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## Where do they find the time?: An analysis of how parents shift and squeeze their time around work and child care

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**Working Paper No. 439**

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**Where Do They Find the Time? An Analysis of  
How Parents Shift and Squeeze Their Time  
around Work and Child Care**

by

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## **ABSTRACT**

Parents who undertake paid work are obliged to spend time away from their children, and to use nonparental childcare. This has given rise to concern that children are missing out on parental attention. However, time-use studies have consistently shown that parents who are in paid employment do not reduce their parental childcare time on an hour-for-hour basis. Since there are only 24 hours in the day, how do parents continue to be engaged in direct care of their own children while also committing significant time to labor market activities? Using data from the *Australian Bureau of Statistics Time Use Survey 1997* (4,059 randomly selected households) to compare the time allocation of employed fathers, employed mothers, and mothers who are not in the labor force, this paper investigates how this phenomenon arises. The strategies available are reducing the time devoted to other activities (principally housework, sleep, leisure, bathing, dressing, grooming, eating), and rescheduling activities (from weekends to weekdays, or changing the time of day at which particular activities are undertaken). The paper investigates whether parents use nonparental care to reschedule as well as to replace their own care.

JEL Codes: D13, J16, J13, J20, J22

Key words: time use, childcare, nonparental care, work-family balance

## **INTRODUCTION**

How households balance work and family commitments is currently an issue of major and growing concern. Increasingly, both men and women participate in the paid work force, with the consequence that finding time for unpaid work, including parental childcare, is problematic. This has given rise to concern that children are missing out on valuable parental attention.

Time-use analysis allows empirical investigation of how families manage their responsibilities to both earn money and to care for their children. Previous time-use research shows that children absorb an enormous amount of parental time, particularly from mothers (Hill et al. 2004; Sayer et al. 2004; Tausig and Fenwick 2001). Intriguingly, research also consistently shows that being employed or using nonparental childcare does not reduce parental childcare time on an hour for hour basis (Bianchi 2000; Bittman et al. 2004; Booth et al. 2002; Bryant and Zick 1996; Hofferth 2001; Nock and Kingston 1988; Sandberg and Hofferth 2001). Why not? The aim of this paper is to find out, given there are only 24 hours in a day, how parents who allocate substantial periods of time to market work manage to also spend substantial periods of time caring for their children.

## **LITERATURE REVIEW**

Children are hugely time-consuming. The most consistent family characteristic predicting work-family imbalance is being a parent (Tausig and Fenwick 2001). When children are born into a household, time in the unpaid labor activities of housework, shopping, and childcare rockets. Depending on the number and age of children, time in unpaid work has been found to be up to six and a half hours a day higher in families with children than in childless households (Craig and Bittman 2005). These time impacts do not fall evenly by sex. Most of the time required to care for children is allocated within households to mothers (Bianchi 2000; Cohen and Bianchi 1999; Craig and Bittman 2005; Hill et al. 2004; Sayer et al. 2004; Tausig and Fenwick 2001). Of the over six hours time impost associated with a first child, women contribute about 4/5ths (Craig and Bittman 2005).

Households with children allocate less time to market work than childless households (Cohen and Bianchi 1999), largely because most women, on becoming a mother, lower their time commitment to paid work (Hill et al. 2004). However, while this is the most common response, it is no longer as frequent as it was in the past. Many mothers are now unwilling or

unable to accept the opportunity costs entailed in leaving market work. Withdrawing from the paid work force is a financial risk that leaves both women as individuals, and their families, vulnerable to poverty (Joshi 1998; O'Connor et al. 1999). A series of studies have established that as a result of withdrawal from continuous full time labor force participation, becoming a mother is associated with lower lifetime earnings than men, or than women who remain childless (Apps and Rees 2000; Beggs and Chapman 1988; Browning and Lechene 2000; Gray and Chapman 2001; Joshi 1998; Waldfogel 1997). Perhaps as a consequence, increasingly mothers are not forgoing work force participation, but attempting to maintain a time commitment to both employment and family.

Recent Australian census figures show that more than half of the mothers in two-parent families are employed by the time their youngest child is one or two. The father-breadwinner, mother-homemaker family represents just 27.5% of families with children under 5. Only 18.1 % of families with children under 8 conform to the stereotype (ABS Census 2000). In the United States, maternal employment has tripled over the past 30 years (Spain and Bianchi 1996). In 1997, 63.9% of women with children under 6 and 78.3% of women with children aged 6 to 17 were employed (Perry-Jenkins et al. 2000). Women with very young children are also showing stronger work force attachment. In 1994 almost 60% of U.S. mothers with children under three were employed, compared with 21.2% in 1966 (Blau et al. 1998). Similar patterns are found throughout industrialized nations. It is projected that by 2010, female workers will account for 47.9% of the employed population in the U.S. (NIOSH 2004).

Some see this workforce participation as underpinned by nonparental care. The provision of good quality institutional childcare was seen by feminist reformers as an essential prerequisite to women's freedom to earn a living (Bergmann 1986). Care which substitutes for mothers' time with children is fundamental to how women can manage motherhood and market work (Brennan 1998). However, institutional care has not been universally accepted as a solution. As the trend to maternal work force participation grew, so did the concern that children would receive insufficient parental attention as a result (Hewlett and West 1998; Hochschild 1997). Despite employed motherhood being the statistical norm, there is unease over the consequences for children of the effect of substituting the care of others for parental care (Arundell 2000; Gornick and Meyers 2004; Presser 1995). Concern that employed mothers are depriving their children of vital maternal care persists.

