0.0*	*-0.0*	-0.0	-0.0	*-0.0*	*-0.0*	-0.0
Respondent's education																
(ref: secondary school or less)																
University 1-4 years	**13.8**	-4.0	3.8	**8.3**	**-32.1**	**-24.5**	*-10.0*	**-12.1**	*-10.6*	**-14.9**	-2.8	-1.8	*-10.7*	**-14.8**	-2.8	-1.6
University 5 years +	-0.7	-0.8	-0.5	**13.8**	**-104.7**	**-57.4**	*-21.9*	**-22.7**	**-19.1**	**-24.1**	-9.1	-1.6	**-18.8**	**-24.3**	-9.3	-1.3
Unknown	-8.3	3.9	51.4	9.0	-8.7	16.0	-6.1	1.3	-13.2	2.3	26.3	2.4	-12.8	1.9	25.2	4.4
Partner employed (ref: no)																
Yes	3.7	3.1	*-2.8*	0.7	5.3	8.3	4.3	-3.7	**10.4**	5.7	-0.2	-0.8	**9.2**	5.1	-0,6	-1,2
Day of week (ref: weekday)																
Weekend	**24.5**	**17.6**	**18.4**	**23.1**	**-32.6**	5.0	**12.0**	**21.3**	-4.5	**10.9**	**15.3**	**22.1**	-4.6	**11.6**	**15.4**	**22.1**
R^2	0.04	0.03	0.04	0.04	0.08	0.11	0.06	0.07	0.42	0.32	0.22	0.14	0.42	0.32	0.22	0.15
N	1642	1488	1514	1670	1830	1703	1464	1649	3472	3191	2978	3319	3472	3191	2978	3319

[1] Estimates in bold are significant at the 5%-level, and estimates in italics are significant at the 10%-level. [2] Estimates from all controls are reported. We have run separate regressions for each year for 1) all men in the analysis sample, 2) all women in the analysis sample, 3) all men and women in the analysis sample with gender as a control variable but no interactions, and 4) all men and women in the analysis sample with interactions between gender and age of youngest child.

Table 7. Estimates (minutes per day) from regressions on time spent on direct childcare. 1980-2010. Average all days. [1, 2]

	Men				Women				All				All, with interactions			
	1980	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**
Intercept	-41.8	-45.0	-73.3	-73.1	-42.1	-68.6	-17.4	-55.0	-20.8	-41.7	5.1	-48.3	0.53	-52.2	-32.1	-62.5
Age of youngest child (ref: none)																
0-1 years	**70.8**	**97.2**	**101.5**	**97.4**	**224.6**	**227.5**	**202.2**	**224.0**	**154.9**	**164.8**	**156.6**	**156.5**	**69.7**	**93.8**	**100.3**	**97.8**
2-3 years	**61.2**	**69.4**	**58.2**	**81.8**	**114.9**	**157.4**	**107.0**	**130.8**	**93.9**	**121.6**	**83.4**	**105.0**	**59.5**	**66.3**	**56.8**	**83.4**
4-6 years	**31.4**	**54.3**	**46.5**	**65.6**	**80.9**	**104.8**	**65.5**	**83.6**	**62.0**	**86.2**	*59.3*	**75.0**	**30.4**	**52.0**	**44.9**	**66.8**
7-19 years	**9.0**	**12.2**	**4.5**	**6.7**	**27.7**	**29.0**	**20.1**	**18.9**	**22.7**	**24.7**	**16.3**	**13.9**	**9.1**	**11.8**	**6.6**	**7.5**
Gender (ref: men)																
Women									**33.3**	**38.5**	**24.0**	**23.0**	-0.3	0.1	0.6	-0.3
Interaction gender *																
age of youngest child																
Woman * child 0-1 years													**157.4**	**137.4**	**104.3**	**134.9**
Woman * child 2-3 years													**58.6**	**93.8**	**51.9**	**46.3**
Woman * child 4-6 years													**53.0**	**56.7**	**22.9**	15.5
Woman * child 7-19 years													**19.4**	**20.2**	**13.8**	**10.5**
Respondent's age	*2.3*	*2.3*	**3.7**	**4.0**	2.1	**5.0**	1.8	**3.5**	-0.1	1.0	-0.7	*2.3*	**2.1**	**3.3**	*2.1*	**3.6**
Respondents' age squared	**-0.0**	**-0.0**	**-0.0**	**-0.1**	*-0.0*	**-0.1**	-0.0	**-0.0**	-0.0	-0.0	*0.0*	**-0.0**	**-0.0**	**-0.0**	**-0.0**	**-0.0**
Respondent's education																
(ref: secondary school or less)																
University 1-4 years	5.3	0.7	5.0	*6.3*	**17.6**	-1.2	-4.7	3.6	**11.6**	3.0	1.6	**7.1**	**11.4**	-0.4	0.5	*5.1*
University 5 years +	**19.8**	3.5	0.9	**22.5**	-4.6	12.1	*0.0*	-3.7	**14.1**	5.7	1.4	**14.6**	**17.9**	6.9	-0.9	**12.0**
Unknown	*18.7*	7.1	22.2	8.4	32.4	**-24.1**	**-81.4**	16.3	**29.0**	6.8	-5.5	16.5	**23.8**	-1.0	-22.1	13.2
Partner employed (ref: no)																
Yes	2.0	2.1	*-1.5*	1.7	**17.6**	-9.7	5.3	-3.9	**15.3**	6.4	4.9	0.1	3.8	-2.0	-0.1	-0.1
Day of week (ref: weekday)																
Weekend	**6.0**	4.4	**10.6**	3.9	**-6.4**	*-7.3*	**-8.8**	-0.9	-0.6	-3.5	0.8	1.3	-0.4	-1.8	1.8	1.4
R^2	0.27	0.34	0.36	0.37	0.59	0.57	0.55	0.57	0.46	0.48	0.46	0.45	0.54	0.54	0.50	0.51
N	1642	1488	1514	1670	1830	1703	1464	1649	3472	3191	2978	3319	3472	3191	2978	3319

