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**TIME USE INDICATORS AS A USEFUL TOOL FOR  
EVALUATING CHILDCARE POLICY AND FUNDING**

**Reina Ichii**

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Hawke Research Institute for Sustainable Societies  
University of South Australia  
Magill, South Australia  
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Hawke Research Institute for Sustainable Societies  
University of South Australia  
St Bernards Road  
Magill  
South Australia 5072  
Australia  
[www.unisa.edu.au/hawkeinstitute](http://www.unisa.edu.au/hawkeinstitute)

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# TIME USE INDICATORS AS A USEFUL TOOL FOR EVALUATING CHILDCARE POLICY AND FUNDING

Reina Ichii\*

## 1. Introduction

This article examines how to measure unpaid work in order to evaluate government policy and funding. Contributions of unpaid work to an economy have been measured using time use surveys (United Nations Development Program 1995). As a result, women's economic contributions become more visible. For example, labour statistics hide 70% of women's work compared to 25% of men's work (Ironmonger 1999). In contrast, time use surveys have shown that in industrial countries when the share of total work – paid and unpaid – is estimated, women perform 51% of the work (United Nations Development Program 1995).

Time use analyses have been developed to illustrate the quantitative dimensions of unpaid work in an economy. To date, research using the analyses has shown that unpaid domestic work is mostly undertaken by women (Baxter 1997; Bittman 1999; Batalova and Cohen 2002; Craig 2002a, b). In Australia the work performed in households nevertheless has been more equally shared between men and women over recent decades. This is simply because women now spend less time on domestic activities (Bittman and Matheson 1996; Bittman and Pixley 1997; Gershuny and Sullivan 2003). However, Australian women still perform up to three-quarters of unpaid domestic work (Baxter 1997). And in some areas of domestic activity – particularly child care – women's workloads have not decreased (Bittman and Pixley 1997). These analyses reveal that a large gender difference exists in time spent on domestic activities.

Another benefit of time use analyses is to provide a valuable lens for considering the balance between unpaid and paid work. Generally, women who stay at home spend more time on unpaid work than those who participate in the workforce. For example, women who do not participate in paid work perform 349 minutes per day of unpaid activities compared to 207 and 300 minutes per day spent by women who engage in full-time and part-time work (Australian Bureau of Statistics 1998a).

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\* Postgraduate student, International Graduate School of Business and Research Centre for Gender Studies, Hawke Research Institute.

Women's participation in the workforce also affects the division of labour between men and women at home. As Baxter (2002) observes, when men's earnings are higher than women's, men significantly reduce the time they spend on domestic activities and child care (Baxter 2002). Similarly, when women spend longer hours in the workplace, they also decrease the time spent on domestic work. As a result, men and women share the work more equally without increasing men's contributions towards the work. In sum, time use analyses have illustrated two dimensions of unpaid work: one is the quantitative amount of the work measured by time; and the other is the way work is shared between men and women within a household.

The analyses have mainly been at the micro level. But recently they have been applied to the macro level such as calculations of the economic value of unpaid work. The analyses have revealed that the relative size of unpaid work compared to paid work is significant (United Nations Development Program 1995; Ironmonger 1996). For example, in Australia in 1997 unpaid work – at home and in communities – was 48 per cent of the value of total measured gross domestic product (GDP) by a conservative estimation (Australian Bureau of Statistics 2000).

Some micro level analyses have explored the links between policies and time used on unpaid domestic activities. For example, Baxter (1997) undertook a comparative time use study to examine social and individual factors that could affect the length of time used for unpaid work in different countries. The independent variables included household structure, employment status and educational attainments. Consequently, while these variables about individuals were statistically significant, country differences – policy and social welfare systems – were minimised. Baxter concluded that the impacts of policy on time use were smaller than the impacts of individual factors. In contrast, Apps, Bittman, Folbre, Drago and McDonald demonstrated that unpaid work was strongly influenced by policy designs (Bryson and Bittman 1994; Folbre 1994; Bittman 1999; McDonald 2000; Apps and Rees 2001; Drago 2002). Thus the impact of policy on unpaid work has been subject to debate.