Attachment theory, developed by John Bowlby, theoretically underpins this disquiet (Bowlby 1953; Bowlby 1972; Bowlby 1973). During the 20<sup>th</sup> century, child welfare became a matter of professional concern (Cowan 1976; Cowan 1983; de Mause 1974; Donzelot 1979; Oakley 1979; Reiger 1985; Shorter 1977) and the prevalent view of child rearing became that “children require constant attention from well informed persons” (Reiger 1985:137). Further, it was thought paramount for individual development that the person delivering care to children was their own mother (Bowlby 1953). Theories of child development and psychology, developed over the last century, suggest that maternal bonding, attentive parenting, and high time inputs are necessary for optimal educational and social outcomes for children (see for example Belsky, 2001; Bowlby, 1972, 1973).

If these precepts are accepted, mothers are faced with a choice between economic independence and providing optimum care for their children. The wish or need of women to work and the belief that children require the full-time presence of a mother, are incompatible. Women who violate such normative expectations of full-time motherhood must contend not only with others’ judgements but also with their own feelings of ambivalence and guilt at leaving their children (Arundell 2000). Unsurprisingly, therefore, there has been a great deal of interest, both from those who believe that it is harmful and from those who seek reassurance that it is not, into the effect of maternal work force participation and nonparental care upon children.

An enormous body of research has been generated into the effect of nonparental care on child outcomes, but the results are inconclusive (Bianchi and Robinson 1997; Han et al. 2001; Presser 1995; Zick et al. 2001). Some have found negative effects on behavioral and cognitive outcomes if children attend day care when under a year old (Belsky 2001; Brooks-Gunn et al. 2002; Han et al. 2001; Hoffman and Youngblad 1999). However, negative outcomes are influenced by mediating factors including day care quality, child characteristics, and family characteristics such as income and parental education (Belsky 2001; Blau 2000; Han et al. 2001; NICHD 1997; Shonkoff and Phillips 2000). Some suggest that the most important mediator is the influence of the family environment (Shonkoff and Phillips 2000). The National Institute of Child Health and Human Development (1997) found that if poor quality care was combined with insensitive mothering, child outcomes were poorer, but that otherwise there was no evidence that nonmaternal care had a detrimental effect on children’s development. In a study which disaggregated parent/child time into particular activities, Zick et. al. (2001) found maternal employment to be associated with an increase in reading/homework activities, and with fewer behavioral

problems and higher school grades. They found no association with child outcomes in the medium term from the mothers being employed while the child was under school age.

This research suggests that it is the quality of parenting, rather than maternal employment or the use of nonparental childcare, that is the overriding factor in child outcomes. Further, it may indicate that the debate has rested on inaccurate assumptions. It was assumed that paid work and time with children would be traded off against each other—women who worked or used nonparental care would necessarily lower the time they spent caring for their children. But perhaps the picture on child outcomes is inconclusive partly because maternal employment time and time in nonparental care are both only approximate indicators of parental time with children. The assumption that nonparental childcare and maternal employment actually equate with a substantial loss of parental attention appears misplaced.

While mothers' employment is widely used as a proxy measure of maternal time spent with children (Zick et al. 2001), a growing body of time-use study shows that mothers do not reduce the amount of time they spend with children by the same amount of time as they spend in paid work. The research consistently shows that maternal childcare is reduced by far less than an hour for every hour the mother works (Bianchi, 2000; Booth et al., 2002; Bryant and Zick, 1996; Hofferth, 2001; Nock and Kingston, 1988; Sandberg and Hofferth, 2001). Overall, time with children has not decreased alongside the increase in female employment. Time-use studies indicate that historically, parental time with children has not declined (Hofferth 2001; Nock and Kingston 1988; Sayer et al. 2004). Moreover, rising levels of maternal employment have occurred at the same time as fertility rates have dropped. Therefore, although mothers' time may be more limited, it is spread among fewer children. While the time children spend at home has decreased, the time that parents spend in activities with children has not. Bryant and Zick (1996a, 1996b) report similar levels of parental activity time in the U.S. in the 1920s and the 1970s, by white, two-parent families. Bianchi reports similar findings over the period from 1965 to 1998 for time spent with children under the age of 18 (Bianchi 2000). It appears that the impact of structural change in female employment practices upon time with children has been outweighed by behavioral change in time mothers spend with children (Sandberg and Hofferth 2001; Sayer et al. 2004).

Some contend that part of these time allocation adjustments can be attributed to male behavior. Fathers have been found to be somewhat more involved in childcare when nonparental childcare is used (Bittman et al., 2004). Studies in the U.S. have found that co-

resident fathers with wives in paid employment spend slightly more time with their children than men with stay-at-home wives (Gershuny and Robinson 1988; Sandberg and Hofferth 2001). However, others find fathers' time allocation is not closely linked to maternal employment. Nock and Kingston (1988) found no difference in fathers' time with children according to whether or not their wives worked. Also, changes to male behavior are not as marked as the compensatory time adjustments made by mothers (Bianchi 2000; Bryant and Zick 1996). When mothers work, "quality time," in particular, is preserved or protected. Active, engaged childcare time is not reduced as much as nonengaged supervision (Bryant and Zick 1996; Nock and Kingston 1988; Sandberg and Hofferth 2001).

The use of nonparental childcare, also, does not completely replace mothers' time with their own children (Bittman et al., 2004; Booth et al., 2002). As with the findings relating to mothers' work-time, mothers who use nonparental care appear to change the composition of the time they are with their children in order to preserve time in certain particularly valued activities. Previous study found nonparental childcare to be associated with reduced nonengaged supervisory time, but that other activities are not reduced to the same extent. About half of physical care time was retained, and there was no reduction at all in parental interactions involving talking, listening, helping with homework, reading, and playing (Bittman et al., 2004).

