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Trends in child care use and cost between 1999 and 2002+

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Abstract

Despite the widely-acknowledged importance of high quality, affordable child care, quantitative research into child care policy in Australia is relatively limited. In this study, recently-released data from the Australian Bureau of Statistics' 1999 and 2002 Child Care Surveys are used to examine trends in formal and informal child care use and costs for children not yet attending school over the three year period between the two surveys. The data were analysed using the Australian Bureau of Statistics Remote Access Data Laboratory (RADL). The time period examined is particularly important in policy terms, as the new Child Care Benefit (CCB) was introduced in July 2000. Both bivariate and multivariate analyses are employed in examining the data. Results show a statistically significant increase in the use of long day care and family day care services between 1999 and 2002, accompanied by a fall in the use of informal care services. Increases in formal care use appeared to be stronger for some groups, including children whose mothers worked part-time, and children from low income families. Parents' out-of-pocket costs for care fell very slightly in real terms over the period, with more substantial falls in costs for sole parent and low income families.

1. Introduction

Quantitative research into child care policy in Australia has been limited, largely due to limited availability of relevant data. The importance of an improved understanding of child care use and costs is particularly important given the strong focus on work-family balance in recent policy discussions and the key role that appropriate and

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affordable child care plays in achieving this balance (see, for example, Howard, 2005; HREOC, 2005). While the use of formal child care for young children grew across the 1990s (ABS, 2003), detailed analyses of the types of families using more formal care, and the effects of changes in government assistance on the costs of formal care are scarce.

Child care provides parents (particularly women) with an opportunity to participate in the work force (Anderson & Levine, 1999; Blau, 2000; Hofferth & Collins, 2000), although research shows that decisions about maternal labour force participation and child care use are complex (Evans & Kelley, 2002; Hand, 2005). As well as attitudes and preferences about the care of young children, and perceptions of child care quality, the affordability of child care may be an important factor affecting mothers' decisions about whether to undertake paid work, and the amount of hours worked. For many families, affordability is clearly linked in part to the availability of government subsidies for child care costs (Hansen *et al*, 2006).

In Australia there is mixed evidence about the extent to which child care affordability affects female labour supply. Some studies suggest that child care costs may form a substantial barrier to the labour market participation of mothers (Schofield & Polette, 1996), but others have found that the cost of care has no significant effect, or only a very small negative impact, on maternal employment, and may not significantly influence married women's movement from part-time to full time work (Cobb-Clarke, Liu & Mitchell, 2000; Rammohan & Whelan, 2005; Rammohan & Whelan, 2006). It may be that some groups of women are more influenced by child care costs than others. Doiron and Kalb (2005), found that sole parents' and low-income women's workforce participation decisions were more highly influenced by child care costs than those of other women. In relation to child care availability and women's employment, Baxter (2004) examined the links between changes in patterns of child care use and changes in patterns of maternal employment across the 1980s and 1990s. Baxter found that while the availability and use of formal child care services rose with the increasing employment of women, the use of informal care and arrangements for providing care within families also increased.

The importance of good quality, affordable child care goes beyond its relationship with the workforce attachment of mothers. Good quality childcare has been linked with better short and long term outcomes for children and for society as a whole (see, for example, Anderson *et al*, 2004; Burchinal *et al*, 1996; Castles, 2002; McDonald, 2002; OECD, 2004; Weikart, 1998; Wise *et al*, 2002), and substantial amounts of both formal and informal care in Australia are used for reasons unrelated to parental employment (Rammohan & Whelan, 2005).

There has been little research conducted into the impact of Child Care Benefit (CCB) on child care affordability and use patterns. Research from the Australian Institute of Health and Welfare (AIHW), conducted soon after the introduction of the CCB, using data from the Australian Government Census of Child Care Services, found that the introduction of the CCB had improved the affordability of child care for families using long day and family day care (Moyle *et al*, 2001). However, in subsequent work, the AIHW found that affordability for these services declined again between 2000 and 2002, due to fees for child care rising at a more rapid rate than the CCB (AIHW, 2003). The Department of Family and Community Services also notes that the number of children attending long day care, family day care and outside school

care increased from May 1999 to October 2000, although increased usage was stronger in long day care than in the other two settings (FaCS, 2005). Rammohan and Whelan (2005, p. 219), using data from the Household Income and Labour Dynamics in Australia survey, find that 43 per cent of families using any type of child care for employment purposes receive CCB, while 35 per cent of those families using child care for non-employment purposes receive CCB (although the mean annual amount of benefit received by the latter group is substantially lower than for the former group).

In this study, recently-released unit record data from the 1999 and 2002 Child Care Surveys conducted by the Australian Bureau of Statistics are used to construct a demographic profile of families using child care for children not yet attending school, and to analyse changes in this profile between 1999 and 2002. While we do not explicitly examine links between increased child care use and labour supply of mothers, we do examine links between mothers' labour market participation and trends in child care use and cost. The time period covered by this study is particularly important in terms of government policy, as the new CCB was introduced on 1 July 2000.[1]

Child Care Benefit (CCB) was introduced to replace two existing forms of child care subsidy – Child Care Assistance and Child Care Cash Rebate. CCB is a means- tested payment available to families who have children in approved or registered care. Approved care is care provided by services approved to receive CCB on behalf of families. Most long day care and family day care services are approved child care providers. Registered care is care for work-related purposes that is provided by grandparents, relatives, friends or nannies who are registered with the Family Assistance Office. Parents must meet a work/study/training test to receive CCB for more than 20 hours of approved care per child per week, or to receive any benefit for registered care.

In June 2002, the period closest to the collection of the ABS Child Care Survey data, maximum rates of CCB ($2.58 per hour or $129 for a 50 hour week) were available to families with incomes less than $29,857, or families on income support using approved care. Minimum rates of CCB ($0.43 per hour) were available to families with incomes above $85,563 (with one child in care) and $92, 904 (with two children in care), with higher thresholds for additional children in care. Taper rates apply to families with incomes between the lower and upper thresholds. It should be noted that only approved care (for non-school age children, long day and family day care) attracts CCB above the minimum rate – only the minimum benefit is available for registered care (such as nannies). In most cases CCB is paid directly to the child care service providing care, but can also be paid as a lump sum to parents at the end of the financial year (Centrelink, 2002; Family Assistance Office, 2004).

