

Access to childcare interim report 4: How are childcare access issues reflected in mothers' work?

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Disclaimer

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Abstract

This is the fourth in a series of five reports that together use the Growing Up in New Zealand (GUINZ) longitudinal survey data to explore how the inability to access affordable childcare affects the long run labour market outcomes of mothers. This report investigates the relationship between issues with access to childcare when a child is young and mothers' paid work at the same date.

When their child is 9 months or 2 years old, 10-11% of GUINZ mothers report not working due at least in part to childcare access issues. We find a lack of access to childcare is strongly associated with the mother not working due to childcare issues. However, a fifth to a quarter of mothers whose children are not in care due to access do work, and some mothers whose children are in childcare still report they are unable to work due to childcare issues. This suggests childcare availability may not be sufficient to enable mothers to work, and longer hours or more flexibility of childcare is also required. Mothers who work despite a lack of childcare access are more likely to have returned for financial or leave-related reasons, to be self-employed, and to work hours other than regular business hours on weekdays. This emphasises that childcare providers do not cater well to the nearly 50% of working mothers of young children who work irregular hours.

Finally, we estimate that Aotearoa New Zealand mothers with children under age three who are not working only because they can't access affordable childcare may be foregoing \$116 million or more of wages each year, \$32 million of which is attributable to Māori mothers, and \$11 million of which is attributable to Pasifika mothers. This amounts to an annual average of \$660 of wages foregone per mother with a child under 3 years old, \$830 per such Māori mother, and \$540 per such Pasifika mother.

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1 Introduction

When New Zealand parents are unable to find suitable, affordable childcare, it is disproportionately the mothers who take time out of the labour force to care for the children. This inevitably reduces mothers' labour supply, and has the potential to negatively affect their careers in the long term, for instance, if their human capital erodes while they are not working.

This is the fourth in a series of five reports that together use Growing Up in New Zealand data to explore how the inability to access affordable childcare affects the long run labour market outcomes of mothers. The first two reports investigated how common issues with access to childcare are, who experiences such issues, and how persistent these issues are. The third report showed how use of and experiences with childcare differ by ethnicity and for families that previously had trouble accessing affordable childcare. This report investigates how mothers' work status and work characteristics differ by their childcare situation, particularly by whether they are unable to access affordable childcare, and estimates the cost to the economy in terms of lost earnings of a lack of access to affordable childcare. This analysis sheds light on the potential to increase mothers' attachment to the labour market and income from work by improving access to affordable childcare. The final report in this series will investigate how access to childcare issues are related to mothers' labour market outcomes in the long term.

Throughout this report, our focus is on mothers' paid work and its relationship with childcare. For conciseness, we refer to this as "work", while acknowledging that parenting is also real and valuable work, though unpaid.

Although both mothers and fathers can have their work disrupted by parenting responsibilities, this situation is substantially more common for women than for men. Unfortunately, publicly reported statistics from the Household Labour Force Survey do not contain breakdowns by parenthood status, but the gendered effects of childcare responsibilities are suggested by differences in men's and women's responses to a range of questions. In the reference week of the June 2021 survey, 23 thousand women but only 3 thousand men were away from work mainly for personal/family reasons. Twenty-three thousand women but only 7 thousand men worked fewer hours than they wanted mainly because of difficulty finding suitable childcare or other family responsibilities. Among those not working at the survey date but who did work in the previous five years, 76 thousand women but only 10 thousand men left their last job mainly due to parental/family responsibilities. Among those not working and not looking for a job but who wanted work, 31 thousand women but only 4 thousand men reported the main reason for not searching for a job was that they were looking after children or others.

Among those not employed, 99 thousand women but only 11 thousand men reported not wanting a job mainly because they were looking after children or others. Finally, among those not in the labour force, looking after a child was the main activity of 135 thousand women but only 21 thousand men. Due to these large gender disparities in the disruption to work caused by parental responsibilities, in this report we focus solely on mothers' work.

The next section outlines the policy environment faced by the cohort of children studied. Section 3 gives a brief description of the data, construction of the sample used in this report, and the main variables of interest. Section 4 describes conceptually and in terms of the data the relationship between childcare situation and a mother's work situation. Section 5 presents three sets of analysis. The first explores how the mother's work situation differs at 9 months and 2 years with her childcare situation, both for the full population and by ethnicity. The second focuses on working mothers at 9 months and 2 years, and shows how their work characteristics vary with their childcare situation. The final analysis estimates the cost to mothers in terms of lost work hours and earnings and the dollar cost to the economy as a whole of mothers not being able to work due to a lack of childcare. Section 6 considers the implications of our findings.

2 Policy setting

The children studied in this report were born between April 2009 and March 2010. The focuses of the report are their childcare situations at 9 months old, which was approximately during the 2010 calendar year, and 2 years old, which was between April 2011 and March 2012.

The parents of these children were eligible for a maximum of 14 weeks of paid parental leave (PPL), the value of which was equal to their pre-birth weekly earnings, capped at the average New Zealand wage.¹ PPL has subsequently increased, reaching 26 weeks in June 2020.² These changes may have affected the parental leave decisions of later cohorts of mothers, but because PPL is still only 6 months, their effects on mothers' work and childcare at 9 months and 2 years are likely to be limited.

At both the ages of focus, the children were too young to be receiving the universal 20 Hours ECE subsidy for attending early learning services; this is available for children aged three to five only. However, low income parents in the cohort studied could have been eligible for the Ministry of Social Development's (MSD) Childcare Subsidy, which is administered through Work and Income. This income-tested subsidy is available for children who are not yet of school age

¹ Forbes (2009).

² <https://www.business.govt.nz/news/paid-parental-leave-changing-2020/> accessed 21 September 2021.

who attend an approved early childhood programme for at least three hours per week.³ While the 20 Hours ECE subsidy is automatically applied, parents must know about the MSD Childcare Subsidy and manually apply for it. Prior studies show not all eligible parents know about this subsidy, and among those who do, the bureaucracy that must be dealt with to get it can be a major barrier.⁴

3 Data

3.1 Growing Up in New Zealand longitudinal survey

This report uses data from the Growing Up in New Zealand (GUiNZ) survey run out of the University of Auckland. This longitudinal survey focuses on 6,846 children born in the Auckland, Waikato, and Counties-Manukau regions in April 2009 to March 2010 and their families. The participating families were selected to be roughly ethnically and socioeconomically representative of the overall New Zealand population. Further details of the study can be found in Morton et al. (2013).