[1] Estimates in bold are significant at the 5%-level, and estimates in italics are significant at the 10%-level. [2] Estimates from all controls are reported. We have run separate regressions for each year for 1) all men in the analysis sample, 2) all women in the analysis sample, 3) all men and women in the analysis sample with gender as a control variable but no interactions, and 4) all men and women in the analysis sample with interactions between gender and age of youngest child.

Table 8. Estimates (minutes per day) from regressions on time spent on paid work and household work on weekdays and weekends. 1980-2010.[1, 2]

	Paid work, weekdays				Paid work, weekends				Household work, weekdays				Household work, weekends			
	1980	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**	**1980**	**1990**	**2000**	**2010**
Interaction gender *																
Age of youngest child																
Woman * child 0-1 years	**-177.1**	**-169.8**	**-287.7**	**-108.3**	-37.7	-41.4	-28.6	-11.2	**202.9**	**143.4**	**184.5**	**164.3**	**232.6**	**133.6**	**103.1**	**90.5**
Woman * child 2-3 years	**-177.2**	**-244.9**	**-158.8**	-55.5	-16.6	-27.1	-2.1	43.5	**106.0**	**174.2**	**123.8**	**87.7**	47.8	47.4	-13.4	6.3
Woman * child 4-6 years	**-106.3**	**-165.1**	**-115.7**	-5.3	*-65.2*	-10.1	56.8	14.9	**78.2**	**129.1**	**65.1**	31.3	29.7	-14.0	-29.1	20.1
Woman * child 7-19 years	**-99.4**	**-66.6**	*-59.3*	-39.4	-8.1	-4.8	*20.9*	-32.7	**50.5**	**74.2**	**51.2**	**59.2**	18.7	27.5	-30.0	**73.5**
N	2531	2281	2095	2306	941	910	883	959	2531	2281	2095	2360	941	910	883	959

[1] Estimates in bold are significant at the 5%-level, and estimates in italics are significant at the 10%-level. [2] The estimates are net effects from models that also include as controls age of youngest child, respondent's gender, age and education and the partner's employment status.

Table 9. Significance tests of changes in the interaction estimates (women*age of youngest child) in tables 4-7 across time. Estimates (minutes per day) from regressions with interaction terms between year and all independent variables[1].