The extent to which the CCB has lowered costs of child care for parents in comparison to the old system is not clear, but FaCS reports that "the introduction of CCB significantly improved affordability of child care", noting a 10 per cent reduction in the child care CPI between July 2000 and March 2002 (FaCS, 2003, p.4). The AIHW also notes that the amount of assistance increased after the introduction of the

[1] While we have also analysed data from the surveys that relates to school-age children, we are concentrating in this paper only on our results for non-school age children. Patterns of use and the costs of care differ enormously between children who attend school, and children who do not, making it important to consider the two groups separately.

CCB, although even for those families receiving maximum rates of CCB, most still have to pay some out-of-pocket cost for care (AIHW, 2003).

In addition to changes in subsidy arrangements, other changes took place between 1999 and 2002 (the period this study focuses on) which may have also influenced any changes in access to or costs of care, and which cannot be controlled for in this analysis. Other initiatives put in place since 1999 include funding for additional child care places, provisions for privately-operated family day care and outside school hours care, and incentives for the establishment of child care services in rural and regional areas (FaCS, 2003).

While it is not possible to directly test the effects of the introduction of the CCB using the data available from the Child Care Surveys, it is possible to examine the nature of changes in use and costs between 1999 and 2002 and to undertake some preliminary hypothesis testing.

First, if, as FaCS suggests, the CCB system is somewhat more generous than the old Child Care Assistance/Cash Rebate system, then it would be expected that the introduction of the CCB would have reduced the costs of care to parents. However, improvements in subsidies may or may not offset overall increases in child care fees. Table 1 shows increases in average fees charged by formal care services in both 1999 and 2002, all expressed in 2002 dollars (FaCS, 2000, 2003, with adjustment to 2002 dollars based on authors' calculations).

While these figures provide only a rough guide to increases in costs to particular families (which could also depend on other factors, such as the amount of hours used and the number of children in care), they give us a picture of the extent to which costs to parents would have increased in real terms without the availability of government subsidies. It is interesting to note that average full-time care fees in community long day care centres fell slightly in real terms across the period, although an analysis of the child care CPI (Cassells *et al*, 2005) shows that costs to parents, which fall with the introduction of an increased government subsidy, tend to rise rapidly shortly afterwards, presumably reflecting increases in fees.

The results in Table 1, however, suggest that increases in fees following changes to subsidies may not occur consistently across the whole child care sector. Unfortunately, the Child Care Surveys do not include information about what type of long day care service (community or private) is being used, so further analysis of differences in cost trends between these care types is not possible here.

Table 1 - Average fees in selected services (2002 dollars)

	Private long day care (weekly)	*Community long day care (weekly)*	*Family day care (weekly)*
1999	180	191	155
2002	184	188	163
Percentage increase	2.2%	-1.6%	5.2%

Note: Average fees based on 50 hours in the Census reference week. 1999 figures uprated to 2002 using changes in Headline CPI.
Source: FaCS, 2000, 2003; authors' calculations.

We would also expect that improved assistance with child care costs would increase parents' ability to access formal care, and that more children would use formal care services in response to lowered costs for those services. While we do examine trends in child care use in this paper, it is important to note the limitations inherent in our attempt to link increased use of formal care services with improved government assistance. Access to care depends not just on cost factors but also, amongst other things, on the supply of care. It could be that lowered costs do increase demand for care, but that if insufficient child care places are available, access to care may still not improve. Also, as previous research has shown, decisions about child care use are complex, and may also depend on factors such as parental preferences and the availability of grandparents or others to provide informal care (see, for example, Evans & Kelley, 2002; Hand, 2005).

Finally, it might also be expected that any effects found would be likely to be stronger for children living in lower income families, as greater amounts of benefit are payable to the families of these children. Also, previous research suggests that the use of care by low-wage mothers may be more sensitive to changes in costs than is the case for families with higher incomes (Doiron & Kalb, 2005).

We would expect to see the possible impact of the benefit most clearly in the types of care most likely to be eligible for CCB: that is, long day care and family day care. While parents can receive CCB for other types of care (some preschool care, informal care where the care provider has been registered), long day and family day care represent the core services for which CCB is paid for non-school age children. It is these types of care on which this analysis is focused.

These assumptions suggest the following set of hypotheses, which should be considered as tentative, given, as noted above, our inability to control for all the variables that affect access to and use of child care.

- Hourly costs of care to parents for children in core types of formal care will have risen at a lower rate than average child care fee increases between 1999 and 2002, and may have fallen in real terms.
- The number of children using core types of formal care, and the hours of formal care they use, will have increased between 1999 and 2002.
- The relationships described above will be stronger for children from lower income than higher income families.

In the remainder of this paper, we first discuss the Child Care Surveys, on which our analysis is based, and the methodology we have used. We then present profiles of child care costs and use for non-school age children, and determine the statistical significance of the apparent relationships between factors associated with care use and costs, especially focusing on whether there are statistically significant differences between 1999 and 2002 (that is, before and after the introduction of CCB).

2. Data Source

As noted above, data used in this study come from the Expanded Confidentialised Unit Record File (CURF) of the ABS Child Care Survey 1999 and the ABS Child Care Survey 2002, made available through the ABS Remote Access Data Laboratory (RADL). All the analysis described in this paper was conducted using the RADL, as

the 2002 survey was only available through this medium, and the expanded version of the 1999 survey was also only available through the RADL. The availability of additional detail on some variables in the expanded version of the 1999 CURF (especially the costs of child care variables, which are available only in categorical form in the basic CURF) facilitated our analysis. As no basic version of the 2002 CURF has been released, it is not possible to compare the advantages which the expanded CURF available through the RADL may have had over a basic CURF.

