

**The parenthood effect: what explains the increase in gender inequality  
when British couples become parents?<sup>1</sup>**

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## **Introduction**

This paper explores the importance of different decision criteria for how couples adapt their division of paid and domestic work after having a child. Specifically, it examines how earnings and gender role identities of men and women before parenthood are associated with changes in their contributions to paid and unpaid work after becoming parents. Comparisons with other life-course events generally find the largest change in couples' division of paid and unpaid work to occur when they have their first child as opposed to getting married or having more children (Van der Lippe and Siegers 1994; Gauthier and Furstenberg 2002; Gershuny 2003; Grunow, Schulz et al. 2007). For mothers and fathers, parenthood usually involves a reduction in personal and leisure time in favour of more childcare and housework (Gauthier and Furstenberg 2002; Gershuny 2003). Mothers typically interrupt or drastically reduce their working hours, often with damaging consequences for their career and income. Fathers' incomes and work hours, however, remain largely unaffected (Dermott 2006; Smith 2006). Given that a widening in earnings inequalities between women and men over the life-cycle (Rake 2000; Joshi 2002; Sigle-Rushton and Waldfogel 2006) might be driven, to some extent, by how couples' adapt their division of labour after becoming parents, this raises the question what the main influences are of couples' division of paid work, housework and childcare after the birth of their first child.

Influences on women's labour market participation after childbirth have been widely investigated from an individual and institutional perspective (Henz and Sundström 2001; Van der Lippe 2001; Del Boca, Pasqua et al. 2002; Uunk, Kalmijn et al. 2005; Smeaton 2006; Vlasblom and Schippers 2006). By contrast, relatively little is known about the driving factors of greater inequality in couples' division of domestic work and the interdependence with decisions of paid work involvement after the transition to parenthood. A number of studies have explored the importance of different factors for the division of paid and domestic labour couples practise after becoming parents, but these are mainly American studies based on small samples (Cowan and Cowan 1992; Deutsch, Lussier et al. 1993; Fox 2001; Singley and Hynes 2005). This paper attempts to contribute to the literature by disentangling the importance of different pre-parental

explanatory factors for British couples' division of housework, childcare, and paid work after having their first child using a relatively large sample of couples in Britain. The only similar large-scale research is an American study by Sanchez and Thomson (1997) which explores women's and men's absolute time allocations to paid work and housework after the transition to parenthood. Whilst absolute time measures make it easier to disentangle separate effects on men and women, such measures are less suitable for exploring couple-specific gender differences in partners' contributions to paid and domestic work irrespective of the couples' overall time spent on either task. I focus on partners' relative contributions, as I want to investigate the driving factors behind the increase in gender inequality within each couple. However, to facilitate comparability with Sanchez and Thomson's (1997) results, I will break the dependent variables down into mothers' and fathers' absolute housework and paid work time at the end of the paper. A comparison of the results on how different couples' adapt their division of paid and domestic work after having their first child in the US and the UK also allows some reflections regarding contextual influences.

In the following section, I discuss theoretical explanations that have been proposed to explain the gender division of labour and present the theoretical model which will be applied to derive the hypotheses for the empirical investigations. Sections 3 and 4 provide details on the method and data used. In Section 5, I describe the absolute and relative changes in men's and women's contributions to paid work and housework observed during the transition to parenthood in Britain. Following this, the results of the statistical analyses which investigate the change in new parents' division of labour and in either partner's absolute contributions to different tasks are presented. Section 6 concludes with a discussion of the main findings and limitations and some policy implication based on a comparison with US results.

### **Theoretical framework and hypotheses**

Having children can be interpreted as a constraint on couples' time in the form of an increase in demand for domestic work. With the exception of a small percentage of couples that outsource most of the domestic work, this leads to a reduction in time spent

on leisure and/or paid work for most couples. The main question is what are the most important criteria for couples' decisions about which partner should reduce time in paid work and increase domestic labour, or to what extent both partners should adapt their time in a symmetrical fashion. In previous studies, perspectives based on economic rational choice assumptions and social constructivist theories such as the doing gender approach provide quite different answers to this question but both have received some support in explaining how couples divide paid and domestic work at any one point in time (e.g. Berk 1985; Pleck 1985; Hochschild and Machung 1990; Greenstein 1996b; Greenstein 2000; Bittman, England et al. 2003; Singley and Hynes 2005).

According to neo-classical economists, it would be efficient for maximising household output if one partner specialised in market work, while the other partner did more of the domestic work. This form of specialisation would be efficient, even if there were only small differences in their market returns of paid work or skills required for domestic labour in the beginning (Schultz 1974; Becker 1991). Since I do not have information on productivity in domestic work, this research – like most previous studies – focuses mainly on relative advantages in the labour market in terms of earnings. The argument of the benefits of specialisation assumes that male and female partners' domestic work contributions are substitutes. While one could also argue that to some extent partners' time in household work are complements, as couples may do more if they can work together, the substitution effect is likely to be more important in the first years of parenthood when time is particularly constrained. The combination of breadwinning and caring for a small child probably demands more juggling of different tasks and more time constraints than most other phases of the life course.

Bargaining models have made some important additions to this neo-classical economic perspective by stressing that each partner's fall-back options, e.g. in terms of earnings in case of relationship breakdown, may be used to bargain for less involvement in domestic chores or infant care to the extent that they are not perceived as leisurely (Ott 1992; Lundberg and Pollak 1996; Beblo 2001). Furthermore, dynamic models also show that paid work interruptions result in lower human capital and market productivity in the

future which reduces a person's bargaining power even further (Beblo 2001). However, in the absence of more specific knowledge about each partner's bargaining power, the predictions regarding the division of labour after couples' transitions to parenthood would be similar to those based on neo-classical economic models.

While rational choice theories have contributed to understanding individual decision-making in terms of costs and benefits of different alternatives, the persistence of a strongly gendered division of domestic work, even among couples where women earn more than their partners, has cast some doubt on the specialisation argument (e.g. Hochschild and Machung 1990; Brines 1994; Greenstein 2000). The underlying assumptions of unobservable exogenous or even homogenous preferences (Stigler and Becker 1977; Frank 2006) for gender arrangements of paid and domestic work during couples' transition to parenthood are very strong assumptions, since the contextual particularities of people's perceptions cannot be captured. As a result differences (i) between men and women and (ii) within each gender are likely to be underestimated.

Individuals' reflexive self-identities have been suggested to be of increasing importance for designing their life paths (Giddens 1991; Beck and Beck-Gernsheim 1995). Empirically, there is also considerable diversity especially in how women feel they want to or should combine paid work and family care (Hakim 2000; Wall 2007). A large number of studies also find normative conceptions regarding gender roles to be significantly associated with the division of labour of labour, often beyond economic factors (e.g. Berk 1985; Hochschild and Machung 1990; Greenstein 1996a; Baxter 1997; Crompton, Brockmann et al. 2005). This has been theoretically addressed, for instance, by sociological perspectives such as 'doing gender' (West and Zimmerman 1987) and identity theory (Stryker 1968; Stryker and Statham 1985) as well as by Sen's concepts of perceived entitlements and contributions which vary by gender (Sen 1991). During the transition to parenthood most couples move towards a more traditional work distribution (Sanchez and Thomson 1997; Gershuny 2003). At this life course event, gendered expectations with respect to the amount of paid and unpaid work men and women are supposed to do are likely to be particularly important. Considerable cross-national

variations in these normative assumptions with respect to gender suggest that people's expectations are shaped in part by historical trends of people's practice and by institutions (Kremer 2005; Cooke 2006; 2007). In the UK, historical developments of men's and women's roles have been perpetuated by gendered policy structures. Their normative assumptions often impose external constraints on families' work and care arrangements and are likely to have affected people's expectations (Kremer 2005). As a result, a theoretical framework of couples' division of labour decisions after becoming parents should account for the heterogeneity in gender role identities between men and women and within each gender.

Based on identity theory (Stryker 1968) and the 'doing gender' approach (West and Zimmerman 1987), both partners' interpretations before parenthood of what it means for them to be a mother or a father are expected to form the basis for the kind of arrangement they prefer after the birth. Depending on their gender role identities, men and women are assumed to vary in their willingness to take the main responsibility for family care or as breadwinner or to share one or both with their partner. Traditional gender role identities of both partners would be expected to lead to an increase in time women spend on family care and a reduction in their labour market participation, while no such change would be predicted for men. More egalitarian identities of either partner are likely to reduce the amount of change towards a more traditional division of domestic and paid work.