Attempts to establish a relationship between time use and national policy and budgets have gained momentum through gender-responsive budget initiatives. The initiatives aim to integrate a gender perspective into budget analyses; they are fundamentally concerned with the different impacts of budgets on various groups of women and men. Australia was a pioneer country in this area, as the federal and state governments introduced gender-responsive budget initiatives in the mid 1980s. In the 1990s such initiatives were implemented across the world, particularly after 1995 when the Fourth World Conference on Women was held in Beijing. In the conference, the importance of considering gender issues within budgeting was fully acknowledged.

Since then, the various analytical tools of gender budgets have been developed by bureaucrats, practitioners and feminist scholars (Budlender and Sharp 1998; Elson 1999; Esim 2000; Hewitt 2001; Himmelweit 2001; Balmori 2003). Time use analyses are regarded as a potentially useful tool to formulate a link between budgets and unpaid work at home. So far, the empirical analyses have made this link in two ways. One is measuring the impacts of budgetary cutbacks on domestic care work (eg a study of health care policy in Zambia: Elson 1995; UNIFEM 2000). The other is considering the effect of policy design on unpaid work, including domestic and volunteer activities (eg energy policy in South Africa: James and Simmonds 1997; and a nutrition program for the poor in Peru: Pérez and Barco 2002).

Despite these empirical studies, time use analyses are not a sophisticated tool in gender budget initiatives. This is because of the limitations of the research frameworks and analytical methodologies. Firstly, most of the research to date has collected time use data that exclusively targeted women. Consequently, their findings only show the conditions of women rather than the relative status of women, which requires comparisons between men and women (Johnston 1985). Secondly, the sample sizes have been very small due to a lack of data from national time use surveys. The small samples may not be representative, and they could contain biases due to differences in the data collection periods (Bittman 2000). For example, time use could be different in different seasons, and on weekdays and weekends. Couples with full-time jobs are more likely to perform unpaid work on weekends (Craig 2005). Thirdly, the existing research has studied time spent on a single activity. In fact domestic activities are often conducted as multiple simultaneous activities. Child care in particular is often combined with other household tasks (Craig 2002a, b; Floro and Miles 2003). Thus most existing time use analyses do not illustrate the intensity of the work, which could be measured by analysing these simultaneous activities. Studies have suggested that the intensity of care work increases in times of privatisation and cutbacks of public service expenditure (Grown, Elson and Cagatay 2000). But this evidence has not been provided yet by any of the analyses.

My current research aims to develop methods of analysis that measure the quantity and intensity of unpaid work by gender. Here, an assumption is made that the time spent on unpaid work will be an indicator by which we may evaluate the provision of public services. If the quantity and intensity of unpaid work is unequally distributed between men and women, then the government has room to improve the provision of services.

Such indicators are required by the governments of many countries. Many governments are shifting to a system of results or performance-based budgeting. This new budget system aims to achieve efficient and effective resource allocations. In results or performance-based

budgeting, information on the funded services needs to be provided in the form of indicators in budget statements. These indicators measure budget performances qualitatively and quantitatively (Sharp 2003). For example, in Japan a performance indicator contributed to an increase in expenditure on qualified school counsellors. The Ministry of Education, Culture, Sports, Science and Technology prepared a performance indicator that showed that the number of students who refuse to go to school was actually less when their schools employed counsellors (Yamaya 2002: 12).

However, time use has not been included as a performance indicator yet. In Australia the first national time use survey (TUS) was conducted in 1992. The purpose of this survey was stated in the *Women's budget statement* (Government of Australia 1992: 295) in which findings of the budget analysis were released by the federal government. It stated that the survey could be used to evaluate and monitor the government's commitments to gender equality. But little research has been conducted using the national data sets to meet these purposes.

