Is Gender Inequity in Time Allocation Associated with Low Fertility?

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This paper is part of a project exploring the question of whether (and how) gender equity matters to fertility outcomes. The project will address the question from both a national and a household perspective, because policy and cultural context are important in shaping options and opportunities, but fertility is also a result of individual and family decision-making. This paper first discusses how policy settings, gender equity and fertility may be related. It builds on previous research findings that suggest institutional structures that promote gender inequity in market opportunities may be implicated in fertility decline, to consider the possibility that the division of labour within the domestic sphere may also be an important factor. Using the Multinational Time Use Study (MTUS), it conducts a descriptive cross-sectional comparison of the impact of children on adult time in seven countries with a range of policy approaches to work and family and different national fertility rates. Then the paper conducts an example case study of how gender equity may impact upon fertility outcomes at a household level within one country. It analyses the longitudinal survey Household Income and Labour Dynamics Australia (HILDA), to see if gender equity in housework shares within Australian households is associated with greater likelihood of second births.

Background

Birth rates are dropping, to the point that the OECD identifies fertility decline as one of the most serious contemporary challenges facing western governments (Sleebos 2003). No single cause for this trend has been identified. Explanations arise variously from economic, social, cultural, political and temporal factors (Bryson et al. 1999; Davis 1997; de Vaus 2002; Easterlin 1973; Hantrais 1997; Hrdy 1999; Lesthaeghe 1998; McDonald 2001; Quesnel-Valee and Morgan 2002; Sleebos 2003; Weston and Qu 2001), although it is usually associated, at least implicitly, with the economic emergence of women. The large-scale movement of women into the paid workforce, arguably the most profound and far reaching social development of the last century, has led to a pressing social challenge: managing the competing demands of work and family (Crompton 2006; Drago and Kashian 2003; Gornick and Meyers 2003; Lewis and Giullari 2005; Pocock 2003b). Until recently, mothering and market work were seen as incompatible, and many viewed this incompatibility as centrally implicated in fertility decline (Stycos and Weller 1967).

But the issue is not straightforward. Economic theory predicts a negative correlation between female work force participation and fertility, which will be stronger the higher the maternal wage (Becker 1981). In the middle of the 20th century, this theory was borne out empirically, with fertility being negatively associated with female work force participation cross-nationally (Mincer 1985). However, this is no longer the case. Since the 1980s the relationship between national fertility rates and female labour force participation has reversed, and they are now positively correlated. Countries such as the US, Denmark and Finland, in which relatively high numbers of mothers are in the paid work force, have higher fertility rates than countries in which fewer mothers do market work (Ahn and Mira 2002; Brewster and Rindfuss 2000; Chesnais 1996; Engelhardt and Prskawetz 2002; McDonald 2000b). Now it is argued that the more difficult it is for women to combine family responsibilities with paid work, the fewer children they will have, and that this pertains particularly when "institutional incoherence" creates a mismatch between the opportunities of childless women and mothers (McDonald 2000b). That is, in countries where women can access education and market work on relatively equal terms with men, but are not able to readily participate after motherhood, fewer children will be born. The lesson most widely taken from this is that social policies that

facilitate mothers' continued work force participation are those most likely to encourage fertility (de Laat and Sevilla Sanz 2004; McDonald 2006).

However, fertility decisions are a complicated mix of the personal and the social, and facilitating female work force participation may be only a partial solution. Households require unpaid domestic labour to be done in addition to market work, and changes in the sphere of paid work have been more radical than changes in the home (Baxter 2005; Boje 1996; Charlesworth et al. 2002; Gray and Chapman 2001; Pocock 2003b). Even when both marital partners work full time, women continue to perform over twice as much household unpaid labour as men (Baxter et al. 2005; Bianchi et al. 2006). In many countries the domestic labour gap is exacerbated by the presence of children and growing equality in the workplace may sit alongside continued inequality at home (Craig 2007; Crompton 2006; Gornick and Meyers 2003). This suggests that in addition to market work opportunities, the direct time and labour costs of children within households may also matter to fertility. This possibility is supported by population-level trends in Southern European countries, which were the first to reach the lowest-low fertility range, defined as a total fertility rate (TFR) at or below 1.3 (Kohler et al. 2002). In 2000 Spain and Italy had TFRs of 1.23 and 1.24 respectively (OECD 2002). But they do not have institutional incoherence in that they have both low fertility *and* low female work force participation (OECD 2002). They *do* have an extremely inequitable division of domestic labour. Two early studies suggest a positive relationship between male contribution to domestic work and TFR (Craig 2006; de Laat and Sevilla Sanz 2004). The implication is that policy settings and social environment have consequences not only for women's opportunities in the public sphere, but also the private, because "fertility decline is a result of not just individual decision-making, but of wider shifts in social relationships and patterns of interdependence" (Crompton 2006: 166).

So a fuller understanding of fertility decline would require, in addition to investigation of women's public opportunities, investigation of what occurs in the private sphere, but in a way that acknowledges the influence of institutional setting and social policy environment. The most common way of testing the effects of alternative policy-settings is through comparative international research, which has been termed a "natural experiment" on the effects of policy variation (Castles 2002). An established method has been to group countries into policy regimes, or clusters of countries, that have similar policy constellations. Esping-Andersen (1990) pioneered this approach, dividing westerns states into a three-way grouping, using de-commodification, (the degree to which social support can allow people to live independent of market work force participation) as a major distinguishing characteristic. However, there was extensive feminist criticism of relying on de-commodification as a criterion, because it underplayed family inputs to the provision of welfare, and is profoundly gender-blind. It failed to recognise that an essential dimension of social risk for women is the freedom to provide or to not provide caring services (Arts and Gelissen 2002; Lewis 1997; O'Connor et al. 1999; Orloff 1993; Sainsbury 1996; Siaroff 1994; Taylor-Gooby 1991; Trifiletti 1999). Several writers have developed typologies that build on Esping-Andersen's, but are more gender-sensitive (see Arts and Gelissen 2002 for an overview).

For example, Korpi (2000) suggests an approach that first acknowledges the relative stress on unpaid versus paid work. The initital policy choice is whether to leave gender issues to family and markets or whether the state should take an active role, and the second policy choice is whether to promote specialisation or task sharing. Using these criteria, he identifies four policy models – dual-earner support, general family support divided into two subgroups, and market-oriented. Dual earner support countries (exemplified by Scandinavian countries) explicitly promote women's independence from family obligations. Policy is aimed at

encouraging the sharing of childcare and household tasks, and supporting gender equality in workforce participation. General family support countries regard the family as the primary source of care and welfare, and public policy supports the 'bread-winner-husband-stay-at-home-mother' family model. European countries exemplify this approach. Korpi allows for a separate sub-category of southern European countries, because they rely even more heavily on family resources; policies neither facilitate women's workforce participation, nor generously subsidise home care. Market oriented regimes are theoretically gender blind, leaving family and childcare issues to private arrangement in the market. Anglo countries, including Australia, comprise this grouping. Welfare regime classification remains a debated concept[1], but Korpi's approach is useful in that it does recognise that policy will influence patterns of care as well as of market work.