An increasing number of empirical quantitative studies on related questions take people's gender role identities or attitudes as well as economic resources into account. Most of these, however, do not spell out their assumptions of the interaction between people's normative conceptions or gender identities and behaviour, economic circumstances and the wider social context. Recently, a few authors have developed models which combine concepts of identities or attitudes with a rational choice framework (e.g. Akerlof and Kranton 2000; 2005; De Laat and Sevilla Sanz 2006). The present theoretical framework is based on sociological identity theory (Stryker 1968; Stryker and Statham 1985) rather than identity concepts developed by the psychological tradition which most rational choice models have followed so far (Akerlof and Kranton 2000; 2005). This perspective

combines an understanding of psychological processes with role theory to develop a framework bridging social structure and individuals' actions (Stets and Burke 2005). By connecting people's identities with their social contexts, some scholars suggest it may be better able to overcome some of the deficiencies of psychological identity theory (Davis 2006; Kirman and Teschl 2006; Davis 2007). Furthermore, due to its assumptions of slightly greater stability of self-identities and interrelationships with social structures (Stryker 1968; Stryker and Statham 1985), identity theory is better suited to formulating hypotheses for an empirical analysis than other social constructivist theories. In terms of the operationalisation in this framework, a person's gender role identity will be broadly defined as the role that an individual devises for him/herself as an occupant of a gendered social position. This is assumed to be influenced by social norms regarding gender behaviour which people have come to accept and which confirm their affiliation with certain social groups.

One central notion in identity theory is that people hold multiple identities. A critical question is how they compete with one another and which one will be activated in a particular situation, which is referred to as a salient identity. There may well be competing identities in terms of individuals' self-images as workers, mothers or fathers, domestic cleanliness standards, roles within the family or within friends networks. I expect gender role identity in terms of combining paid work and care to be one salient identity in the context of the transition to parenthood. The operationalisation of gender role identity will cover various aspects to do with the gender division of paid and domestic work but cannot account for competing identities such as husband or wife, or membership in family networks, or friendship groups.

To derive testable hypotheses, I draw on a model similar to the one derived by De Laat and Sevilla Sanz (2006) combining predictions based on partners' earnings and gender role identities. The model assumes that women's and men's utility is positive functions of consumption of a private good  $x$  and a public good  $k$  (which is the number of children), but is negatively related to the time spent doing housework and childcare ( $h$  and  $c$ ). For women, the more egalitarian their gender role identities ( $G_w$ ), the greater the disutility of

domestic work. For men, egalitarianism is assumed to reduce the disutility from doing domestic work compared to men with more traditional gender role identities ( $G_m$ ).

$$U_w(k, h_w, c_w, x_w) = U(k) - f(G_w)V_w(h_w, c_w) + x_w \quad (1)$$

$$U_m(k, h_m, c_m, x_m) = U(k) - f(G_m)V_m(h_m, c_m) + x_m \quad (2)$$

The model assumes transferable utility between partners and that the male (female) partner maximises his (her) own utility subject to the partner's reservation utility. A couple's budget is constrained by both partners' wages and the total available time is spent only on either paid or domestic work (for detailed specification and mathematical derivations, see De Laat and Sevilla Sanz 2006). The model predicts that the female partner's share of housework and childcare responsibility after birth will be smaller and their paid work share larger:

H 1: The higher her pre-parental wage rate relative to her partner's

H 2: The more egalitarian her gender role identity

H 3: The more egalitarian her partner's gender role identity

Previous American studies find strong support for the importance of wives' relative earnings for men's and women's absolute and relative contributions to paid work and housework after becoming parents (Deutsch, Lussier et al. 1993; Sanchez and Thomson 1997). By contrast, German studies observe no significant association with changes in the division of housework over the course of marriage (Schulz and Blossfeld 2006; Grunow, Schulz et al. 2007). Previous evidence on the significance of gender role identities is mixed. Sanchez and Thomson (1997) find only a weak correlation with the time women spend on paid work and no associations with absolute housework time of men and women. However, Deutsch et al. (1993) report that fathers' gender role attitudes are the strongest predictor of their childcare participation.

### **Other influences on parents' division of paid and domestic work after birth**

While partners' relative earnings are assumed to determine the extent to which paid labour of the lower earning partner is substituted for the increased contribution to

domestic work, men's and women's absolute income and wage levels may play a role as well. Recently, research has shown that, at any one point in time, women's absolute wage levels are more strongly related to women's share of housework than their relative earnings compared to their husbands' (Gupta 2007; Gupta and Ash 2008). This may be because higher earnings allow women to outsource domestic work and childcare to the market. Alternatively, it may give them a feeling of less responsibility for having to do the housework, so they may just do less without substituting it. By also controlling for women's absolute wage, I examine whether the change in the parental division of housework will depend more on how much women earn relative to their husbands or how much women earn in absolute terms, which is a proxy for their ability to outsource domestic work and childcare.<sup>2</sup>

Higher absolute earnings, especially of fathers, may give couples more freedom in their arrangements. Theoretically this freedom may be used in various ways, possibly depending on women's and men's gender role identities. However, given the quite traditional institutional context of parenthood in the UK, for most women it will probably imply a larger reduction in their hours of paid work and more specialisation in domestic work during the first years of parenthood.

Since I am interested in exploring the increase in gender inequality as couples become parents, I need to account for the contributions of both partners to paid work and work within the home before this life-course transition. In addition, this pre-parental division of labour may also have a direct effect through established habits or skills in domestic tasks. Differences in skills and habits increase the costs of switching from one partner to the other. Since the amount of domestic work generally increases with the arrival of a child, interpretations based on habits and improved skills would predict a rise in the relative share of domestic work of the partner who has done more of it before parenthood. Empirical results provide support for the importance of the established housework routine

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<sup>2</sup> This assumes similar levels of market prices for domestic work and childcare across the sample of couples. There is evidence of regional variation in fees for formal day-care, e.g. higher prices in London compared to the rest of the country, but unfortunately there is no such contextual information available which could be linked to the BHPS.

for the longer-term trend over the course of a relationship (Schulz and Blossfeld 2006; Grunow, Schulz et al. 2007) and specifically during the transition to parenthood (Sanchez and Thomson 1997).

There are a number of other control factors that need to be taken into account when testing the hypotheses. Higher levels of education for women are typically associated with better career opportunities and so may raise the opportunity cost of taking time out of the labour market to spend time with one's own children. Among educationally heterogeneous couples, the resource bargaining approach would also expect women with higher educational levels than their husbands to contribute relatively more to paid work and less to domestic labour. However, men with higher education are likely to have lived on their own for a longer period before entering into cohabitation and therefore may have better housework skills.

While information on family-friendly arrangements of different employers is unfortunately lacking, the employment sector may make a difference. There is a tendency for public sector employees to enjoy more family-friendly employment structures in terms of entitlements to work flexibly or part-time hours than employees in the private-sector or self-employed people, since the public sector is more likely to implement national legislation beyond the statutory minimum than the private sector (Crouch 1999; O'Brien and Shemilt 2002). I therefore account for this difference, since for this reason public sector employment may make it easier to combine work and parenthood for both men and women. A high incidence of part-time work for women could also lead to greater gender inequality in domestic work as opposed to full-time work. However, for British women with very small children it is more likely to be an incentive to return to work faster after childbirth than they otherwise would. Thus I generally expect a positive association between public sector employment of either partner and gender equality in the division of labour. It should be noted that this association may also be due to self-selection, with people who want to combine work and family being more likely to choose public sector jobs. Furthermore, I control for women's dissatisfaction with their job

before becoming parents, since they may be looking more for fulfilment in the private sphere and would be willing to be more involved in family work.<sup>3</sup>

In addition, I consider women's ages and the difference in both partners' ages, since couples that become parents at an older age have been found to have a less traditional division of domestic work (Coltrane and Ishii-Kuntz 1992). Furthermore, where men are older than their partners, the greater the age difference, the more traditional the division of labour is expected to be due to men's advantages of labour market experience or perceived seniority. I also distinguish between married and cohabiting couples, since the latter may be more reluctant to enter into a more traditional division of labour without increased contractual financial security in the event of relationship breakdown. Short intervals between children have been found to be associated with a more traditional division of paid work (Vlasblom and Schippers 2006). This may be related to a number of unobserved factors such as a greater desired family size and mothers using the second maternity leave entitlement to stay at home longer. I therefore control for the timing of a second birth. Since some studies provide evidence that fathers are likely to be more involved in childcare for boys than for girls (Daniels and Weingarten 1988; Kalmijn 1999), I also control for the sex of the child.

## **Method and Data**

### *Model choices*

Using data from fourteen waves of the British Household Panel Survey (1992-2005)<sup>4</sup>, I model the division of housework, breadwinning, and responsibility for childcare within couples in the second year after the transition to parenthood. The dependent variables are measured in the second year after birth, since at that point most women who were planning to return to work relatively soon after childbirth will have done so. Couples are

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<sup>3</sup> Deutsch et al. (1993) suggested that greater marital satisfaction increases men's domestic contributions. However, information on relationship satisfaction in the BHPS is only available from 1996, which would have reduced the number of couples for this analysis too much.

<sup>4</sup> Wave 1 does not contain information on housework time and is therefore not included.

also likely to have established a balance in their new parental life, which they may maintain for some time while they have young children.