The research discussed above implies that women, even those who allocate substantial time to market work, may target a certain minimum amount of interaction time with their children, and then seek ways of meeting that target (Bittman et al., 2004). Employed mothers make compositional changes in their time with children (Bittman et al. 2004; Sandberg and Hofferth 2001), and preserve their time with children over the longer term (Cohen and Bianchi 1999; Sayer et al. 2004). This seems to support the idea that social norms of involved motherhood have not been reconciled with the trend towards increased female work force participation. For women who wish to earn a living through market work and also feel a strong imperative to care intensively for their own children, a difficult friction point results. If women value both paid work and attentive parenting, they will be reluctant to trade off childcare time for time in market work, and will instead try to retain both. Even in the cross-section, mothers do not lower their maternal childcare by an equivalent amount of time as they spend in the work force. This is perhaps reassuring from the perspective of child welfare. However it does suggest an obvious question: how do they do it?



## RESEARCH FOCUS

The question that the current study addresses is: how do mothers who undertake paid labor or place their children in nonparental care manage to spend substantially similar amounts of time in childcare activities as nonemployed mothers? If market work and parental childcare are both prioritized, the logical corollary is that other forms of time use, that is, nonemployment and nonchildcare activities, must be adjusted. Apart from doing more at once<sup>1</sup>, time for children can be found by reducing time in other activities and directing it to childcare time, or by rescheduling time with children around other activities. That is, time squeezing, or time shifting.

It has been noted that adults, particularly mothers, in households with children spend less time in sleep, personal care, recreation and leisure than adults in childless households (Bianchi et al. 2000; Craig and Bittman 2005). If employed mothers do not completely trade off market work and childcare, the implication is that they need to squeeze such activities even further than do mothers who are not employed. Employed mothers presumably maintain their time commitments to both paid work and childcare by rescheduling (shifting) their child interaction time and their other time commitments around their market work. One of the ways mothers may do this is by using nonparental care. In addition to replacing some parental care time, nonparental childcare may be used to facilitate the shifting and rescheduling of parental childcare time. An assumption in much of the literature is that nonparental childcare and maternal employment are interchangeable measures in that the residual of either will be time available to care for children. However, because nonparental childcare is used for both work and nonwork purposes, this is misleading (Bittman et al., 2004). Many mothers use nonparental care to do things other than paid work, and some work is undertaken with children present. Nonparental care is used not only to replace time that mothers are employed, but also time that mothers are spending in other activities. Therefore, to assume that they are commensurate, or to rely on either as a proxy for time with children will yield noisy results. There is a possibility that widespread childcare usage for nonwork purposes and the practice of using no childcare while employed may have obscured the possibility, investigated in this study, that in addition to replacing some parental care time,

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<sup>1</sup> A great deal of childcare is in fact done at the same time as other activities (Bryant and Zick 1996b, Craig and Bittman 2005, Ironmonger 2004). However, except for the created variable “active childcare,” this article analyzes main, or “primary” activity only because it is looking at substitution of one type of activity for another.

nonparental childcare is used to facilitate the shifting and rescheduling of parental childcare time.

This study will address two hypotheses

1. Employed mothers try to avoid trading off time in market work and childcare, and therefore in comparison with nonemployed women,
  - . Reduce the time they spend in activities that are neither paid work nor childcare (time squeeze)
  - . Reschedule childcare activities to later or earlier in the day and reschedule other activities to weekends (time shift)
2. Parents use nonparental childcare to make adjustments in other forms of time use and to shift the times when they are together with their children.

## **DATA AND METHOD**

The study uses data from the Australian Bureau of Statistics (ABS) *Time Use Survey 1997* (ABS 1998). The survey is the most recent in a regular series of cross-sectional time use surveys conducted by the ABS, which meet the highest standard of time use investigation<sup>2</sup>. The survey is a national probability sample of 4059 households. There is low nonresponse distortion because under Australian law, cooperation with the ABS is mandatory and the rate for full response is over 70 percent and for partial response (e.g. only one diary-day) over 84 percent. The survey uses the time-diary method, which is recognized by international specialists to be the most accurate method of time data collection (Andorka 1987; Juster and Stafford 1991; Robinson and Godbey 1997). The diaries were collected at four different points in time over the year, in order to capture seasonal variation in time allocation. They require each person aged fifteen years or older resident in each sampled household to record all his or her activities over two days. This yielded a sample of 7269 persons. Activities are divided into nine broad categories (personal care, employment-related activities, education activities, domestic activities, childcare activities, purchasing goods and services, voluntary work and care activities, social and community interaction and recreation and leisure) with up to 999 subcategories each. Activities are recorded at 5-minute intervals. The average number of episodes per day (over 30) garnered by the *TUS* indicates higher than usual data quality (ABS 1998; Juster and Stafford 1991; Robinson and Godbey 1997).

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<sup>2</sup> The Australian Bureau of Statistics survey has been described by the U.S. National Academy of Sciences as “the Mercedes of time-use surveys” (Committee on National Statistics, 2000:30)

For the present study, the sample was restricted to families in which the parents were of prime employed age (25-54) and had at least one child under the age of five. Households with more than two adults were excluded, because other adults could provide substitute care to the children. Both married/cohabiting and single parent families are included, but because the sample yields only four single custodial fathers, the analysis of single parents is based on mothers only (N=90).<sup>3</sup> For the purpose of the analysis, the sample was further divided into fathers (N=801), mothers who work more than 35 hours a week (N=168) and nonemployed mothers (N=421). It was decided to separate the sample in this way to disaggregate the impact of maternal work time and nonparental childcare use, though it is acknowledged that the results should be interpreted cautiously, because the resulting cell sizes are low. In the present sample, paid work and the use of nonparental childcare have a correlation of 0.47 for married mothers and 0.31 for sole mothers. Twenty-six mothers worked 35 or more hours a week but accessed no nonparental care. Two hundred and fifty mothers who did no market work used nonparental care.