However, even with a typology that theoretically acknowledges family care, it is difficult to investigate the private sphere because of a lack of suitable data. Unsurprisingly, therefore, analyses that attempt to use regime classification to investigate the impact of policies on the division of domestic labour constitute only a tiny proportion of the very large comparative research literature. However, they are beginning to emerge. Geist (2005) found that policy regimes have an additional additive effect to the three main factors thought to explain the gender division of labour: gender ideology, relative resources and time availability (Baxter 2000; Hook 2006). She finds the division of housework is least equal in conservative regimes, and takes this as evidence that policy structures shape interactions between men and women in intimate relationships (Geist 2005). Similarly, Fuwa (2004) found macro-level factors to be as important in the division of housework as individual characteristics.

Both these studies analysed data from the 1994 International Social Survey Program (ISSP), which has the advantage of including attitudinal variables, but the disadvantage that estimates of time spent in activities are made by subjective retrospective recall. Time use diary data offer a more reliable quantification of how people allocate their labour resources to paid work and family care. Studies using this method to investigate the effect of welfare regime on domestic labour have had mixed results. Research using the MTUS (described below) did not find standard welfare regime groupings to be systematically related to time spent in unpaid work. There were more consistent regime effects on time in paid work (Gershuny and Sullivan 2003; Hook 2006). In her finer analyses, Hook found that particular policies did have an effect on unpaid work, which suggests that to investigate this issue broad regime categories may be less useful than isolating specific measures (Hook 2005; Hook 2006).

[1] Some argue that it may be more useful to examine empirical variations along separate dimensions than to try and identify families of nations Boje, Thomas. 1996. "Welfare State Models in Comparative Research: Do the Models Describe the Reality?" in *Comparative Welfare Systems. The Scandinavian Model in a Period of Change*, edited by Bent Greve. New York, N.Y.: St. Martin's Press, Sainsbury, Diane. 1996. *Gender, Equality and Welfare States*. Cambridge: Cambridge University Press, Williams, Fiona. 2006. "Intersecting issues of gender, 'race', and migration in the changing care regimes of UK, Sweden and Spain." in *Symposium on Gender and Social Policy*. University of Sydney.. Categories are ideal types only. No country will unambiguously exemplify what is essentially a heuristic model, and countries in any one grouping are in some ways different Avdeyeva, Olga. 2006. "In support of mothers' employment: limits to policy convergence in the EU?." *International Journal of Social Welfare* 15: 37-49, Goodin, R.E., B. Heady, R. Muffels, and H-J. Dirven. 1999. *The Real Worlds of Welfare Capitalism*. Cambridge: Cambridge University Press, Therborn, Goran. 1993. "The Politics of Childhood: The Rights of Children in Modern Times." in *Families of Nations*, edited by Francis G. Castles. Aldershot: Dartmouth Publishing Company Ltd.. Any comparison will be very broad-brush. The picture is further complicated by the fact that welfare states are undergoing change, and the boundaries between regime types are blurring (Andinach 2002; Hochschild and Ehrenreich 2002; Thevenon 2003).

Research into the connection between policy settings and fertility rates is much more established than that between policy settings and domestic labour, with the relationship between welfare regimes and national TFR strongly argued. Foe example, McDonald (2006), has categorised countries on this basis (see Table 1).

Table 1: Country grouping by fertility rate

Total Fertility Rate > 1.5	**Total Fertility Rate < 1.5**
Scandinavian	Southern Europe
Western Europe (French-Dutch speaking)	Western Europe (German-speaking)
Anglo	East Asia

Source Peter McDonald, 2006

However, the associations are loose, and the interdependence between specific family policies and birth decisions is very hard to disentangle (Ronsen and Skrede 2006). Any broad categorisation is likely to miss country-specific aspects that may be important for fertility and female employment, which further impairs investigations that try to link family-policy patterns to indicators like TFR and female labour force participation rate (Neyer 2006). Also difficult is separating out personal from institutional influences. For example, a pivotal issue within fertility decline, and one where the interplay of public influence and private decision-making may be particularly salient, is parity decisions (going from no children to one, from one to two and so on). This is important at a population level, because people's willingness to go on from having one child to having subsequent children may make the difference between adequate maintenance of the birth rate and a baby bust (Kippen 2001; McDonald 2004a). At the same time, parity decisions are intensely personal, and the reasons for having one child may be different from having subsequent children (Parr 2006). There is arguably one threshold to have any children and another threshold to have each extra child.

This has led to research interest in second births. Informed by the idea that institutional gender regime and the associated (in)compatability between work and family life may influence parity decisions, Köppen (2006) found that educated women were more likely to have a second child in France, where policies specifically aim to reconcile work and family, than in Germany, where they do not. Oláh (2003) analysed data from Sweden and Hungary to test the proposition that the differences between the countries in relation to gender equity policies and institutional supports for female work force participation would increase the likelihood of second births. She did conclude that institutional support for gender equity will encourage more children, and also found that women were more likely to have a second child if fathers took parental leave with the first (Oláh 2003). Evidence is also emerging in family-level analyses that the division of domestic labour, not just the division of paid labour, is implicated in fertility decisions. Cooke (2004) analysed German data to find that husbands' relative domestic contribution increased the likelihood of a second birth, and Torr and Short (2004), using US data, found a relationship between the gender division of housework, fertility and gender ideology, which suggested that both the most modern and the most traditional housework arrangements are positively associated with second births. Torr and Short argue that their findings underscore the need to incorporate family context, including gender equity, into explanations for fertility change.

So one body of previous research suggests links between institutional equity and fertility (Köppen 2006; McDonald 2006; Oláh 2003) another has found links between policy settings and domestic labour (Fuwa 2004; Geist 2005; Hook 2005; Hook 2006), and a third has found links between the division of domestic labour and second births (Cooke 2004; Torr and Short 2004). The project of which this paper is a starting point aims to draw policy settings, domestic labour and fertility together. This would ideally involve following actual couples in different policy settings over time. "Longitudinal, individual level analyses which capture the impact of macro-level developments on micro-level behaviour are the pre-requisite to arrive at proper insights into the short-term and long-term effects of family policies on fertility" (Neyer 2006: 13). Unfortunately no such detailed longitudinal cross-national data sets are currently available.

Therefore, this paper approaches the issue from two angles. It begins with an overview of how being a parent affects time use in seven countries, to see if there are broad associations between policy environment, time allocation to market and domestic labour, and national birth rates. Due to data availability issues the analysis is at this stage descriptive only, but will form the basis of more complex analyses in future research. Then, this paper gives a case study of the relationship between intra-household equity in housework and the likelihood of a second birth in Australia. This latter analysis is longitudinal, and includes attitudinal and demographic information on actual couples within households.