This research examines a potential use of time use as a performance indicator to evaluate policy and funding by the federal government. It begins with the assumption that the government assists gender equality in the division of unpaid work within the household via service provisions. To see the gender difference, a particular focus is on domestic childcare activities by parents. Previous studies have provided evidence of gender inequality in parents' childcare activities (Bittman 1992; Brennan 1996, 1998; Bittman, Craig and Folbre 2000; Craig 2002a, b; Bittman, Craig and Folbre 2004; Craig and Bittman 2004; Craig 2005). Furthermore, child care is an important activity in an economy. As demonstrated by Martin (2004), child care produces significant returns to the macro economy. For example, in Australia in 2003 every dollar spent on child care returned total economic benefits of A\$ 8.11 (Martin 2004). Thus childcare time will be an entry point to integrate the concept of the gender division of domestic activities into national budgets.

In the next section, performance indicators used in Australian budget statements are examined to consider the potential of time use analyses to evaluate the provision of childcare services. In the third section time use indicators of childcare work performed by couple parents are developed. The indicators illustrating the quantity and intensity of the work will clarify the gender division of labour within a household. The time use indicators are calculated using the 1997 Australian National Time Use Survey. And in the final section the possibility of using the indicators to measure provisions of childcare services is discussed to consider future directions of my research.

## **2. Performance indicators in budgets of the Australian government**

Since 1999 the Australian federal government has progressively introduced a performance-based budget framework in annual budget cycles. The Commonwealth Department of Finance and Administration and the Secretariat for the Steering Committee for the Review of Government Service Provision developed the frameworks and manuals to evaluate public service provisions using performance indicators (Department of Finance and Administration 2000; Commonwealth of Australia 2004). All departments are now required, by legislation, to provide a range of indicators in the portfolio budget statements. This legislation, titled the *Charter of Budget Honesty Act 1998*, aims to improve the outcomes of fiscal policy through a sound fiscal management system (Government of Australia 1998: 3). The major objective of this framework is to achieve better decision making and improve understanding of the budgeting process (Commonwealth Department of Finance and Administration 2000: 3).

Before performance budgeting was introduced, there was no systematic evaluation procedure. The government's approach to budgeting centred on monetary flows. This approach exclusively focused on a relationship between funding and supply of the public goods and services. In this budgeting approach, service supply was merely seen as a way to transform money or resources (inputs) to the services (outputs).

In contrast, in performance budgeting, evaluations of public services are based not only on financial data but also performance indicators. The performance indicators are developed by all departments, which collect quantitative and qualitative data related to public services. The departments must review the performance indicators every three years subject to performance management principles developed by the government (Commonwealth Department of Finance and Administration 2003b). The indicators will enable the performance of the various public services to be compared and the best performance to be identified (HM Treasury et al 2001).

The performance indicators aim to clarify the process of providing services, which is divided into inputs, outputs and outcomes. Inputs include funding, labour and equipment to provide public goods and services. Outputs mean final products, namely public goods and services themselves. Outcomes are the impacts of the outputs on the community and individuals, to show how the outputs achieve their purposes (Department of Finance and Administration 2000).

The performance indicators are also used to measure another dimension of performance using the three Es: economy, efficiency and effectiveness (HM Treasury et al 2001). These three Es are called performance criteria (Sharp 2003: 35). One purpose of the performance criteria is to examine the relationships between inputs, outputs and outcomes. The performance criterion 'economy' is a proxy of price to produce outputs from funding. For

example, the cost per unit of outputs is an indicator of economy. Another performance criteria, efficiency, is used to evaluate how inputs are used to produce outputs; and effectiveness is applied to evaluate how outputs have impacts on the lives of people in achieving their objectives (Commonwealth of Australia 2004: 1.13). Thus, performance indicators, which break down the process of service provisions, extend the scope of evaluations of government policy and funding.

Figure 1 draws a conceptual framework of performance indicators and their criteria. As seen in Figure 1, economy measures a relationship between funding and outputs while efficiency examines a relationship between inputs (including funding, labour and equipment) and outputs.