The ABS TUS asks respondents to record in each 5 minute time interval what they were doing as a main activity (primary activity), what they were doing at the same time (secondary activity)<sup>4</sup>, for whom they were doing the activity, and who was present. Respondents record the start and finish time of activities, which allows the present study to look specifically at when during the day childcare activities are being performed. The TUS gathers detailed information not found in comparable national time-use studies on the time children spend in formal<sup>5</sup> and informal care<sup>6</sup> outside the home. This allows the present study to investigate whether parents use nonparental care to juggle their other time commitments.

The measures investigated in this study are a composite variable “active childcare,” and four separate types of nonemployment and nonchildcare activity that may be sacrificed to either employment or parental childcare (namely, unpaid work excluding childcare, sleep, personal care, and child-free recreation). The variables are defined as follows:

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<sup>3</sup> The ABS treats legally married and de facto married couples alike, reflecting their treatment in the Australian legal system.

<sup>4</sup> This information together provides a comprehensive picture of total time devoted to children, but because the concern of the present study is substitution of one type of activity for another, in the main part of the analysis, primary activity only is analyzed. The exception to this is the variable “active childcare” which includes both primary and secondary activity (not double counted).

<sup>5</sup> Formal care is regulated care undertaken away from the family home.

<sup>6</sup> Informal care is nonregulated care undertaken in either the child’s home or elsewhere, for no payment, often done by the child’s relatives (most usually by grandparents).

1. “Active childcare” — This variable was created for this analysis from ABS activity codes 500-530 and 550-599. It includes all types of childcare that are active (physical care, interactive care, child-related travel, and communication<sup>7</sup>), rather than supervisory<sup>8</sup> performed as either a primary or secondary activity.
2. Hours a day spent in unpaid work (ABS activity codes 400- 499 and 600-699 - domestic activities; food and drink preparation/clean up; laundry and clothes care; housework; grounds/animal care; home maintenance; household management; purchasing goods; purchasing services associated travel; associated communication). Note that this variable does not include time performing parental childcare.
3. Hours a day spent sleeping (ABS activity codes 100-112)
4. Hours a day spent in personal care activities (ABS activity codes 131- 199: personal hygiene—bathing, dressing, grooming; health care; eating/drinking; associated communication; associated travel)
5. Hours a day child-free recreation time (ABS activity codes 800-999: Social and community interaction; recreation and leisure; associated communication; associated travel MINUS time in which the respondent records in the “with whom” column in the survey that they are in the company of children). This variable was specifically created for this analysis to capture that part of a persons’ leisure during which they are *not also* looking after young children, because such time is arguably more pure, relaxing, and leisurely (Mattingly and Bianchi 2003).

## Descriptive Analysis

The variable “active childcare” described above is used as a marker of when childcare is being performed. The paper investigates whether respondents are participating in “active

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<sup>7</sup> 1) Interactive child care (ABS activity codes 521 and 531): Face-to-face parent-child interaction in activities teaching, helping children learn, reading, telling stories, playing games, listening to children, talking with and reprimanding children.

2) Physical child care (ABS activity codes 511 and 512): Face-to-face parent-child interaction that revolves around physical care of children. Feeding, bathing, dressing, putting children to sleep, carrying, holding, cuddling, hugging, soothing.

3) Travel and communication (ABS activity codes 57 and 58): Travel can be associated with transportation to school, visits, sports training, music and ballet lessons, parents and teacher nights. Travel time includes time spent waiting, and meeting trains or buses. Communication (in person, by telephone or written) includes discussions with a spouse, other family members, friends, teachers and child workers when the conversation is about the child.

<sup>8</sup> Passive childcare (ABS activity code 54): supervising games and recreational activities such as swimming, being an adult presence for children to turn to, maintaining a safe environment, monitoring children playing outside the home, keeping an eye on sleeping children.

childcare” in each five-minute block of time during the 24-hour day. It compares the average participation in “active childcare” at each end of the day by mothers who work full-time (35 hours a week or more) and by mothers who do no paid work. The intention is to see whether the lack of trade off between work and care may be partly achieved by employed mothers shifting the times they are (for example) bathing children, feeding children, helping with their homework, or reading to them, to earlier or later in the day.

### **Multivariate Analysis**

Second, the paper uses multivariate analysis to investigate whether nonparental care is used as a tool to assist parents to minimize the effect of their market work time on their parental childcare.

Entered as dependent variables in a regression model are the nonemployment and nonchildcare activities described as variables 2 to 5 above. Ordinary Least Squares (OLS) regression analysis is used when the dependent variables are sleep and personal care. The analysis is performed using SPSS version 12. For the dependent variable child-free recreation, and (for men) domestic labor, in which there are a high number of zero observations, Tobit regressions are run. This analysis is conducted using STATA 9. To generate measures comparable to OLS, the marginal effects are calculated using the tobit mfx c, dydx predict STATA command.

The independent variable of most interest is the use of nonparental childcare. Respondents to the ABS TUS are asked to record the number of hours that the reference child usually spends in formal and informal childcare each week. Hours of formal and informal care are coded as 1-15, 16-30, 31-45 and 45 hours or more. For this study, total nonparental care was calculated by summing midpoints of the ranges for formal and informal care and creating a single continuous variable “hours of nonparental care.”

