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Persistence of problems with child care: evidence from the HILDA survey

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Abstract

Substantial research has been conducted into the impact of accessible, affordable and high quality childcare on outcomes such as maternal workforce participation and child well-being. Relatively little is known, however, about the extent to which Australian parents experience problems in accessing appropriate care for their children, or the family characteristics most often associated with problems accessing care. In this study we examine the characteristics of those households that have experienced persistent problems with accessing childcare by using data from the Household Income and Labour Dynamics of Australia (HILDA) survey. The study involves a longitudinal analysis of self-reported problems with child care affordability and availability, using Waves 2 and 3 of the HILDA survey. The longitudinal analysis looks at mothers in households that experienced persistent problems with child care and the relationships between persistent problems and household characteristics such as income, type of child care usage, household type and ages of children. We also examine the effects of problems with child care in Wave 2 on child care use and hours of maternal work in Wave 3.

Author note

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General caveat

NATSEM research findings are generally based on estimated characteristics of the population. Such estimates are usually derived from the application of microsimulation modelling techniques to microdata based on sample surveys.

These estimates may be different from the actual characteristics of the population because of sampling and nonsampling errors in the microdata and because of the assumptions underlying the modelling techniques.

The microdata do not contain any information that enables identification of the individuals or families to which they refer.

Contents

1 Introduction

Access to affordable, good quality child care is frequently acknowledged to be an essential tool in achieving high workforce participation, maintaining work/family balance and providing good developmental outcomes for children. 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 & Levine, 1999; Anderson et al, 2004; Burchinal et al, 1996; Castles, 2002; Hofferth & Collins, 2000; McDonald, 2002; McInnes, 2003; OECD, 2004; Peisner-Feinberg, 2004; Wise, Ungerer & Sanson, 2002, Weikart, 1998).

The emphasis in much of the research about the positive impacts of child care, however, as noted by Wooden (2002), is the importance of child care being of high quality. While Australia's child care system is generally considered to provide care of a reasonably high quality, Wise and her colleagues point out that some key indicators of high quality care (such as staff training, staff stability, and child-staff ratios) are problematic within the context of the Australian child care system (Wise et al, 2002, pp 183-184). In addition, in order for children to reap the benefits of good quality child care, their parents need to be able to access such care – that is, at the very least, it needs to be available in an appropriate location and at an affordable price.

An additional body of international research (reviewed by Hand, 2005) has examined mothers' beliefs about child care, their decisions about the use of child care, and factors that influence preferences for certain care types. In an Australian context, Evans and Kelley (2002), found widespread negative beliefs in Australia about both full-time formal child care for very young children, and about the mothers of pre-school age children working outside the home (Evans & Kelley, 2002). Hand (2005) presents results from qualitative interviews with a small number (n=61) of mothers, which included mothers' views about difficulties with care availability and cost. Issues raised by the participants included concerns with being able to find care of adequate quality, and being able to find care in the right location and for the right hours (especially for regional women).

However, quantitative analysis of data related to the problems parents who use or wish to use child care report in finding and paying for care is very limited. While there is some research about the amount of child care used by Australian parents, and trends in this use over time (see, for example, ABS, 2003; FaCS, 2005), little quantitative information is available about the problems which parents may experience in finding child care they consider to be of good quality, and paying for this care. In particular, there is no research that tracks these problems over time, to

examine whether perceived problems with child care tend to be of short duration, or if they persist over a more extended period.

In addition to a lack of quantitative data about the persistence of problems with child care, there is also scant information available about the extent to which difficulties with accessing and paying for child care may be related to the amount of child care used, or to maternal workforce participation. Some evidence does suggest that mothers' decision to use or not use child care is based more on a desire to look after their children themselves, rather than on problems with accessing appropriate child care (see Baxter, 2005 cited in Hand, 2005). However, for mothers already using child care and in the labour force, little is known about the effect of child care difficulties on decisions to leave work, work fewer hours, or use less care. American studies have found some connection between child care difficulties and work force participation. Kisker and Ross (1997) found that for low income mothers, difficulties with child care affordability, quality and availability can hamper maternal labour force participation. One small Australian study of parents using community-based centre care for their children found that 22 per cent of parents in their study (n=117) responded to increased child care fees by reducing the amount of time their children were in long day care, and that 10 per cent reduced the number of hours they worked (Leppert, 2000).

This study builds on earlier work by NATSEM, which analysed cross-sectional data on self-reported problems in using and paying for child care, using data from Wave 2 of the Household Income and Labour Dynamics in Australia Survey (HILDA) (Cassells et al, 2005). Here, we are using Waves 2 and 3 of the data to examine persistent self-reported problems with child care, factors that affect the likelihood of experiencing persistent problems, and associations between problems in Wave 2 and child care use and maternal labour force participation in Wave 3.

2 Methodology

2.1 The HILDA survey

The Household Income and Labour Dynamics of Australia (HILDA) survey is a longitudinal survey that is funded by the Commonwealth Government through the Department of Family and Community Services. The Melbourne Institute of Applied Economic and Social Research, together with the Australian Council for Educational Research and the Australian Institute of Family Studies, have responsibility for the survey's design and management.

HILDA gathers data on three main areas: economic and subjective well-being, labour market dynamics and family dynamics (Melbourne Institute, 2003). As well as these primary areas, HILDA also targets specialised topics in each wave. To date, these have included personal history, household wealth and transition to retirement.

The initial wave of HILDA (Wave 1) was conducted in the latter half of 2001, and comprises 7,682 households and 13,969 responding persons (Melbourne Institute, 2003). Wave 2 (2002) of the survey consisted of 7,245 households and 13,041 responding persons (Melbourne Institute, 2003), and was conducted from late August 2002. Wave 3 was conducted from mid-August 2003 onwards, and consisted of 8678 households and 12,728 persons. The number of persons interviewed in all three waves is 10,777 (Melbourne Institute, 2005). The survey includes private households only, and excludes those persons residing in institutions and remote and sparsely populated areas of Australia.

2.2 Creating a longitudinal data set

The data set used for this project consisted of a subsample of those persons who responded to the HILDA survey in all three waves of data collection. While we only analysed data from Waves 2 and 3, we created the dataset using all three waves because the longitudinal weights provided with the HILDA data are based on individuals who responded in all three waves (see HILDA, 2005, p.57).

Data from both the responding persons and household files was used in each year, with information about childcare (which is collected on the household form) attached to the responding person records of mothers in couple and lone parent families. The sample was further limited to mothers of children less than 15 years of age, who lived in households with no other adults apart from the parent or parents. Mothers were used as the primary unit of analysis because, in most cases, they are likely to be the persons in households with the main responsibility for organising child care, and because we were interested in examining the possible impact of problems in child care on maternal labour force status. Also, longitudinal weights for the HILDA data were only available at a person rather than a household level.

Two samples were used for this study. The first consisted of only those mothers who lived in households which used or thought about using child care for paid work in both Wave 2 and Wave 3. This sample was created because problems with child care are only reported for families that reported using or intending to use child care for paid work in each wave – thus the only way of capturing persistent problems was to

limit the sample in this way. This sample was then used to examine the frequency of persistent problems with care and factors associated with persistent problems.

The second sample consisted of mothers who used child care in Wave 2, but did not necessarily use it in Wave 3. This second sample was used because our interest in examining the relationship between problems with child care and both the use of care and maternal labour force participation was somewhat hampered due to "problems with care" only being recorded for households which had used or thought about using child care for paid work. Thus if problems in Wave 2 persisted to such an extent that they led to families withdrawing from all child care use, no data would be recorded about problems for these households in Wave 3. We used this second sample to examine relationships between problems in Wave 2 and reduced hours of care (including zero use of care) in Wave 3, and between problems in Wave 2 and reduced hours of work for mothers in Wave 3.

2.3 Variable creation

The HILDA survey questions all households with children 14 years of age and under that had used or thought about using child care to undertake paid work, about various problems and difficulties with child care in the last 12 months. The problems and difficulties covered by this set of questions are:

- Finding good quality child care;
- Finding the right person to take care of my child;
- Getting care for the hours you need;
- Finding care for a sick child;
- Finding care during the holidays;
- The cost of child care;
- Juggling multiple child care arrangements;
- Finding care for a difficult or special needs child;
- Finding a place at the child care centre of your choice;
- Finding a child care centre in the right location; and
- Finding care my child/ren are happy with.

The household member answering questions about child care is asked to rate the severity of problems with each of these aspects of child care from 0 (not a problem at all) to 10 (a severe problem). A number of the variables have high numbers of missing values, as they do not apply to all parents using or thinking about using care, and these variables (finding care for a difficult or special needs child, finding a place at the child care centre of your choice, finding a child care centre in the right location, finding care in the holidays, juggling multiple care arrangements) were excluded from much of our analysis. No data is reported on finding care for a difficult or special needs child, as response rates for this question were very low.