The 1999 CURF contains 9,381 records, and the 2002 CURF contains 10,159 records. Each record represents one child aged less than 12 years, and no more than two children in each family are included in the CURFs. The absence of data about additional children in the family does limit our analysis, as the presence of other children is likely to affect care usage patterns and costs of care. All the information presented in this paper is reported at a child level, and use of the child weights provided in the CURFs means that our results reflect child care usage among non-school age Australian children. Child care arrangements covered by the survey include both work-related and non-work related child care, and all information about child care use relates to the arrangements in the week prior to the survey interview. In the CURFs, dollar amounts (for costs and incomes) are in 1999 dollars for the 1999 CURF and 2002 dollars in the 2002 CURF. Using the CPI, we have adjusted all costs and income values to 2002 dollars, so that meaningful comparisons can be made across the two periods.

While we include some data which relates to the full sample in the CURFs (for example, counts of children who use no care), most of our analysis relates to a sample of children not yet attending school who used some type of formal or informal care. We refer to our sample of children as "non-school age children", and used information about school attendance available in both years of the survey to identify records for inclusion in this sample. We used school attendance rather than the age of the child due to differences across states (and between families and individuals) in school commencement ages. In 1999, our sample size was 2682 non-school age children, and in 2002 it was 2789 non-school age children.

3. Methodology

3.1 Variable Descriptions

Most of the variables in the 1999 CURF were also available in the 2002 CURF (exceptions noted below), so variable descriptions apply to both survey years.

Child care use variables

In this study we focus chiefly on core types of formal care. Formal care is defined in the surveys as regulated care away from the child's home, but for the purposes of this study we have concentrated on those types of formal care that are most likely to attract the CCB: long day care and family day care. We refer to this variable as 'CCB formal care'. We have not focused on pre-school use (the other main type of formal care recorded in the surveys) because it seldom attracts CCB, but also because it differs substantially in other ways from those types of care we have categorised as "CCB formal care", especially in regard to the reasons parents use care and usage patterns. Some brief descriptive data is provided about pre-school use, and children using pre-school are included in the overall sample of children using any type of care. Two remaining types of formal care which are recorded in the ABS surveys are "occasional

care" and "other formal care". These types of formal care have much lower reported use than any of the CCB formal care types or pre-school, and have different usage patterns from CCB formal care. Many of the care providers for occasional care and other formal care are not registered as approved child care services (and thus are not eligible to administer CCB). While children using these care types are included in our sample, we do not report on usage patterns of these types of care, mainly due to very small sample sizes.

We measure care usage in two ways. First, we examine the number and percentage of children using particular types of care. Second, we measure the average hours of care used.

Work-related variables

In both our descriptive and multivariate analyses, we present data about the relationship between maternal labour force participation and trends in the costs and use of care. We measure this participation in two ways. First, we use a variable that indicates whether the mother was employed, unemployed or not in the labour force at the time of the survey. Second, we create a set of dummy variables measuring the mother's hours of work in the reference week: zero hours, less than 16 hours, 16-34 hours, and 35 or more hours. We also control for the hours of work of the father in multivariate models.

We also include in our multivariate analysis a variable capturing the main reason parents used child care. This is a dichotomous variable, with parents who reported that their main reason for using care was to work, look for work, or undertake work-related or non-work related study/training receiving a value of 1 for this variable, and all other reasons receiving a value of zero. However, it is clear from an initial analysis of the data that many parents who report a main reason other than work for using care do in fact work while the child is in care.[2]

Previous qualitative research suggests a reluctance on the part of mothers to explicitly state that their own work commitments are the primary reason for their children being in care (Hand, 2005), and a particular type of child care may be chosen primarily for its perceived educational and developmental benefits for the child, even if both parents are working while the child is in care.

Child care cost variables

The main set of variables that differ between 1999 and 2002 are those that relate to government cash assistance for child care costs. In the 1999 survey, which preceded the introduction of the CCB in July 2000, questions relate to whether parents received

[2] It should be noted that our definition of "work/study related care" differs from other definitions of this concept. Our definition does not match exactly the criteria used by the Family Assistance Office in establishing eligibility for Child Care Benefit over 20 hours per week. For example, activities which would qualify parents for receiving CCB for more than 20 hours per week include setting up a business or providing constant care for a disabled person. These are not activities which can be isolated from the responses in the ABS Child Care Survey. In addition, the characteristics of families who receive a value of 1 for our reasons for using care variable may differ in some respects to characteristics of families using "work-related care" as defined by the Australian Government Census of Child Care Services (see, for example, FaCS 2000, 2003). While the definitions used are similar, the Census categorises care as work-related based on the reported employment and/or study status of parents, while the ABS surveys rely on parents' self-reported main reason for using care.

assistance from the Child Care Assistance scheme, and if they claimed or intended to claim the Child Care Cash Rebate for child care costs. In 2002, questions relate to CCB, and ask whether the providers of care receive CCB, and also whether parents claimed or intend to claim CCB (a question aimed at parents who might claim the benefit as a lump sum through the Family Assistance Office, rather than have it paid to the provider). The costs of child care reported by parents in 1999 are costs net of Child Care Assistance but not net of Child Care Cash Rebate (ABS, personal communication). In 2002, on the other hand, costs provided in the CURFs are net of all CCB. In order to be able to compare costs across the two periods, we decided to impute the amount of Child Care Cash Rebate (CCCR) that families received in 1999, and use this imputed value to calculate the costs of child care net of all government child care subsidy, including the cash rebate.

In order to impute CCCR, we used payment rates and rules from July 1999, the period most closely matching the collection of the 1999 Child Care Survey data. First we identified those children whose families stated that they had claimed or intended to claim CCCR for the child's care, and only imputed CCCR for these children if the family had paid more than $20.50 per week in total child care costs, as costs below this amount did not attract CCCR. We then calculated an income test threshold for these families: those with two children in care were allocated an income test threshold of $73,000, and those with one child in care were allocated a threshold of $70,000. If family income was above the threshold, then the amount of CCCR for each child was calculated as 20 per cent of total out of pocket child care costs less a minimum fee of $20.50, up to a maximum of $117 for families with one child in care, and $234 for families with two children in care. Families with income under the threshold received an imputed CCCR amount of 30 per cent of total child care costs less the minimum fee, up to the same maximum rates. Finally, all dollar amounts were adjusted to 2002 dollars, and all our final cost data for both years is presented on a cost-per-hour basis, calculated by dividing the reported cost of care (adjusted for CCCR in 1999) by the number of hours used.