3.2 Sample construction

Because the focus of this research is mothers, all analysis is at the family level, meaning multiple births to one mother are combined into one observation. Analysis is limited to the sample of families that meet several criteria:

- the mother was present in the antenatal survey (conducted approximately 3 months before the child's due date);
- the same mother was present in the antenatal, 9-month, and 2-year surveys;
- the childcare situation at 9 months and 2 years is fully known (whether the child was in regular childcare, if so then the number of hours of care each week, and if not then the main reason why not); and
- the mother's work situation at 9 months and 2 years is fully known (whether the mother was working, and if not then the main reason why not).

Table 1 compares the characteristics of all GUiNZ mothers (first column), those present in the first three surveys (second column), and the analysis sample of those present in the first three surveys for whom we have complete information on childcare and work (third column). The 6,821 mothers in the full GUiNZ sample fall by 750 to 6,071 mothers who are present in the

³ <https://www.workandincome.govt.nz/products/a-z-benefits/childcare-subsidy.html> accessed 21 September 2021.

⁴ Statistics New Zealand (2017).

first three survey waves, and by another 138 to the analysis sample of 5,933 for whom full information on childcare and work situations at 9 months and 2 years is available.

Table 1 shows mothers in the analysis sample are similar to the full GUINZ population in terms of age, whether the GUINZ child was their first child, and deprivation index. However, the ethnic breakdown of the samples is quite different. Mothers who identify most strongly as European constitute 52.9% of the full GUINZ population compared with 57.0% of the analysis sample, those who identify as Māori constitute 13.9% of all GUINZ mothers and 13.0% of analysis mothers, and those who identify as Pasifika constitute 14.7% of all GUINZ mothers and 12.8% of analysis mothers. Mothers in the analysis sample are also disproportionately likely to live with a partner, 91.3% compared with 90.4% of the full population.

Table 1: Characteristics of full GUINZ population and analysis sample

	All GUINZ mothers	Mothers present in antenatal, 9-month, and 2-year surveys	
		All	With non-missing childcare and work information
Mother's age	30.0	30.3	30.3
First child	41.8%	42.2%	42.2%
Mother's self-prioritised ethnicity:			
European	52.9%	56.5%	57.0%
Maori	13.9%	13.2%	13.0%
Pasifika	14.7%	12.9%	12.8%
Asian	14.7%	13.7%	13.6%
MELAA	2.1%	2.0%	2.0%
Other ethnicity	0.2%	0.2%	0.2%
New Zealander	1.2%	1.3%	1.3%
Missing ethnicity	0.3%	0.3%	0.2%
Mother lives with a partner	90.4%	91.3%	91.3%
Partnership status missing	9.6%	9.7%	9.6%
Deprivation Index	6.0	5.9	5.9
Observations	6,821	6,071	5,933

Notes: Antenatal characteristics of mothers in the full GUINZ sample, sample linked between first three survey waves, and analysis samples.

Some of the analysis restricts the analysis sample further to mothers who have returned to work at 9 months or 2 years.

3.3 Main variables of interest

3.3.1 *Childcare situation at 9 months and 2 years*

One of the main variables of interest in this report is childcare situation at 9 months and at 2 years. In each of the 9-month and 2-year survey waves, children are classified as being in full-time regular childcare (30+ hours per week), in part-time regular childcare (<30 hours per week), not in regular childcare due to parental preferences, or not in regular care due to access issues. For some of the analysis we combine the two "in childcare" categories. The regular childcare can be formal or informal, and includes care by relatives or friends. It excludes only care by the mother or her partner.

Two main differences should be noted between the variables for childcare situation at 9 months and at 2 years. First, at 9 months, a child is classified as not being in care due to access issues if their main reason for not being in regular childcare is (i) cost, (ii) no spare places, (iii) not available when I need it, (iv) transport difficulties, (v) not available locally, (vi) poor quality of care, or (vii) does not suit our beliefs. At 2 years, the wordings on some of these options have been cosmetically altered, and health concerns is an additional option.

Second, in the 9-month survey, a child is classified as not in care due to preferences if the main reason for not being in care is (i) does not need it or (ii) do not want baby cared for by strangers. At 2 years, (i) too young and (ii) mother does not want/need it are additional options.

3.3.2 *Mother's work situation at 9 months and 2 years*

The second main variable of interest in this report is the mother's work situation at 9 months and 2 years. At each child age, mothers are classified as working, not working for reasons unrelated to childcare, or not working due to childcare access. These categories are constructed from information of whether the mother is working, and if not the reasons why not.

Mothers who are not working in the 9-month or 2-year survey waves are asked to report all the reasons for this. At 9 months, the options offered are: a) look after own child(ren), b) too busy with family, c) partner earns enough, d) no jobs available, e) no job interests me, f) not enough flexibility, g) no suitable childcare, h) not worthwhile with childcare costs, i) lose government benefits, j) I am studying, and k) other. At 2 years some of these options are reworded and four new options are added: a) new pregnancy/new baby, b) health/disability of mother or child, c) paid maternal/paternal leave, d) self-employed.

We consider a mother to be not working due to childcare access if she reports not having suitable childcare or working not being worthwhile given childcare costs. Other non-working mothers are classified as not working for non-care reasons. Because mothers can give multiple

reasons for not working, those we classify as not working due to childcare access may also give reasons unrelated to childcare.

When we estimate the work and earnings foregone due to lack of childcare access, our focus is on mothers who are not working due to childcare access, but likely would be working if they did not have childcare access issues. Identification of these mothers is described in Section 5.3.2.

3.3.3 *Characteristics of mother's work at 9 months and 2 years*

We examine a range of characteristics of mothers' work at 9 months and 2 years: reasons for returning to work, whether self-employed or an employee only, weekly hours worked, whether the mother usually works weekends, whether the mother works a day schedule or alternative schedule, and whether the mother works any type of irregular schedule. Here we give details of the construction of the variables on reasons for returning to work and work schedule.