We combined a selection of the remaining variables into two new "problem" variables. The first of these measures problems with childcare availability– mothers in households where scores of 5 or more were recorded for problems with "finding good quality care", "finding the right person to take care of my child", or "getting care for the hours you need", received a value of 1 for the availability problems variable, and otherwise received a value of zero.

The second measure of problems relates to problems with cost – mothers in households in which the "problems with the cost of care" received a value of 5 or more received a value of 1 for the cost problems variable, and otherwise received a value of zero.

In order to identify the presence of persistent problems with either availability or cost, respondents must have received a value of 1 for the relevant problem variable in both Wave 2 and Wave 3.

A number of longitudinal variables were created for use in this analysis. Most of the longitudinal variables used in the data were created by calculating an average across the two waves of the survey used in the analysis. Thus, for example, average hours of care represents the mean hours of care used across both waves. Clearly, averages over the two waves are not necessarily a perfect measure – for example, some respondents will have used much more child care in one wave than another, and an average measure obscures some of these changes. However, we did run the models with separate variables for child care use in Wave 2 and Wave 3 and found that this generally had little effect on other relationships within the models, and that the co-efficients for the separate year variables were similar to those for the cross-wave variables.

In regard to family type, respondents received a value of 1 for the "ever single parent" variable if they were a single parent in either Wave 2 or Wave 3. The residence in a capital city variable was based on residential status in Wave 2, as there were very few records where residence changed between capital city and balance of state between Wave 2 and Wave 3.

Other variables capture changes between Wave 2 and Wave 3 that may affect the likelihood of having persistent problems. Thus as well as creating a longitudinal variable which measures the average number of children across the period, we have also included variables that measure whether or not the respondent reported having more or less children in Wave 3 than Wave 2.

To overcome issues with non-linearity in some of the variables used in regression models, as well as to present the descriptive data in a meaningful way, we have created sets of dummy variables for most of the continuous longitudinal variables. Thus, instead of using a continuous variable measuring average hours of child care used across both waves, we have instead used a set of dummy variables capturing zero child care use, low hours of use, and high hours of use. The amount of formal child care used is divided into zero hours, between 1 and 25 hours (low hours), and over 25 hours per week (high hours). Informal care is divided into zero hours, between 1 and 15 hours (low hours), and over 15 hours (high hours). The costs of care set of variables is measured as zero cost, low cost (between $1 and $20), medium cost (between $21 and $50) and high cost (over $50). Both the costs and hours variables are calculated on a per child basis, and are based on weekly hours and costs. The family income variable is divided into lower income ($35,000 or less per annum), medium income (between $35,001 and $60,000) and higher income (over $60,000). Maternal hours of work were divided into low hours (15 or less per week) medium work hours (between 16 and 24) and high work hours (more than 35).

In order to create costs and income variables averaged over the two waves, 2002 costs and incomes were adjusted to 2003 dollars using the change in the CPI between December 2002 and December 2003. The income measure used is household disposable income.

2.4 Statistical Analysis

In order to take account of the survey design and sampling structure used in the HILDA survey, the proc surveymeans and proc surveylogistic procedures from the SAS software package were used to produce the results presented below. These procedures allow for the analysis of survey data which has been collected using complex survey designs based on stratification and clustering (An, 2005). Confidence intervals for the means presented below are available from the authors on request. In addition, all analyses are weighted using either the Wave 3 longitudinal person weights from HILDA, or, for cross-sectional analysis, the relevant cross-sectional person weights.

2.5 Data and Analysis Limitations

While the HILDA survey provides a rich source of data about child care in Australia, there are limitations to the data, which need to be kept in mind when interpreting the results presented here. For example, data about child care problems was only collected where the parents had used or thought about using child care for paid work, leaving problems that households were experiencing with non-work related child care (such as child care used to enable parents to study) unreported. Also, the data about problems is subjective, depending as it does on parents' self-reporting of problems. The person completing the information about child care for the survey may not necessarily have been the mother (although mothers form the primary unit of analysis for this study), and it is possible that for some respondents the person completing child care questions could have changed between Wave 2 and Wave 3.

The next section of this paper presents results about the presence of persistent problems with child care, followed by a section which discusses our findings related to the relationship between problems with child care in Wave 2 and child care use and maternal labour force participation in Wave 3.

3 Results

3.1 Persistent problems with child care

Comparisons across Wave 2 and Wave 3

This section presents some initial descriptive data about the two "problems with child care" variables (availability and cost) we use in the remainder of this paper, as well as the set of "original" problem variables from the HILDA survey.[1] As shown in Table 1, the percentage of households in this sample experiencing problems with various aspects of child care was generally fairly similar in both waves. Around 44 per cent of respondents in both Wave 2 and Wave 3 experienced problems with availability in Wave 2 or Wave 3, with 28 per cent experiencing persistent availability problems. Problems with cost followed a similar pattern, although cost problems were slightly more common than availability problems. In Wave 2, around 49 per cent of respondents reported problems with the cost of child care, and around 48 per

[1] Data related to the variable measuring problems with finding care for a difficult or special needs child is not reported here, due to very high missing values for this variable.

cent in Wave 3, with almost one-third of respondents reporting persistent problems with the cost of care. Of the three variables that make up the availability variable, problems with finding the right hours of care was most commonly reported, with around one third of the sample in both waves reporting this as a problem.

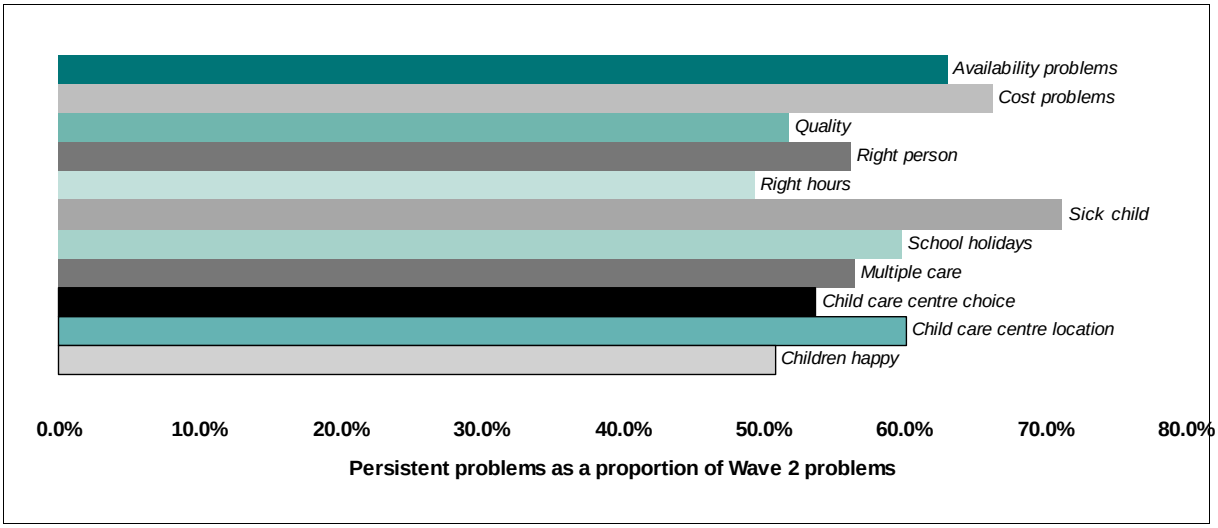
While a lower proportion of the sample reported problems in both waves (that is, persistent problems) than at either point in time, Table 1 shows that many mothers lived in households that experienced problems across both years. If we examine the percentage of respondents with persistent problems as a proportion of those with problems in Wave 2 (results shown in Figure 1), we find that problems with finding care for a sick child and with the costs of care were the categories of problem most likely to persist between Wave 2 and Wave 3, with over two-thirds of respondents who reported problems with these aspects of care in Wave 2 continuing to report these problems in Wave 3. Availability problems were also very likely to persist across waves, as was the problem of finding a child care centre in the right location.