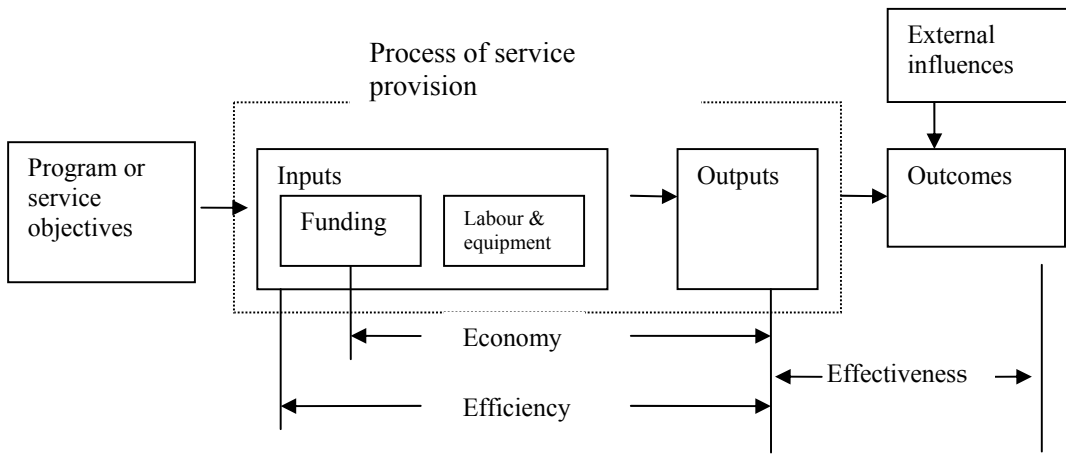


Figure 1 A conceptual framework of performance indicators and criteria

Source: The figure is modified from Commonwealth of Australia (2004: vol 1, p 1.13).

But some types of budget outcomes have not been developed as performance indicators. One of the reasons is that some outcomes only appear over the long term (Commonwealth Department of Finance and Administration 2003a). Nevertheless, most performance indicators remain output indicators; as a result effectiveness, which is a relationship between outputs and outcomes, can not be evaluated. In fact effectiveness is difficult to measure accurately. Funnell and Cooper (1998) demonstrated that evaluating effectiveness is politically sensitive (Funnell and Cooper 1998: 32). Consequently, the Australian government compromises by developing output indicators, which measure two of the performance criteria: economy and efficiency.

For example, in 2004/05 the federal government announced funding of A\$94.3 million over five years to increase family day care places in which child care is provided with flexible schedules at the home of qualified care givers. This funding aimed to meet various needs of parents, for example, the needs of those who work irregular hours. The Commonwealth Department of Family and Community Services (FaCS) provided two performance indicators of this funding in their portfolio budget statements: one is an output indicator, namely the number of additional places (2500 places will be ‘operational’ by 30 June 2004)<sup>1</sup>; and the other is an outcome indicator, which is the expected number of families that will benefit (Commonwealth Department of Family and Community Services 2004).<sup>2</sup>

Despite formulating these output and outcome indicators, the FaCS failed to measure the effectiveness of this childcare program. It is necessary to measure performance criteria, which is not the same as formulating performance indicators, to see the relationships between the indicators. In the case of this childcare program, the objective is to meet the needs of families. So the effectiveness of this program could be measured by, for example, an increase in women’s rate of participation in the workforce.

Even when effectiveness is measured using the performance indicators, a gender perspective could be neglected. Sharp (2003) argued that the contributions of unpaid care activities to outcomes were dropped from the analysis of budget performance. The performance indicators require a consideration of the impacts of budgets on different groups of people: men and women. This means assessing both the paid and unpaid realms to provide meaningful measures.

### 3. Performance indicators using time use data

In this section I introduce a method of calculating time use indicators of child care by parents. The time use indicators are calculated using the 1997 Australian Time Use Survey.

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- 1 In the text the department stated that 2500 places were ‘provided’ from January 2004. But according to the indicators these places were ‘operational’ from June in the same year. This means that the places were not merely approved, but were actually in operation.
  - 2 Detailed information on these indicators is provided in Appendix A.

The time use indicators I have developed are called the gender childcare time gap (GCG) and gender childcare ratio (GCR). These two time use indicators aim to clarify the gender division of labour in child care within a household. They will also highlight the factors that reduce or exacerbate the gender division of labour in child care.