Usually grouped with the US, the UK, Canada and New Zealand as a market-oriented (or liberal) welfare state, Australia is an interesting country in which to investigate the relationship between births and gender equity because it exhibits considerable "institutional incoherence" (McDonald 2000a). There is similar educational attainment by sex (ABS 2005), and equal opportunity in the workplace is mandated (O'Connor et al. 1999), but there is relatively little institutional and policy support for women who wish to combine work and family (Pocock 2003b). There is no statutory paid maternity leave and a parenting payment to families in which mothers do no paid work operates as a disincentive to them engaging in market work (McDonald 2004b). Extra-household childcare arrangements are highly regulated and the standard is comparatively high (Brennan 1998; Cass 1994) but it is expensive, and places are insufficient, particularly for under-three year olds (Castles 2004; Pocock 2003a). In 2005, 188,000 Australians wanted to work more hours, but were unable to access affordable childcare (ABS 2006a). Also, more women withdraw from the workforce upon becoming mothers in Australia than the OECD average, and a comparatively high number of the mothers who do work do so part time (Campbell and Charlesworth 2004; OECD 2005a). The predominant pattern for households with children is therefore the one-and-a-half earner family model (Crompton 1999). Hours of full time employees are among the highest in the OECD (OECD 2005b). Historically the gender pay gap was relatively narrow, but it has increased in recent years. There are very strong effects of parenthood on the division of household and caring labour. There is a greater increase in the gender gap in both total workload and time spent in unpaid work in Australia than in Italy, Norway or Germany (Craig 2006; Craig 2007).

The Australian TFR of 1.81 is not low by OECD standards (Kohler et al. 2006), but has trended steadily downwards over the last decades (ABS 2006b), and fertility decline is of great concern to the government (Costello 2006). Single child families are increasingly common. The statistical norm for Australian families with any children is two, but one-child families are the fastest-growing family configuration (Kippen 2001). There is evidence that smaller families are a result of barriers to desired fertility levels. Many prospective parents anticipate having more children that they actually do have, or would like to have. Numerous

studies find Australians have completed families that contain fewer children than they wanted or expected (Cannold 2005; de Vaus 2002; Quesnel-Valee and Morgan 2002; Weston et al. 2004), with some suggesting that large education debts and very high housing costs mean young people have to delay independent adulthood (Mitchell and Evans 2003).

Research aims

This paper will use the cross-national overview to see whether there is a prima facie relationship between policy regime, time indicators of gender equity, and TFR. It will explore the speculation that countries with the highest birth rates will be those where, on average, i) the time commitment of parents is most similar to that of non-parents, ii) mothers spend longer hours in the paid work force and iii) time allocation of unpaid work is most gender equitable. Then, it will use the intra-household analysis to investigate whether Australian households in which the division of domestic labour is most equitable are more likely to have a second birth.

Data and Method

MTUS

For the country-level analysis, the data used is from the Multi-national Time Use Study (MTUS) World 5.5 series. The MTUS began in the late 1980s when researchers initiated a project to collect time use data sets from 20 countries, and prepare a version of these data sets to allow cross-national comparability and harmonisation into a multinational file, which is updated as new surveys are completed. This paper analyses a sub-sample of the MTUS: individuals in families with or without children, in Norway, Finland, Germany, Italy, USA, Canada, and Australia. The population age parameters are limited to those aged 20-54, as this is the life-course stage most involved in balancing work and family. Where children are present, they are under 5 years old. Households are limited to those in which the only adults were either a couple or a single parent, to avoid including households in which other adults could contribute to workload.

MTUS World 5.11

Regime type	Country	Survey year	TFR
Anglo/market-oriented:	Canada	1998	1.52
	USA	2003	2.01
	Australia	1997	1.75
Europe/general family support:	Germany	1992	1.31
	Italy	1987	1.26
Nordic/dual earner:	Finland	1987	1.72
	Norway	1990	1.75

The MTUS records how respondents spend time on a range of activities within a 24-hour period. This paper measures daily hours spent in paid and unpaid work activities: routine housework, food preparation and cooking, shopping, childcare, and related travel (combined into "unpaid work") and employment (MTUS variables *paidetc hwork cooking kidcare shopping dtravel)*. It contrasts childless couples with parents, and mothers with fathers, in each of the countries, according to i) the total amount of paid and unpaid work undertaken ii)

relative time allocation to paid and unpaid work iii) relative male and female time allocation to unpaid work. The first quantifies the total extra workload associated with becoming a mother or a father, the second the effect of children on work family balance by sex, and the third measure how children affect the gender division of domestic labour. The information is presented graphically as mean weekly hours, by country and sex.

HILDA

For the household-level analysis, this study uses data from Waves 1-4 of The Household Income and Labour Dynamics in Australia (HILDA). This is a large-scale nationwide longitudinal survey of Australian households, conducted by the Department of Family and Community Services and Indigenous Affairs (FaCSIA), Australian Federal Government. The HILDA sample is comprised of 7,682 households, first interviewed in 2000, and each year since. The reference population is all members of private dwellings, and a multi-stage cluster sample of households was used. Four questionnaires were administered – a household form, a household questionnaire a person questionnaire (for household members over 15) and a self-completion questionnaire. The HILDA tracks its respondents through multiple life course changes, and collects longitudinal data on a very wide range of variables. For a full overview of the survey method see (Watson and Wooden 2004).

This study uses a sub-sample of the HILDA data, created as follows. Data sets across Waves 1 to 4 were merged firstly using the cross-wave id. Cases where the "number of own children living with you at least 50% of the time" was not equal to one were deleted, leaving a sample of 2065 respondents. Respondents without a matched partner identification code were then removed, leaving a sample of 1318 (or 659 couples). After splitting the data set by sex into two files, cases with missing values and invalid data on the dependent variable for women at Wave 2 were deleted. This was sequentially repeated for the remaining sample at Waves 3 and 4, leaving a sample of 189 women. However, 75 of these were older than 45 years (for whom fertility is unlikely), and so were also excluded. The data from each of the remaining women's corresponding partner was then merged back into the file. Thus, the longitudinal analyses in this report are based on a final sample of 114 heterosexual couples. This sample is used to investigate whether shares of domestic labour at Waves 1 and 2 is associated with decreased likelihood that women will have had another child by Wave 4. The average age of women at Wave 1 was 33.61 years (SD=6.67, ranging from 19-45 years), and the average age of men was 45.15 years (SD=13.95, ranging from 22-88 years). From Wave 1 to 4, 36.0% (N=41) of the women in this sample had another child.

Following univariate analyses, logistic regression is used to establish the odds of a woman having another child at Wave 4. The dependent variable (DV) is categorical, coded as either 0 = no other children or 1 = other children. Values for the item "number of own children living with you at least 50% of the time" were transformed so that cases equal to 1 were coded in the DV as 0 and cases where the value to this item were greater than 1 were coded in the DV as 1.

The independent variables of interest are *share of housework hours* and *share of childcare hours*. Women's share of housework has been calculated by deriving the percentage of hours that the female respondent spends on housework from the couple's total hours spent on housework per week. Thus, scores range from 0-100. Similarly, women's share of childcare has been calculated by deriving the percentage of hours that the female respondent spends on "playing with children" each week from the couple's total hours. Scores range from 0-100. The time spent in each activity is derived from respondents' retrospective estimates. Also, though it is intended to capture all childcare hours, the HILDA question on childcare is

phrased as "how long each week do you spend playing with your children?" Therefore, we place less reliance on the childcare than on the housework variable. Also, we include it for Wave 1 only, as there were too many missing cases to include it at Wave 2.