Reasons for returning to work: Mothers who are working at 9 months are asked their reasons for returning. We aggregate possible responses into four types of reasons:

- 1) Childcare reasons: which consists of the responses "arranged childcare" and "sharing caregiving with father";
- 2) Enjoyment reasons: which consists of the responses "enjoy working and wanted to return", "get out of the house", and "missed the company";
- 3) Work reasons: which consists of the responses "employer preferences", "career, "job is seasonal", and "self-employed"; and
- 4) Money/leave reasons: which consists of the responses "used up parental leave", "paid parental leave ended", and "needed the money.

Multiple responses are possible, so mothers can fall into more than one of the categories.

Work schedule variables: For mothers who are working at 9 months or 2 years, we construct three variables to capture aspects of how the work falls outside a regular, weekday, business hours schedule. Such work is expected to be more challenging to cover with childcare. The first variable is an indicator for usually working weekends. The second is an indicator for working a regular daytime schedule versus an alternative schedule, where alternative schedules include a regular evening shift, a regular night shift, a rotating shift, a split shift, on call, an irregular schedule, and other. The third variable combines the first two. Specifically, it is an indicator for working any kind of irregular schedule, namely either working weekends or working a schedule other than a regular daytime schedule.

4 The conceptual relationship between childcare situation and mother's work

Survey evidence shows the most common reason mothers use formal childcare is so they can meet their work commitments.⁵ This suggests a lack of access to childcare is likely to prevent mothers returning to work. However, in the GUiNZ survey mothers who report they do not use childcare due to access issues do not perfectly align with mothers who are not working due to a lack of access to childcare for several reasons, both measurement-related and conceptual. On the measurement side, GUiNZ asks mothers for all the reasons they are not working, but only the main reason they are not using childcare. Thus some mothers may have access issues as well as other reasons to not be using childcare, but we could observe them as not having their child in childcare due to preferences. On the conceptual side, access issues that prevent a child being in childcare do not necessarily prevent their mother from working. For instance, the father might care for the child while the mother is working, or the family might use various irregular care arrangements. We may thus observe children who are not in care due to access issues having mothers who are working. In addition, issues with access to childcare might not entirely prevent a child from being in childcare, but might still prevent the mother from working, such as if the care is not available to fit her work schedule. We may thus observe mothers whose children are in regular childcare but who report they are not working due to childcare access issues.

To explore how commonly access issues prevent mothers from working, and the ubiquity of access issues that do not prevent children from being in childcare but do prevent their mothers from working, we first explore the relationship between childcare situation and mother's work situation at the same date.

Some families may have more flexibility to deal with a lack of access to childcare in ways that do not require the mother to give up work. This would suggest that mothers working despite a lack of childcare access is a positive indication about family circumstances. However, some mothers may be forced to work despite a lack of access to regular childcare because they can't afford to not, which would suggest that mothers working despite a lack of childcare access is a negative indication. Such mothers may make do for long periods with precarious childcare arrangements. These contradictory possible interpretations mean we do not interpret mothers working when they have childcare access issues as necessarily desirable or undesirable. However, the types of family that tend to be in this situation provide hints as to the most common drivers of it.

⁵ <https://www.stats.govt.nz/news/over-half-of-children-in-formal-care-there-due-to-parents-work-arrangements> accessed 25 January 2022.

Even if mothers who experience childcare access issues are able to work, the amount and type of work they can do may be affected by their childcare issues. Such mothers may be forced to work fewer hours, work from home, change jobs to increase their work flexibility (usually at the cost of reducing their earnings), or shift to self-employment. Working without stable, suitable childcare may also become too much and they may be forced to leave employment. We thus explore how the job characteristics of working mothers vary with childcare situation, in particular with whether the child is not in care due to access issues.

A family's decision of whether to use childcare and the mother's decision of whether and how much to work are interrelated in complex ways, so neither should be thought of as strictly the cause of the other. For instance, a mother's decision to work may mean she needs to use childcare, but a family's lack of access to childcare may mean the mother can't work. That is, causality is likely to run in both directions. Both decisions are also likely to be affected by some of the same family and personal characteristics, many of which are unobservable, such as level of savings.

5 Results

In this section, we first examine the relationship between childcare situation and the mother's work situation at 9 months and 2 years, for the full population and then for each common ethnic grouping. We then focus on mothers who have returned to work at 9 months or 2 years and examine how the characteristics of their work vary with their childcare situation. For both these analyses, the relationship between childcare and work is complex and should not be thought of as strictly causal in either direction. Finally, we combine GUiNZ data on the number and characteristics of mothers who are not working due to childcare access with various additional data to estimate the cost to individual mothers and the economy of mothers not being able to work due to childcare access issues.

5.1 Relationship between childcare situation and mother's work situation at 9 months and 2 years

5.1.1 Full population

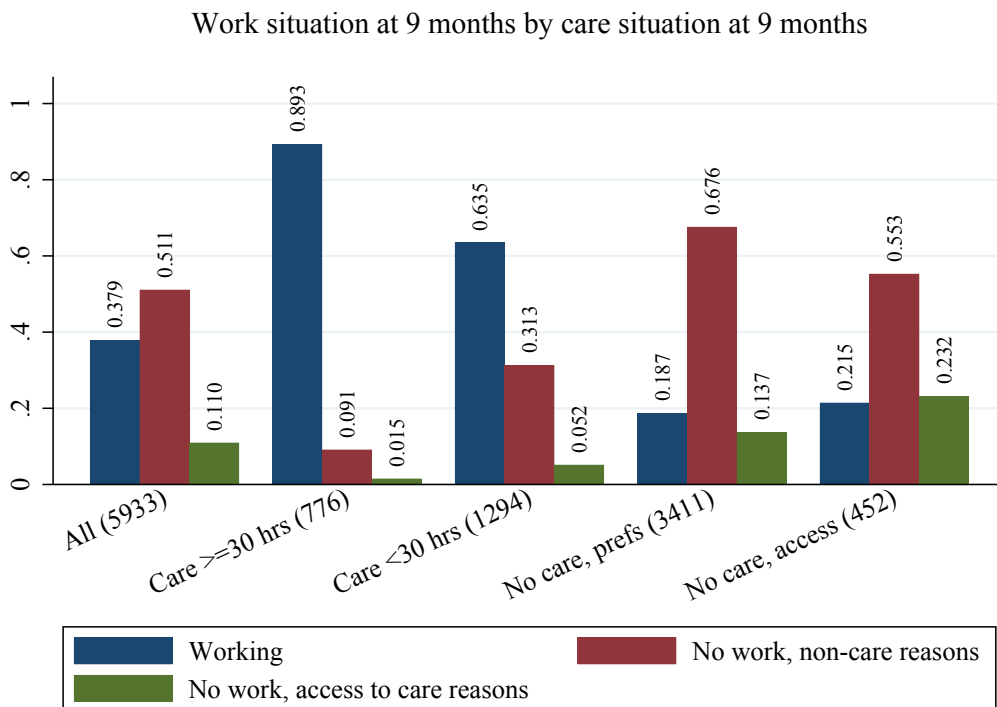
In this section we explore how the work situation of the mother differs with her childcare situation when her child is 9 months old and when they are 2 years old. This provides suggestive evidence on how much a lack of access to childcare constrains mothers' work. Panels A and B of Figure 1 show, for 9 months and 2 years respectively, the distribution of mothers across work situations for those in each childcare situation. The left most bars are for the full population of