Two of the dependent variables, women's share of housework and paid work time, are non-normally distributed with a disproportionately large amount of observations clustered around 100 per cent of mothers' housework share and at 0 for mothers' paid work. As a result of clusters at the boundaries of 0 and 100, this may result in inconsistent OLS estimates (Amemiya 1973). One possibility would be to use tobit models; however, such models cannot be estimated using the imputation programme I employ in Stata. As explained below, the amount of missing data is substantial. In order to be able to use chained equation imputations, the continuous variables of women's shares of paid work and housework are combined into four categories each and ordered logistic regression models are applied. For the binary measure of responsibility for childcare, a logistic regression model is used. I also considered applying seemingly unrelated regressions to allow for correlated error terms between the estimations of couples' post-parental division of labour in the three areas of childcare, housework and paid work, since all three are likely to be influenced by a common set of unobserved characteristics within households (as used in the study by Sanchez and Thomson 1997). However, when the same independent variables are used in all the equations as is intended in this analysis, there is very little benefit of using seemingly unrelated regressions (Green 2000). Furthermore, this would be difficult to implement simultaneously with chained equation imputations. A comparison of the results of tobit models, seemingly unrelated OLS regressions, and ordered logistic models before imputation revealed that there was a small difference in the level of significance, but not in the extent that the independent variables of interest reached significance. As a result of this, and since the results based on the imputed information also do not vary qualitatively from those before imputation, only the logistic regression models with imputed data are presented.<sup>5</sup>

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<sup>5</sup> All data imputations are done by using multiple imputations through chained equations and are based on five imputation cycles

Modelling all three division of labour decisions provides a descriptive account of the simultaneous processes and allows me to compare the effects of relative earnings and gender role identities on each division of labour outcome. Ideally, it would be interesting to simultaneously estimate the effect of couples' domestic work arrangement on mothers' return to work, something which could be achieved by using multilevel multiprocess models. However, this is beyond the scope of this research, particularly given that information on maternity or family leave is available for less than half of all mothers. Although I account for couples' pre-parental division of labour and various other individual level characteristics which are measured at least four months before the birth, there remains some risk of bias due to unobserved individual heterogeneity in the models of the second year after birth. I found in previous analyses that parenthood is not exogenous. The ages of both partners, women's hours of paid work and educational qualifications, and couples' marital status are significantly associated with selection into parenthood. While ideally I would want to control for these selection effects using, for example, a Heckman selection correction factor, it is not reasonable to assume that any of these factors are only associated with selection into parenthood and do not affect the division of paid and domestic work after birth.

Since only couples that stayed in the panel for one wave before and two years after the birth of their child can be included in this analysis, I investigate the potential of non-response bias by examining the correlation with all main explanatory variables. Given that these logit models equally suffer from item non-response at each wave, I impute the missing observations in the same way as for the models of interest.<sup>6</sup> In line with Uhrig (2008), I find parent couples with small children to have a low risk of non-response and those who drop out do not differ in many characteristics. In fact, the number of couples with non-response in the second year after birth is very small (13 cases). The only differences between couples that leave the panel and those who stay seem to be that the former women are more likely to have had earnings in the highest quartile before having children and were of a younger age.

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<sup>6</sup> The results of the attrition analysis can be obtained from the author.

The sample of couples experiencing the transition to parenthood used for the analysis is also selective because their presence in the BHPS in the year before the birth is required for them to be included in the analysis. There are 148 couples that say they have a child aged less than 12 months in their household at their first observation. I examine to what extent the selected sample of parents differs from these later-joiners in the main variables of interest during the year of birth.<sup>7</sup> Since these people are likely to have joined the sample when they formed a relationship with an original sample member, it is not surprising that the late-joiners have a shorter relationship duration than the selected couples. The women in these couples earn relatively more per hour compared to their partners and are more likely to be the parent who is mainly responsible for childcare. While there are some significant differences between these couples and all BHPS respondents becoming parents, the direction of bias is less clear. The most likely source of bias seems to arise due to a disproportionate loss of couples with very short relationship duration and more traditional division of childcare.

To examine the possible effects of using an unbalanced sample without non-response weights, I compare the results with those from a weighted balanced sample up to wave 9 (using weight ILRWGHT). Although the number of couples is reduced to about 150, the significance of the explanatory variables does not change in comparison to the results presented in the following section. To investigate the risk of bias due to inclusion of the extension samples for Wales and Scotland, for which there are no weights available, I also rerun the final models just for England and do not find substantively different results. The Wales and Scotland sub-samples are too small for the logistic models to converge.

#### *Sample selection and missing information*

I limit my sample to couples, irrespective of marital status, where women are at least 20 years old when they have their first child. I exclude partnered women who become mothers as teenagers, since the dynamics in the division of labour are likely to be driven by other factors such as education and family networks. As a result, I lose 21 couples,

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<sup>7</sup> The results of this analysis can be obtained from the author.

which on the whole does not affect the results.<sup>8</sup> The selection of couples becoming parents is based on women's fertility history and no children living in the household before the birth. Therefore, the birth I observe is the first for the female partners, but it may not be the first for the male partners. Including a dummy for whether the man fathered a child in a previous relationship does not affect the results<sup>9</sup>.

I include couples if both partners respond to at least one wave before and two waves after the birth of their first child. Based on these restrictions, I observe 562 couples that experience a first birth during the observation window and for whom sufficient information on their fertility history is available. However, only 370 of these couples (66 percent) have complete information on all relevant explanatory variables for one year before and two years after the birth. To test for potential bias due to selection of couples with non-missing values for all the variables, I impute the missing items. All independent variables with missing information are imputed except for couples' relationship duration, which is non-normally distributed and hence cannot be imputed with this method. In addition to the dependent and independent variables, I include dummies for men's unemployment, for either partner's disability and for whether the couple is part of one of the extension samples in the model of missingness. All of these are found to correlate with a higher probability of item non-response. The sample after imputing missing values of the dependent and independent variables consists of 549 couples becoming parents for the first time.

### **Developing dependent and independent variables**

#### *The division of paid and domestic work after transition to parenthood*

Gender (in)equality in the division of housework is operationalised as the percentage of time women spend on housework relative to the total weekly housework time of both partners. Similarly, the division of paid work is measured as women's weekly hours in

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<sup>8</sup> The only difference is that when teenage mothers are included, women's relative earnings are even less significant, while men's income is more significant for the division of housework than in the sample of non-teenage couples.

<sup>9</sup> Incomplete reporting of past fertility among men, however, may be a problem in the BHPS as it is in other surveys (Vere 2008; Rendall et al. 1999).

paid work<sup>10</sup> as a percentage of the couples' total hours in paid work. The distribution of women's housework and paid work share before the year of birth is close to normal. However, both variables are not normally distributed for parents, since a large number of women do not work for pay and perform 100 per cent of the housework in the second year after the birth. I recode both variables into four categories based on quartile cut-off points. For the division of housework I distinguish between couples where women do 0-59, 60-75, 76-88, or 89-100 per cent of the housework. For paid work, the categories are: women spend no time on paid work, less than 30, 31-43, or over 43 per cent of the paid work time.

Based on the BHPS question on the division of childcare responsibility, I use only a binary distinction; whether the mother is mainly responsible for childcare or whether the father shares equally or even takes more responsibility for childcare. The 3 per cent of fathers who say that they are more responsible for childcare than their partners are combined with the shared category, since they are too few to form a separate category.

### *Measuring the explanatory variables*

#### *Earnings*

One partner's relative advantage in terms of labour market productivity over the other is measured as women's hourly gross earnings as a percentage of the sum of both partners' hourly gross earnings in the year before having the first child.<sup>11</sup> While mothers' wages are often considered an inadequate measure of their potential earnings due to part-time pay penalties (Manning and Petrongolo 2005; Washbrook 2007), this is less of a problem before motherhood when most women work full-time. There may, however, still be a risk of bias due to selection of women who plan to reduce their hours after having children into lower paid jobs or sectors. Women's pre-birth absolute hourly wage rate is considered in three categories – top quartile, middle 50 per cent and bottom quartile - to test the importance of their ability to afford paid help with domestic work instead of

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<sup>10</sup> Paid work includes all types of employment and self-employment.

<sup>11</sup> The results, however, do not change qualitatively when mothers' relative weekly income is used instead, as sometimes done in the resource-bargaining literature.

staying home themselves. Men's monthly gross earnings are included to examine this part of the income effect on the division of paid and domestic labour.

### *Gender role identities*

Despite major limitations of using gender role attitudes as a proxy for identities (for a detailed discussion see Schober 2009), they are the only adequate measures available in the BHPS. Based on six questions in the BHPS, I use factor analysis to calculate two gender role attitude factors for partnered men and women of childbearing age, respectively.<sup>12</sup> The value of 0.8 of the KMO measure provides strong evidence that these six questions are likely to represent a common underlying factor. In accordance with previous studies, men display more conservative gender role attitudes than women (see Table A2 in the Appendix). Since most of the questions focus more on women's employment, the association with the division of domestic labour is likely to be weaker.