Previous research into the division of labour and domestic equity has shown that marital partners do not necessarily describe objectively unequal housework shares as being unfair (Baxter 2000; Craig and Sawrikar 2007; Dempsey 1997). The relationship between perceived fairness, actual amount of housework and actual share in housework is complex (see Craig and Sawrikar 2006 for a full discussion of this issue). Therefore, we enter women's share of housework into the regression model as our independent variable of interest, but also enter women's *perceived fairness in the share of housework*, scored on a continuum from 1 = I do much more than my fair share, 2 = I do more than my fair share, 3 = I do my fair share, 4 = I do less than my fair share, to 5 = I do much less than my fair share.

Research suggests that both fertility decisions and the way they may be affected by household equity will vary with gender ideology (Torr and Short 2004). Fourteen items assess *gender ideology*. These include 'whatever career a woman may have, her most important role in life is still that of being a mother', and 'it is better if the man works, and the woman cares'. These items were only assessed at Wave 1 and are scored from 1-7, where 1 = strongly disagree, 7 = strongly agree. High scores indicate traditional (as opposed to egalitarian) gender ideology. *Relationship satisfaction* with partner, children, and partner's relationship with their children are assessed on a scale of 0 = completely dissatisfied to 10 = completely satisfied. *Whether women would like to have more children* is scored from 0 = definitely doesn't want children to 10 = very much like to have children and how likely it is that they will have more children in the future is scored from 0 = very unlikely to 10 = very likely. *Parenting stress* is comprised of four items such as 'Being a parent is harder than I thought it would be', and is scored from 1 = strongly disagree to 7 = strongly agree. The last two items are for women only, as the male sample size was insufficient.

Demographic variables also influence number of children (see Parr 2006). There are 10 demographic variables examined in this study: Women's *share of income* has been calculated as a proportion of the couple's annual income, and income has been calculated as the sum of the imputed financial year wages and salary, and benefits and pensions. Thus, it is a conservative measure of income as all other sources (such as foreign pensions and windfall income) have not been included. *Education level* is a categorical measure coded as 0 = Bachelor, Graduate Diploma, or Postgraduate, 1 = Advanced/Diploma, 2 = Certificate, 3 = Year 12, or 4 = Year 11 or below. *Employment status* is coded as 1 = employed, 2 = not in the labour force (NILF). (We do not look only at couples in which both partners work, both because decisions about whether to engage in paid work, and to have (more) children are possibly made simultaneously, and we wished to retain as large a sample as possible.) Woman's *age* (at Wave 1), age of first child (at Wave 1), *marriage duration* (in years) and each partner's *number of siblings* and number of non-resident children (aged either 0-4, 5-14, or 15-24 years) are all continuous measures. *Country of birth* (1 = Australia, 2 = other English speaking country, and 3 = non-English speaking country) and *SEIFA decile* of relative socio-economic advantage/disadvantage are both categorical measures.

Limitations

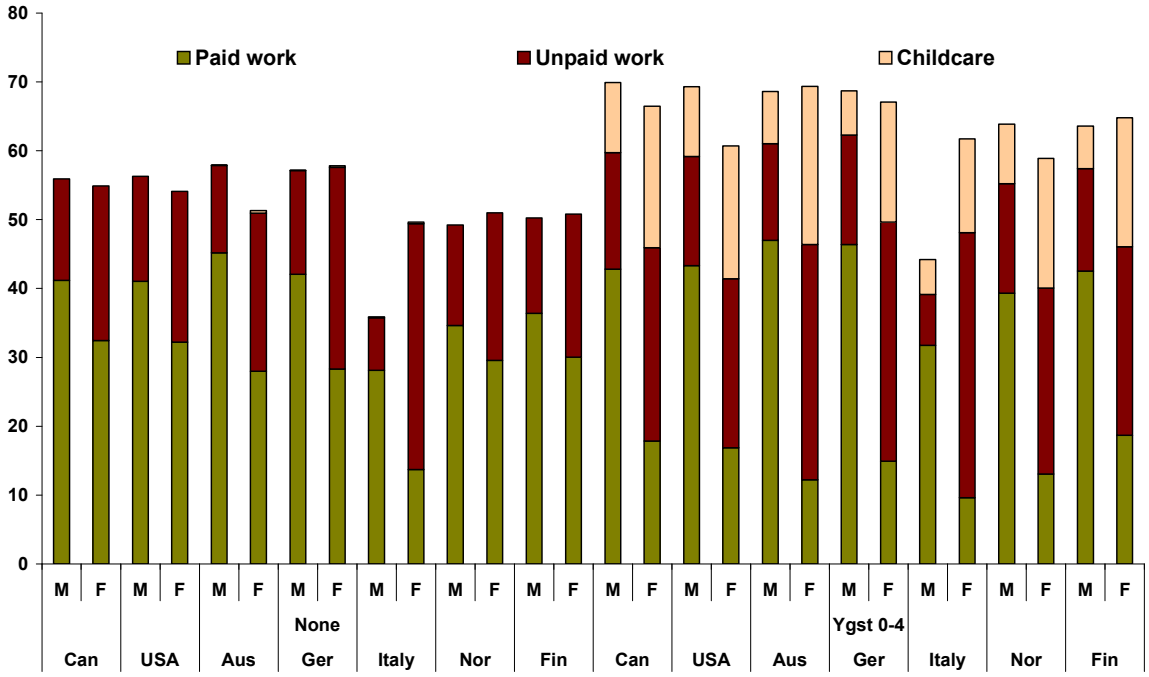
Both data sources have limitations, which are in some ways complementary. In the MTUS, detail is sacrificed to obtain comparability across surveys. Most surveys collect information from only one household member, so it is not possible to match the diaries of husbands and

wives. Therefore the gender comparisons are between averages of the men and women in each country, not between individuals on actual households. Demographic data is limited, and there is no information on attitudes or gender ideology, which may be relevant to fertility decisions. Due to the time it takes to collate the surveys, the latest surveys of some countries were not included at the time of analysis. The MTUS draws on country time-use surveys of different quality, and which use different collection methods and coding. In some activities, differences of coding arise from differences of definition, which creates further comparability problems. This is especially so for childcare, as it is very variously defined (Folbre et al. 2005). Also, childcare will be underestimated as most of the surveys do not include secondary activity, an essential and time consuming aspect of care (Craig 2006a; Craig 2006c). The surveys were not all done in the same year. The data is cross-sectional, and there is little contextual information, with none on attitudes or ideology. In contrast, HILDA follows actual couples over time, and has a great deal of demographic and attitudinal information. However, time allocation is derived from retrospective recall only. Further, the HILDA question on childcare is phrased as "how long each week do you spend playing with your children?" which will affect the way it is responded to. The sample is extremely small, and some items could not be included due to lack of response. Not all factors that may influence a second birth could be entered into the regression models. This study used both data sets to offset the disadvantages and maximise the advantages of each. It is an early attempt to bring both national and individual level perspectives to bear upon the question of whether gender equity is implicated in fertility decisions.