Also of interest is the day of the week, as this gives an indication of whether time in the dependent variables is rescheduled to weekends. “Saturday” (yes=1) and “Sunday” (yes=1) are entered into the model as dummies.

Entered into the model as controls are variables that previous research has found to independently affect time allocation in sleep, personal care, housework, and recreation time (author). These are number of children (one child is the omitted category, “2 children” yes=1, “three or more children” yes =1) spouses’ hours in market work (0-50+), respondent’s age (dummies “aged 25-34” yes=1, “aged 45-54” yes =1 “aged 35-44” is omitted), respondent’s educational qualifications (“university qualification” yes=1’

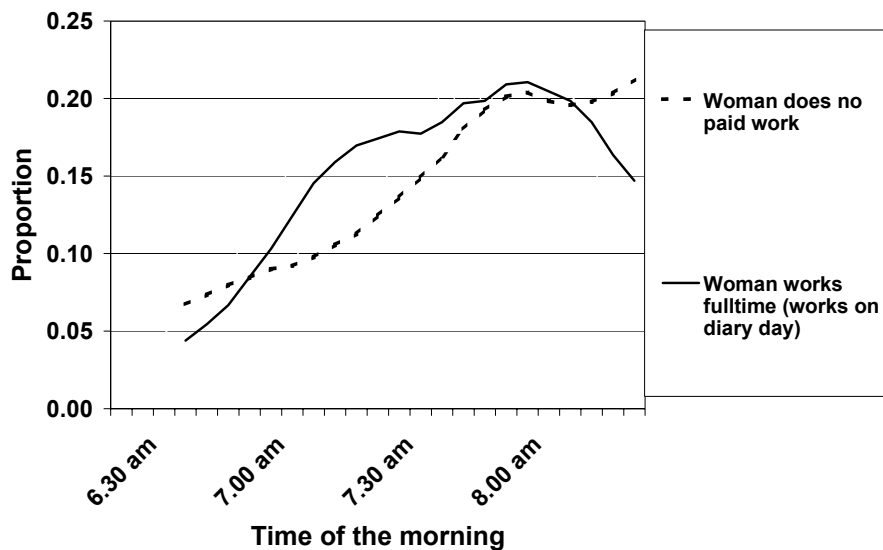
“vocational qualification” yes=1, no post-school qualifications is omitted), household income in dollars per week (\$0-\$2300), and whether there is a disabled person in the household (yes=1). For the male analysis, hours per week in market work (0-69) is included as a continuous variable; for the female analyses “single parent” (yes=1) is included as a dummy. The constant terms represent time spent doing the specified activity on a weekday by a married parent of one child under 5, who uses no nonparental care, has no tertiary educational qualifications, and does not live with a disabled household member. The analysis is run separately on fathers, mothers who work more than 35 hours a week, and nonemployed mothers. It is acknowledged that the small sample of mothers employed full time limits the findings.

Neoclassical economic theory holds that time spent in market work and time caring for children fundamentally rests on the price of the mother’s time, and are simultaneously determined (Becker 1981). This implies that if parent-child time is estimated as a function of the mothers’ employment in multiple regression modelling, the coefficients will contain simultaneous equations bias. Some address this endogeneity problem by calculating a predicted hours of employment variable from external factors such as local employment rate and female wage, and entering it into the model as a predictor variable (Bryant and Zick 1996; Zick et al. 2001). Such use of instrumental variables has not become common practice in the time use literature. Most time use studies use hours of employment as a predictor variable in equations predicting time in childcare and/or unpaid labor (see for example Bianchi, 2004; Bianchi, 2000; Bittman, Fast, Fisher, and Thomson, 2004; Bittman and Wajcman, 1999; Nock and Kingston, 1988; Sandberg and Hofferth, 2001; Sayer et al., 2004; Kitterod, 2002). This study investigates the time use that is peripheral to the work-care trade-off specifically to investigate how that trade-off may be minimized. The female sample is separated into the two categories of mothers employed full time and mothers not in the labor force, because the multivariate analysis focuses not on the work-childcare decision, but rather on the effect of nonparental childcare upon the time that employed women and nonemployed women spend in activities that are neither market work nor childcare. The model, variable means, and standard deviations can be found in Appendix 1.

## RESULTS

This paper first investigates whether childcare is being rescheduled around work commitments. In other words, are mothers who both work and use childcare shifting the time they spend caring for their own children to earlier or later in the day?

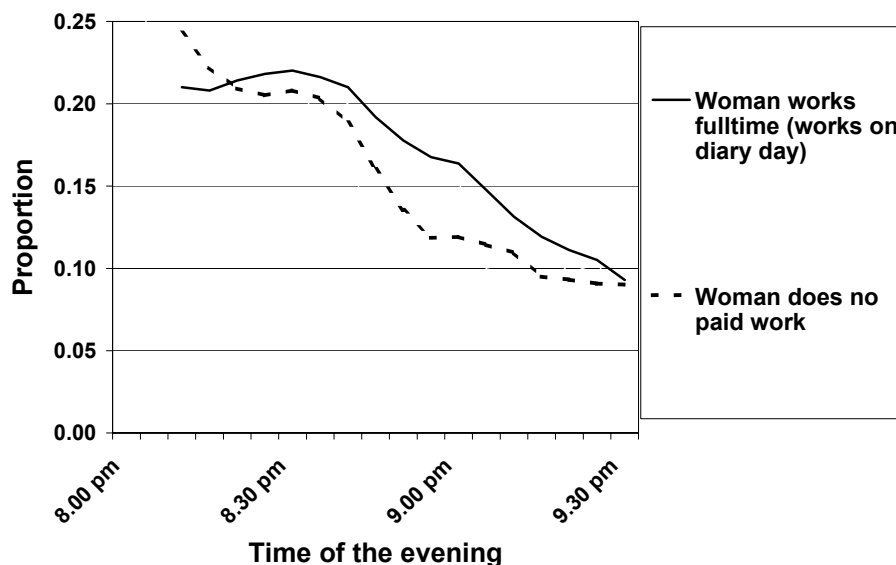
**Figure 1: Proportion participating in active childcare by workforce status (morning)**