Variability in people's gender role attitudes around parenthood, often as a consequence of the change towards a more traditional division of labour experienced by many couples, may reduce the association of women's pre-parental gender role attitudes with their postpartum division of labour (Goldscheider and Waite 1991; Goldscheider and Kaufman 1996; Burke and Cast 1997; Berrington, Hu et al. 2008). Over the two year period, 26 per cent of women show some change towards more traditional attitudes and about 15 per cent show a change in the opposite direction based on the continuous attitude scale. However, only 7 and 4 per cent of women show a large change of 1 point or more towards more traditional or more egalitarian attitudes on the five point attitude scale, respectively. For men, the changes are smaller than for women and change is equally likely in either direction. After having their first child, 19 per cent of men become more traditional in their attitudes, while 17 per cent become more egalitarian. However, only 4 per cent of both groups show large changes exceeding 1 point on the five point scale.

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<sup>12</sup> The wording of the six BHPS questions and the factor loadings are shown in the Appendix.

### *Other covariates*

Continuous variables of women's housework and paid work share before parenthood are used as predictors of routine, habit and specialised domestic skills. These are measured at least four months before the first birth in order that they reflect as far as possible the division of labour prior to the birth, before any changes have occurred. To further account for the varying demands of housework and childcare couples face, I control for the age of the newborn in months and include a dummy for whether the couples have a second child in the year following the first birth. The first child's sex is accounted for as well. Furthermore, I include couples' marital status and their cohabitation duration in years, since the division of labour has been found to get more habitual and more traditional with longer relationship duration (Schulz and Blossfeld 2006).<sup>13</sup>

I differentiate for both men and women between three levels of educational attainment: 'O-levels or less', 'A-levels or similar qualification' or 'at least one university degree'. Based on these, dummy variables representing different combinations of couples' educational achievements are created, since the effect of women's education may vary depending on whether their partners have equal, higher or lower educational qualifications<sup>14</sup>. Furthermore, I control for women's ages, and the difference in partners' ages.

Women's and men's employment sector is controlled for by differentiating between public sector employment compared to working in the private sector or being self-employed. Women are assumed to be at least somewhat dissatisfied with their job when they report satisfaction levels of 5 or less on a 7-point scale. This cut off point is chosen to separate the majority (65 percent) of women reporting a 6 or 7 suggesting they are very or fairly satisfied with their job from those with some levels of dissatisfaction, since probably not a lot of dissatisfaction is needed for mothers to reduce their work hours after birth. Previous analyses suggest a movement towards greater gender equality in

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<sup>13</sup> I also tested other controls such as ethnicity, non-linear specifications of woman's age as well as education measures broken down further but neither of these were significant.

<sup>14</sup> This simple differentiation seems appropriate since educationally heterogeneous couples are composed of exactly the same number of couples at each educational level.

housework among childless couples over the observation period, but the opposite trend is observed for childcare among couples with small children. I include the survey year as a continuous variable to reduce the risk of bias as a result of these changes over time.

## **Results**

The empirical analysis examines the significance of women's relative earnings and both partners' gender role identities for the change in couples' division of childcare, housework and paid work after becoming parents. This section first observes the extent to which men's and women's relative and absolute contributions to housework and breadwinning change after the transition to parenthood. It then highlights some interesting patterns among sub-samples. These are preliminary and need to be treated with caution, since they are based on small samples and do not control for other characteristics. As a next step, the modelling section presents more conclusive statistical results of regression models for the importance of different factors for the division of housework, paid work and childcare responsibility in couples' second year of parenthood. Finally, I examine whether the results differ if mothers' or fathers' absolute time spent on housework and paid work are used as dependent variables.

### *Descriptive illustrations*

Figure 1 gives an overview of what happens in couples' division of paid work, domestic work and childcare from two years before to three years after the transition to parenthood. Women's average housework share increases on average from 65 per cent before birth to 73 per cent in the second year after birth. Women's weekly paid work hours relative to the couple's total paid work hours drop from 47 per cent to 21 per cent in the year after birth and increase again to 30 per cent in the second year of parenthood. While in 80 per cent of the couples mothers are mainly responsible for childcare in the year following childbirth, the percentage decreases to 73 per cent in the second and third year after birth. It should be noted, however, that the measure of the division of childcare responsibility is less precise and not comparable to those of women's relative housework and paid work hours.

Figure 1: Couples' division of paid work, housework, and childcare during the transition to parenthood

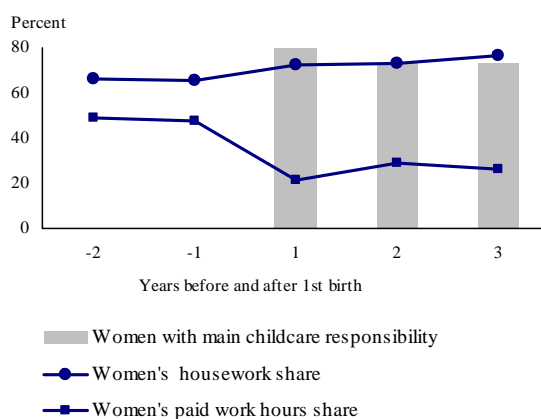
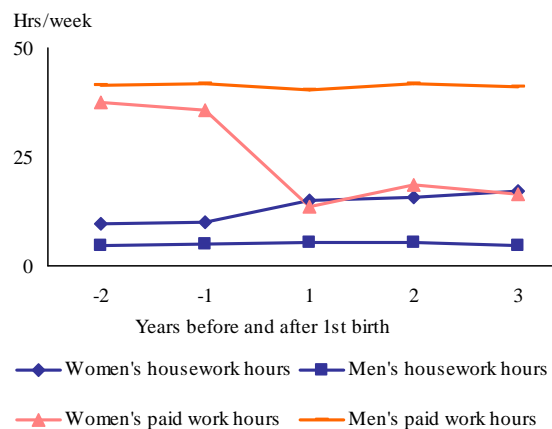


Figure 2: Mothers' and fathers' average absolute hours in paid work and housework before and after parenthood



In line with studies using other data sets (Sanchez and Thomson 1997; Gershuny 2003), the BHPS data also show that the greater inequality in both paid work and housework after becoming parents is mostly due to increases in women's time in domestic work and stark reductions in their paid work hours, as illustrated in Figure 2. By contrast, parenthood seems to increase men's time allocation for housework and reduce their paid work only slightly during the first year after becoming fathers. It can be assumed that much of the reduction in paid work is compensated by the time spent caring for the infant. However, unfortunately I do not have any information on childcare hours, which would be essential to properly represent each partner's total time use patterns during the transition to parenthood. Additional exploration of the data suggests that the slight drop in mothers' absolute and relative paid work hours in the third year is due to a greater number of couples having a second child in that year rather than prior to this time (e.g. one year after the first birth).

Contrary to the neo-classical economic argument or the resource bargaining approach, preliminary inspection of the data does not show any sign of reversed role specialisation for housework or paid work among couples where women earn more than their partners (N=160) before having children (see Figure 3). On average they start out with a more

equal division of labour, but the amount of change towards more housework and less paid work they experience is very similar to the trend for all couples. Couples where both partners hold egalitarian attitudes seem to divide housework only slightly more equally than the average before parenthood, but experience apparently less change towards a more traditional division of labour than other couples (Figure 4). The small sample size of this last group (N=54), however, has to be kept in mind. Some differences are visible also for childcare with almost half of the egalitarian couples sharing the responsibility for childcare in the second year after birth as opposed to 27 per cent among all couples and 37 among couples where women had higher wages before the birth.