As the Child Care Surveys only provide information about a maximum of two children per family, we were unable to incorporate information about any other children who might have been in care into our imputation of CCCR. In addition, there is insufficient information in the available 1999 unit record data to establish which type of care CCCR was received for. While the majority of parents claimed the rebate for formal care only, this was not always the case and, within broad "formal" and "informal" care categories, it is impossible to accurately allocate the rebate to particular types of care. Thus when we present results for costs of care, we are able to present these results only in terms of total costs of care, and costs of care for those families that used only one broad care type, as the 1999 data, adjusted for CCCR, does not allow us to accurately break down costs of care by care type for families who used a mixture of care.

Other variables

We analyse child care use and costs in the context of demographic characteristics that might be expected to interact with these outcomes. These characteristics include family type, amount and main source of family income, labour force status and hours of work of the parent(s) (as described earlier), main language spoken at home and area of residence. Other variables incorporated into our analyses include the main reason

parents report that care was used, and the age of the child.

It should be noted that around 12 per cent of all responses to the survey question about mother's income, and around 10-11 per cent of responses to the father's income question were "don't know/not stated" in both survey years. Where either the mother's or father's income was recorded in this way, we have excluded that child and family record from any analysis involving family income, and also from analysis of costs, as full data on family income was needed to impute net costs of child care for 1999. Thus our total sample sizes for analyses of income and/or costs variables for children who used some care were 2286 in 1999 and 2415 in 2002.

As noted above, we limit most of our analysis to children who use some care – that is, our sample is restricted to children for whom total hours of care across all care types (formal and informal) is greater than zero.

3.2 Statistical Analysis

We present descriptive statistics profiling child care users in 1999 and 2002, and use bivariate regression to determine whether changes between 1999 and 2002 in costs and use for families with particular characteristics were statistically significant. We also test our hypotheses about the possible effects of CCB by using a probit model to examine the effects of factors (particularly the effect of survey year – 1999 or 2002) on the likelihood of using CCB formal care, using pooled cross-sectional data for 1999 and 2002.

This model presents sample selection issues: as we can only observe child care choices for children who used some type of care, the sample available for predicting the use of formal care is a censored one. The use of a non-randomly selected sub-sample such as this can bias coefficient estimates (Heckman, 1979), and we have adjusted our model for this sample selection bias by using a Heckman correction procedure with our probit model. This technique allows us to control for the effect of selection into the sample of child care users.

Our binary dependent variable for the probit model is defined as 1 if a child uses any long day or family day care (whether or not the child also uses other types of care), and 0 if the child does not use such care. Thus children who only use care other than long day or family day care receive a value of 0 for the dependent variable. Many of the variables that can be expected to explain selection into the sample of child care users (that is, the decision to use any child care) are also important for explaining the decision to use formal care. Thus both our selection model and our use of formal care model include family income (defined as a set of dummy variables), parental hours of work (defined as a set of dummy variables separately for mothers and fathers), region of residence (capital city vs balance of state), age of the child (in years), and main source of income. Children of single parents are likely to use both more formal *and* informal care than children from couple families (due to the much lower likelihood of such children having two adults within the family to share child care responsibilities), and thus single parent status can be seen as a more important predictor of selection into the sample, than of the choice to use formal care. Thus this variable is used in the selection model, but not in the model predicting the use of formal care. We also included a variable measuring the main reason for using care (work versus other reasons) in our model predicting the use of formal care, but not in our selection model, as this variable was only observed for children using some type of child care. This variable is not as

strongly correlated with the hours spent working by the mother as might intuitively be expected, because, as noted earlier, many working parents report child-related, rather than work-related, reasons for using child care.

Only the likelihood of children using care is modelled, as our main interest was in changes between 1999 and 2002, and the overall movements in hours of care and costs of care shown in our descriptive statistics across this period were very small.

All our results are calculated using the child weights provided in the survey. These weights indicate how many children in the population are represented by children in the survey, and take into account the child's probability of being selected into the sample (ABS, 1999, 2002). We present some summary data for formal care types other than CCB formal care, and provide some analysis of informal care, but our study focuses mostly on CCB formal care.

4. Results

4.1 Proportion of children using any child care

When we examined the numbers of children using child care as a proportion of the total population of non-school age children, we found that in the three years between the two Child Care Surveys, the percentage of children using formal care rose, while the use of informal care fell. As shown in table 2, the number of children using any CCB formal care services (long day care and family day care) as a proportion of the total population of non-school age children rose quite sharply, from 306,000 (23.7 per cent) to 372,000 (28.8 per cent) in 2002, and pre-school use also increased modestly. The number of non-school age children using any informal care fell over the same period, from around 550,000 in 1999 to 473,000 in 2002. Thus, in general terms, it appears that the rise in formal care use has substituted for, rather than added to, existing use of informal care. It is impossible from the data available to know whether this effect is mainly due to families switching from informal to formal care, or to some families dropping out of care altogether, while other families take up formal rather than informal care. However, published data from earlier surveys suggests that previous increases in the use of formal care for young children were not accompanied by a substantial drop in informal care use – indeed, between 1996 and 1999, both the proportion of children using informal care as well as the proportion of children using formal care rose (ABS, 2003).

Table 2 - Number and proportion of non-school age children using any formal and informal care. 1999 and 2002

	1999		*2002*	
	N ('000)	*%*	*N ('000)*	*%*
CCB formal care	306	23.7	372	28.8
Pre-school	232	18.0	239	18.6
Informal care	550	42.6	473	36.7

Note: Population analysed is all non-school age children.
Source: ABS Child Care Survey, 1999 and 2002.

The remainder of our analysis relates to the sub-sample of children who used some hours of formal (including pre-school and occasional care) or informal care. As noted in the methodology section above, "CCB formal care", with which our analysis is most concerned, incorporates long day care and family day care.