Results (MTUS)

Figure 1 shows mean time allocation of men and women to paid work, domestic labour and childcare, according to whether or not they have a youngest child under five years old, in each of seven countries with different policy approaches to work and care. The market-oriented countries Canada, the US and Australia are on the left, the general family support countries Germany, Italy in the centre, and the dual earner support countries Norway and Finland are to the right.

Figure 1: Weekly work hours by country, gender and parenthood status

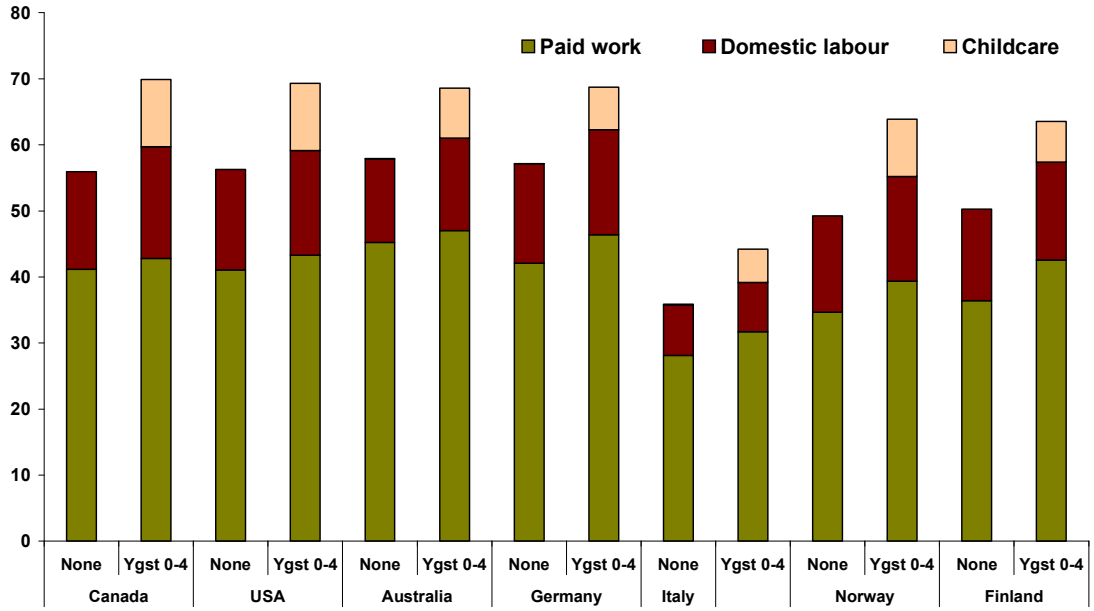


The data are descriptive only, but the figure gives a graphic indication of the time effect of parenthood. In all countries, parents average longer hours in total work than non-parents, mainly because of the added time that childcare brings. One of the intentions of this very broad overview is to see if time use is similar within welfare regime groupings. There is some evidence of consistency. Paid work hours, the gender division of labour and the effect of children on time allocation are very similar in Canada and the US. Scandinavian total work hours are lower than Anglo countries, and the pre-parenthood division of labour is similar in Finland and Norway. However, the presence of children seems associated with more unpaid work for women in Norway than in Finland. Time use in Germany and Australia is similar for both sexes, both pre and post parenthood, despite their ostensibly belonging to different policy groupings. Italy, theoretically similar to Germany, is unique in that the domestic division of labour is much less equitable than in any other country, (with Italian women doing the most domestic labour, though less total work than other women) and Italian men doing less paid work, unpaid work (or total work) than any other men. A second aim was to see if whether the time commitment of parents is most similar to that of non-parents (highest ratio of parent to non-parent work time) in countries with higher birth rates. This does not appear to be the case.

The following figures disaggregate the data in Figure 1, to highlight particular comparisons and investigate this latter issue further.

Figure 2 shows the weekly time allocation of men in each country to paid work, domestic labour and childcare, according to whether they have no children, or a youngest child under five years old.

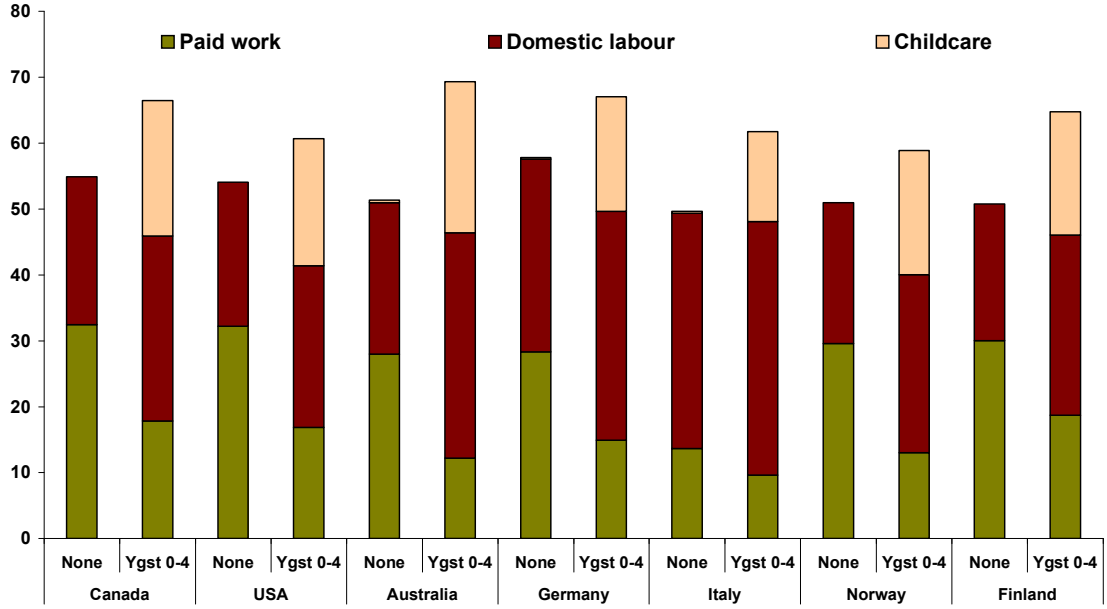
Figure 2: Men's weekly work hours by country and parenthood status



There is evidence of regime clustering in male paid work time, as previous research has found (Gershuny and Sullivan 2003; Hook 2006). Canada and the US are very similar to each other. However, men in Australia average more time in paid work than those in the other two market-oriented countries, and are matched by German men. Italy is much lower on this measure, and the Scandinavian countries fall in the middle. The effects of parenthood on time use follow fairly similar grouping patterns. So male time use patterns do somewhat accord with the regime typology. However, the link to fertility patterns is tenuous. Germany and Italy, which both have very low fertility, on this evidence have very different time use patterns. Descriptive analysis does not support the idea that fertility is highest in countries where total workloads are most similar for childless men and fathers.