	Paid work	Household Work	Routine housework	Direct childcare
Woman * child 0-1 years * 1980	-60.3 (49.7)	*71.5* (37.0)	27.9 (17.2)	22.4 (21.2)
Woman * child 0-1 years * 1990	-72.0 (51.6)	2.8 (39.0)	-3.0 (15.6)	2.5 (22.5)
Woman * child 0-1 years * 2000	**-126.2** (52.6)	15.6 (39.0)	5.0 (15.6)	-30.6 (22.9)
Woman * child 0-1 years * 2010 (ref)				
Woman * child 2-3 years * 1980	**-120.2** (53.0)	38.0 (33.5)	16.7 (15.9)	12.3 (15.9)
Woman * child 2-3 years * 1990	**-149.5** (52.8)	**73.7** (33.2)	**34.0** (14.6)	47.5 (16.5)
Woman * child 2-3 years * 2000	-81.0 (57.1)	17.7 (36.7)	-9.3 (16.5)	5.6 (17.7)
Woman * child 2-3 years * 2010 (ref)				
Woman * child 4-6 years * 1980	*-82.3* (49.7)	30.6 (32.0)	-4.2 (15.6)	**37.5** (11.5)
Woman * child 4-6 years * 1990	**-113.9** (51.8)	*58.0* (32.8)	-3.7 (15.5)	**41.1** (12.8)
Woman * child 4-6 years * 2000	-62.9 (52.8)	11.33 (32.7)	*-28.8* (14.8)	7.4 (12.8)
Woman * child 4-6 years * 2010 (ref)				
Woman * child 7-19 years * 1980	-38.1 (37.2)	-20.2 (21.6)	3.1 (12.1)	*8.9* (4.6)
Woman * child 7-19 years * 1990	-9.3 (37.5)	-1.4 (21.5)	3.6 (11.3)	9.7 (5.0)
Woman * child 7-19 years * 2000	8.7 (39.0)	*-37.9* (22.3)	**-25.8** (11.0)	3.3 (5.1)
Woman * child 7-19 years * 2010 (ref)				

[1] Estimates in bold are significant at the 5%-level, and estimates in italics are significant at the 10%-level. Standard errors in parenthesis.

Table 10. Significance tests of changes in the interaction estimates (women*age of youngest child) in table 8 across time. Estimates (minutes per day) from regressions with interaction terms between year and all independent variables[1].

	Paid work		Household work	
	Weekdays	**Weekends**	**Weekdays**	**Weekends**
Woman * child 0-1 years * 1980	-68.8 (64.7)	-26.5 (50.3)	38.6 (43.3)	**142.1** (58.9)
Woman * child 0-1 years * 1990	-61.5 (66.1)	-30.1 (62.4)	-21.0 (44.4)	43.2 (65.9)
Woman * child 0-1 years * 2000	**-179.4** (70.3)	-17.3 (49.3)	20.2 (44.8)	12.6 (63.8)
Woman * child 0-1 years * 2010 (ref)				
Woman * child 2-3 years * 1980	*-121.7* (66.0)	-60.1 (63.2)	18.1 (37.7)	41.6 (58.6)
Woman * child 2-3 years * 1990	*-189.4* (65.6)	-70.6 (65.0)	**86.4** (37.1)	41.1 (58.6)
Woman * child 2-3 years * 2000	-103.3 (71.7)	45.6 (69.7)	35.9 (40.6)	-19.7 (62.4)
Woman * child 2-3 years * 2010 (ref)				
Woman * child 4-6 years * 1980	-101.1 (64.1)	-80.1 (56.7)	46.9 (37.3)	9.6 (56.1)
Woman * child 4-6 years * 1990	**-159.8** (67.3)	-25.0 (58.6)	**97.8** (38.1)	-34.1 (57.9)
Woman * child 4-6 years * 2000	-110.5 (68.9)	41.9 (55.1)	33.8 (37.6)	-49.2 (60.5)
Woman * child 4-6 years * 2010 (ref)				
Woman * child 7-19 years * 1980	-60.1 (46.8)	24.5 (45.6)	-8.7 (25.3)	-54.8 (37.6)
Woman * child 7-19 years * 1990	-27.2 (47.3)	27.9 (49.2)	15.0 (25.4)	-46.1 (36.4)
Woman * child 7-19 years * 2000	-20.0 (49.4)	53.6 (51.1)	-8.0 (25.8)	**-103.6** (39.5)
Woman * child 7-19 years * 2010 (ref)				

[1] Estimates in bold are significant at the 5%-level, and estimates in italics are significant at the 10%-level. Standard errors in parenthesis.