mothers, i.e., those in any childcare situation. The population size is given below the horizontal axis, 5,933 mothers. In Panel A, these bars show at 9 months 38% of mothers are working, 51% are not working for reasons that are unrelated to childcare, and 11% are not working due to lack of access to childcare. Panel B shows that by the time the child is 2 years old 51% of mothers are working, 39% are not working for reasons that are unrelated to childcare, and 10% are not working due to lack of access to childcare.

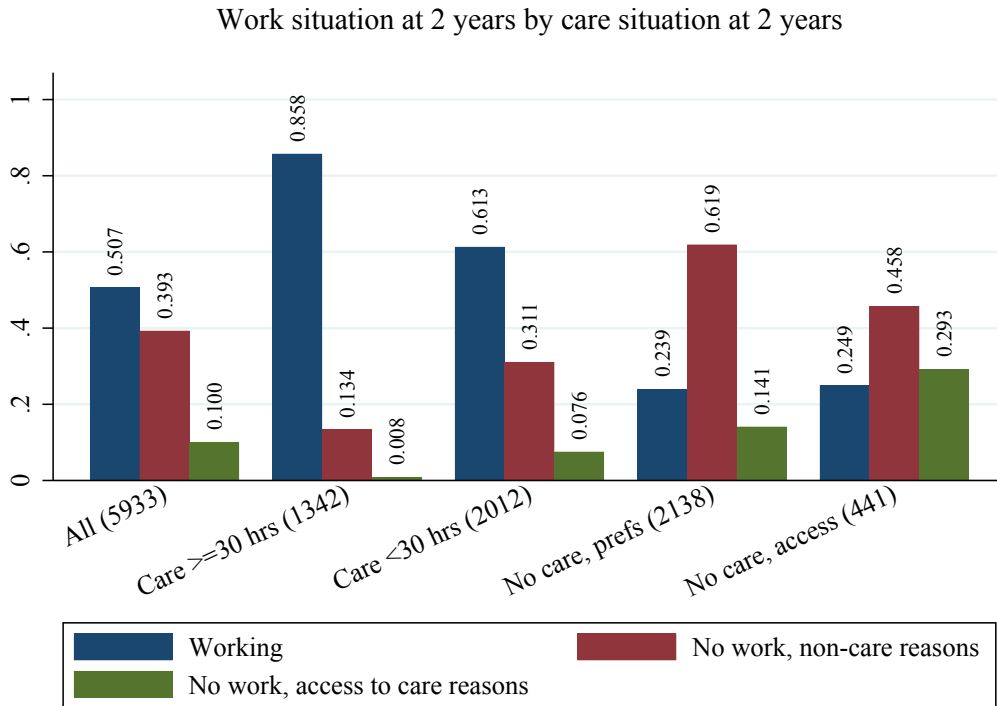
The 11% and 10% of mothers who are not working due to lack of access to childcare at 9 months and 2 years are greater than the 7.7% and 7.5% of mothers whose children are reported as not in care due to access issues at these ages. However, two points should be remembered. First, mothers can report multiple reasons for not working, and are classified as not working due to childcare access issues if they give a reason relating to childcare access regardless of the other reasons they give, whereas they are asked only the main reason their child is not in care. Second, childcare access issues need not prevent the use of childcare entirely to prevent a mother working; it is enough to not be available at the times she needs childcare.

Figure 1: Mother's work situation compared with childcare situation

Panel A: 9 months



Panel B: 2 years



Notes: For mothers in each childcare situation at 9 months (Panel A) and 2 years (Panel B), this figure shows the proportion of mothers in each work situation. Bars are labelled above with the proportion of mothers and below the horizontal axis with the number of mothers in the childcare situation.

The rest of Figure 1 shows that mothers in several different childcare situations at 9 months can be not working due to childcare access issues. Very few of the 776 mothers with children in childcare for at least 30 hours each week report not working to lack of access to childcare, but 5.2% of the 1,294 mothers whose children are in part-time childcare report they are still not able to work due to childcare access issues. This suggests to enable mothers to work childcare must not only be *available*, but must also be sufficiently flexible, for example in terms of the hours offered and the flexibility to change the hours of care to match irregular or unpredictable shifts.

Among the 3,411 mothers who report their child is not in childcare at 9 months due to preferences, 14% say they are not working due to childcare access issues. These could be mothers who would report childcare access issues if they were asked to list all the reasons their child is not in care, but for whom the main reason is something else.

Finally, among the 452 mothers whose children are not in care at 9 months due to access issues, 23% report they are not working due to lack of access to care. This percentage, although higher than for mothers in other childcare situations, is perhaps surprisingly low. Note, however, a further 55% of these mothers are not working for other reasons, and only 22% are working. Regardless, this suggests many mothers whose children are not in childcare due to access issues

would not be working anyway, and it is also not uncommon for mothers to work despite their child not being in childcare due to access issues.

Panel B of the figure shows the overall patterns are similar at 2 years, though the proportions of mothers in each childcare situation who report not working due to childcare access issues tend to be higher; among the 441 mothers reporting the child is not in care due to access issues, now 29% are not working due to lack of access to childcare, up from 23%, and 25% are working.