### 3.1 Method

The Australian National Time Use Survey, hereafter TUS, has been undertaken twice, in 1992 and 1997, after the pilot survey was undertaken in Sydney in 1987. These national time use surveys collected time use diaries from around 8600 persons aged over 15, and 4550 households, who were randomly selected from all areas of Australia except remote areas.

The time use diaries distributed to the respondents cover four different seasons through a year with great consideration of seasonality. The randomly selected respondents keep diaries for 48 hours (two days). Within a survey period, diary days are equally distributed over the week so that different time use patterns on weekends and weekdays are reflected in the data. The respondents record information on activity episodes into time slots in the time use diaries. The time slots are divided into five minute sections. In other words, the minimum length of activity time becomes five minutes.

In the 1997 time use diary, starting from midnight respondents recorded a maximum of two episodes (primary and secondary activities) into the time slots. As an example, when a respondent conducted two activities simultaneously – cooking dinner and looking after children – cooking dinner was recorded as a primary activity and looking after children as a secondary activity within the same time slot.<sup>3</sup> These handwritten diaries were later converted to numerical three-digit activity codes by the ABS.

Together with the activity episodes, the respondents log dimensions related to each episode. For example, what is being done; who it is being done for; when it begins; when it ends; whether anything else is being done at the same time; where it takes place; and who else is present (Australian Bureau of Statistics 2002: 11). This additional information on the dimensions of the activity episodes helps researchers understand the situations of various activities.

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3 A third type of activity was identified in the 1992 survey, namely territorial activities, for example, cooking dinner, care of children and listening to the radio. There were precluded from the 1997 survey.

A focus of this study is on the gender division of labour in child care within a household; consequently I selected couple parents for this research. Sub-sample groups were selected from couple parents with children aged under 15. Singles in the TUS include full-time students, single parents and dependent children aged 15–25. For the TUS couples are defined as married and de facto heterosexual couples; homosexual couples are excluded. I selected couple parents because cross-national time use studies show that Australian couples are not egalitarian in the way they share domestic activities (Batalova and Cohen 2002; Tiffen and Gittins 2004). Thus this research focuses on heterosexual, two-parent families in Australia.

Couples with children still form the majority of households in Australia. However, there has been a sharp increase in the number of single parents (Pocock 2003). According to the ABS, of the total number of families with children aged 0–15, the percentage that include couple parents has decreased from 83.0 % to 78.8 % in the decade 1993–2003. On the other hand, the percentage of single fathers in this group has positively shifted from 1.7% to 2.5% and single mothers 15.3% to 19.3% during the same years.

However, the samples selected for the TUS do not reflect this large increase in the number of single parents. For example, the percentage of diary days of single parents with children aged between 0–15 was 8.4% of the total families with the same age group of children in 1997. Such a small data set does not allow me to undertake accurate estimations of the time use indicators for single parents.

The couples with children selected for this study are divided with regard to the age of the children. This is because domestic childcare time is likely to be reduced as the age of the children increases, especially when the children go to primary school. Also in Australia the eligible ages of children attending formal child care approved by the government is between 0 and 5 except for the ‘outside school hours care’ service, which is used by school-aged children.<sup>4</sup> Assisting parents to access these external childcare places could change the time use of couple parents at home. Thus my emphasis is on the time use of couples with children aged between 0 and 5.

With this sample selection, my sample comes to 3547 diary days (1722 by men and 1825 by women). The number of the sample group by survey years is expanded when the responses are weighted to reflect the demography of the Australian population. The weight option, which was made considering household structures and personal characteristics, enabled me to analyse a larger sample. Using the weight option, my sample expanded to

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4 In Australia, elementary schooling begins when children are five to six years old, although the precise schooling age varies from state to state.

3 408 140 diary days (1 717 878 by men and 1 690 262 by women) in 1997. The number of the sub-sample groups is shown by gender in Table 1. As seen in Table 1, the number of diary days by gender is not the same. Women contributed more diary days than men although couple parents were selected. This is because the TUS was conducted for two survey days, but some respondents contributed only one day to the survey. According to ABS, the difference in the number of the time diaries between day one and day two is 177 diaries (Australian Bureau of Statistics 1998b: 14). Respondents are assumed to feel less motivation to keep diaries on the second survey day.