Table 1 Cross-sectional and longitudinal problems

	Problems in Wave 2	Problems in Wave 3	Problems across both waves	Problems in Wave 2 only	Problems in Wave 3 only
	%	%	%	%	%
Availability problems	44.3	43.9	27.9	17.6	16.9
Cost problems	49.4	47.7	32.7	12.0	15.5
Problems with quality of care	27.6	29.5	14.3	14.4	15.1
Problems with finding the right person	28.6	28.2	16.1	13.4	12.9
Problems with finding the right hours	33.2	31.8	16.4	17.8	16.5
Problems with finding care for a sick child	49.4	47.7	35.2	15.4	14.0
Problems with finding care during the school holidays	31.9	31.3	19.1	14.4	15.7
Problems with juggling multiple care arrangements	34.4	31.7	19.5	16.1	14.7
Problems with finding child care centre of your choice	31.3	28.1	16.8	16.3	12.8
Problems with finding child care centre in the right location	25.7	26.8	15.5	11.2	12.8
Problems with finding care that children are happy with	24.0	24.3	12.2	12.9	12.2

Source: HILDA Wave 2 and Wave 3 data

Figure 1 Percentage of mothers with persistent problems as a proportion of percentage of mothers with problems in Wave 2



Source: HILDA Wave 2 and Wave 3 data

We also used the original HILDA variables, which, as noted above were measured on a scale of 1 to 10, to examine whether there was any increase in the intensity of problems reported with particular aspects of care between Wave 2 and Wave 3 for the sample used in this study. These results are presented in Table 2, and show that in general the mean values for each of these variables remained fairly similar across the two periods, although the mean severity of problems with the cost of care rose over the period, while the severity of finding a child care centre of choice fell by about the same magnitude between Wave 2 and Wave 3.

Table 2 Intensity of reported problems, Wave 2 and Wave 3

Variable	Wave2	Wave3	Difference
	Mean value	Mean value	
Difficulty finding good quality childcare	2.61	2.63	0.01
Difficulty finding the right person to take care of my child	2.75	2.65	-0.10
Difficulty getting care for the hours needed	3.07	3.03	-0.04
Difficulty finding care for a sick child	4.52	4.49	-0.03
Difficulty finding care during the school holidays	2.81	2.81	0.00
Difficulty with the cost of child care	3.87	4.13	0.26
Difficulty juggling multiple childcare arrangements	3.02	3.01	0.00
Difficulty finding a place at the childcare centre of choice	2.90	2.63	-0.27
Difficulty finding a child care centre in the right location	2.49	2.55	0.06
Difficulty finding care my children are happy with	2.22	2.34	0.12

Note: Shading denotes those variables that were combined to make up the "availability problems" variable, and is also used to highlight the cost variable.

Source*: HILDA Wave 2 and Wave 3 data*

Characteristics of respondents with persistent problems: availability and cost

Table 3 presents data about the characteristics of mothers in households that had problems with either cost or availability (or both) across both Wave 2 and Wave 3 of the survey, as well as characteristics of those without persistent problems, and characteristics of the whole sample. Data in this table allows us to see which respondents are over- or under-represented in the group with persistent problems. For example, not surprisingly, mothers with 3 or more children were more likely to be found in the "persistent problems" group, as were mothers who reported an additional child or children under 15 in Wave 3 compared with Wave 2. Mothers of very young children were also more likely to have reported persistent problems than other mothers, and the converse is true for older children. Of all mothers who experienced persistent problems with child care, less than one-third were mothers whose youngest child was more than 6, compared to 45 per cent of those mothers who did not experience persistent problems.

Other differences between mothers with "persistent problems" and those without include residence in a capital city, with almost 65 per cent of mothers in the persistent problems group residing in capital cities, compared with 59 per cent of mothers in the group without persistent problems. Mothers who worked more than 35 hours per week were somewhat over-represented in the persistent problems group, although mothers working relatively few hours were evenly spread across the two groups. Not surprisingly, mothers in households using many hours of formal care, and those in the higher cost groups, were more likely to be experiencing persistent problems than mothers with very low hours of care, and low costs.

Single parents were no more likely to be in the "persistent problems" sample than mothers from couple families, and mothers in the lower income group were equally likely to be in the persistent problems or no persistent problems group.

Table 3 Proportions for selected characteristics of respondents with and without persistent problems and whole sample

		Persistent problems	No persistent problems	Whole sample
		n=241	n=307	n=609
		%	%	%
Children	One child	26.9	28.0	27.5
	Two children	47.	53.8	51.0
	Three or more children	26.1	18.2	21.5
	Extra child(ren) in Wave 3	10.3	6.0	7.8
	Fewer child(ren) in Wave 3	5.2	5.0	5.1
	Average age of youngest child less than 2	21.0	13.4	16.6
	Average age of youngest child less than 6	48.6	41.7	44.6
	Average age of youngest child more than 6	30.4	44.9	38.9
Average household disposable income	<=$35,000	20.1	21.6	21.0
	Between $35,001 and $60,000	38.6	41.4	40.2
	> $60,000	41.3	37.0	38.8
Family type	Ever a single parent	22.5	22.6	22.6
Average maternal hours of work	15 or less	29.8	28.7	29.2
	Between 16 and 34	36.1	46.2	42.0
	35 or more	34.0	25.1	28.8
Residence	Reside in capital city	64.5	59.3	61.5
Average hours of formal care	zero	22.3	37.1	31.0
	between 1 and 25	56.9	50.2	53.0
	over 25	21.5	14.3	17.3
Average hours of informal care	zero	30.7	19.3	24.0
	between 1 and 15	48.0	55.9	52.6
	over 15	21.5	14.3	17.3
Average cost of care	zero	13.8	31.3	24.1
	Between $1 and $20	21.6	29.0	25.9
	Between $21 and $50	29.0	22.8	25.4
	Over $50	35.6	16.9	24.6

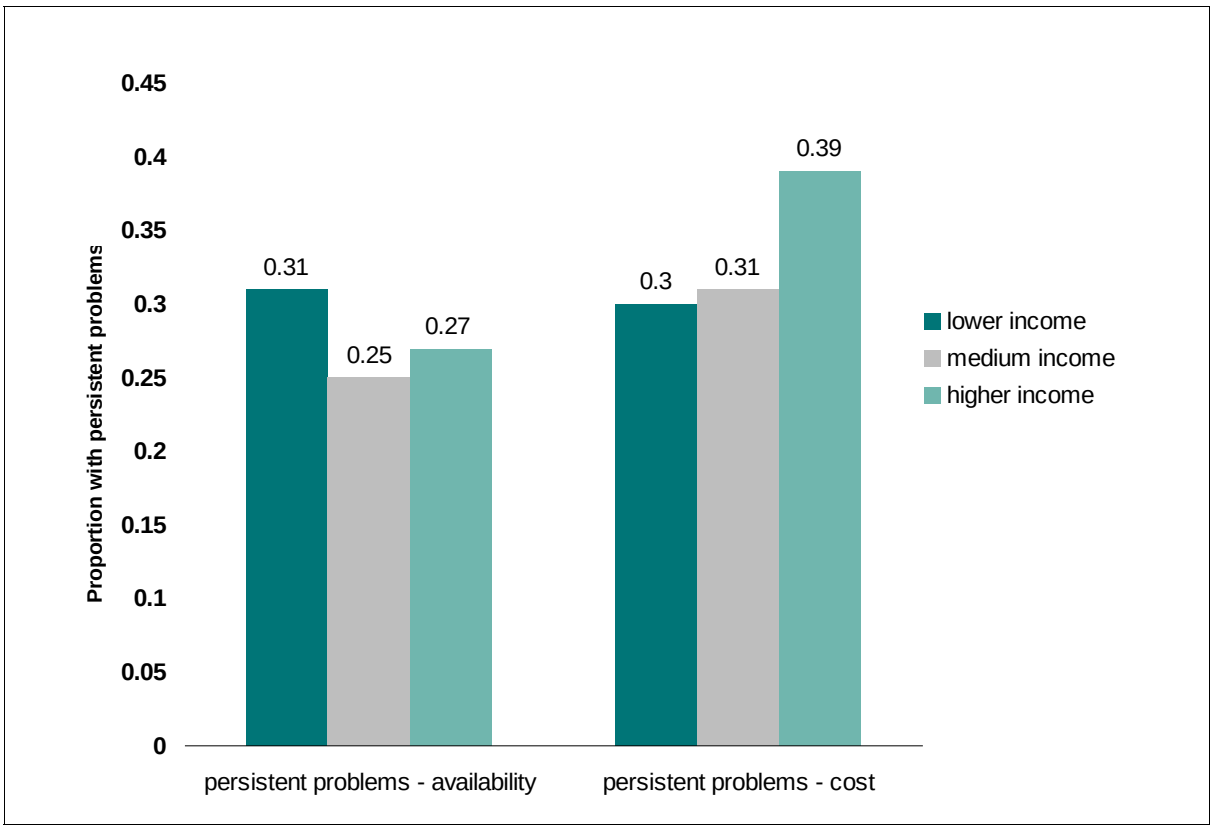
Source: HILDA Wave 2 and Wave 3 data

An alternative way of examining data about the persistence of problems with care is to look at the likelihood of mothers with varying characteristics to live in households reporting persistent problems with either availability or quality. These results are presented in Figure 2 to Figure 7.