Table 2: Mother's work situation by childcare situation at 9 months and 2 years

	Childcare situation		
	(1) Any	(2) Not in care, preferences	(3) Not in care, access
Panel A: 9 months			
Number of mothers in childcare situation	5,933	3,411	452
Percentage of mothers in childcare situation	100	57.5	7.6***
Among mothers in childcare situation:			
% working	37.9	18.7	21.5
% not working for non-care reasons	51.1	67.6	55.3***
% not working for access to care reasons	11.0	13.7	23.2***
Panel B: 2 years			
Number of mothers in childcare situation	5,933	2,138	441
Percentage of mothers in childcare situation	100	36.0	7.4***
Among mothers in childcare situation:			
% working	50.7	23.9	24.9
% not working for non-care reasons	39.3	61.9	45.8***
% not working for access to care reasons	10.0	14.1	29.3***

Notes: This table summarises mother's work situation overall (column 1) and for mothers in two specific childcare situations (columns 2 and 3) at 9 months (Panel A) and 2 years (Panel B). Asterisks are given on the percentage variables in the childcare column "Not in care, access" to denote statistically significant differences from "Not in care, preferences" mothers: * <0.10, ** <0.05, *** <0.01.

Table 2 summarises the relationship between childcare situation and mother's work situation and particularly compares mothers whose children are not in care due to access issues with those whose children are not in care due to preferences. These groups are interesting to compare because neither have children in childcare, but the former might use childcare if it were available and affordable, whereas the latter would not. The table shows that at both 9 months

and 2 years mothers of children not in care due to access, compared with mothers of children not in care due to preferences, are significantly more likely to not be working for childcare access reasons, significantly less likely to not be working for other reasons, and insignificantly more likely to be working. At 2 years, the comparisons are similar.

Overall, the relationships between a mother's childcare situation and work situation show childcare access issues that prevent a child being in care can, but don't necessarily, prevent the mother from working. Conversely, childcare access issues need not prevent a child being in childcare in order to interfere with the mother's ability to work.

5.1.2 Other parental characteristics and mother's work situation

Appendix Table 1 uses multinomial logit regressions to investigate the relationship between the mother's work situation at 9 months and 2 years, her childcare situation at the same date, and her other characteristics. This sheds light on how a mother's background characteristics affect the extent to which childcare issues translate into work status. The dependent variable in each regression is the mother's work situation aggregated into three categories: working, not working for reasons unrelated to childcare (the reference category), and not working because of childcare access issues. The table presents relative risk ratios, so a value below 1 means the characteristic is associated with a lower probability of the mother being in that work situation compared with the reference situation, and a value above 1 means the characteristic is associated with a higher probability of the mother being in that work situation.

The table confirms that at both 9 months and 2 years having a child in care is a very strong predictor of the mother working, even controlling for the mother's characteristics. Furthermore, having a child not in care due to access issues, as opposed to not in care for preference reasons, is associated with a significantly higher probability of the mother working and a significantly higher probability of the mother not working due to childcare access issues. This suggests mothers who are able to choose to not have their child in care may do so as part of a choice to not work and spend more time with their baby, whereas mothers whose child is not in childcare due to access are more likely to still want or need to work.

Conditional on their other personal characteristics, mothers in the same childcare situation are more likely to be working at 9 months and 2 years if they are 25 or older, more educated (particularly at 2 years), have previous children, had a partner antenatally, were employed antenatally, had low antenatal household income, or were self-employed antenatally (at 9 months only). Most of these characteristics tend to capture advantage or flexibility, though a low household income and previous children suggest such mothers work due to necessity.

Again conditional on their other personal characteristics, mothers in the same childcare situation are more likely to be not working due to childcare access if they are European, under 25 years old (at 9 months only), have previous children (primarily at 9 months), did not live with extended family or non-kin antenatally (primarily at 2 years), live in a rural area (at 2 years only), had low antenatal household income (primarily at 9 months), or did not receive a benefit antenatally (at 9 months only). At both 9 months and 2 years, mothers are more likely to be not working due to childcare access issues if they were not in the workforce antenatally, less likely to be in this work situation if they were students antenatally, and somewhere in between if they were unemployed antenatally. Those who were employed antenatally are least likely to be in this work situation at 9 months and most likely at 2 years. Many of these characteristics capture an aspect of disadvantage, suggesting childcare issues are more likely to translate into the mother not working in disadvantaged families than is the case in other families. However, living with extended family or non-kin and being non-European both seem protective against childcare issues preventing the mother working; access to irregular childcare from household members or whānau may be factors in this.

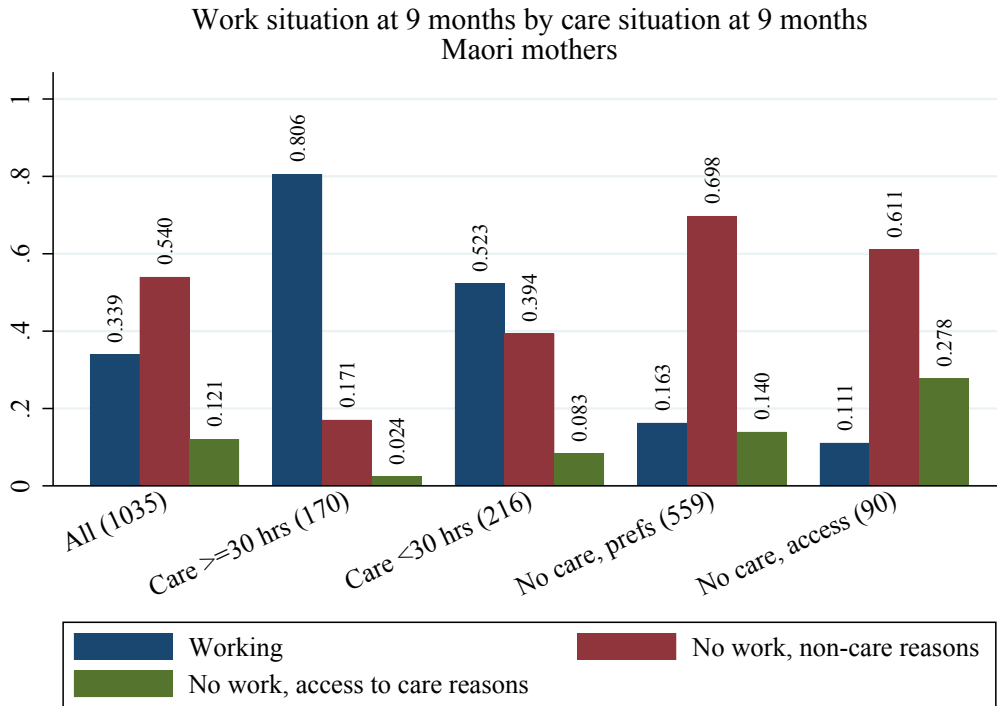
5.1.3 By ethnicity

This section compares a mother's work situation with her childcare situation separately for each common ethnic grouping. The panels of Figure 2 show at 9 months for each ethnicity how the distribution of mothers across work situations varies by childcare situation; Figure 3 repeats this for 2 years. Appendix Table 2 summarises the information and indicates the statistical significance of differences from Europeans.