Figure 3: Changes in the division of labour for women who earned more than their partner

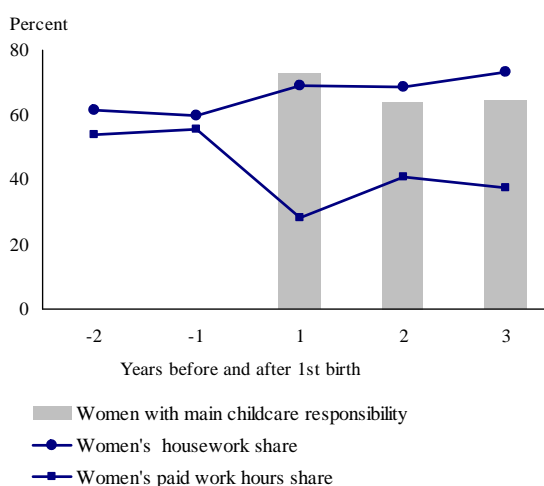
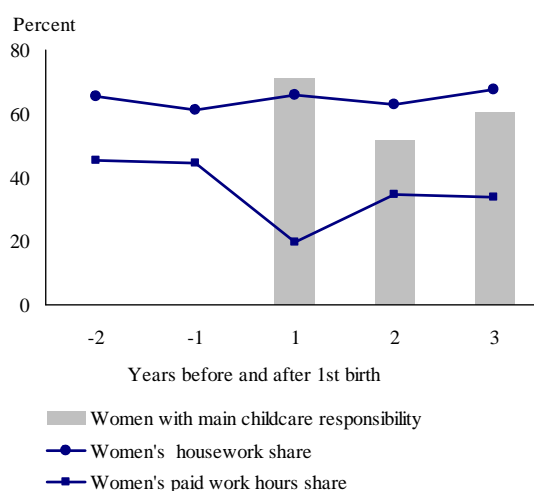


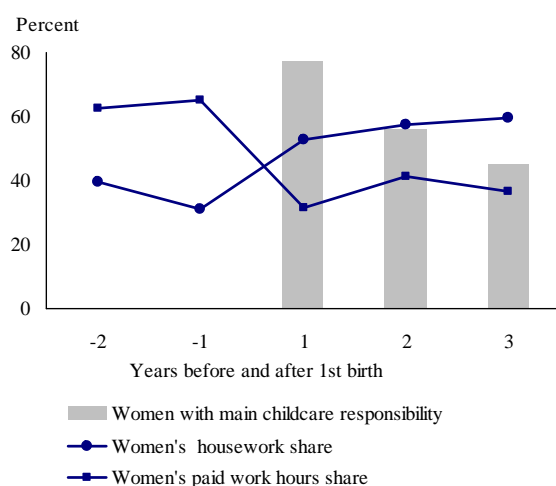
Figure 4: Changes in the division of labour within egalitarian couples



Even among the small subsample of couples where women do less housework and more paid work than their male partners before becoming parents, the division of housework and paid work becomes considerably more traditional and remains so in the second year after birth. Although the number of these 'reversed role couples' in my sample is too small (N=20) to draw conclusions, Figure 5 in combination with Figure 3 tentatively suggest that specialisation with reversed roles in terms of paid work and housework is not likely even under circumstances when it may be possible or efficient. This contradicts

rational choice models which assume cost and benefit calculations to be the main criteria for behavioural choices.

Figure 5: Changes in the division of labour for women who do less housework and more paid work before parenthood



### *Modelling strategy*

Starting from regression models of women's responsibility for childcare, share of housework, and share of paid work which include only the control variables, I added separately variables of earnings of women and men and both partners' gender role attitudes. Examination of the pseudo  $R^2$  confirms that both sets of factors contribute significantly to explaining the variation in the division of labour after couples become parents (regressions not shown). Gender role attitudes improve the model fit slightly more than women's relative earnings and other income variables. I test the three hypotheses relating to the importance of 1) women's relative earnings, 2) women's gender role identities, and 3) men's gender role identities for the change in couples' division of paid and domestic labour after becoming parents. Models 1 to 3 present the simultaneous association of both partners' gender role attitudes and wives' relative earnings with couples' parental division of childcare, housework and paid work after

controlling for the division of labour before birth. To explore whether couples' pre-parental division of housework and paid work weakens the effect of couples' relative resources or gender role attitudes and whether there is a risk of multicollinearity, I also examine a model excluding the control for couples' pre-parental division of labour (shown in Table A3 in the Appendix). A significantly stronger effect of women's relative earnings or gender role attitudes in this model would suggest that these factors are significantly associated with the division of labour after couples become parents but each effect is attenuated once the division of labour prior to having children is controlled for. Hence, they do not explain the extent of change in new parents division of labour in the home and in employment. Finally, I look at how effects of the significant pre-parental factors differ for women's and men's absolute housework and paid work hours.

*Results for couples' parental division of childcare, housework, and paid work*

As can be seen in Models 1 to 3 in Table 1, after controlling for the pre-parental division of labour, the associations between women's relative earnings and their responsibility for childcare, and shares of housework and paid work are not significant. These results lead me to reject Hypothesis 1 about the importance of relative earnings after accounting for couples' pre-parental division of labour. By contrast, women's absolute earnings are positively associated with a more equal division of housework in the second year after birth. This suggests that women's absolute wages are more significant for women's share of housework than their relative wages, pointing to the importance of outsourcing housework or lower standards. Women's and men's gender role attitudes are highly significant for the division of labour in all three areas after accounting for the pre-parental division of labour. Hypotheses 2 and 3 which relate to the importance of more egalitarian gender role identities of both partners for more equal sharing therefore cannot be rejected for couples' division of childcare, housework and paid work<sup>15</sup>.

I also observe a strong positive association between women's share of housework before birth and their housework and childcare contributions afterwards. Similarly, the more

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<sup>15</sup> I also tried interacting women's and men's gender role attitudes but the results were not different from the sum of separate variables for women and men.

women work for pay relative to their male partners before becoming mothers, the more they will contribute to breadwinning after birth. Remarkably, the division of housework before birth also accounts for some of the variation in the parental paid work division, while the reverse association of pre-parental paid work with parental housework or childcare is not significant. This suggests that established routines and increasingly specialised skills in domestic work are important factors. However, the effect cannot be interpreted as causal, since this may also capture some unobserved characteristics of women who do more housework relative to their partners before parenthood and which may select them into more traditional arrangements of paid and unpaid work after having children.

In an additional model (shown in Table A3 in the Appendix), I examine whether a significant correlation between women's relative earnings and couples' division of paid and domestic work before having children weakens the effect the former has on how couples adapt their division of labour after birth. Indeed, I find that higher relative earnings for women are significantly associated with a more equal division of paid work and close to significant for housework and childcare. Although I cannot identify the temporal ordering in these models, one possible interpretation may be that relative earnings play a role for how couples' divide household labour and breadwinning before they have children, while routine becomes more important for partners' division of labour after the transition to parenthood. Women's absolute wages show the same effect as in the first set of models which control for the pre-parental division of labour. As before, egalitarian gender role attitudes of either partner reduce women's share of housework and the likelihood of being mainly responsible for childcare, and increase women's share of paid work in the second year of motherhood.

Table 1: Logistic regression models of women's shares of childcare responsibility, housework time, and paid work time in the second year after the first birth

<i>Mothers' shares of ....</i>	<i>Model 1: Childcare responsibility<sup>a</sup></i>		<i>Model 2: Housework time<sup>b</sup></i>		<i>Model 3: Paid work time<sup>b</sup></i>	
	<i>Coeff.</i>	<i>SE</i>	<i>Coeff.</i>	<i>SE</i>	<i>Coeff.</i>	<i>SE</i>
Woman's pre-birth housework share	0.023	0.008	0.053	0.006	-0.011	0.005
Woman's -pre-birth paid work share	-0.001	0.011	-0.004	0.009	0.047	0.009
Woman's relative hourly earnings	-0.006	0.011	0.005	0.007	-0.001	0.008
Log of man's monthly earnings	0.229	0.243	0.177	0.147	-0.249	0.183
Woman's hourly wage top 25%	-0.547	0.502	-0.724	0.319	0.354	0.366
Woman's hourly wage mid 50%	-0.531	0.447	-0.714	0.262	0.245	0.288
Woman's hourly wage bottom 25% – omitted						
Woman's gender role attitudes	-0.763	0.237	-0.651	0.184	0.740	0.189
Man's gender role attitudes	-0.544	0.250	-0.643	0.201	0.473	0.222
Both less than A-Levels – omitted						
Both A-Levels or equiv.	0.268	0.409	-0.093	0.341	0.069	0.310
Both college degree	0.445	0.486	-0.220	0.393	-0.087	0.382
Man more educated	0.749	0.429	0.130	0.318	-0.477	0.329
Woman more educated	0.516	0.429	-0.008	0.349	0.062	0.324
Woman's age	-0.006	0.036	-0.056	0.029	0.032	0.027
Age difference (woman - man)	0.050	0.030	0.034	0.025	-0.019	0.025
Cohabitation duration	-0.047	0.051	0.018	0.035	0.093	0.039
Married before birth	0.450	0.323	0.028	0.282	0.201	0.259
First child age in months	-0.021	0.036	-0.024	0.026	0.013	0.025
Child sex is male	0.071	0.251	0.087	0.202	-0.141	0.187
Second child in 2nd year after first birth	0.245	0.576	0.464	0.348	-0.871	0.407
Woman employed in public sector	-0.401	0.315	0.451	0.243	0.625	0.215
Man employed in public sector	-0.757	0.343	0.007	0.282	0.425	0.274
Woman not satisfied with her job	0.429	0.273	0.352	0.197	-0.294	0.204
Scotland	-0.309	0.384	-0.529	0.291	0.416	0.302
Wales	-1.047	0.469	-0.438	0.408	0.451	0.439
Survey year	0.070	0.042	-0.028	0.031	0.016	0.030
Constant	2.923	2.261				
Ordered logit: Cut-off point 1			-3.693	1.680	4.784	1.735
Ordered logit: Cut-off point 2			-2.235	1.666	5.939	1.740
Ordered logit: Cut-off point 3			-0.951	1.668	7.389	1.752
No. of couples		549		549		549
No. of imputation cycles <sup>c</sup>		5		5		5
Pseudo R <sup>2</sup> <sup>d</sup>		0.206		0.181		0.177

Note: <sup>a</sup> Logistic regression; <sup>b</sup> Ordered logistic regression; <sup>c</sup> Missing items are imputed using chained equations. <sup>d</sup>The Pseudo R<sup>2</sup> is based on models containing the same variables but before imputing item non-response.