As shown in Figure 2, respondents with higher incomes are more likely to report persistent problems with the cost of care than lower income families. While at first

this may seem counter-intuitive, it may reflect the lower likelihood of higher income families qualifying for substantial amounts of government assistance with fee costs through the Child Care Benefit. Interestingly, while a smaller proportion of lower income families report persistent problems with cost, this group has the highest proportion of respondents experiencing on-going difficulties with availability. This tendency is reflected again to a certain extent in Figure 3, which breaks down persistent problems by family type, and shows that a higher proportion of mothers who are single parents (and thus would have on average lower household income than couples) report more problems with availability than with cost, while the situation is reversed for mothers in couple households.

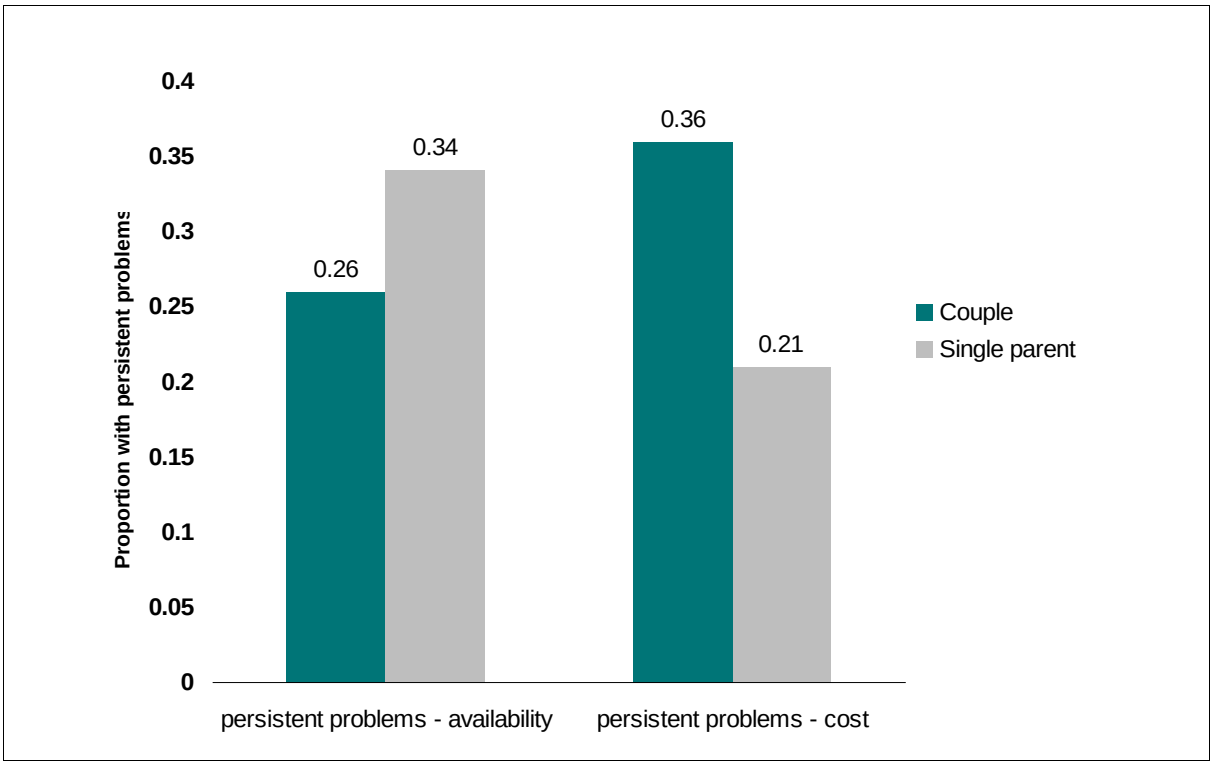
Figure 2 Persistent problems with care – average household income



Note: Proportions are calculated in relation to the total sample of mothers in households that used or thought about using child care for paid work

Data source: HILDA Wave 2 and Wave 3 data

Figure 3 Persistent problems with care – family type

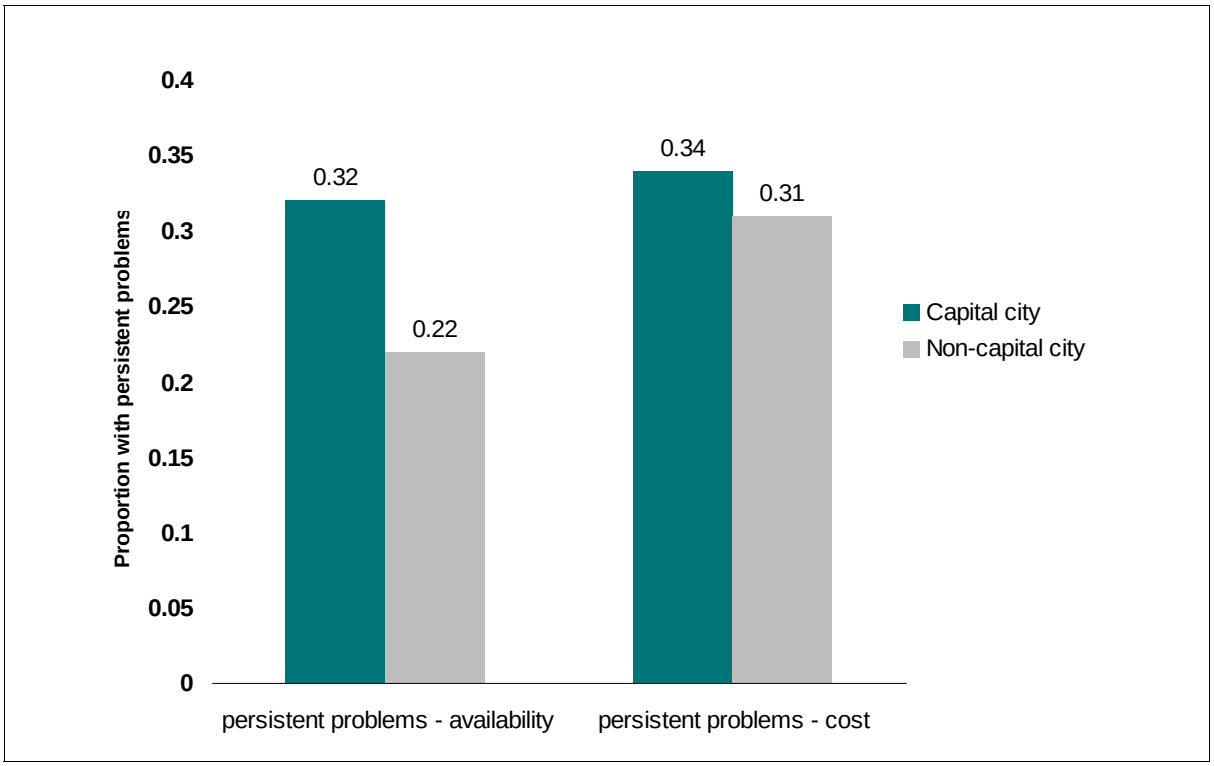


Note: Proportions are calculated in relation to the total sample of mothers in households that used or thought about using child care for paid work

Data source: HILDA Wave 2 and Wave 3 data

Figure 4 demonstrates some geographic effect in the incidence of persistent problems with childcare. A higher proportion of capital city residents than regional residents report such problems in relation to both availability and cost, and for non-capital city residents only, availability problems are experienced less often than problems with cost.