4.2 Trends in child care use

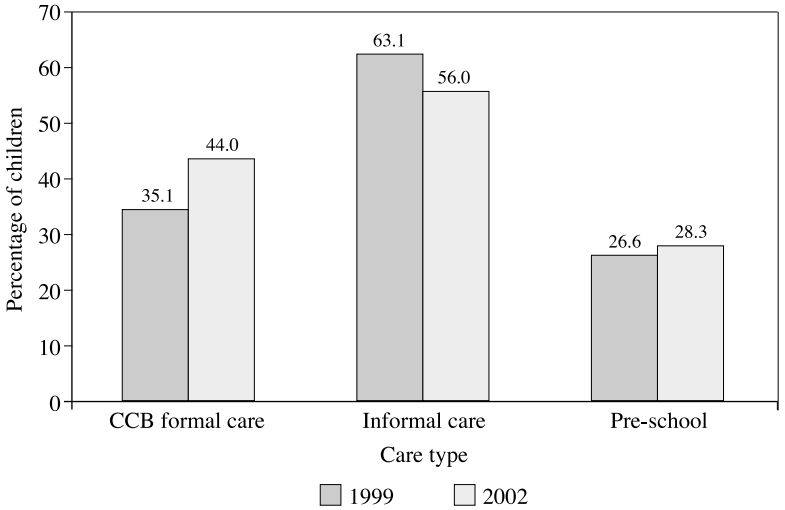
When examining the use of different types of child care among children who used care of any type, we found reasonably strong growth in the percentage of non-school age children using CCB formal care (from 35 per cent of all children using any care in 1999, to 44 per cent in 2002), a growth in percentage terms which is almost exactly matched by a corresponding fall in informal care for non-school age children (see Figure 1). Growth in pre-school care is also evident, but is not so marked as for CCB formal care. Figures 2 and 3 provide a further breakdown of these usage patterns, showing that most of the rise in the use of CCB formal care occurred in long day care settings, with the percentage of children using these services increasing from just over 27 per cent in 1999 to 35 per cent in 2002. Figure 2 also provides additional information about trends in care use for occasional and other formal care, showing a slight fall in the use of these types of care over the period, although these results should be interpreted cautiously due to low sample sizes for these care types. Figure 3 shows that use of many of the types of informal care fell over the period, with grandparent care being both the most common type of informal care in both periods, and the care type which accounts for the majority of the overall fall in informal care for this age group over the period.

We examined the patterns of care usage for non-school age children more closely by breaking down the percentage of children in care by various demographic characteristics (table 3). We also analysed the average hours of care used (table 4), and found that overall average weekly hours of informal care remained much the same across the period, while average weekly hours of CCB formal care decreased marginally. However, trends in hours of care differed for some demographic groups, as described below.

One of the most interesting findings relates to trends in child care usage over the period among mothers with relatively weak labour force attachment (mothers not in the labour force, and mothers working less than 16 hours per week).[3] The percentage of children with mothers who were not working, or working relatively few hours and who were using any CCB formal care increased more sharply across the period than usage by children with mothers working more hours (table 3). For example, around 31 per cent of children whose mothers worked less than 16 hours used CCB formal care in 1999, rising to 42 per cent in 2002, while there was only a small and non-significant increase in the use of formal child care among mothers working more than 35 hours per week. This pattern is further reflected in table 4 where, despite an overall fall in the average hours of CCB formal care used across the period, mean hours of CCB formal care for non-school age children actually increased for children with mothers with relatively weak labour force attachment.

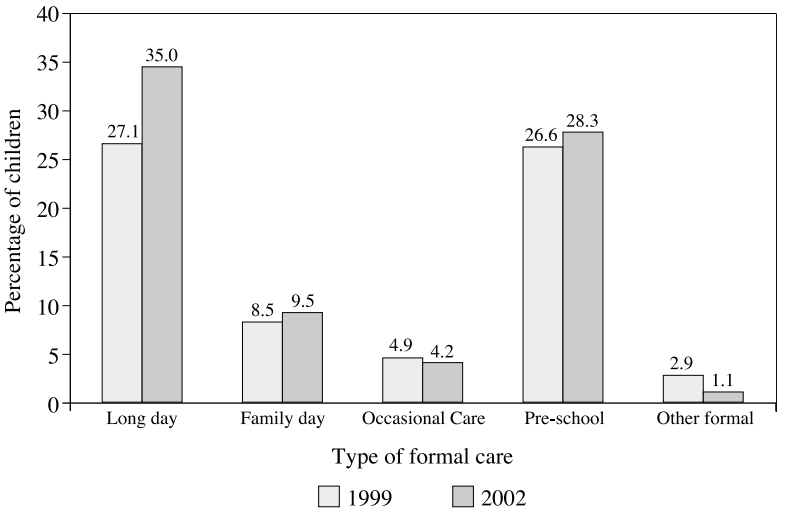
[3] Unemployed mothers were also examined, and similar patterns were observed, but results are not presented here due to very small sample sizes for this group.

Figure 1 - Percentage of non-school age children using care by care type, 1999 and 2002



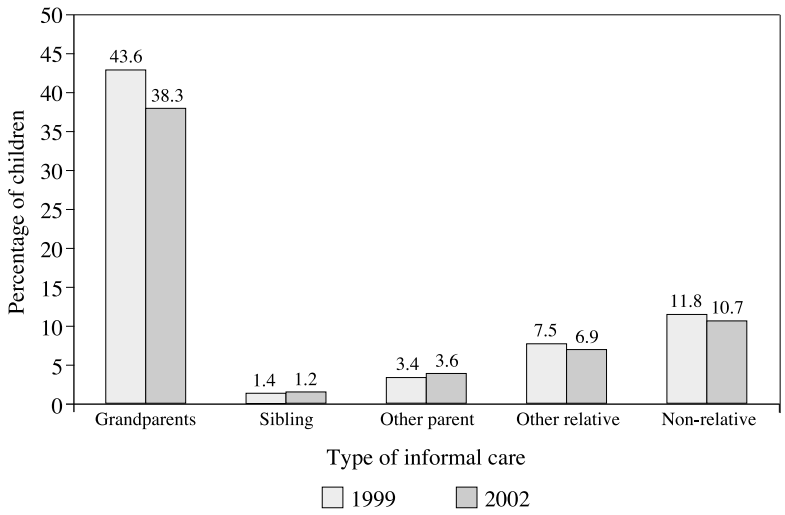
Note: Population analysed is where total hours of care is greater than zero. Children may be using more than one type of care.
Data source: ABS Child Care Survey, 1999 and 2002.