Source: ABS Time Use Survey 1997

Figure 1 shows the percentage of mothers doing “active childcare” between 6.30 a.m. and 8.00 a.m. The black line represents mothers who work full-time (35 or more hours a week). The dotted line represents mothers who do not participate in the paid work force. Until 8.00 am, the average participation rate in “active childcare” is up to 10 percentage points higher for mothers employed full-time than for mothers not employed (significant at  $>0.05$  probability). This suggests that some families with employed mothers begin their days earlier, and taper off their childcare activity earlier in the morning than households with nonemployed mothers.

**Figure 2: Proportion participating in active childcare by workforce status (evening)**



Source: ABS Time Use Survey 1997

Figure 2 suggests that a similar picture can be found at the other end of the day. Between 8.30 p.m. and 9.30 p.m., employed mothers have a higher average participation rate in “active childcare” tasks than nonemployed mothers. Employed mothers are up to 8 percentage points more likely to be involved in “active childcare” tasks after 8.30 pm than other mothers (significant at  $>0.05$  probability). The results imply that children in some of these families are going to bed later than children in nonemployed mother households. It should be remembered that these data represent families with children under five years old. The phenomenon of time shifting may be more pronounced in families with older children.

## **Multivariate Analysis**

### **Unpaid Work**

The constant term for the time employed mothers in the base category<sup>9</sup> spend in unpaid work is just less than 3 hours a day. For comparable nonemployed mothers, it is over 5 hours a day, and for fathers with a similar demographic profile it is 2 hours a day, much less time than for either group of women. This reflects the results found by simple descriptive analysis

<sup>9</sup> Aged 35-44, on the average weekly income, has one child under 5, who uses nonparental care, has no disabled family member, and who responded to the diary on a weekday.



(see Table 1, Appendix 1), and suggests that some of the time devoted by employed mothers to care of their own children is time that nonemployed women allocate to domestic labor such as housework and shopping (see Table 1).

**Table 1: Coefficients of hours a day spent in domestic labor**

Variable	Domestic labor		
	Fathers	Mothers	
		Employed	Not Employed
Constant	2.01 ***	2.98 ***	5.09 ***
Nonparental care (hours a week)	-0.00	-0.02 *	-0.00
Market work (hours a week)	-0.19 ***	N/A	N/A
Spouse's market work (hours a week)	0.10	0.01 *	0.01
Household income (\$ a week)	-0.00	-0.00	-0.00
Single parent	N/A	0.86	0.40
Number of children			
Two	0.09	-0.29	0.10
Three or more	0.03	0.45	0.71 *
Disabled person in household	0.43 **	0.16	-0.01
Age			
25-34	0.12	0.03	-0.17
45-54	0.24	-0.64	1.20
Qualifications			
University	0.02 *	-0.19	-0.48
Vocational	0.23	0.09	0.03
Day of the week			
Saturday	1.57 ***	0.73	-0.41
Sunday	1.46 ***	1.58 **	-0.52
R square		.139	.075

Source: ABS Time Use Survey 1997: \* P-value<0.05 \*\* P-value<0.01 \*\*\*P-value<0.001  
Male table shows marginal effect from Tobit regression analysis.

The use of nonparental childcare is associated with a further squeezing of women's time in unpaid work such as housework and shopping. Employed women's time in domestic labor reduces by 1.2 minutes a day in association with every weekly hour of nonparental care (amounting to over half an hour a day for 30 hours of care a week). Employed women's time in domestic labor is predicted to go up with each extra hour of paid work done by their spouse. This amounts to about 15 minutes a day if he works a standard 35-hour week.

Both fathers and employed mothers are predicted to catch up on domestic duties on the weekends. Men spend about an hour and half longer in domestic chores on weekends than on weekdays. The model predicts that employed mothers will do over an hour and a

half more housework on a Sunday than on a weekday. Nonemployed mothers do not appear to reschedule like this, and average no more housework at the weekends than on weekdays.

### Sleep

Parents get less sleep than nonparents, and, relative to the childless, mothers lose more sleep than fathers (Craig and Bittman 2005). The mean sleep time of mothers who work and mothers who do not is fairly similar (Table 1, Appendix 1), but using nonparental care seems associated with a small but significant increase in sleep time for employed mothers. The predicted increase would amount to about 20 minutes a day if the child were in day care for 20 hours a week (see Table 2). The same is the case for fathers, but there is no equivalent effect for nonemployed mothers.