Figure 4 Persistent problems with care – area of residence

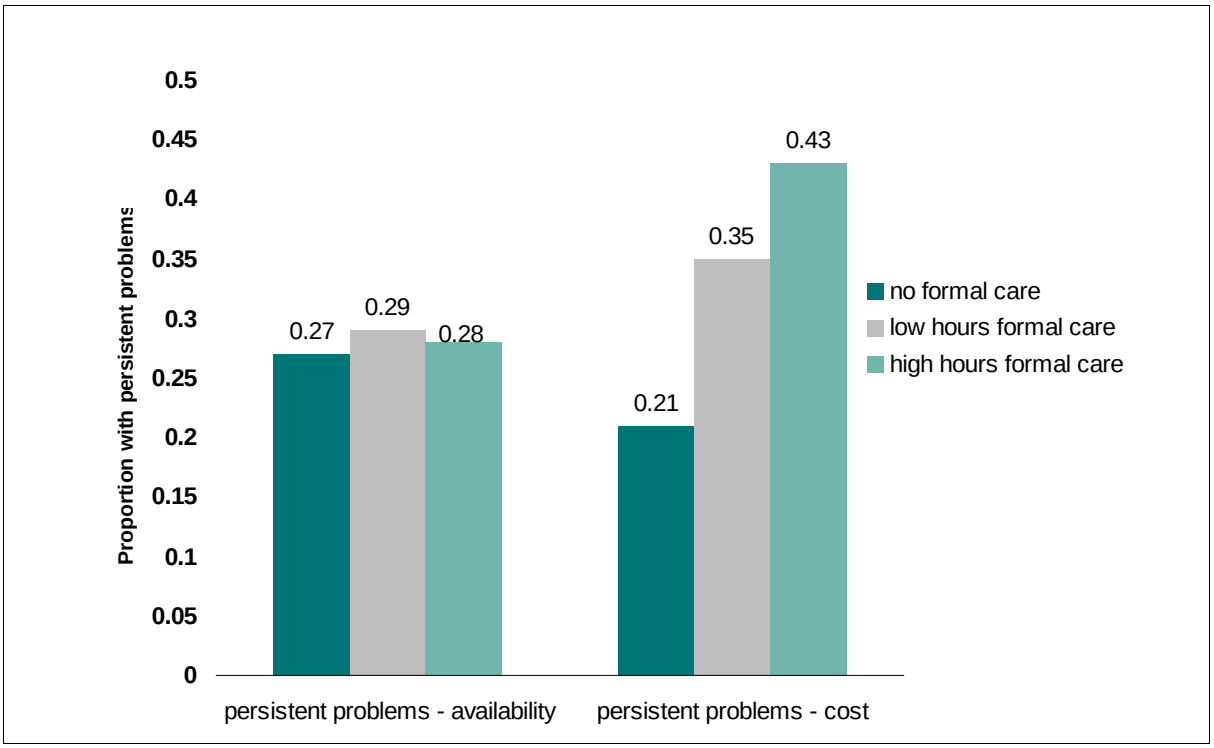


Note: Proportions are calculated in relation to the total sample of mothers in households that used or thought about using child care for paid work

Data source: HILDA Wave 2 and Wave 3 data

Figures 5 and 6 break down the experience of persistence problems by the amount of formal and informal care used on average across both waves. As noted in the methodology section, "high" hours of formal care refers to using on average more than 25 hours per child per week, while high hours of informal care refers to using more than 15 hours per child per week on average. These results show an association between high hours of formal care, and no use of informal care and high levels of reported problems with cost, with over 40 per cent of respondents with these characteristics experiencing persistent problems with the cost of care. Problems with availability, however, were experienced much more evenly across the groups. It is interesting to note, however, that the group with the highest proportion experiencing persistent problems with availability is the "high hours informal care" group, perhaps indicating that some families' use of informal care may be due to problems with accessing formal care, rather than a choice of informal over formal care.

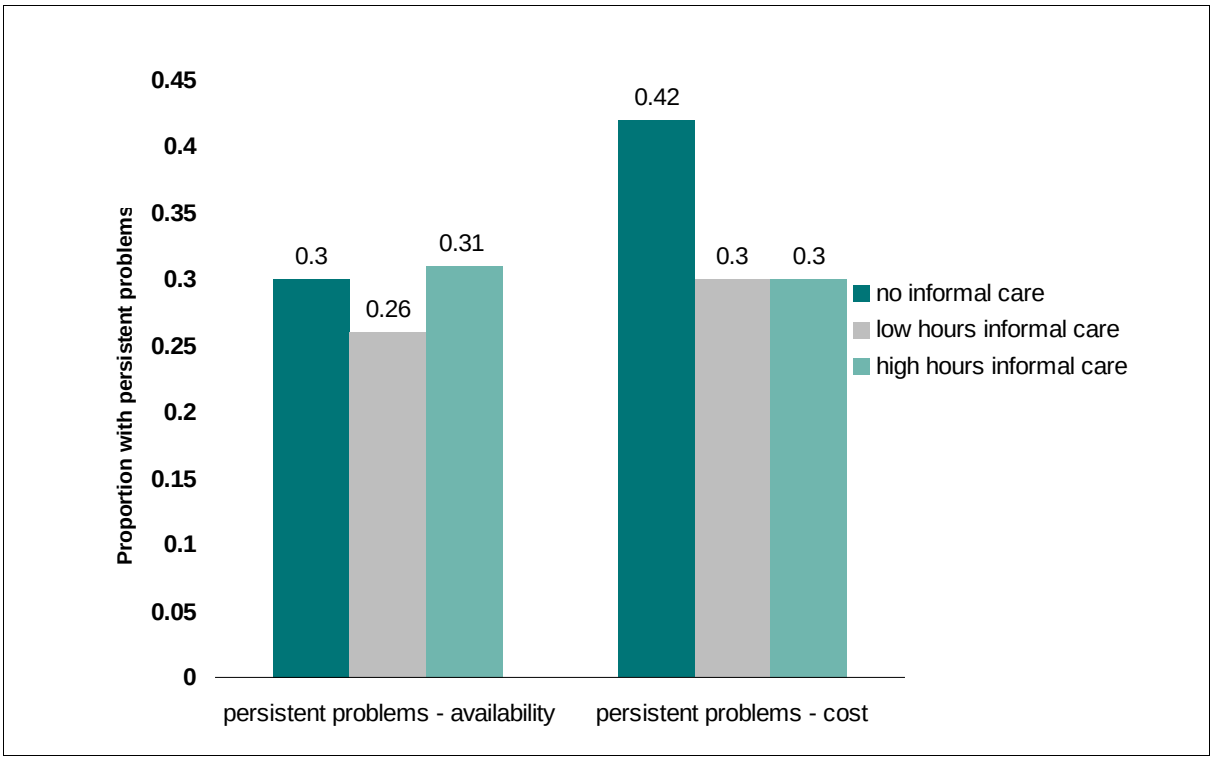
Figure 5 Persistent problems with care – hours of formal care used



Note: Proportions are calculated in relation to the total sample of mothers in households that used or thought about using child care for paid work.

Data source: HILDA Wave 2 and Wave 3 data

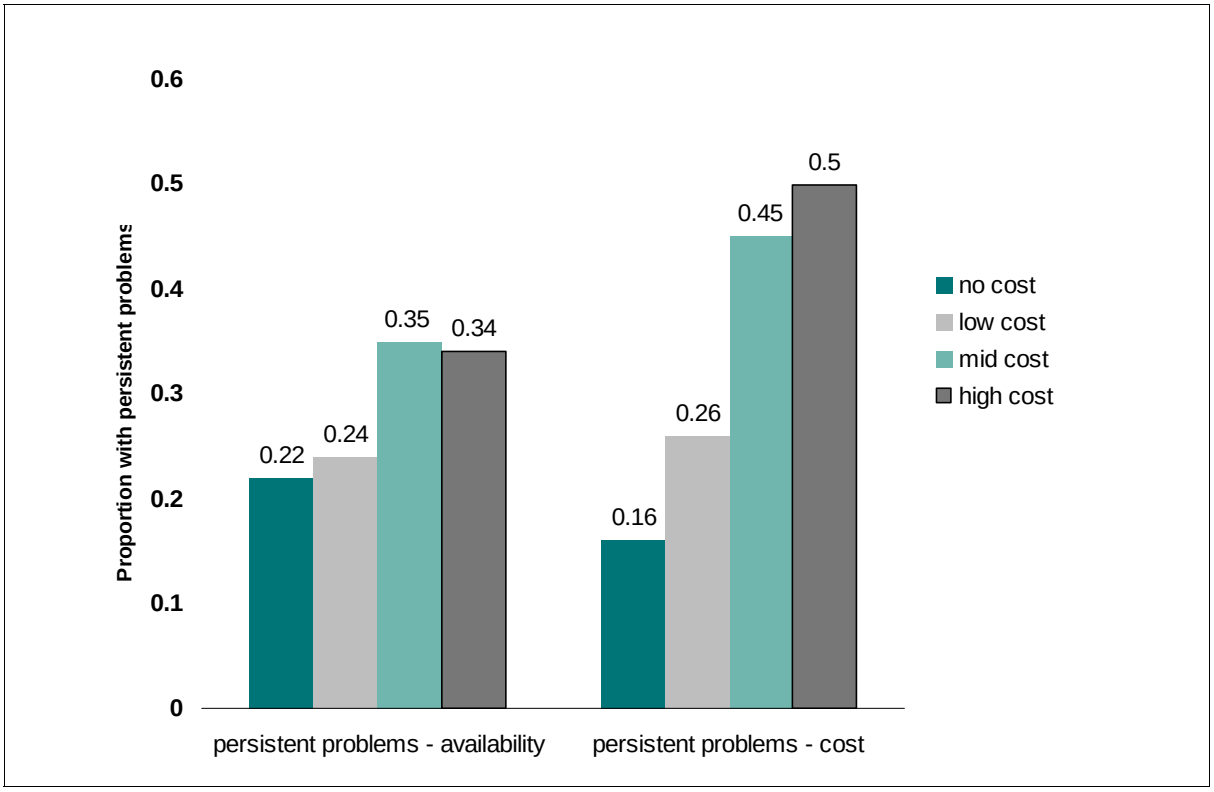
Figure 6 Persistent problems with care – hours of informal care used