Figure 2 - Percentage of non-school age children using formal care by care type, 1999 and 2002



Note: Population analysed is where total hours of care is greater than zero. Children may be using more than one type of care.
Data source: ABS Child Care Survey, 1999 and 2002.

Figure 3 - Percentage of non-school age children using informal care by care type, 1999 and 2002



Note: Population analysed is where total hours of care is greater than zero. Children may be using more than one type of care.
Data source: ABS Child Care Survey, 1999 and 2002.

Less surprising, and providing some support for the possible impact of the CCB on increased hours of CCB formal care, is the percentage increase in hours of care experienced by children in low to moderate income families (see table 4). Children in families with incomes of between $1 and $400 per week increased their mean hours of CCB formal care by 13.5 per cent between 1999 and 2002 (although this result was not statistically significant), while children in families with the highest incomes (while using higher amounts of care than lower income families in both years) experienced an above-average fall in hours over the period. This effect is less clear when examining the percentage of children using care (see table 3), although growth in CCB formal care use was much smaller for children from high income families (a non-significant increase of only 11.7 per cent) than for any of the lower income family groups.

When examining the data by family type, we found that the percentage of children using CCB formal care had grown more for children in couple families than for children in single parent families, but that single parent families also experienced a growth (although not a statistically significant one) in average weekly hours of use of CCB formal care, while average weekly hours of CCB formal care fell significantly for children from couple families (see tables 3 and 4).

A breakdown of the use of informal care by family type reveals that the percentage of children using informal care fell across all categories (table 3), but there was some variation in this trend when hours of informal care were examined. Table 4 shows that average weekly hours of informal care fell by 5.7 per cent for children in couple families, while average weekly hours of informal care rose by 15.9 per cent for

children in single parent families between 1999 and 2002 (not significant). Indeed, table 4 suggests that while the increases in the use of formal care may have occurred more strongly among less economically secure families, it appears that families in this group (lower income, mother not working) who continued to use informal care used more hours on average in 2002 than in 1999. The drop in average hours of use of informal care can be attributed mostly to children in higher income families and families where mothers were employed.

Table 3 - Percentage of non-school age children using care by care type and demographic characteristics, 1999 and 2002[a]

	Percentage of children using CCB formal care	*1999*	*2002*	*% change*	*Significance*
Family type	Couple family	33.2	42.4	27.5	****
	One parent family	43.9	51.7	17.9	*
Labour force status mother	Mother employed	45.1	53.2	18.0	****
	Mother not in labour force	23.9	30.6	28.0	***
Hours of work of mother	Mother not working	24.9	33.8	35.9	****
	Mother worked < 16 hours	31.3	42.1	34.2	***
	Mother worked 16 - 34 hours	48.1	59.4	23.5	****
	Mother worked 35+ hours	59.8	63.2	5.7	
Family income[b]	$1 - <$400	33.8	41.2	21.7	
	$400-<$800	32.0	43.6	36.2	****
	$800-<$1200	35.6	43.9	23.3	**
	$1200+	43.2	48.2	11.7	
	Total	**35.1**	**44.0**	**25.4**	****
	Percentage of children using informal care				
Family type	Couple family	62.9	54.9	-12.7	****
	One parent family	64.2	61.5	-4.3	
Labour force status mother	Mother employed	67.2	63.0	-6.3	*
	Mother not in labour force	57.5	47.8	-16.8	****
Hours of work of mother	Mother not working	59.0	48.0	-18.7	****
	Mother worked < 16 hours	71.3	64.8	-9.1	*
	Mother worked 16 - 34 hours	68.0	64.3	-5.5	
	Mother worked 35+ hours	62.1	60.6	-2.4	
Family income[b]	$1 - <$400	63.2	56.8	-10.1	
	$400-<$800	63.8	53.6	-16.0	***
	$800-<$1200	62.5	53.2	-14.9	**
	$1200+	63.9	61.1	-4.3	
	Total	**63.1**	**56.0**	**-11.2**	****

****p<.0001, ***p<.001, **p<.01, *p<.05. [a] Children may be using more than one type of care
[b]Family income data based on smaller sample due to missing values for income variables, and all income data in 2002 dollars.
Note: Population analysed is where total hours of care is greater than zero.
Data source: ABS Child Care Survey, 1999 and 2002.

Table 4 - Average weekly hours of care by care type and demographic characteristics, 1999 and 2002[a]

	Average hours CCB formal care	*1999 Mean hours*	*2002 Mean hours*	*% change*	*Significance*
Family type	Couple family	18.6	17.2	-7.2	*
	One parent family	19.4	20.6	6.6	
Labour force status mother	Mother employed	21.8	20.0	-8.6	**
	Mother not in labour force	12.4	13.3	7.9	
Hours of work of mother	Mother not working	12.9	14.2	10.2	*
	Mother worked < 16 hours	13.2	13.7	3.1	
	Mother worked 16 - 34 hours	20.7	20.1	-3.1	
	Mother worked 35+ hours	29.1	28.0	-3.6	
Family income [b]	$1 - <$400	15.0	17.1	13.5	
	$400-<$800	17.0	16.9	-0.7	
	$800-<$1200	18.1	17.6	-2.7	
	$1200+	22.8	20.1	-11.7	**
	Total	18.8	18.0	-4.3	
	Average hours informal care				
Family type	Couple family	12.7	12.0	-5.7	
	One parent family	17.7	20.5	15.9	
Labour force status mother	Mother employed	16.5	14.5	-11.8	**
	Mother not in labour force	10.0	11.3	12.2	
Hours of work of mother	Mother not working	10.7	12.4	16.3	
	Mother worked < 16 hours	9.6	9.3	-3.6	
	Mother worked16 - 34 hours	15.7	14.0	-10.7	
	Mother worked 35+ hours	26.4	25.6	-3.0	
Family income [b]	$1 - <$400	12.3	14.4	17.4	
	$400-<$800	11.8	16.4	38.6	***
	$800-<$1200	12.9	12.3	-4.3	
	$1200+	16.0	13.5	-15.8	**
	Total	13.6	13.7	0.	