**Table 2: OLS coefficients of hours a day spent sleeping**

Variable	Sleep					
	Fathers		Mothers			
			Employed		Not Employed	
Constant	8.81	***	8.37	***	8.36	***
Nonparental care (hours a week)	0.01	*	0.01	**	0.00	
Market work (hours a week)	-0.00		N/A		N/A	
Spouse's market work (hours a week)	0.00		0.00		0.00	
Household income (\$ a week)	-0.00	***	0.00		0.00	
Single parent	N/A		0.30		0.05	
Number of children						
Two	0.01		-0.18		-0.18	
Three or more	-0.14		-0.25		-0.45	*
Disabled person in household	-0.20		-0.17		-0.03	
Age						
25-34	-0.18		0.18		-0.01	
45-54	0.19		-0.02		-1.59	
Qualifications						
University	-0.10		-0.57	***	-0.56	**
Vocational	0.02		-0.29		-0.46	**
Day of the week						
Saturday	0.42	**	0.29		0.37	
Sunday	1.10	***	0.70	*	0.63	**
R square	.098		.111		.068	

Source: ABS Time Use Survey 1997      \* P-value<0.05    \*\* P-value<0.01    \*\*\*P-value<0.001

On average, all parents get some extra sleep on a Sunday. Fathers average an hour and six minutes more, employed mothers 42 minutes more, and nonemployed mothers 37 minutes more sleep than on weekdays. Fathers, but not mothers in either group, also enjoy extra sleep on Saturdays (25 minutes). For women, post-school education is associated with less time sleeping—for nonemployed women with either university or vocational qualifications it is about half an hour a day. Employed women with a university education are predicted to average about 40 minutes less sleep than other employed women.

### **Personal Care**

The constant terms of the regression results suggest that there is a considerable difference in the average amount of time employed and nonemployed women in the reference category spend in personal care activities such as eating, drinking, bathing, grooming, and dressing (see Table 3). This is another activity in which employed mothers in the reference group average substantially less daily time than otherwise similar nonemployed mothers.

Employed mothers in the reference category spend, on average, just under two hours a day in personal care activities, whereas nonemployed women in the reference category average just over three hours a day. So personal care is another activity that could be a source of time that employed mothers devote to childcare. Fathers in the reference category average nearly two hours and twenty minutes a day in personal care which, though 48 minutes less than nonemployed mothers, is 25 minutes more than employed mothers do.

**Table 3: OLS coefficients of hours a day spent in personal care**

Variable	Personal care					
	Fathers		Mothers			
			Employed		Not Employed	
Constant	2.38	***	1.90	***	3.08	***
Nonparental care (hours a week)	0.00		-0.04		0.03	*
Market work (hours a week)	-0.00		N/A		N/A	
Spouse's market work (hours a week)	-0.00		0.00		0.00	
Single parent	N/A		0.19		0.23	
Number of Children						
Two	-0.00		-0.11		-0.55	**
Three or more	-0.04		-0.11		-0.67	***
Disabled person in household	-0.05		0.12		0.25	
Age						
25-34	0.01		-0.10		-0.34	*
45-54	0.33		-0.46		0.02	
Qualifications						
University	0.04		0.07		-0.22	
Vocational	-0.12		-0.07		-0.23	
Household income	0.00		0.00		-0.00	
Day of the week						
Saturday	0.20		0.52	*	0.30	
Sunday	0.43	**	0.18		-0.20	
R square	.036		.051		.091	

Source: ABS Time Use Survey 1997 \* P-value<0.05 \*\* P-value<0.01 \*\*\*P-value<0.001

The use of nonparental care does not predict that employed mothers will be freed up to increase their time in their own personal care. Nonemployed mothers, in contrast, do gain personal care time from the use of extra-household childcare. For every hour a nonemployed mother uses day care for her child, she adds 0.03 of an hour to her personal care time. This would mean an increase of 23 minutes a day for the average duration of nonparental care (for nonemployed mothers who use care) of 13 hours a week.

There is no difference in the time nonemployed mothers spend in personal care on the weekends than during the week. In contrast, both fathers and employed mothers make up the deficit in their daily personal care time at weekends by spending, for fathers, 24 minutes longer on Sundays, and for employed mothers, half an hour more on a Saturday. Lower personal care time is for nonemployed women associated with having more children (33

minutes less when there are two children, and 40 minutes less when there are three children or more).

### Child-Free Recreation

None of the independent variables, including childcare use, is associated with an increase in child-free leisure time for employed mothers (see Table 4). In contrast, using nonparental childcare does increase fathers' child-free leisure time. The gain in child-free leisure for a father of a child who spends 20 hours a week in nonparental care is 12 minutes a day. This may suggest that when employed couples do not use day care, the fathers are to some degree participating in childcare and losing some child-free leisure time.

**Table 4: Tobit regression analysis: marginal effects of one unit change upon hours a day spent in child-free recreation**

Variable	Child-Free Recreation			
	Father	Mothers		
		Employed	Not Employed	
Constant	0.63 ***	-0.01	0.26 **	
Nonparental care (hours a week)	0.01 **	-0.00	0.08 **	
Market work (hours a week)	-0.00	N/A	N/A	
Spouse's market work (hours a week)	-0.01 *	-0.00	-0.00	
Single parent	N/A	0.27	0.00	
Number of Children				
Two	-0.34 **	-0.00	-0.17	
Three or more	-0.26 **	0.00	-0.33 **	
Disabled person in household	-0.14	0.00	-0.00	
Age				
25-34	-0.12	0.14	-0.11	
45-54	0.17	-0.10	0.38	
Qualifications				
University	-0.34 ***	0.01	-0.06	
Vocational	-0.23 **	0.05	-0.03	
Household income	0.00	0.00	0.00 *	
Day of the week				
Saturday	0.37 *	0.05	0.13	
Sunday	0.18	0.06	-0.13	

Source: ABS Time Use Survey 1997      \* P-value<0.05    \*\* P-value<0.01    \*\*\*P-value<0.001

Nonemployed mothers also are predicted to gain child-free leisure from the use of extra-household childcare. They are predicted to gain nearly five minutes child-free leisure a day for every hour their child spends in nonparental care. This would amount to just over an hour a day if the average amount of 13 hours a week (for nonemployed mothers who use care). Also, there is a very small but significant effect on child-free leisure of nonemployed women with household income. The model predicts that at a weekly income of \$1,000 this amounts to an extra 20 minutes a day. No similar effect is found for employed mothers. No mothers gain child-free leisure on the weekends. Fathers, in contrast to both groups of women, average 24 minutes more child-free leisure on a Saturday than on a weekday.