Note: Proportions are calculated in relation to the total sample of mothers in households that used or thought about using child care for paid work. *Data source: HILDA Wave 2 and Wave 3 data*

Associations between persistent problems with care and the cost of care are shown in Figure 7, and indicate that respondents paying more for child care are more likely to report persistent problems with both availability and cost than respondents paying less for care. As noted in the methodology section, "low costs" refers to average weekly costs of between $1 and $20 per child, "mid costs" to costs between $21 and $50, and "high costs" to costs over $50. It is interesting, however, that 16 per cent of those respondents who pay nothing for care nevertheless report problems with the cost of care, suggesting that these people may be opting out of paid care arrangements due to financial constraints. Almost half of the respondents in the two highest cost groups (where costs per child are over $21 per week) live in households which report persistent problems with the costs of care, indicating substantial dissatisfaction with the costs of care.

Figure 7 Persistent problems with care – average cost of care



Note: Proportions are calculated in relation to the total sample of mothers in households that used or thought about using child care for paid work. Average cost of care is calculated on a per child basis, as an average across the two HILDA waves

Data source: HILDA Wave 2 and Wave 3 data

Multivariate models

In order to examine the relationships between these characteristics and persistent problems with child care more fully, we used logistic regression models to examine the effects of these characteristics on persistent problems with availability and persistent problems with cost. Results for these models are presented in Table 4. Overall, the types of characteristics that influence self-reported problems with availability issues differ quite substantially from those characteristics that predict problems with costs of care, with problems with cost only being significantly associated with the costs of care set of variables. These results for the costs problem may be due to collinearity between the costs of care variables and other factors in the model, such as hours of work and hours of care. In results not shown, when the problems with costs model was run without including the cost variables, mothers who worked between 16 and 34 hours on average had significantly fewer problems with child care costs than mothers working more than 34 hours per week. Also, mothers in households using no formal care had significantly lower cost problems than households using a large amount of formal care (as suggested by our descriptive statistics).

In regard to the availability problems model, as might be expected, mothers with fewer children were significantly less likely to live in households reporting availability problems with child care (that is, problems with finding good quality care, care for the right hours, and care by the right person), than mothers with three or more children. Mothers with very young children were substantially more likely to report persistent problems of this type, however, than mothers whose youngest child was older than 6.

Household income, family type and maternal work hours were not significantly related to either type of problem, despite some differences evident in the descriptive data in relation to these characteristics. The lack of statistical significance may be due in part to quite high standard errors for some co-efficients, and may also be partly due to the ways in which the variables within the models are related. For example, when we ran the family type variable (results not shown) in a bivariate model, we found that when no other variables were controlled for, single parents were significantly less likely to report problems with cost ($p<.01$), and the co-efficient for the availability model was approaching significance ($p<.1$).

Table 4 Logistic regression results for persistent availability and cost problems

		Availability problems		Cost problems	
		Coefficient (SE)		Coefficient (SE)	
Children	**One child**	-.76 (.32)	*	-.40 (.34)	
	Two children (reference: three or more)	-.50 (.25)	*	-.40 (.27)	
	Extra child(ren) in Wave 3	.26 (.41)		.74 (.50)	
	Fewer child(ren) in Wave 3	.47 (.44)		.54 (.42)	
	Average age of youngest child less than 2	1.04 (.35)	**	.19 (.40)	
	Average age of youngest child less than 6 (reference: >6)	.19 (.27)		.19 (.28)	
Average household disposable income	**Income <= 35,000**	.28 (.38)		-.19 (.43)	
	Income between 35,001 and 60,000 (reference: > 60,000)	-.05 (.26)		-.09 (.26)	
Family type	**Ever single parent**	.51 (.34)		-.54 (.37)	
Maternal work	**Average maternal hours of work 15 or less**	-.24 (.34)		-.27 (.34)	
	Average maternal hours of work between 16 and 34 (reference: 35+)	-.46 (.28)		-.51 (.27)	
Residence	**Reside in capital city**	.57 (.23)	*	.01 (.23)	
Average hours of formal care per child	**zero**	.82 (.48)		.07 (.47)	
	between 1 and 25 (reference: >25)	.32 (.37)		.20 (.32)	
Average hours of informal care per child	**zero**	.06 (.37)		.45 (.37)	
	between 1 and 15 (reference: >15)	-.22 (.29)		.03 (.32)	
Average total cost of care per child	**zero**	-1.36 (.50)	**	-1.50 (.54)	**
	between $1 and $20	-.67 (.35)		-1.05 (.32)	**
	between $21 and $50 (reference: >$50)	-.47 (.34)		-.48 (.30)	

Note: *p<.05 **p<.01 ***p<.001

Source: HILDA Wave 2 and Wave 3 data, NATSEM calculations

3.2 The effects of problems with care in Wave 2 on outcomes in Wave 3

As noted in the methodology section of this paper, we were interested in examining the relationships between problems with child care cost or availability in Wave 2 and changes in child care use and maternal labour force participation between Wave 2 and Wave 3. We created two variables to capture a reduction in the hours of care used between Wave 2 and Wave 3 – one variable for total hours of care and one for hours of formal care. Where child care was used for at least 5 fewer hours per child per week in Wave 3 than in Wave 2, a value of 1 was given for the "lower use" variable, which otherwise got a value of zero. Mothers in households which used no care in Wave 3 (but had used some care in Wave 2) were also given a value of 1 for these variables. We also created a variable indicating whether the mother's average hours of work dropped by at least 5 hours per week between Wave 3 and Wave 2. We used the cut-off of 5 hours for both the care and work variables so that relatively trivial reductions in either hours of care or hours of work would not be included in our analysis.

We then ran logistic regression models using these variables, examining the likelihood of using less total hours of care, using less formal care, and mothers working less in Wave 3 than Wave 2. The cost problem and availability problem variables were used as independent variables in these models, with a set of covariates including total number of children, age of the youngest child, changes in the number of children between the waves, and costs and hours of care in Wave 2.