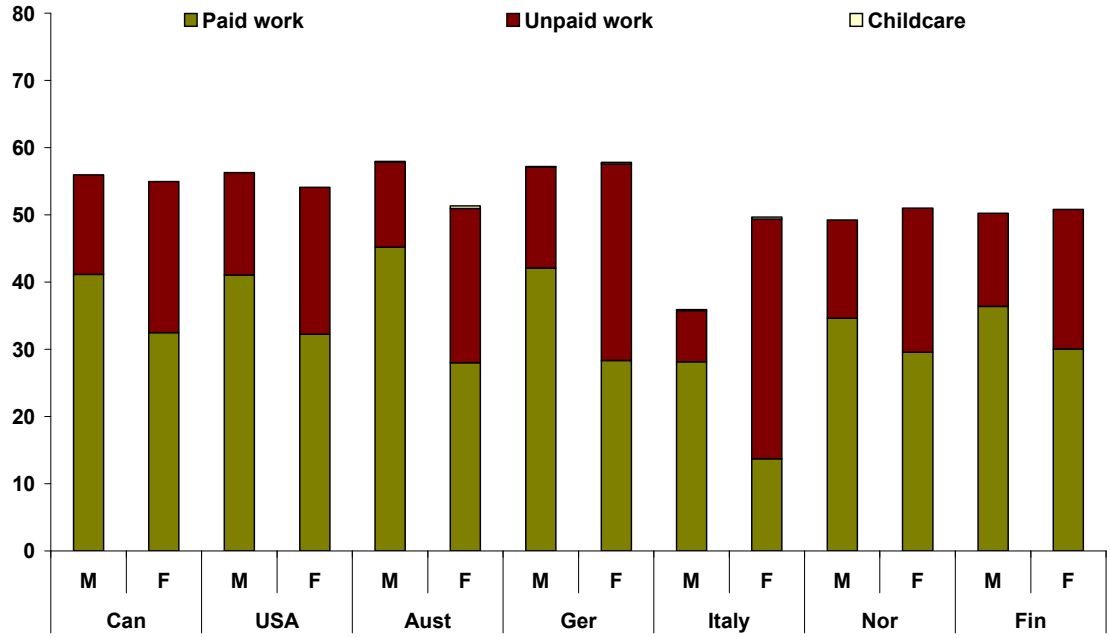
Figure 3 isolates the cross-national comparison between parents and non-parents for women. There is more variation in female than in male time use following parenthood. There is also considerable variation within regime types. Canada and the US have fairly high female time allocation to paid work, and Italy and Germany have low female time allocation to paid work. Women do a huge amount of housework in Italy, especially pre-parenthood, and there is also quite high pre-parenthood housework in Germany. However, Australian women do almost as much post-child housework, and more childcare. This gives only mixed support to the speculation that birth rates will be higher in countries in which mothers are most able to combine work and family (highest ratio of paid to unpaid work). Australia, with its comparatively high birth rate, has low maternal work force participation. Norway, also with a high birth rate, is similar. However, the US and Finland, with both high birth rates and high maternal work force participation, would fit the theory.

Figure 3: Women's weekly work hours by country and parenthood status



The next two figures illustrate whether birth rates are highest in countries in which the division of labour is on average most equitable (highest ratio of male to female unpaid work time). Figure 4 shows the allocation of time to paid and unpaid work by childless people in each of the countries by sex.

Figure 4: Childless people's weekly work hours by gender and country

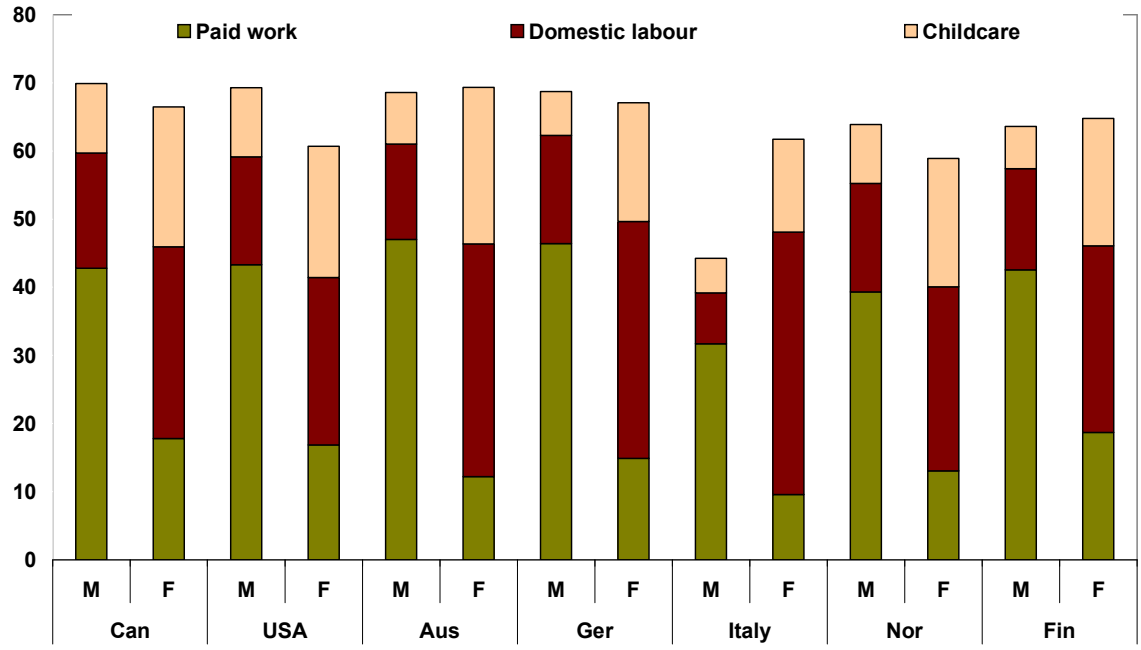


Canada and the US have very similar time allocation patterns, as do the Nordic countries of Norway and Finland. Australian men average most paid work time, and Australian women have total workloads akin to the Scandinavian countries, but a higher proportion of that workload is unpaid. Again, Italy is an extreme case, but childless German women spend a

great deal of time in housework too. Since this is the closest time use match found thus far between these two very low fertility countries, it is worth considering whether it is implicated in the TFR. It could mean that childless women in countries where the division of domestic labour is very inequitable are unwilling to take on the extra responsibilities associated with parenthood. This will be further explored in later research.

Figure 5 shows the country comparison of the division of labour between men and women post-parenthood. In all countries, parents have a much more pronounced gender division of labour than childless people. Also in all countries, the effects of having children are much more pronounced for women. In every case, mothers reallocate their time between home and market to a much greater extent than do fathers, replacing paid with unpaid work. Gender effects are stronger than regime effects in this regard. However, Figure 5 suggests that fathers exhibit more variation in their time use than childless men. Canada and the US men do more childcare than men in Australia, Germany and Italy do. The most inequitable situation is in Italy (Italian males are extreme outliers) followed by Australia.