*****p<.0001, ***p<.001, **p<.01, *p<.05.* [a] Children may be using more than one type of care
[b]Family income data based on smaller sample due to missing values for income variables, and all income data in 2002 dollars.
Note: Population analysed is where total hours of care is greater than zero.
Data source: ABS Child Care Survey, 1999 and 2002.

We conducted additional multivariate analysis of changes in the use of CCB formal care only, as our primary focus was in analysing changes in use patterns of those types of care most likely to attract CCB. As discussed above, we corrected for the effects of selection bias by using a Heckman selection model, and found (as expected) a significant sample selection effect (p<.0001). Maternal full-time work, higher levels of family income, having wages or other income (compared with government transfers) as a main source of income, and living in a capital city were all positively and significantly associated with the use of some type of child care (and

therefore inclusion in our sample). Children living in couple families were significantly less likely to be in our sample of child care users than children living in single parent families, and the effect of year on selection into the sample was bordering on significance (p=.05), with 2002 having a negative effect on selection into the sample (which matches with our descriptive findings showing an overall fall in the use of any type of child care between 1999 and 2002).

Table 5 - Factors influencing whether children used any CCB formal care: probit model with sample selection[a]

	Estimate (SE)	*Significance level*
Year=2002 (reference: year=1999)	.23 (.04)	****
Area of residence capital city (Reference: balance)	-.03 (.04)	
Age of the child (in years)	.01 (.02)	
Main language spoken at home English (Reference: other language)	.24 (.11)	*
Main reason for using care work related (Reference: non-work related)	.64 (.06)	****
Mother works zero hours	-.10 (.10)	
Mother works between 1 and 15 hours	-.44 (.08)	****
Mother works between 16 and 34 hours (reference: 35+ hours per week)	-.18 (.07)	*
Father works zero hours	.11 (.07)	
Father works between 1 and 15 hours	.00 (.15)	
Father works between 16 and 34 hours (reference: 35+ hours per week)	-.07 (.06)	
Main source of income wages	-.15(.07)	*
Main source of income other (reference: main source of income government transfers)	-.20(.09)	*
Family income between $400 and $800	.03 (.08)	
Family income between $800 and $1200	.01 (.09)	
Family income greater than $1200 income (Reference: $1 to $400)	.-.05 (.09)	
Intercept	-.31(.18)	
Number of observations	4701	

*****p<.0001 ***p<.001 **p<.01 *p<.05.* [a] Families with income less than or equal to zero were included in the model, but results are not reported here.
Data source: ABS Child Care Survey, 1999 and 2002

The results of our main model predicting the use of CCB formal care are shown in table 5, and demonstrate that, after correction for sample selection bias, the year of the survey continued to have an independent positive effect on the likelihood of using CCB formal care for non-school age children. Children whose mothers worked less than 35 hours per week were significantly less likely to be using CCB formal care than children with mothers working more than 35 hours per week, while speaking English at home was significantly associated with a greater likelihood of using some CCB formal care. Work and/or study-related reasons for using care were very strongly associated with the use of formal care (p<.0001). The main source of income variables showed that children living in families whose main source of income was government transfer payments were more likely to be using formal care (p<.05) than other types of families, although this should be interpreted within the context of these children being significantly less likely to use any type of child care, as demonstrated by our sample selection results. This finding may reflect in part the availability of maximum rates of

CCB to income support recipients using approved care, which may make formal care more accessible for these families.

We created an additional set of variables interacting year with income, area of residence, and maternal work hours, and incorporated them into our model. However, none of the coefficients for these interaction effects were statistically significant.

It should be noted again that while our models control for some of the factors that might have influenced the changes in formal care use between 1999 and 2002, such as maternal work hours and family type, other factors such as changes in parental preferences for care type, availability of formal care, and availability of informal carers are not incorporated into the model.

4.3 Child Care Costs

As noted in the methodology section, our analysis of child care costs is somewhat limited by the technical difficulties involved in comparing 1999 and 2002 data. Therefore, it has not been possible to accurately assess changes in costs of CCB formal care for all care users. Instead, data is presented here (table 6), as average hourly cost of CCB formal care for children using *only* that care, and average total costs of care for families using a mixture of care (CCB formal, pre-school, informal).

Results presented in table 6 show that average hourly costs for children using only CCB formal care fell very slightly in real terms between 1999 and 2002 (from $3.00 in 1999 to $2.90 in 2002), while costs for children using a mixture of care types rose slightly over the same period, from $1.80 on average in 1999 to $2.00 in 2002. Neither of these changes was statistically significant. The fall in CCB formal care costs was experienced most strongly by one parent families, and families with low income. Single parents saw average costs (which were always lower for these families than couple families) over the period fall by over one-quarter, with a similar percentage drop for low income families. The table shows that for families in the highest income group, costs for non-school age children actually rose between 1999 and 2002. These figures provide some support for the notion that CCB has provided the most benefits in cost terms to lower income families and single parent families.

Costs for families using a mixture of care (despite having risen slightly overall) show once again a tendency for less well-off families (for example, low to moderate income families and single parents) to have experienced stronger falls in out-of-pocket expenses for child care, although these results are not statistically significant. In this mixed care category, we also see a regional difference in trends, with costs rising slightly for capital city families, and falling for families living outside capital cities (although for families who used formal care only, this trend is not evident). Cost decreases for families using informal care only are not presented in table 6, as amounts were so small in dollar terms (due to the large number of families who pay nothing for informal care).