To check for the presence of multicollinearity between measures of women's absolute and relative earnings, I also test their significance individually. However, women's relative earnings are not statistically significant for any of the three areas whilst couples' pre-parental division of labour is also controlled. Women's absolute earnings remain significant for housework but not for the other tasks. Without controlling for the pre-parental division of housework and paid work, the significance of either measure of women's wage increases when the other is not included, but the results do not change qualitatively. This suggests that while the two earnings measures are correlated, their weak explanatory power for the change in the division of labour around birth is due to the pre-parental division of labour mediating the earnings effect, rather than multicollinearity between measures of women's absolute and relative wages.

Among the other control variables there are few significant associations. Men who are public sector employees seem to be more likely to share childcare. Women who work in the public sector before birth, however, have a higher housework share, but also do relatively more paid work after becoming mothers. For women, a low level of job satisfaction before motherhood correlates with a higher housework share afterwards. There are some regional differences with Welsh fathers being more likely to share childcare. Scottish mothers have a smaller increase in their housework share than their counterparts in England. Finally, even after controlling for all the other factors, the share of mothers who are mainly responsible for childcare seems to have increased over the observation period.

#### *Results for mothers' and fathers' absolute housework and paid work time*

As shown in Table A4 in the Appendix, I find a positive correlation between each partners' own housework hours before and after having a child, albeit stronger for women than for men. Fathers' housework hours are inversely correlated with the length of their paid work hours before birth and are larger in couples where women do more paid work before parenthood. Interestingly, controlling for either partner's time in housework and paid work, men's and women's gender role attitudes are not significant predictors of their own housework time after becoming parents. Instead, the partner's attitude seems to have

a greater effect than their own. Partners of women with earnings in the middle 50 per cent range before birth seem to do more housework than those with lower earnings. While there is no linear relationship, since partners of women with the highest earnings do not perform significantly more housework than those in the lowest quartile, it still suggests that women's earnings levels matter for the housework contributions of some men. This runs counter to the argument that women's earnings only reduce their own housework time by enabling them to outsource domestic work, or by lowering their own feelings of responsibility for doing the housework.

Men's and women's hours in the job before birth predict their own paid work time after the transition to parenthood (see Table A5 in the Appendix). However, the larger women's and men's housework time before motherhood, the lower also their paid work time afterwards. Both partners' egalitarian gender role attitudes are strongly correlated with the extent to which women return to work by the second year after birth, while there is no significant association with men's hours spent on market work after they become fathers.

Overall, the insignificance of women's relative earnings is confirmed also for women's and men's absolute hours in paid and domestic work after having a child. Women's absolute earnings are positively associated only with fathers' housework time. After controlling for either partner's pre-parental time spent on housework and paid work, men's and women's egalitarian gender role attitudes are not associated with their own housework time, but with higher housework contributions of their partners. Furthermore, both partners' attitudes are significant predictors of mothers' paid work hours.

## **Discussion**

This research has shown that, for most British couples, the division of paid and unpaid work becomes considerably more traditional during the transition to parenthood. The results suggest that British men's and women's gender role identities are more significant than partners' relative or absolute earnings for explaining women's primary childcare responsibility, the increase in women's time spent on housework and the decrease in their

paid work hours. Albeit starting from a more equal distribution before birth, even in couples where the woman earns more than her partner before parenthood, a similar amount of change towards a more traditional division of labour is experienced. I also find a strong correlation between couples' division of housework before the first birth and their arrangements of childcare, housework and paid work after becoming parents, possibly pointing to the increased significance of habit and specialised skills in domestic work.

The pre-parental division of labour and women's and men's gender role identities seem to be more important than economic considerations for couples' division of childcare and their relative as well as absolute time spent on housework and paid work in the UK. This is in line with German studies (Schulz and Blossfeld 2006; Grunow, Schulz et al. 2007), which propose that habit and routine and relatively traditional social norms play a more important role than relative earnings for changes in couples' division of housework over the course of their relationship. The detailed mechanisms behind how the previously established division of labour leads to more specialised skills, or is habitually strengthened, is unclear.

In Sanchez' and Thomson's (1997) research on married couples in the US, women's economic dependence correlates positively with women's housework hours and men's paid work hours a few years after becoming parents. In contrast, I find very limited support for economic explanations following the neo-classical economic theory or the resource-bargaining approach. After accounting for women's pre-parental shares of housework and paid work, women's larger relative earnings before parenthood are not significantly associated with the division of labour in the second year after birth. Women's absolute earnings are only negatively associated with their housework share after becoming mothers. The insignificant association of earnings with mothers' paid work participation contradicts the argument that women with higher opportunity costs in terms of forgone earnings might take less time out of paid work to do care work.

In contrast to Gupta's (2007) suggestion that higher earnings may enable women to outsource more housework, I do not find a negative effect of women's absolute earnings on mothers' own housework hours, but instead there is a positive association with fathers' housework time. Since there is only a significant difference between couples where women's hourly earnings are in the lowest quartile and those with female earnings above that level, this may point to a threshold effect. My findings suggest that mothers' absolute earnings before birth play some role in bargaining or the value attributed to women's time. However, the mechanism seems more complex than outlined by existing theories and needs further investigation.

The finding that their partner's gender role identities are more important than their own for the amount of housework women and men do after having children is interesting, as it suggests that new parents are trying to meet their partners' expectations regarding the division of labour in the family sphere. Their own gender role identities, however, are as important as their partners' for mothers' paid work participation. These results differ from the findings by Deutsch et al. (1993) and Sanchez and Thomson (1997). Both studies observe at most a weak association between gender role attitudes and housework or paid work for couples in the US. The results for childcare are, however, consistent with those of Deutsch et al. (1993) who observe that men's pre-parental egalitarian gender role attitudes are positively associated with equal sharing of childcare responsibility. In addition, I find that women's own gender role attitudes and the pre-parental division of housework are significant predictors of shared childcare.

It is unlikely that the differences in the results between the UK and the US are affected by research design, (such as the time that passed since first birth), since Deutsch et al.'s (1993) study was carried out in the first year of parenthood and Sanchez and Thomson's (1997) at varying times during the first few years after couples became parents and both report similar results. Since my results hold even if measures of absolute rather than relative housework and paid work time are used, the country difference is also unlikely to be due to measurement variations. Instead the difference with the American studies may be due to institutional differences in policies around parenthood, such as shorter, but less

gendered leave entitlements around a birth and the greater availability and acceptance of formal childcare in the US.

### **Context matters: Insights from a US-UK comparison**

How differences in the policy context after childbirth may directly and indirectly play a role can be illustrated based on these results for the US and the UK. The UK and the US context are similar in their ideals of mother or family care for young children. They have long shared an emphasis on market-based childcare provision especially in the form of childminders (Melhuish and Moss 1991; Fincher 1996). However, maternity leave provisions and part-time work opportunities differ markedly. During the observation period between 1994 and 2005, statutory maternity pay entitlements of British mothers varied. Between 1994 and 2003, most women were eligible for 26 weeks leave, of which at least 18 weeks were paid<sup>16</sup>. This increased to 52 and 26 weeks, respectively, in 2003 (Kamerman and Kahn 1997; Gornick and Meyers 2003; Crompton 2006). The regulations of leave reimbursement and employment criteria for entitlement varied slightly over time; companies' top-ups also created additional differences in entitlements. While variations based on employer provision are even greater in the US, women have been (and still are) entitled to much shorter maternity leave from 1988 to 1994, which is the observation period in Sanchez and Thompson's study. Usually the provision is based on disability leave, which for most women amounted to three months or less (Sainsbury 1996; Kamerman and Kahn 1997; Gornick and Meyers 2003).

In addition to gendered leave policies, the UK policy context is characterised by a scarcity of childcare that fits mothers' ideals of good quality care for children under three years (Himmelweit and Sigala 2003; Kremer 2005) and widespread availability and acceptance of part-time employment for women. Underlying these policies for new parents is an assumption that at least for the first six months, and often for the first few years, mothers will reduce their employment to be the primary caregiver for their children. In the US, part-time employment has been less widespread and market-based

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<sup>16</sup> Eligibility for income-related or flat rate reimbursement varied depending on the duration of employment.

childcare, even if often not of good quality, has been more readily available (Melhuish and Moss 1991; Fincher 1996; Sainsbury 1999; Gornick and Meyers 2003). As a result, mothers have been more likely either to leave their jobs or return to work full-time relatively quickly. Women with lower incomes relative to their husbands may therefore show a larger reduction in paid work as long as their husbands have full-time jobs.