Figure 5: Parents' weekly work hours by gender and country



Summary (MTUS)

The results of this preliminary analysis are mixed. There is no clear relationship between policy regime and time indicators of gender equity, but there are indications that time use is sensitive to policy variation within and across groupings. Men's time is more consistent across regimes than women's time, perhaps suggesting that gender would be a more reliable predictor of time allocation than national policy variation. However, the variation across countries suggests that policy does matter to gendered time distribution of children, which implies that the lives of those with care responsibilities is more vulnerable to institutional influence than those without. That the effect is strongest upon women reflects the continuing gendered nature of care responsibilities everywhere, but that fathers time is more varied than childless men's time implies that policy more finely defined than at regime level, may be of influence. The results were also mixed on the question of whether there is a relationship

between time indicators of gender equity and fertility. There is some support for the idea that countries with the highest birth rates are those in which the division of labour is most equitable and mothers are most able to combine work and family. The analysis found no support for the idea that birth rates will be higher in countries where the time commitment of parents is most similar to that of non-parents, for neither men nor women.

On the basis of this preliminary investigation, it is not possible to draw any firm conclusions about the relationship between policy settings, domestic gender equity and fertility, but the results suggest the line of investigation is worth pursuing. Future research will measure time use, but through multivariate analyses, entering as independent variables not only demographic data, but also specific family and work policies. Instead of using broad welfare groupings it will use individual country data to explore the questions in more detail. As a starting point, this paper now turns to the question of whether, within Australian households, gender equity in the division of domestic labour is associated with greater likelihood of second births.

Results (HILDA)

Descriptive analysis

Univariate t-tests were used to test whether there was a significant difference in the mean scores on the selected variables between women who did not have another child by Wave 4 and those who did. Women who did a greater share of the couple's joint housework hours at Wave 2 were less likely to have a second child by Wave 4. Also, women who *perceived* they did more than their fair share of housework were less likely to have another child. Together, these results demonstrate the importance of both perceived and actual inequity in domestic labour on women's decisions to have more than one child.

The women in this study who did not have another child by Wave 4 scored higher on two gender ideology items ('working fathers care more about being successful at work' and 'father should be as heavily involved as mother'), indicative of more traditional rather than egalitarian gender ideology. The implication is that traditional views are not associated with a second birth. However, this is countered by the finding that women who had another child by Wave 4 had partners with more traditional gender ideology on the item 'working parents should share equally in the housework and care of children'.

Women who did not have another child by Wave 4 had partners who scored less on relationship satisfaction with their children and their partner's relationship with their children than women who had another child by Wave 4. Women's own relationship satisfaction scores were not significantly associated with fertility outcomes by Wave 4. Women who did not have another child by Wave 4 had fewer siblings themselves than women who did have another child by Wave 4. No significant associations were found for women's share of income, education and SEIFA index, employment status and country of birth.

Multivariate analysis: logistic regression

Binary logistic regression analysis was conducted to investigate whether equity in domestic labour is associated with more births, net of the influence of other factors. The dependent variable is whether woman will have more than one child by Wave 4:

- 0 = has no other children

- 1 = has more children

Five models were tested to see how the predictive power of the independent variables on the chances of women having more than one child by Wave 4, are affected by other predictors of second births (variables significant in the univariate analyses, and known demographic factors).

- Model 1 tests the hypothesis that inequity in the share of childcare and housework (across Waves 1 to 2) significantly predicts whether women will have another child by Wave 4.

- Model 2 tests the hypothesis that inequity in the share of childcare and housework (across Waves 1 to 2) significantly predicts whether women will have more children by Wave 4, after controlling for women's perceived fairness in housework shares (at Waves 1 and 2), and men's satisfaction with relationships (with partner, with children and with partner's relationship with children) at Wave 1.

- Model 3 tests the hypothesis that inequity in the share of childcare and housework (across Waves 1 to 2) significantly predicts whether women will have more children by Wave 4, after controlling for women's perceived fairness in housework shares (at Waves 1 and 2), men's satisfaction with relationships (with partner, with children and with partner's relationship with children) and gender ideology (using the three gender ideology items that were significant in the univariate analyses) at Wave 1.

- Model 4 tests the hypothesis that inequity in the share of childcare and housework (across Waves 1 to 2) significantly predicts whether women will have more children by Wave 4, after controlling for women's perceived fairness in housework shares (at Waves 1 and 2), men's satisfaction with relationships (with partner, with children and with partner's relationship with children), gender ideology (using the three gender ideology items that were significant in the univariate analyses), women's education and labour force status.

- Model 5 tests the hypothesis that inequity in the share of childcare and housework (across Waves 1 to 2) significantly predicts whether women will have more children by Wave 4, after controlling for women's perceived fairness in housework shares (at Waves 1 and 2), men's satisfaction with relationships (with partner, with children and with partner's relationship with children), gender ideology (using the three gender ideology items that were significant in the univariate analyses), women's education and labour force status, SEIFA index, number of siblings, and country of birth.

The models are set out in Table A3, and the results are presented in Table 2.

Table 2: Logistic regression

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	Odds Ratio	B	Odds Ratio	B	Odds Ratio	B	Odds Ratio	B	Odds Ratio
Wave 1: Women's share of hours housework	-0.565	0.569	-0.475	0.622	-0.267	0.765	-0.048	0.954	0.449	1.567
Wave 2: Women's share of hours housework	-1.795	0.166 ***	-2.430	0.088***	-2.083	0.125**	-1.940	0.144*	-2.288	0.101*
Wave 1: Women's share of hours childcare	-0.518	0.596	0.052	1.054	0.621	1.860	1.106	3.023	1.287	3.622
Wave 1: Perceived fairness share of housework (women)			-0.019	0.982	-0.184	0.832	-0.233	0.792	0.022	1.022
Wave 2: Perceived fairness share of housework (women)			-0.434	0.648	-0.394	0.674	-0.381	0.683	-0.366	0.694
Wave 1: Satisfaction relationship with partner (men)			-0.820	0.441**	-0.767	0.464*	-0.882	0.414*	-1.450	0.235***
Wave 1: Satisfaction relationship with children (men)			0.286	1.331	0.151	1.163	0.110	1.116	0.001	1.001
Wave 1: Satisfaction partner's relationship with children (men)			0.869	2.384	0.791	2.206	0.961	2.614	1.495	4.458**
Wave 1: Gender ideology (women 1)					-0.135	0.874	-0.103	0.902	-0.245	0.782
Wave 1: Gender ideology (women 2)					0.491	1.635	0.566	1.761	0.798	2.222**
Wave 1: Gender ideology (men)					0.441	1.555	0.455	1.576	0.337	1.400
Wave 1: Women’s highest education							-0.450	0.638	-0.768	0.464
Wave 1: Women’s employment status							0.743	2.101	1.932	6.906
Wave 1: Women’s SEIFA score									-0.052	0.949
Wave 1: Women’s number of siblings									0.678	1.970***
Wave 1:Women’s country of birth									-1.776	0.169**

Source: HILDA Notes: *** p< 0.02 ** p<0.05 * p<0.10

The findings do suggest that domestic gender equity significantly increases the chances of Australian women having more than one child. However, the five models that we have tested in this study do not reflect an exhaustive list of predictors of whether women will have more than one child. Our results are not net of all factors that may impact upon the likelihood of second birth, which means it is possible that the odds ratios would be different for a larger sample in which more predictors could be examined in the models. Notwithstanding this, our results do suggest that domestic gender inequity, when assessed by women's share of domestic labour, contributes to lower fertility outcomes.