In summary, the results of this study provide some support for the hypothesis that employed mothers try to avoid trading off time in market work and childcare by, in comparison with nonemployed women, reducing the time they spend in nonwork and nonchildcare activities. In particular, they average less time in unpaid work other than childcare, and in personal care activities such as grooming, dressing, and bathing. The study finds some evidence that these activities may be squeezed because employed mothers reschedule childcare activities to later or earlier in the day. Further investigation would be required to test these findings, but the results suggest that some households with mothers employed full-time begin childcare activities earlier in the morning, and end them later at night, than households with nonemployed mothers.

On the question of whether parents use nonparental childcare to make adjustments in other forms of time use and to shift the times when they are together with their children, the results were mixed. While employed mothers average less time in housework, personal care and child-free leisure time than other parents, the results of the multivariate analysis indicate that the use of nonparental childcare does not assist employed mothers to find more time in these activities than employed mothers who use no childcare. It may be that employed mothers use nonparental care to shift childcare time, rather than to shift time in other activities. It appears that fathers and nonemployed mothers both gain more flexibility in nonwork and nonchildcare activities from the use of nonparental care than do employed mothers. The use of nonparental care was found to be associated with more daily sleep and child-free recreation for fathers, and with more daily personal care and child-free recreation for nonemployed mothers. Employed mothers get almost no child-free recreation, and the use of nonparental care on a workday does not predict any increase. The results imply that employed mothers just give up daily time in recreation and personal care activities and direct it to either paid work or childcare.

There was, however, a slight increase in daily sleep time associated with the use of nonparental childcare by employed mothers. Also, employed mothers do seem to use the weekends for rescheduling. They catch up on the weekends on some of the nonwork and nonchildcare activities they squeeze during the week. Employed mothers spend more time in personal care on the weekend. That nonemployed mothers do not implies that they have time during the week to perform sufficient personal care activity. Employed mothers are also predicted to perform unpaid domestic work on a Sunday, again partially making up for time nonemployed mothers find during the week. Even with this weekend input, however, employed mothers do not match the average amount of time nonemployed mothers devote to unpaid work, which suggests that in households with employed mothers, some housework is simply left undone. The exception to the weekend time catch-up is child-free leisure. The results imply that employed mothers spend any leisure time they have with their children also present. At weekends, mothers do not allocate time to leisure away from their children. In contrast, fathers appear to find a little more child-free leisure time on Saturdays.

## **CONCLUSION**

This study set out to investigate how mothers who undertake paid labor or place their children in nonparental care manage to spend substantially similar amounts of time in childcare activities as other mothers. It hypothesized that employed mothers try to avoid an unacceptable trade-off between time in paid work and time in care of their own children through shifting and squeezing other forms of time allocation. Specifically, it investigated whether employed mothers average less time in the nonwork and nonchildcare activities of unpaid work, sleep, personal care and child-free recreation, whether they reschedule these activities to weekends, and/or reschedule childcare to later or earlier in the day, and whether nonparental childcare is used to facilitate such time reduction and rescheduling. It is acknowledged that how parents arrange their time around work and childcare will be influenced by a wider range of factors than is addressed in this study, that there is considerable variation in time arrangements and that any conclusions are limited by the small sample number of mothers employed full time. However, previous research has found employed mothers of young children report feeling the most time-pressured of all demographic groups (Bittman 1999), and the findings in this study may contribute to understanding why this is so. Mothers appear to draw to some extent on all the strategies investigated. Employed mothers average comparatively low amounts of time in personal

care and leisure activities, and it may be that they seek to avoid adverse outcomes to their employers or to their children at a potential cost to themselves. Research using data from other countries would test and extend this investigation.



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## Appendix A

**Table I: Means and standard deviations of variables**

	Fathers N=801		Mothers			
	Mean	S.D.	Employed Fulltime N= 168		Not Employed N=421	
			Mean	S.D.	Mean	S.D.
<i>Dependent variable</i>						
Hours a day domestic labor	1.98	1.85	3.05	2.17	5.07	2.33
Hours a day sleep	8.18	1.74	8.32	1.47	8.24	1.55
Hours a day personal care	2.13	1.21	1.98	0.98	2.27	1.40
Hours a day child-free recreation	0.62	1.55	0.24	0.69	0.28	0.72
<i>Independent variables</i>						
Nonparental care (hours a week)	11.30	13.94	27.27	16.5	5.36	9.50
Market work (hours a week)	39.45	14.27	N/A		N/A	
Spouse's market work (hours a week)	13.01	16.12	35.6	17.8	31.9	19.5
Household income (\$ a week)	940	434	1235	469.	668	312
Single parent	N/A	N/A	0.09	0.29	0.11	0.32
Number of children	2.09	0.92	1.70	0.78	2.25	0.91
Disabled person in household						
Age	35.39	5.48	0.21	0.44	0.25	0.44
Qualifications						
University	0.32	0.47	0.35	0.48	0.30	0.35
Vocational	0.34	0.48	0.18	0.38	0.20	0.40
Day of the week						
Saturday	0.15	0.30	0.13	0.33	0.14	0.30
Sunday	0.13	0.34	0.12	0.30	0.15	0.36

Source: ABS Time Use Survey 1997