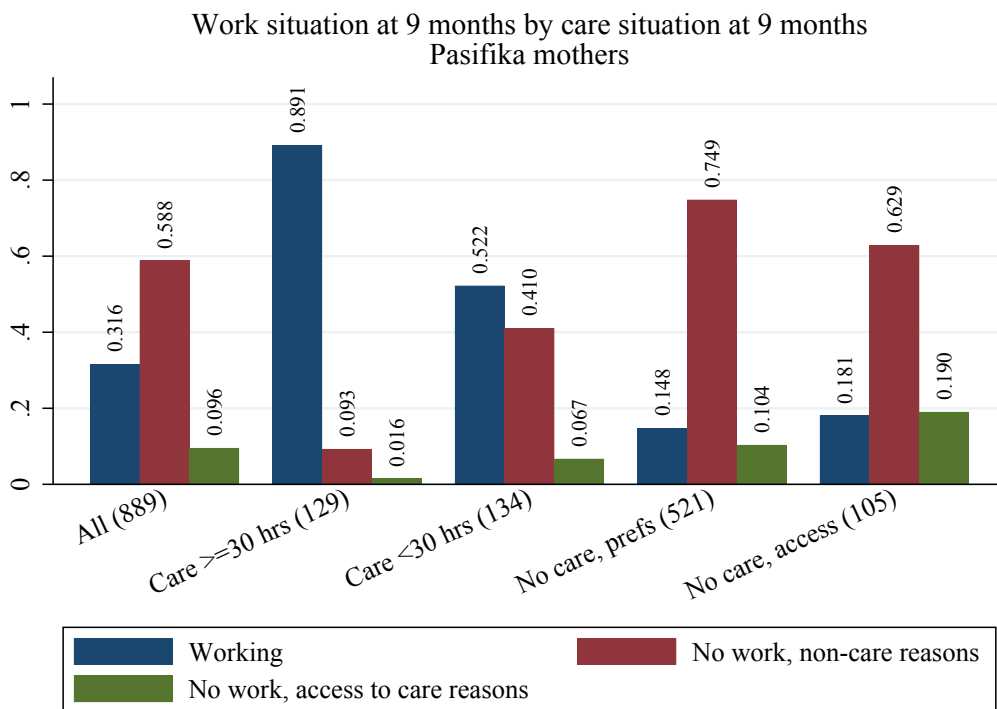
The first set of bars in each panel of the figures show mothers' distribution across work situations aggregating all childcare situations. These show at 9 months Māori and European mothers are most likely to not be working due to childcare access issues, at 12%, Pasifika are less likely, at 10%, and Asians are least likely, at 9%. Panel A of Appendix Table 2 shows the difference between Europeans and Pasifika and the difference between Europeans and Asians are both statistically significant. The table also shows Māori and Pasifika are statistically significantly less likely than Europeans to be working at 9 months, and statistically significantly more likely to be not working for reasons unrelated to childcare access. Asians are insignificantly different to Europeans in these two dimensions.

Figure 2: Mother's work situation compared with childcare situation by ethnicity at 9 months