Specifically, Model 1 indicates that women's share of total household work significantly affects the chances that they will have more than one child (see Table 2). For every unit that women score towards gender inequity in housework shares at Wave 2 the chances of not having another child by Wave 4 decreased by an odds ratio of 0.17 ($p < 0.018$).

In Model 2, gender inequity remains significantly predictive of no subsequent child, net of women's subjective perceptions of fairness in housework shares, and of men's relationship satisfaction scores. In this model, for every unit increase in gender inequity in housework shares at Wave 2 the chances of having another child by Wave 4 decreased by an odds ratio of 0.09 ($p < 0.014$). However, men's satisfaction with their relationship with their partner also had a significant effect on fertility outcomes. For every unit men moved towards "10 = completely satisfied" with their relationship with their partner at Wave 1, the odds that the couple would have another child by Wave 4 were reduced by an odds ratio of 0.44. That the univariate analyses found a positive relationship between subsequent births and men's satisfaction with the relationship with children, and with their partners relationship with children, but not with their relationship with their partner, suggests that in the regressions, satisfaction with partner may be mediated by the other two variables. (We were not able to run the model with both men and women's relationship satisfaction scores included and when only women's score were entered, no significant effects were found.)

The predictive power of share of housework (odds ratio 0.13, $p < 0.047$) and of men's relationship satisfaction (odds ratio 0.46, $p < 0.055$) on the likelihood that women will have more than one child by Wave 4 remained when the gender ideology items found to be significant at univariate analysis were added to the model (Model 3). None of the gender equity items were independently significant in Model 3. Similarly, in Model 4, to which we added women's employment and educational status at Wave 1, share of housework and men's relationship satisfaction were the only significant predictors. The strength of significance changed somewhat for each of the two items, however, and in different directions. Share of housework hours only became significant at a p-value of 0.069, while relationship satisfaction became significant at the lower threshold of $p < 0.039$. So although the public opportunities represented by female education and employment were not in this analysis independently predictive of (no) second births, they may moderate the direct effect of housework shares and are perhaps moderated by relationship satisfaction.

SEIFA score, number of siblings and country of birth were added for Model 5. Each sibling a woman had nearly doubled the chances she would have had more children by Wave 4 ($p < 0.006$). Being an immigrant to Australia was associated with 0.17 ($p < 0.054$) times less likelihood of having more children at Wave 4. With these factors added, two more variables became significant predictors in Model 5. For every unit increase in women's agreement with the statement 'fathers should be as heavily involved as mothers' (indicative of egalitarian gender ideology), the odds of them having another child at Wave 4 were more than doubled. For every unit increase in father's satisfaction with their partner's relationship with their children at Wave 1, a second birth was four and a half times more likely to have occurred by Wave 4. In none of the models did share of couple's hours "playing with children" (recall this variable is intended to capture all childcare, not literally play time only) each week at Wave 1 significantly predict the chances of them having another child by Wave 4.

Summary (HILDA)

The results suggest that domestic equity in housework shares does increase the odds that Australian households will have more than one child. The finding was for housework only, not childcare. Share of childcare was not found to be associated with greater likelihood of second birth. This is possibly because of the wording of the HILDA question, which equated childcare with "play" and so may have been biased by gender. There was also missing data (to the point the Wave 2 variable could not be entered into the regression models). However, it also could be because the gender division of childcare is very different from the gender division of housework. Research using the Australian Bureau of Statistics Time Use Survey, which as a time-dairy survey yields much more detailed data than is available in HILDA, shows that men's domestic contributions are much more likely to be childcare than housework, that much of the childcare men perform is play-related (Craig 2007). Further, most of the time fathers are with children, mothers are also present (Craig 2006). Also, historically, there has been a movement towards both fathers and mothers spending more time with children (Bianchi et al. 2006), but men's time in housework other than childcare has not shifted as much (Baxter 2002). This implies that those men who do perform a greater share of actual housework, not just of childcare, are providing particularly valuable practical input to the running of the home. The present results suggest that this has a direct effect on couples' likelihood of having more children.

The results also show the importance of subjective factors. Gender ideology is implicated, supporting the US findings of Torr and Short (2004). Also, men's relationship satisfaction with their partner, and (in Model 5) with their partner's relationships with children, were predictive of whether or not they had another child by Wave 4. This is a reminder that fertility decisions will result from the attitudes and wishes of both partners, not just women. Indeed, it underscores the importance of recognising that men's understandings and wishes are of importance to household fertility decisions, as argued by Cannold (2005), whose qualitative research findings suggest that male reluctance constitutes a significant barrier to the fertility of many women who would like more children.

This highlights that national fertility decline, while an aggregate result of personal behaviour, occurs within a social framework. Also relevant to this point is that, in this study, we did not find women's employment and education to be significant independent predictors of second births. This may be a result of our small sample, but it may also be an example of how intertwined are the factors informing parity decisions. Decisions about human capital investment, work, and domestic time allocation will not be independent of each other on an individual or family-level, and do not occur independently of social context.

Conclusion

This paper is the first stage of a project exploring the relationship between gender equity and fertility outcomes. It approached the issue from both a macro and micro perspective. First, it conducted a cross-sectional comparison of the impact of children on adult time in seven countries with a range of policy approaches to work and family and different national fertility rates. The intention was to see if there are broad associations between policy environment, average time allocation to market and domestic labour, and national birth rates. Then the paper conducted an example case study, investigating whether gender equity in housework shares within actual Australian households is associated with greater likelihood of second births. It was not possible to draw any firm conclusions from the cross national comparison, but there were some indications of policy effects on time indicators of gender equity, and some concordance between national patterns of gender equity in time allocation and TFR. The paper did find evidence that the more equally household labour is shared between Australian parents of one child, the more likely it is they will have more children. The question of how social policy settings and individual factors entwine in fertility decisions is intriguing, and will be pursued in further research.

For example, the finding that Australian families in which domestic responsibilities are more fairly divided between partners are less likely to stall at one child, may not apply in all policy environments. The results are consistent with those of Torr and Short (2004) in the US, and Cooke (2004) in Germany, who also found that housework shares impact upon the likelihood of second births, but both these studies were conducted in countries with policy settings in some ways similar to Australia. In Germany, like Australia, parenthood brings a more pronounced bifurcation of time-allocation patterns by sex than it does in many other countries (Craig 2007). The US shares with Australia a relative lack of institutional supports for parenthood, and a cultural view that having children is an essentially a private choice, and time allocation to care a matter of personal negotiation between partners (O'Connor et al. 1999). None of these countries has a universal non-parental childcare system, which may promote gender equity in care-time allocation by facilitating both partners' links to the paid work force (Gornick and Meyers 2003). It may be that policy settings that provide more institutional supports to care for children, such as in Scandinavia and France, would mean that intra-household equity is less important to fertility outcomes than in Australia, Germany and the US, because the burdens of care are more socially spread, and fertility is thus promoted by gender equity at an institutional level, rather than a family level. Further research exploring the effect of specific family and work policies, rather than of broad welfare regime, is required, including to test whether institutional supports to care for children make intra-household equity more or less important to fertility outcomes than the intra-household Australian findings suggest.

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