The sub-sample group is further classified by the age of the youngest child as this could be an important variable for changes in how parents share child care. Also, the age of the youngest child is considered of major significance in considering the potential for the provision of non-parental care arrangements by the market and the public sector. Sub-sample groups are therefore classified in four groups in terms of the age of the youngest children: 0–2, 3–5, 6–11 and 12–14.

**Table 1: The number of the selected samples by the age of youngest children and gender in this research**

Age of the youngest child	Men		Women	
	Unweighted number	Weighted number	Unweighted number	Weighted number
0–2	603	611 970	642	618 953
3–5	227	229 433	241	225 739
6–11	671	661 684	707	630 561
12–14	221	214 791	235	215 009
<b>Total</b>	<b>1722</b>	<b>1 717 878</b>	<b>1825</b>	<b>1 690 262</b>

Notes:

1. The sample is counted by diary days.
2. The sample is weighted using the person-day weight, which is created to consider the probability of selection in researched regions, dates and the distribution of populations by gender, age and employment status. This weight enables us to estimate time spent on childcare activities undertaken on a daily basis in the whole population.

Source: This table was calculated using the Confidentialised Unit Record File of the 1997 Time Use Survey.

### 3.2 Data analysis

### 3.2.1 Time use indicators: the gender childcare time gap (GCG) and gender childcare ratio (GCR)

The time use indicators formulated in this research consist of the absolute and relative amount of time spent on the care of children by gender within a household. The absolute amount of childcare time, termed the gender childcare time gap (GCG), indicates differences in the time per day that men and women use for domestic child care. The gender childcare time gap (GCG) measures the division of labour in child care in a quantitative way. On the other hand, the relative amount of childcare time, named the gender childcare ratio (GCR), illustrates the share of childcare work between men and women. The GCR is shown as a percentage of the mean value of childcare time spent by men divided by childcare time spent by women. The closer the GCR is to 100 per cent the more equally childcare work is shared within the household.

Table 2 shows the results of the estimations of the gender childcare time gap and the gender childcare ratio in 1997. Women spent roughly twice as much time undertaking childcare activities as men in all sub-categories, especially women whose youngest children were aged under two years. Childcare time reaches a peak when the children are aged 0–2, when women and men spent 217.45 minutes and 91.93 minutes per day, respectively. In other words, these women with children aged 0–2 spent 15 per cent of their time on childcare activities every day. The gender childcare time gap gradually decreases as the age of the youngest child increases.

The gender childcare ratio also improves as the age of the youngest child increases. In Table 2 the gender childcare ratio of parents with the youngest child aged under two years is smaller than any other sub-group of parents (42.3%). And then the gender childcare ratio sharply increases to 51.0% for parents with the youngest child aged 3–5. The gender childcare ratio further increases to 52.6% when the children are 6–11.

**Table 2: The gender childcare time gap and the gender childcare ratio of parents categorised by the age of youngest child and gender in 1997**

Age of the youngest child	Childcare time (min/d)			Gender childcare ratio (GCR)
	Men	Women	Gender childcare gap (GCG)	
0-2	91.93	217.45	125.52	42.3%
3-5	71.76	140.66	68.90	51.0%
6-11	47.14	89.63	42.49	52.6%
12-14	17.48	33.37	15.89	52.4%

Note: Childcare activities included here are the seven types of childcare activities: physical and emotional care of children, teaching, playing, monitoring children's playing, visiting childcare places, travel associated with childcare activities, and other activities.

Source: This table was calculated using the Confidentialised Unit Record File of the 1997 Time Use Survey.

Women, in contrast to men, are more likely to reduce childcare time as their children grow up. Consequently, by dramatically decreasing women's childcare time, the gender division of labour in child care is improved. This reduction of women's childcare time lowers the gender childcare time gap; men's contribution to domestic child care does not increase.