Table 6 - Average hourly costs of care by care type and demographic characteristics, 1999 and 2002, non-school age children[a]

	Average hourly cost CCB formal care only	*Mean hourly cost 1999*	*Mean hourly cost 2002*	*% change*	*Significance*
Family type	Couple family	3.3	3.3	1.2	
	One parent family	1.9	1.4	-27.6	**
Area of residence	Capital city	3.3	3.0	-6.8	
	Balance of state	2.6	2.7	4.2	
Family income	$1 - <$400	2.0	1.4	-27.6	*
	$400-<$800	2.0	1.9	-5.0	
	$800-<$1200	2.9	2.5	-13.1	
	$1200+	4.1	4.6	13.4	
Main source of income	Wages and salary	3.3	3.2	-4.8	
	Government transfers	1.8	1.8	-4.9	
Main language spoken at home	English	3.0	2.9	-1.0	
	Other language	2.7	2.4	-10.6	
	Total CCB only	3.0	2.9	-1.4	
	Average hourly cost mixture of care				
Family type	Couple family	2.0	2.3	10.8	*
	One parent family	1.1	0.9	-16.1	
Area of residence	Capital city	1.9	2.2	16.3	**
	Balance of state	1.7	1.6	-8.7	
Family income	$1 - <$400	1.0	0.9	-10.6	
	$400-<$800	1.4	1.2	-15.9	
	$800-<$1200	1.6	1.7	4.4	
	$1200+	2.6	2.9	12.5	
Main source of income	Wages and salary	2.0	2.3	11.3	*
	Government transfers	1.0	1.2	17.3	
Main language spoken at home	English	1.8	2.0	6.0	
	Other language	1.7	2.4	37.6	
	Total mixture of care	1.8	2.0	6.6	

*****p<.0001, ***p<.001, **p<.01, *p<.05.* [a] Children using only these types of care. Sample size for cost analysis smaller than for other data due to effects of missing income data. All cost values in 2002 dollars.
Note: Population analysed is where total hours of care is greater than zero.
Data source: ABS Child Care Survey, 1999 and 2002.

5. Conclusion

The results we have presented above show that there was a pronounced move into formal child care for non-school age children between 1999 and 2002. Increases in the number of children using CCB formal care services were statistically significant across the three years, even when other factors contributing to care use were controlled for. Much of this flow appears to have gone into long day care, although numbers of children using family day care also rose. The number of children using informal care fell over

the period, suggesting a flow of children from informal to formal care. While more children used formal care services in 2002 than in 1999, average weekly hours of formal care used fell very slightly across the period.

When we analysed these overall trends more closely, we found that children from families with particular characteristics experienced varying degrees and types of changes over the period. Despite the overall slight fall in the average hours of CCB formal care used, some increases in hours of care used occurred in families with non-working mothers, or mothers who worked relatively few hours. This pattern was also evident in data examining increases in the use of care. Average total hours of CCB care used among non-working mothers, however, still remained less than half the average hours used by mothers working full time, and the children of non-working mothers at both periods were much less likely to be using any CCB care than children of working mothers. There was also a clear trend towards the use of care and hours of care used having risen most over the period for children from low to moderate income families, supporting the suggestion of increased demand arising from improvements in affordability.

While the percentage of children using formal care rose, hourly costs of care in real dollars for children using only CCB formal care fell very slightly over the period. While it is difficult to make direct comparisons between our findings from the surveys about parents' out of pocket costs and fees actually charged by centres, it does appear as though Child Care Benefit may have helped to offset the effects of fee increases, as private (although not community) long day care fees and family day care fees increased over the period (as shown in table 1).

The small decreases in costs that we found were not evenly spread across demographic groups. When we examined our costs data by demographic characteristics, we found that costs of CCB formal care had fallen in real terms by more than the average for families on low incomes, and the relationship between income, year and falls in costs was statistically significant for those children using formal care only. Single parent families also experienced real falls in costs of care. Savings in costs between the two periods were stronger on average for capital city residents, with regional residents experiencing slight increases in real costs of care.

In considering the implications of these differences between parents' out-of-pocket expenses and actual fee increases between 1999 and 2002, it is noteworthy that the Child Care CPI (which reflects actual costs to parents of child care) did fall in the period following the introduction of Child Care Benefit, but began to rise again by the end of 2001, and has continued since then to rise steeply (Cassells et al, 2005). So it may be that the apparent effects of Child Care Benefit on costs to parents in the period first following its introduction (the 2002 survey was conducted in June, two years after the introduction of Child Care Benefit) may not be as strong when more recent Child Care Survey data becomes available. However, our findings overall provide tentative support for the positive impact of Child Care Benefit on both costs of care and the number of children using care, and for its redistributive effects, especially in relation to costs.

We did not specifically examine the effects of the increased use of formal care, or the decrease in costs of care for some groups on mothers' (or fathers') labour

supply. However some of our findings do suggest that these changes may not have been accompanied by substantial increases in labour supply.

We found that some of the most substantial increases in percentage terms in CCB care use had occurred among mothers who worked relatively few hours or not at all. Increases in care use among mothers working few hours (between 1 and 15 per week), however, may represent moves into the labour force by previously non-working mothers, perhaps suggesting that reduced costs of care made part-time work a viable option. Finally, the rise in the use of formal care was accompanied by a drop in the use of informal care of about the same magnitude, so it may be that parents were substituting one type of care for another without increasing the total amount of care they used (and thus possibly without increasing the total amount of paid work they undertook).

The findings also raise a number of questions which need further exploration. While the results show an increase in the use of formal care, it is also important to note the presence over both years of data of reasonably high numbers of families who used no care of any type for their children. The characteristics of families who use no care, their reasons for not using care and the effects of using no care on their labour force participation would be fruitful avenues for further investigation.

The results also suggest that there has been an increase in the use of formal care by women who are not working, perhaps due to increased availability of government assistance for non-work related care. It could also be that some child care use by non-working women may be associated with the need to maintain a child care place for an older child while taking some time away from the workforce to care for a new baby. Further exploration of how families use this care (perhaps for study, community activities, caring for other family members, or health-related tasks), and the individual and social benefits that might arise from using child care in this way could widen our understanding of the relationship between child care availability and parental, child and community well-being. Finally, our findings about the stronger growth in the use of care among less affluent families are interesting, and could provide a basis for further research on the extent to which child care use is helping such families to improve their economic and social well-being.

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