One way of looking at these policy differences is that longer maternity leave entitlements and arrangements to reduce working hours give many British mothers some option of caring for their children themselves. However, the difference between mothers' and fathers' entitlements is considerably larger in the UK compared to the US. Many parents of young children in the UK have a preference for family care, by mothers, fathers, or grandmothers (Thomson 1995; Hoxhallari, Conolly et al. 2007). Since fathers so far are only entitled to a very short period of leave after the birth, couples are likely to base their division of labour decisions less on their earnings even if a woman were to earn relatively more than her partner. It would be considerably more difficult in terms of financial and job entitlements as well as social acceptance for the father to stay home with the child. As families where women's earnings exceed those of their partners are most frequently observed among couples with lower levels of household income and education (Harkness 2003), the lack of affordable and socially acceptable forms of childcare may limit women's quick return to full-time work in these families. By contrast, for the woman to stay home with the child for a significant period of time is financially even more difficult in such households in the US and returning to work part-time is often not an option. This is also in line with the Sanchez and Thompson's (1997) finding that only in couples where both partners hold traditional gender role attitudes, mothers reduce their paid work hours significantly more than in all other groups.

These are just some examples within a wide spectrum which illustrate what Singley and Hynes (2005) find in their qualitative study on new parents in New York. For couples that did not have strong preferences regarding the division of childcare and paid work, the availability of provision, often by the work-place, shaped their work-care balance strategies (Singley and Hynes 2005). In some cases, gendered differences in workplace

entitlements may also be used as a justification for dividing paid work and care in a quite traditional way. Once the early phase of parenthood has passed, Singley and Hynes (2005) still find that mothers make more use of flexible work arrangements even if they were also available to their male partners. A similar pattern is visible in the UK. Since 2003 British fathers of pre-school children<sup>17</sup> also have the right to request flexible working but use it significantly less than mothers (O'Brien and Shemilt 2003; Bell and Bryson 2005). Although the percentage of men who adjust their hours in employment in some way to fatherhood has increased (Bell and Bryson 2005; Thompson, Vinter et al. 2005), concerns about feasibility of family-friendly working arrangement in their jobs and consequences for their career are widespread among fathers (Stevens, Brown et al. 2004). This suggests that availability of family-friendly provision is only a first step, since people's assumptions about social acceptance remain a barrier to take-up.

UK policies around parenthood may provide couples with more choice than in the US. However, it is important to note that the greater importance of gender role identities compared to earnings cannot be simply understood as the result of unconstrained choice. Some women in the UK probably want to be the one mainly responsible for housework and childcare. For others, alternative options may not be financially feasible, or they may feel it is not socially acceptable or is harmful for their children's wellbeing if they use their earnings to bargain for a more equal division of paid and domestic work. This is particularly likely given that fathers' limited leave rights and long working hours would imply more outsourcing of childcare to external providers if the mother did less childrearing and domestic work.

## **Conclusion**

To further explore these different results and the interdependence with individual entitlements and employer provision of family-friendly arrangements, more detailed information on comparable samples in the two countries will be required. One major limitation of this investigation is that I was not able to consider the individual eligibility

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<sup>17</sup> The right to request flexible working has been extended to all parents irrespective of their child's age in 2009.

and length of mothers' maternity leave or breastfeeding patterns, both of which are likely to play an important role in determining the level of responsibility borne by each parent for the care of the infant and probably also for determining their hours of housework. Information on the length of maternity leave mothers take is available only for a small subsample of mothers (N=145) who have complete monthly employment histories for the respective year. A preliminary exploration of the importance of the length of maternity or family leave taken by first-time mothers during the first year after birth suggests a significant positive correlation with mothers' housework share and a negative association with paid work in the second year after birth. The results for the other covariates, however, are not affected by including maternity leave duration. Due to the small sample size and endogeneity issues, these models are not shown. The strong correlation between maternity/family leave length and couples' subsequent division of domestic labour calls for further research which looks into selection mechanisms into maternity leave and the longer-term consequences of maternity/family leave duration for different groups of couples.

My only proxy for other structural differences is women's and men's employment sector. Women who are employed in the public sector on average do more paid work after birth. Male public sector employees seem to do less housework even though they are more likely to share childcare. With the available data it cannot be established whether these differences are due to self-selection into certain jobs or structural differences regarding the family-friendliness of work-places or job positions. Methods controlling for some forms of selection and more detailed information on employer provision and women's and men's take-up of family-friendly benefits such as childcare leave, flexible working hours and day-care subsidies would be needed to draw well-founded conclusions. Furthermore, the available data did not allow the inclusion of other external influences such as support from relatives or availability and affordability of day-care.<sup>18</sup>

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<sup>18</sup> The questions on help with childcare available in the BHPS was asked conditional on mothers' employment and therefore may have caused endogeneity problems with the dependent variables, since the choice of employment is not independent of day-care availability.

There are also some methodological limitations of this study. Unidirectional regression equations only allow me to explore parallel effects of pre-parental gender role attitudes and earnings on parents' division of childcare, housework and paid work after becoming parents, hence are not ideal for considering the interdependence of the three adaptation processes e.g. in terms of employment effects on the division of domestic work and childcare over several years after birth or reversely. Ideally future research should attempt to also consider the mutual dependence of these decisions over time.

Despite these limitations, this analysis provides the first evidence of the importance of both partners' earnings and gender role identities for the increase in inequality in the division of domestic and paid work during British couples' transition to parenthood. The results challenge conventional economic models of the division of labour within families. The greater significance of both partners' gender role identities over earnings for predicting changes in couples paid and domestic work arrangements around a birth provides support for the benefit of theoretical models which explicitly consider information regarding the sort of work-family balance people want or think is right for themselves, rather than focussing just on economic circumstances. Based on the comparison of results from the UK and the US, it seems that another useful extension of economic models to explain some of these gendered adaptation processes around parenthood would be to explicitly take into account differences in entitlements to family policies, which affect economic costs and benefits for men and women and the family as a whole.

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## Appendix

The gender role attitude factors are calculated based on the following six questions in the BHPS:

1. Do you personally agree or disagree ...A pre school child is likely to suffer if his or her mother works.
2. Do you personally agree or disagree ...All in all, family life suffers when the woman has a full time job
3. Do you personally agree or disagree ...A woman and her family would all be happier if she goes out to work
4. Do you personally agree or disagree ...Both the husband and wife should contribute to the household income
5. Do you personally agree or disagree ...Having a fulltime job is the best way for a woman to be an independent person
6. Do you personally agree or disagree .....A husband's jobs is to earn money; a wife's job is to look after the home and family

Table A1: Factor loadings of a principal components analysis of BHPS gender role attitude questions separately for partnered women and men

<i>Factor loadings</i>	<i>Women</i>	<i>Men</i>
GRA Question 1	0.714	0.760
GRA Question 2	0.783	0.820
GRA Question 3	0.648	0.764
GRA Question 4	0.621	0.735
GRA Question 5	0.569	0.688
GRA Question 6	0.660	0.734
Kaiser-Meyer-Olkin Measure	0.799	0.846

Note: Based on a sample of all women and men living in couples where the woman is between 20 and 45 years, BHPS 1992-2005.

Table A2: Descriptive statistics for couples becoming parents

<i>Descriptives in the second year after the first birth</i>	<i>Mean/ Per cent</i>	<i>Std. Dev.</i>
Woman's share of housework hours	73.48	19.46
Woman mainly responsible for childcare	72.93	
Woman's paid work hours share	29.15	26.26
<i>Descriptives in the year before the first birth</i>	<i>Mean/ Per cent</i>	<i>Std. Dev.</i>
Woman's share of housework hours	65.50	20.17
Woman's paid work hours share	47.46	19.19
Woman's hourly earnings relative to couple total earnings	49.03	21.57
Man' monthly gross earnings	1288.45	845.57
Woman's hourly gross wage	5.41	2.89
Woman's gender role attitude factor	3.42	0.57
Man's gender role attitude factor	3.27	0.56
Education: both high	13.58	
Education: both medium	24.28	
Education: both low	11.85	
Education: man more educated	26.20	
Education: Woman more educated	22.75	
Woman's age	30.37	4.58
Age difference (man-woman)	2.40	4.53
Married	72.58	
Cohabitation duration in years	3.85	3.17
Age of first child in months	18.62	3.64
Child is male	54.28	
Couple has second child in second year after first birth	8.53	
Woman employed in public sector	27.94	
Man employed in public sector	12.85	
Woman not satisfied with job	32.86	
England	83.10	
Scotland	10.87	
Wales	6.04	

Table A3: Logistic regression models of women's share of childcare responsibility, housework time and paid work time in the second year after first birth