### **3.2.2 Data treatment: primary and secondary childcare activities within a household**

The gender childcare time gap and the gender childcare ratio are estimated from data on primary activities. Time use on primary activities however neglects the intensity of child care. Research on time use on child care shows that child care is often combined with other activities. One way to measure the intensity of child care is to estimate time use on multiple activities conducted simultaneously. The gender childcare time gap and the gender childcare ratio are then calculated from data on primary and secondary activities in order to reveal gender differences in the intensity of child care.

In Table 3 the gender childcare time gap and the gender childcare ratio of primary and secondary childcare activities are shown by gender and by the age of the youngest children. In terms of primary childcare activities, childcare time spent by men and women steadily

decrease as the age of the youngest child increases. At the same time the gender childcare ratio decreases.

However, with regard to secondary childcare activities, changes in time spent by men and women are more complicated. Minutes spent on secondary childcare activities by women steadily decrease but minutes on the same activity by men increase. Secondary childcare time spent by men jumps from 386.29 (age of the youngest child 3–5) to 464.73 minutes per day (youngest child aged 6–11).

The gender childcare ratio also makes a complicating change as the age of the youngest child increases. The gender childcare ratio of parents with the youngest child aged 0–2 is 63.5%, which is the lowest of the sub-groups. The gender childcare ratio is raised to 92.0% when the youngest children are aged 6–11. The gender childcare ratio for child care as a secondary activity is absolutely larger than that of child care as a primary activity.

**Table 3: The gender childcare time gap and the gender childcare ratio of primary and secondary childcare activities by gender and by activity category in 1997**

Age of the youngest child	Primary activity			Secondary activity		
	Childcare time (min/d)		Gender childcare ratio	Childcare time (min/d)		Gender childcare ratio
	Men	Women		Men	Women	
0–2	91.93	217.48	42.3%	350.28	551.87	63.5%
3–5	71.76	140.66	51.0%	386.29	530.49	72.8%
6–11	47.14	89.63	52.6%	464.73	504.95	92.0%
12–14	17.48	33.37	52.4%	438.65	508.26	86.3%

Note: See the note to Table 2.

Source: This table was calculated using the Confidentialised Unit Record File of the 1997 Time Use Survey.

In summary, estimations of the gender childcare gap and gender childcare ratio help us to understand the division of labour in child care within a household. This gender division of labour improves as the age of the youngest child increases. This change in the gender division of labour, however, is not similar when the GCG and GCR are calculated separately by activity types (either a primary activity or a secondary activity). In terms of primary childcare activities, both women and men reduce the time spent on domestic child care. On the other hand, in secondary activities, women but not men reduce their childcare

time. Men actually increase the time spent on the care of children when they are growing up. These changes in the GCG are not seen in the GCR. Regardless of activity type the GCR steadily improves as the age of the youngest child increases.

#### **4. Discussion**

This paper argues that time use studies can be incorporated into a framework of budgeting in order to make it more gender responsible. Time use studies conducted so far have illustrated the significant amount of unpaid domestic work performed within households. Time use studies have also shown that unpaid domestic work is mostly undertaken by women. In contrast to the previous time use studies at the micro level, there have been few time use analyses performed at the macro level except for calculations of economic value of unpaid work. Time use analyses have been considered to be a tool of gender budget initiatives but they have not been fully developed in this context. A major limitation of time use analyses when they are applied to budget analyses is the difficulty of making associations between policy, budgets and time use on unpaid domestic work within a household.

Instead, this paper considers potential uses of time use analysis for evaluating the performance of budgets. Currently budgeting systems are shifting into performance or result-based budgeting, which requires information related to public goods and services provided by the government. The information is compiled as performance indicators to clarify stages of the service provisions: input, output and outcomes. Time use data has not yet been applied within a performance budget framework.

Within this paper time use indicators of child care by couple parents were created using data from the Australian National Time Use Survey 1997. The time use indicators illustrate gender differences in the division of unpaid childcare activities between men and women within a household.

The time use indicators developed in this study are called the gender childcare time gap (GCG) and gender childcare ratio (GCR). Both the GCG and GCR change significantly when sub-sample groups of parents are divided by the age of the youngest child. Particularly when the age of the youngest child is less than two years old, women's workload on unpaid child care becomes remarkably large. At the same time the gender differences in time spent on domestic child care become significant.