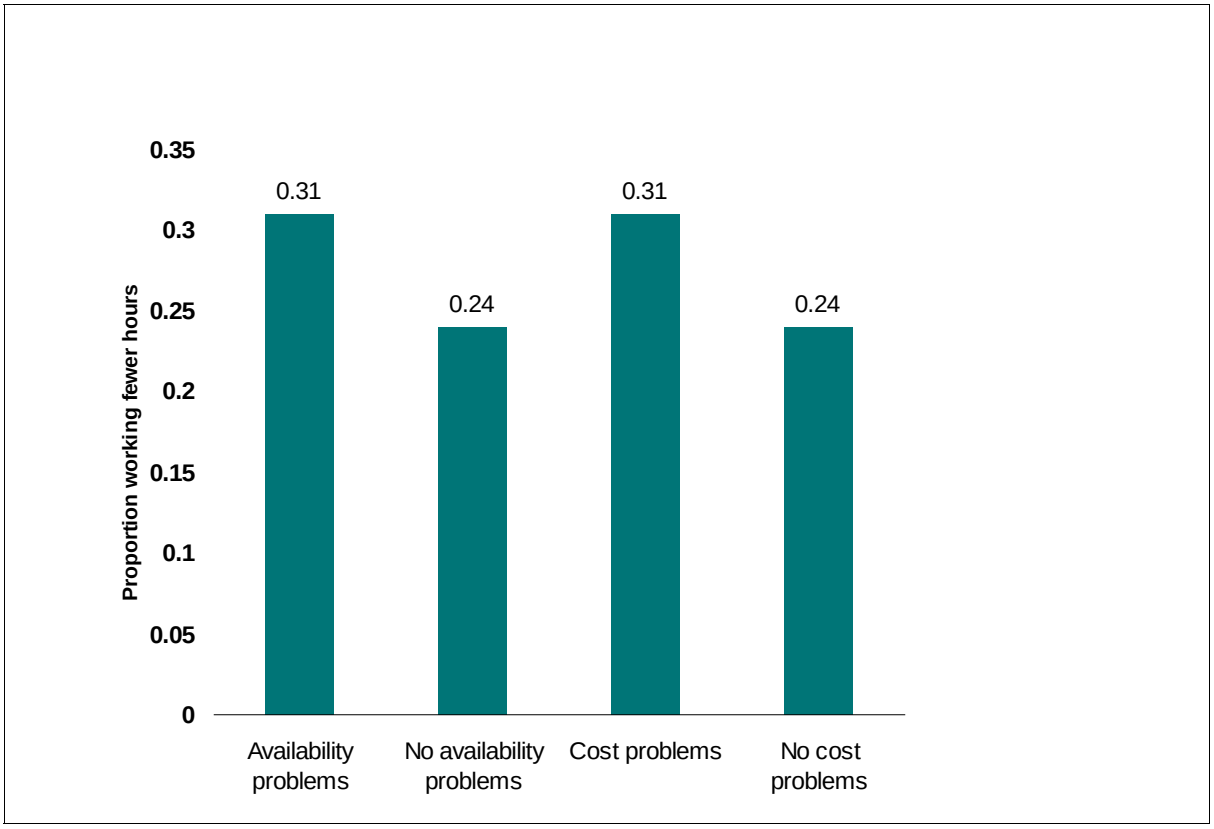
Initially, none of these models revealed significant findings. Mothers in households that reported problems with child care cost or child care availability in Wave 2 of the survey were not significantly different from other mothers by Wave 3 in terms of either the amount of care they used or the amount of time they spent working. This finding is not inconsistent with some previous research, which suggests that child care and maternal work decisions are based largely on beliefs about parenting, rather than on issues of access to care (see Hand, 2005). If this is the case, it may be unrealistic to expect that dissatisfaction with aspects of care will lead to behavioural change. However, in contrast to previous research, which has tended to focus on women who are not in the work force (and their reasons for not working), these findings relate to mothers who, at least in Wave 2 of the survey, "had used or thought about using child care to undertake paid work" (HILDA survey question, Wave 2). Thus this sample of women do appear to be women who at least considered both child care and paid work, rather than rejecting either or both on the grounds of their beliefs about parenting.

In order to examine this issue further, we decided to re-run these models using a sample of mothers from households who reported the most severe problems with

child care in Wave 2. To do this, we used a cut-off score of 7 for the original HILDA variables measuring self-reported problems with child care, rather than the score of 5 or above that we used for all our earlier analysis (see section 2.3). Recall that these variables were scored on a scale of 0 to 10, with 0 indicating no problem, and 10 indicating a severe problem.

Descriptive data using this definition of problems with care in Wave 2 is presented in Figures 8 to 10. Figure 8 shows that the proportion of mothers working at least 5 fewer hours in Wave 3 than Wave 2 is higher in the group of mothers with availability problems and the group of mothers with cost problems than in the groups of mothers without these problems. In both cases, 31 per cent of mothers with reported child care problems in Wave 2 worked fewer hours in Wave 3, compared to 24 per cent of mothers without problems[2].

Figure 8 Proportion of mothers working fewer hours in Wave 3 than Wave 2[a]



a Fewer hours defined as at least 5 fewer in Wave 3 than Wave 2.

Data source: HILDA Wave 2 and Wave 3 data

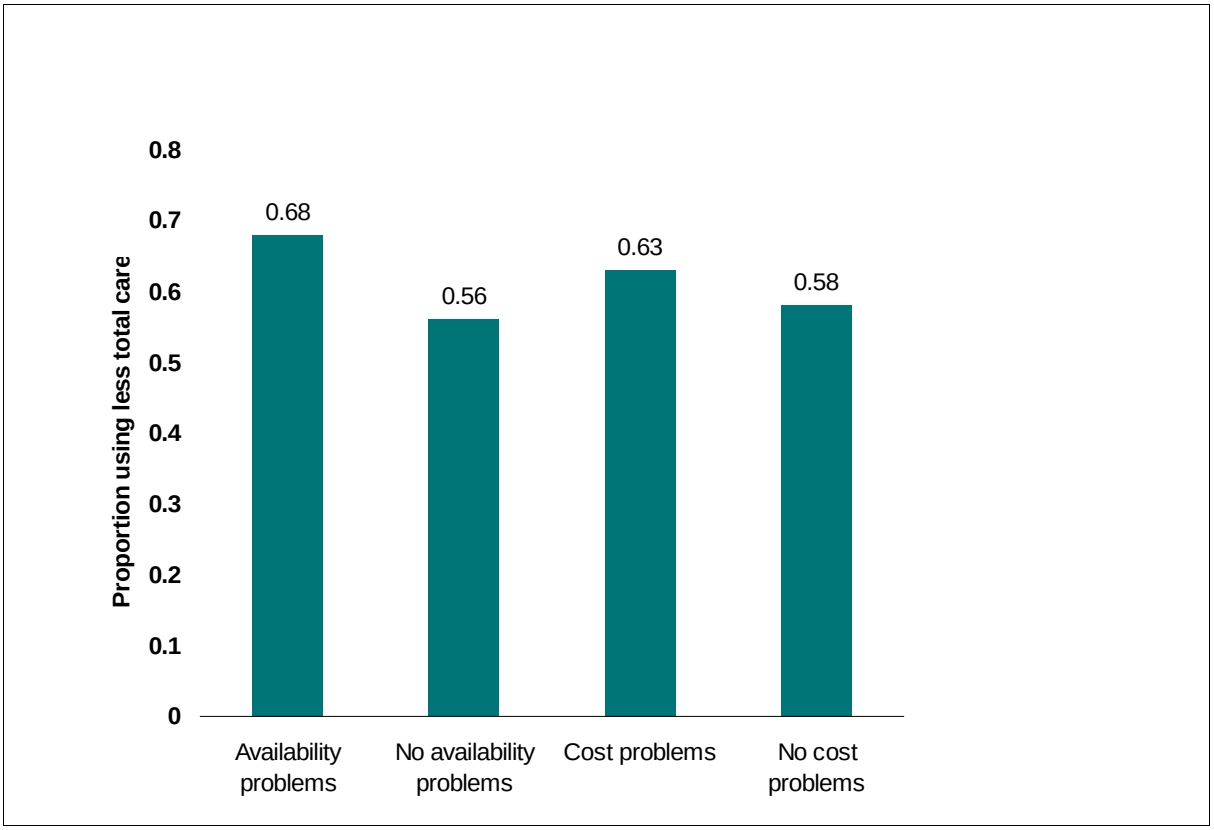
Figures 9 and 10 show differences between mothers with and without problems with care in Wave 2 in terms of the amount of both total child care and formal child care

[2] At three decimal places, the figures for availability problems and cost problems differ somewhat, but when rounded to 2 decimal places the figures are the same.

used in Wave 3 relative to Wave 2. Figure 9 refers to a sample of mothers who used some formal and informal care in Wave 2. Of these mothers, those who reported problems with availability of child care in Wave 2 were more likely to have reduced the total hours of child care they used by Wave 3 than mothers who did not report availability problems in Wave 2 (68 per cent of mothers in the problem group compared with 56 per cent in the non-problem group). A similar pattern is evident for total hours of care for mothers with cost problems in Wave 2, but the difference between the two groups is less marked.