<i>Mothers' share of ....</i>	<i>Model 4: Childcare responsibility<sup>a</sup></i>		<i>Model 5: Housework time<sup>b</sup></i>		<i>Model 6: Paid work time<sup>b</sup></i>	
	<i>Coeff</i>	<i>SE</i>	<i>Coeff</i>	<i>SE</i>	<i>Coeff</i>	<i>SE</i>
Woman's relative hourly earnings	-0.011	0.007	-0.008	0.006	0.031	0.006
Log of man's monthly earnings	0.229	0.235	0.163	0.153	0.072	0.212
Woman's hourly wage top 25%	-0.535	0.505	-0.625	0.322	0.161	0.356
Woman's hourly wage mid 50%	-0.554	0.439	-0.703	0.258	0.236	0.262
Woman's hourly wage bottom 25% - omitted						
Woman' gender role attitudes	-0.831	0.233	-0.638	0.182	0.740	0.189
Man's gender role attitudes	-0.653	0.229	-0.844	0.174	0.408	0.221
Both less than A-Levels - omitted						
Both A-Levels or equiv.	0.184	0.392	-0.294	0.316	0.087	0.306
Both college degree	0.192	0.481	-0.776	0.357	-0.023	0.366
Man more educated	0.630	0.427	-0.254	0.298	-0.352	0.328
Woman more educated	0.481	0.416	-0.225	0.310	-0.076	0.308
Woman's age	-0.007	0.035	-0.052	0.026	0.033	0.027
Age difference (woman - man)	0.055	0.029	0.040	0.023	-0.011	0.027
Cohabitation duration	-0.025	0.047	0.061	0.034	0.072	0.038
Married before birth	0.446	0.312	-0.004	0.300	0.105	0.261
First child age in months	-0.023	0.035	-0.023	0.024	0.022	0.026
Child sex is male	0.161	0.246	0.213	0.179	-0.143	0.181
Second child in 2nd year after first birth	0.245	0.548	0.260	0.333	-0.775	0.412
Woman employed in public sector	-0.385	0.307	0.378	0.234	0.585	0.215
Man employed in public sector	-0.825	0.348	-0.235	0.282	0.534	0.268
Woman not satisfied with her job	0.365	0.265	0.186	0.189	-0.219	0.200
Scotland	-0.231	0.381	-0.203	0.279	0.249	0.296
Wales	-0.956	0.463	-0.210	0.384	0.629	0.399
Survey year	0.066	0.041	-0.028	0.029	0.029	0.029
Constant	5.260	2.148				
Ordered logit: Cut-off 1			-7.993	1.595	7.069	1.920
Ordered logit: Cut-off 2			-6.756	1.577	8.161	1.933
Ordered logit: Cut-off 3			-5.678	1.579	9.511	1.962
No. of couples		549		549		549
Pseudo R <sup>2</sup> <sup>c</sup>		0.180		0.092		0.139
No. of imputation cycles <sup>d</sup>		5		5		5

Note: <sup>a</sup> Logistic regression; <sup>b</sup> Ordered logistic regression; <sup>c</sup> The Pseudo R<sup>2</sup> is based on models containing the same variables but before imputing item non-response. <sup>d</sup> Missing items are imputed using chained equations.

Table A4: Regression models of total housework time for women and men in the second year after the first birth

<i>Housework hours of..</i>	<i>Model 7: Mothers<sup>a</sup></i>		<i>Model 8: Fathers<sup>b</sup></i>	
	<i>Coeff.</i>	<i>SE</i>	<i>Coeff.</i>	<i>SE</i>
Woman's pre-birth housework hours	0.569	0.077	-0.024	0.018
Man's pre-birth housework hours	-0.099	0.100	0.209	0.033
Woman's -pre-birth paid work hours	0.028	0.041	0.016	0.009
Man's pre-birth paid work hours	0.005	0.030	-0.011	0.009
Woman's relative hourly earnings	0.000	0.030	0.002	0.007
Log of man's monthly earnings	0.469	0.612	0.088	0.155
Woman's hourly wage top 25%	-2.035	1.407	0.206	0.323
Woman's hourly wage mid 50%	-0.829	1.101	0.423	0.258
Woman's hourly wage bottom 25% - omitted				
Woman's gender role attitudes	-0.638	0.699	0.331	0.186
Man's gender role attitudes	-1.949	0.701	0.189	0.228
Both less than A-Levels - omitted				
Both A-Levels or equiv.	-0.525	1.252	0.108	0.320
Both college degree	-0.175	1.658	0.009	0.386
Man more educated	0.996	1.265	0.322	0.298
Woman more educated	-0.455	1.257	-0.054	0.318
Woman's age	-0.104	0.111	0.046	0.027
Age difference (woman - man)	-0.017	0.094	-0.054	0.028
Cohabitation duration	-0.093	0.138	-0.004	0.035
Married before birth	-0.008	0.984	-0.095	0.233
First child age in months	-0.054	0.109	0.028	0.025
First child is male	0.824	0.737	0.058	0.190
Second child in 2nd year after first birth	3.586	1.383	0.189	0.337
Woman employed in public sector	-0.446	0.942	-0.130	0.224
Man employed in public sector	-0.886	1.176	-0.352	0.284
Woman not satisfied with her job	1.330	0.852	-0.214	0.211
Scotland	-1.055	1.191	0.476	0.307
Wales	-0.147	1.574	0.243	0.373
Survey year	-0.288	0.133	0.016	0.030
Constant	21.651	6.590		
Ordered logit: Cut-off 1			3.855	1.525
Ordered logit: Cut-off 2			5.899	1.545
Ordered logit: Cut-off 3			7.263	1.571
No. of couples		549		549
Adj. R <sup>2</sup> / Pseudo R <sup>2</sup> <sup>c</sup>		0.230		0.113
No. of imputation cycles <sup>d</sup>		5		5

Note: <sup>a</sup> OLS regression; <sup>b</sup> Ordered logistic regression; <sup>c</sup> The Adjusted R<sup>2</sup> for the OLS regression and the Pseudo R<sup>2</sup> for the logistic regression are based on models containing the same variables but before imputing item non-response. <sup>d</sup> Missing items are imputed using chained equations.

Table A5: Regression models of total paid work time for women and men in the second year after the first birth

<i>Paid work hours of ...</i>	<i>Model 9: Mothers<sup>a</sup></i>		<i>Model 10: Fathers<sup>b</sup></i>	
	<i>Coeff.</i>	<i>SE</i>	<i>Coeff.</i>	<i>SE</i>
Woman's pre-birth housework hours	-0.041	0.018	0.007	0.133
Man's pre-birth housework hours	0.041	0.024	-0.206	0.195
Woman's -pre-birth paid work hours	0.044	0.011	0.065	0.078
Man's pre-birth paid work hours	-0.003	0.007	0.499	0.050
Woman's relative hourly earnings	0.008	0.008	-0.063	0.055
Log of man's monthly earnings	-0.205	0.170	0.875	1.520
Woman's hourly wage top 25 %	0.223	0.439	-2.028	2.396
Woman's hourly wage mid 50 %	0.297	0.343	0.827	1.867
Woman's hourly wage bottom 25%- omitted				
Woman' gender role attitudes	0.785	0.202	1.165	1.285
Man's gender role attitudes	0.406	0.219	-1.125	1.360
Both less than A-Levels - omitted				
Both A-Levels or equiv.	0.032	0.324	-0.660	2.394
Both college degree	-0.208	0.389	0.652	2.858
Man more educated	-0.594	0.309	0.359	2.326
Woman more educated	-0.158	0.319	0.884	2.373
Woman's age	0.025	0.027	-0.144	0.198
Age difference (woman - man)	-0.018	0.023	0.008	0.180
Cohabitation duration	0.078	0.035	-0.576	0.246
Married before birth	0.044	0.256	-2.182	1.616
First child age in months	0.029	0.025	0.320	0.188
Child is male	-0.087	0.183	-0.231	1.416
Second child in 2nd year after first birth	-1.234	0.430	-5.792	2.500
Woman employed in public sector	0.552	0.219	1.784	1.681
Man employed in public sector	0.343	0.270	0.137	2.329
Woman not satisfied with her job	-0.366	0.200	1.578	1.556
Scotland	0.547	0.294	1.159	2.129
Wales	0.462	0.401	0.965	2.997
Survey year	0.008	0.032	-0.320	0.222
Constant			22.029	12.085
Ordered logit: cut-off 1	5.129	1.795		
Ordered logit: cut-off 2	6.251	1.808		
Ordered logit: cut-off 3	7.655	1.833		
No. of couples		549		549
Adj. R <sup>2</sup> / Pseudo R <sup>2</sup> <sup>c</sup>		0.171		0.211
No. of imputation cycles <sup>d</sup>		5		5

Note: <sup>a</sup> Ordered logistic regression; <sup>b</sup> OLS regression; <sup>c</sup> The Pseudo R<sup>2</sup> is based on models containing the same variables but before imputing item non-response; <sup>d</sup> Missing items are imputed using chained equations.