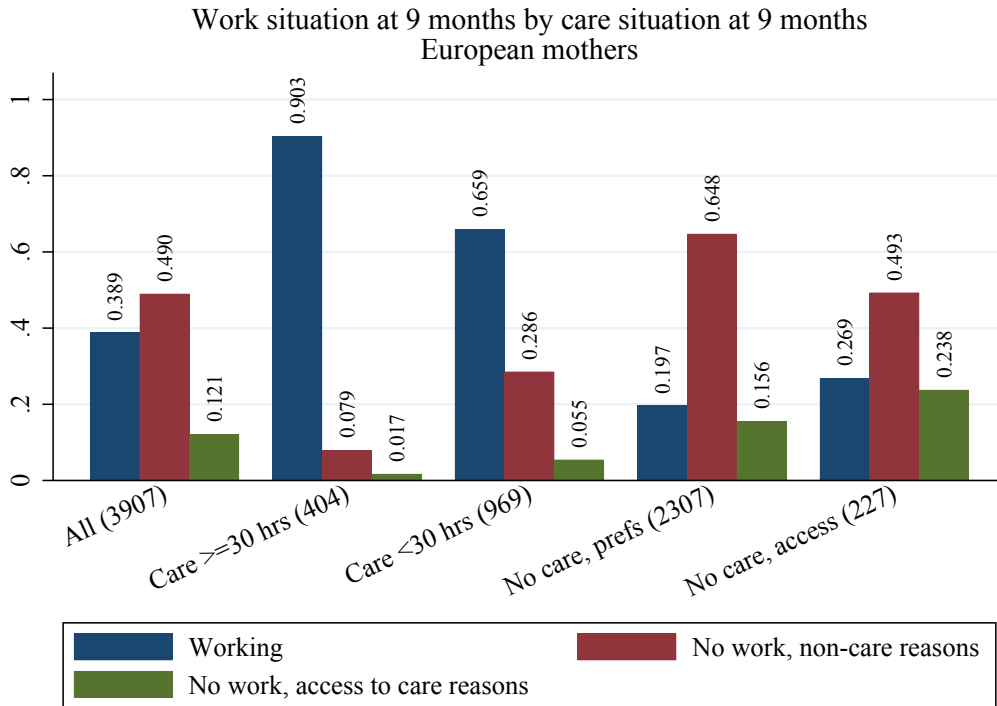
Panel A: Māori



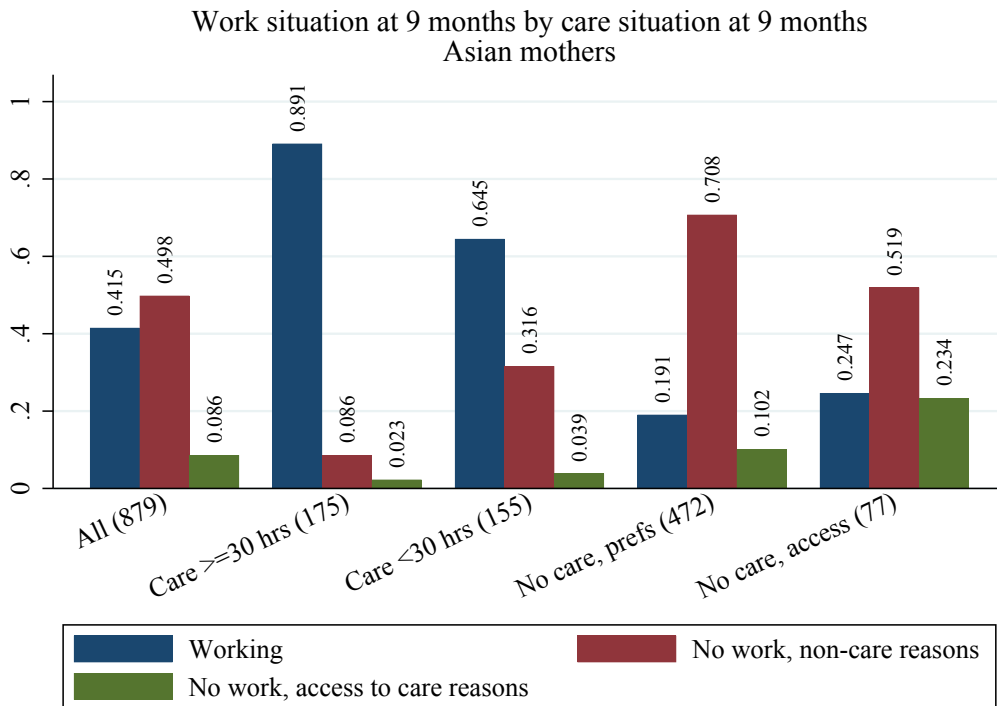
Panel B: Pasifika



Panel C: Europeans



Panel D: Asians

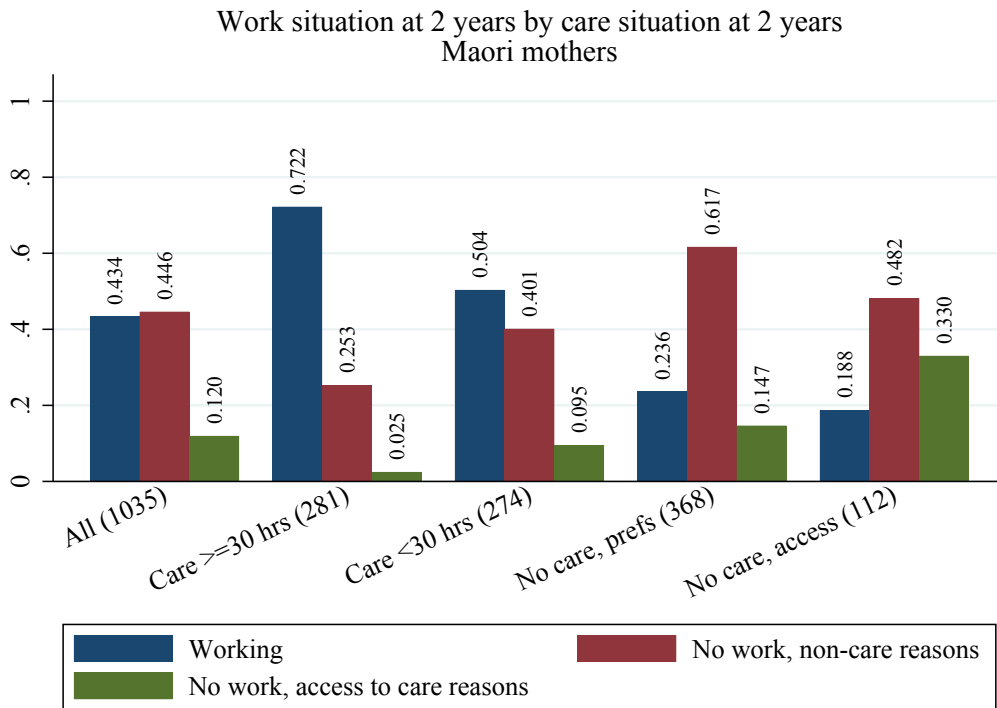


Notes: For mothers in each common ethnic grouping in each childcare situation at 9 months, this figure shows the proportion of mothers in each work situation. Panels A to D are for Māori, Pasifika, European, and Asian mothers respectively, based on mother's total response ethnicity. Bars are labelled above with the proportion of mothers and below the horizontal axis with the number of mothers in the childcare situation.

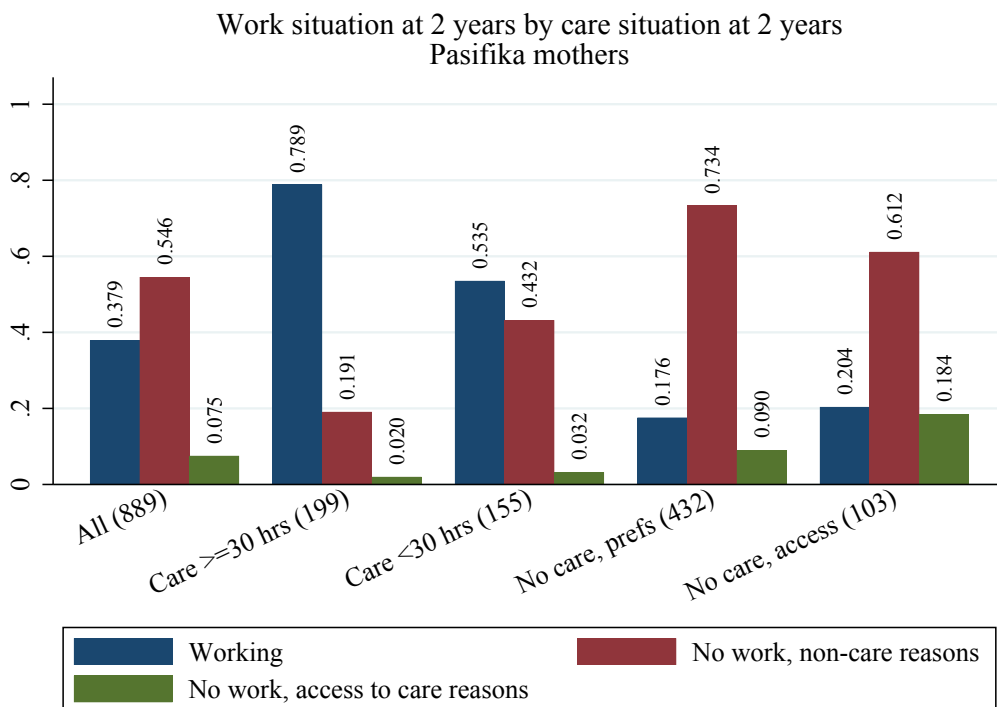
For every ethnicity, the proportion of mothers at 9 months whose children are in childcare full time who report they are not working due to childcare access issues is tiny. Figure 3 shows this relationship still holds at 2 years.