These time use indicators make the gender differences more visible when childcare time used for primary and secondary activities are calculated separately. In terms of primary childcare activities, the GCR is reduced as the age of the youngest child increases. This is

because women's childcare time is reduced more than men's childcare time. The GCR illustrates that the division of unpaid parental child care becomes more equal between men and women as the age of the youngest child increases.

On the other hand, in terms of secondary childcare activities changes in the GCR are more visible. Men actually increase the time spent on care of children as a secondary activity while women reduce the time on the same activities as the age of the youngest children increases. The GCR of secondary childcare activities consequently improves along with that of primary childcare activities. But this more equal share of unpaid parental child care is achieved quite differently between primary and secondary activities. The changes in the GCR of secondary childcare activities result from an increase in men's childcare time as well as a decrease in women's childcare time.

The GCG and GCR could be benchmarks to inform us of a turning point when women reduce childcare workloads. Calculations of the GCG and GCR tell us that the current turning point depends on the age of the youngest child. Childcare time is dramatically reduced when the youngest child reaches five years old. This is the biggest turning point for women looking after children at home. The next turning point, although it is relatively smaller, comes when the children turn three years old. If the precise age of the youngest child was fully provided, this turning point of the reduction in childcare time could be more sophisticated. However, the age blankets for the youngest child are fixed in the time use survey. This analysis of the turning points of parental childcare time remains an issue for my future research.

Non-parental childcare supports could help women spend less time on child care at home. Bittman (1999) argues that it is difficult for parents to negotiate the share of childcare work. This is supported by the results of this analysis. As seen in Table 2, the gender division of labour is improved via less time spent on primary childcare activities by mothers. However this reduction is very slow. Women have to wait such a long time to reduce their childcare commitments as their children grow up.

The GCG and GCR reveal that the current provision of public childcare services is not enough to help women reduce unpaid parental childcare work. Especially when children are aged under three, there is a big gender gap in the amount of time spent on childcare work at home. The time use indicators of parental child care suggest a higher demand for non-parental child care by parents with small children.

According to the Child Care Survey in 2002, approximately half of total children aged under four attend formal childcare centres and services. However, with regard to children aged under two, the attendance rate of these childcare services is extremely low: 4.2% of

those aged under one and 15.7% of one year olds. Thus, as observed by the government, there exists significant unmet demand for formal childcare services for preschool-aged children (Commonwealth Department of Family and Community Services 2003).

The next step of my research is to analyse longitudinal time use surveys in order to examine changes in the time use indicators and in outlays of childcare programs. If the time use indicators show that the GCR has improved, we can assume that childcare policy and budgets are working well (although we know that child care is just one of many factors that might influence the household division of labour). But if the time use indicators suggest that the GCR has been getting worse, it is likely that childcare policy and funding have at least failed to prevent (if not contributed to) the negative outcomes. Research on time use shows that access to non-parental childcare places helps parents to share domestic child care more equally. Bittman, Craig and Folbre (2004) show that access to non-parental child care actually changes time spent on childcare activities between men and women in the household (Bittman, Craig and Folbre 2004). To compare the time use indicators between the years of the time use surveys could be beneficial to evaluate the effectiveness of the childcare funding in terms of the gender division of labour within a household. At the same time the time use indicators could help the government enhance accountability in pursuit of gender equality.

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**Appendix A**

The name of the sub-program	Additional family day care places			
A purpose of the sub-program	Improving the flexibility of child care to better meet the needs of families.			
Funding	\$ million			
	2004–05	2005–06	2006–07	2007–08
	21 335	21 736	22 230	22 675
Performance indicators	<ul style="list-style-type: none"> <li>• 2500 additional family day care places will be fully operational by 30 June 2004.</li> <li>• 2900 additional families will benefit from the new proposal each year.</li> </ul>			

## Notes:

1. Funding is a total of administration items and department outputs. The figures are forward estimates.
2. This appropriation was implemented from 1 July 2004.

Source: This table was compiled using information from the Commonwealth Department of Family and Community Services (2004: 86–87).

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