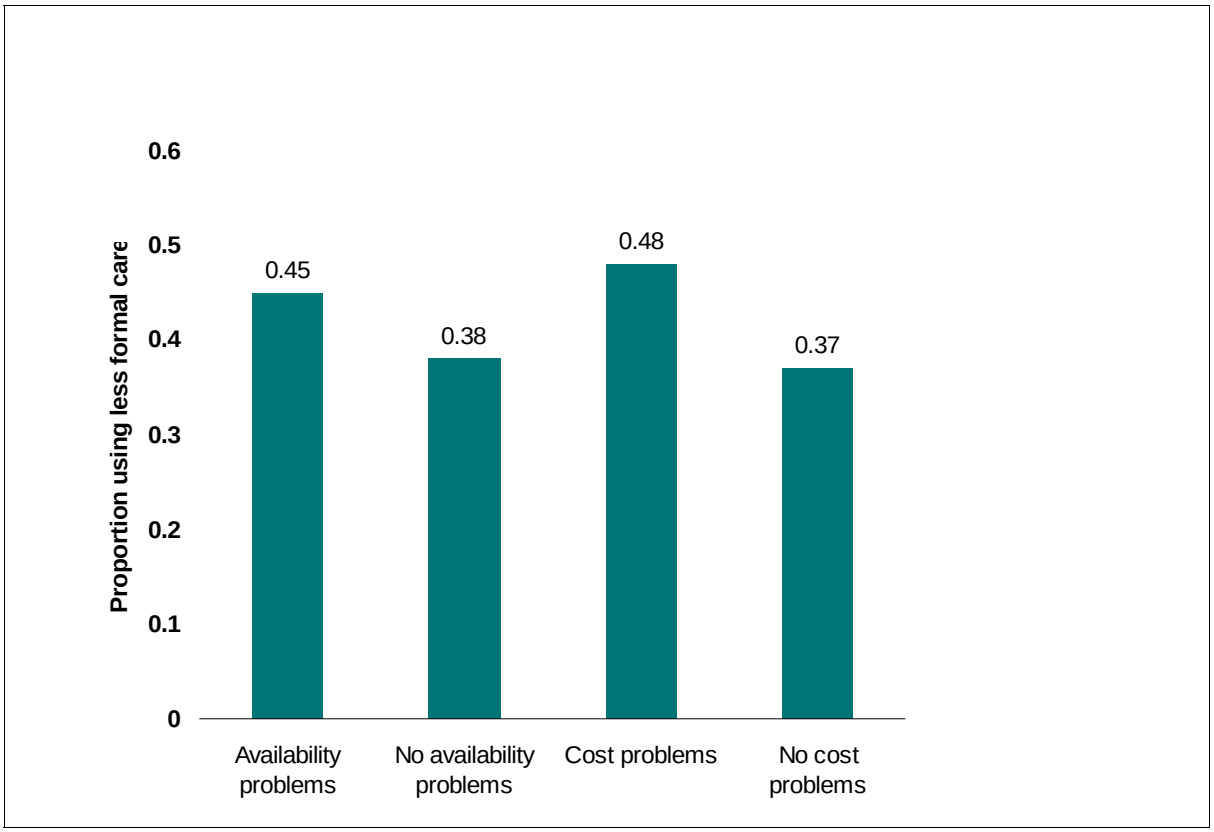
Figure 10, which is based on a sample of mothers who used some hours of formal care in Wave 2, shows that the apparent association between problems with child care in Wave 2 and reduced hours of care in Wave 3 is stronger in relation to formal care hours for mothers who reported cost problems in Wave 2. The chart shows that 48 per cent of mothers reporting cost problems in Wave 2 reduced their hours of formal care in Wave 3, compared with only 37 per cent of mothers of not reporting cost problems reducing hours of care by Wave 3.

Figure 9 Proportion of mothers who used less total hours of care in Wave 3 than Wave 2 a



a Less total hours of care defined as at least 5 hours less, or using some care in Wave 2 and no longer using or thinking about using care in Wave 3. Population analysed is where total hours of care in Wave 2 is greater than zero. *Data source: HILDA Wave 2 and Wave 3 data*

Figure 10 Proportion of mothers who used less hours of formal care in Wave 3 than Wave 2 [a]



[a] Less hours of formal care defined as at least 5 hours less, or using some formal care in Wave 2 and no longer using or thinking about using care in Wave 3. Population analysed is where hours of formal care in Wave 2 are greater than zero.

Data source: HILDA Wave 2 and Wave 3 data

When we re-ran our multivariate models using the more stringent definition of problems with care, we found that for mothers who had used both formal and informal care in Wave 2, problems with the quality of care reported in Wave 2 were significantly associated with using lower total hours of care in Wave 3. Results from the total hours of care model are presented in Table 5, and show that the only other factors significantly associated with the likelihood of using less hours of care in Wave 3 than Wave 2 were to do with the number and ages of children, and with having used low hours of informal care in Wave 2.

Table 5 Problems with cost and availability in Wave 2 and reduction in total hours of child care used in Wave 3: logistic regression results

		Likelihood of using fewer hours of total care in Wave 3 than Wave 2	
		Coefficient (SE)	
Problems in Wave 2	**Availability problems**	1.63 (.56)	**
	Cost problems	-.60 (.50)	
Children	**One child**	-.11 (.67)	
	Two children (reference: 3 or more)	-.06 (.55)	
	Extra child(ren) in Wave 3	2.68 (1.33)	*
	Fewer child(ren) in Wave 3	-.41 (.81)	
	Average age of youngest child less than 2	-1.38 (.66)	*
	Average age of youngest child less than 6 (reference: >6)	.62 (.50)	
Household disposable income	**Income <= 35,000**	1.20 (.84)	
	Income between 35,001 and 60,000 (reference: > 60,000)	-.56 (.56)	
Family type	**Ever single parent**	-1.14 (.83)	
Maternal work	**Average maternal hours of work 15 or less**	-.10 (.64)	
	Average maternal hours of work between 16 and 34 (reference: 35+)	.41 (.51)	
Residence	**Reside in capital city**	-.21 (.43)	
Average hours of formal care per child	**between 1 and 25 (reference: over 25)**	-.62 (.63)	
Average hours of informal care per child	**between 1 and 15 (reference:over 15)**	-1.04 (.47)	*
Average total cost of care per child	**zero**	1.0 (1.18)	
	between $1 and $20	-.52 (.73)	
	between $21 and $50 (reference: over $50)	-.30 (.70)	

Note: *p<.05 **p<.01 ***p<.001. Population analysed is mothers who used some formal and informal care in Wave 2.

Source: HILDA Wave 2 and Wave 3 data, NATSEM calculations

This total hours of care model was the only one in which, even with the more stringent definition of problems in Wave 2, that we found any significant relationship between problems in Wave 2 and changes in care use or work hours in Wave 3. We found no significant relationships between either cost or availability problems in Wave 2 and lower hours of maternal work or the use of fewer hours of formal care in Wave 3.

4 Conclusion

Our findings suggest that persistent problems with child care availability and cost for families with children under 15 are relatively common, with almost half of the mothers in the longitudinal sample used in this study coming from households which reported at least a moderate level of difficulty with these issues across two waves of the HILDA survey. Factors significantly associated with the presence of persistent problems with child care availability include having more than two children under 15 years of age, having a child younger than 2 years of age and residing in a capital city. Mothers in households which did not have to pay for child care were significantly less likely to report persistent availability problems than those in households paying substantial amounts for care. Our multivariate analysis, however, found few significant associations between persistent problems with the cost of care and the range of factors we examined.

Other characteristics that appeared to be associated with persistent problems but not at a statistically significant level included being a single parent (with single parents more likely to report persistent problems with child care availability, but less likely to report problems with cost), and the use of high hours of formal care (associated with a higher likelihood of persistent problems with costs of care, although not availability). Mothers in households with lower family income were a little more likely than higher income households to experience persistent problems with care availability, and somewhat less likely to experience problems with cost.

There is also some tentative evidence to suggest that some mothers who use no paid or formal child care may be influenced in this decision by problems they perceive in paying for and accessing care. For example, 22 per cent of mothers in households who pay nothing for child care report persistent problems with availability, and 16 per cent of these report persistent problems with the cost of care. Similarly, 21 per cent of those who use no formal care report persistent problems with the cost of care, and 27 per cent of these mothers live in households which report persistent problems

with care availability. However, further research would be required to investigate these relationships more fully.

Our additional analysis of the relationships between the experience of problems with child care in Wave 2 of the survey, and the reduction in child care use or mothers' hours of work in Wave 3 produced somewhat inconclusive results. We examined in these models only mothers in those households who had reported relatively severe problems, but still found very few significant relationships between reported problems in Wave 2 of the survey and outcomes in Wave 3. However, we did find that those mothers in households that used both formal and informal care in Wave 2, and reported problems with availability of care in Wave 2, were significantly more likely to have reduced their hours of child care by Wave 3 than the mothers in households who did not report problems with availability in Wave 2. Our descriptive data also showed that more mothers who reported problems with cost and/or availability in Wave 2 reduced their hours of work and used less formal child care in Wave 3 then mothers in households which did not report problems in Wave 2. However, these results were not statistically significant.

Our results in relation to the fall in the use of total hours of care for mothers whose households used both formal and informal care in Wave 2 provides some tentative support for the notion that choices about work and child care for some families are affected by problems with paying for and accessing appropriate care. The relatively small differences in outcomes, however, between mothers in households with problems in Wave 2, and those in households without problems in most of our models, may suggest that despite dissatisfaction with child care arrangements, and problems paying for care, parents have no choice but to continue to work and use care. It is also possible that parents respond to difficulties with child care arrangements and costs by changing the care arrangements (perhaps substituting cheaper care for more expensive care) rather than by reducing care or work hours. We have not investigated this here, but our findings about the extent to which problems with child care persist over time for some families may indicate that if such substitutions are taking place, they may not necessarily be producing substantial improvements in satisfaction with care.

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