Figure 3: Mother's work situation compared with childcare situation by ethnicity at 2 years

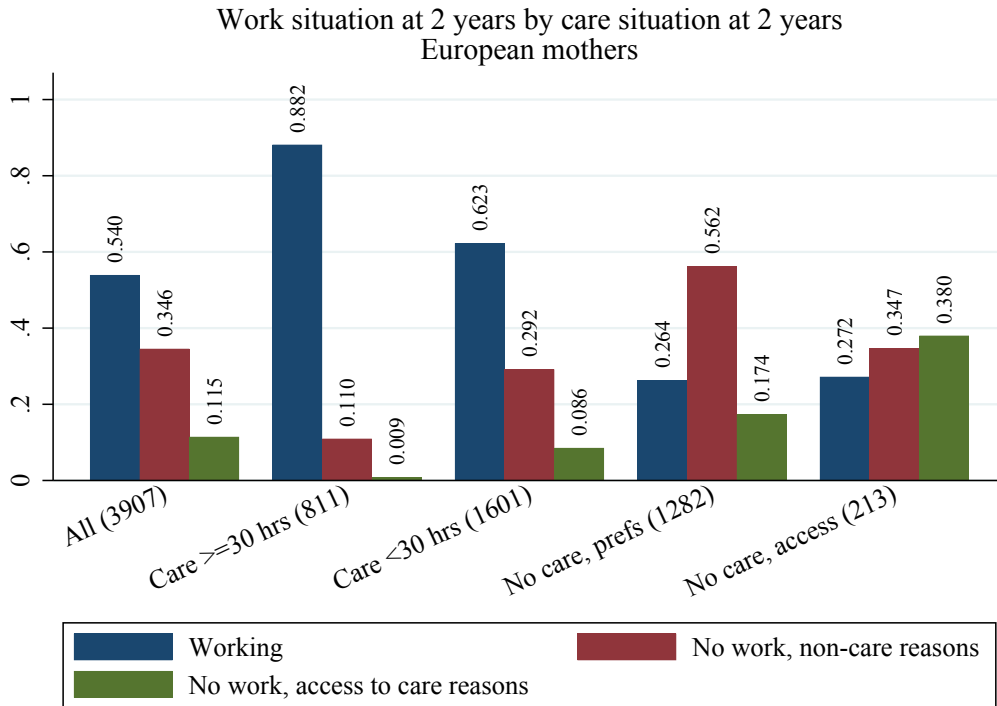
Panel A: Māori



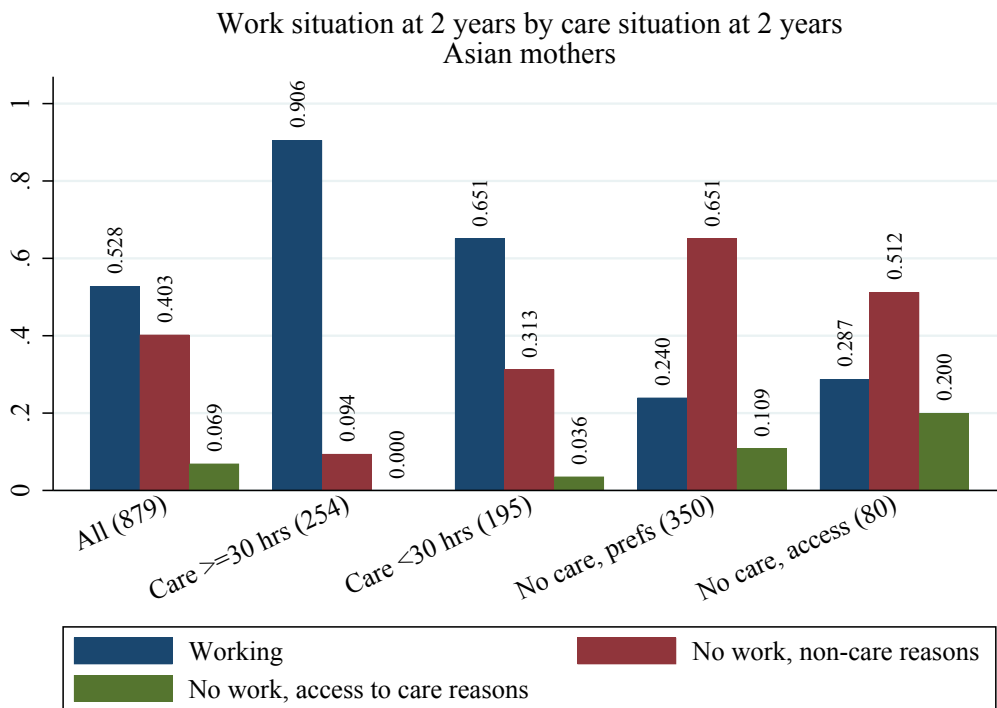
Panel B: Pasifika



Panel C: Europeans



Panel D: Asians



Notes: For mothers in each common ethnic grouping in each childcare situation at 2 years, this figure shows the proportion of mothers in each work situation. Panels A to D are for Māori, Pasifika, European, and Asian mothers respectively, based on mother's total response ethnicity. Bars are labelled above with the proportion of mothers and below the horizontal axis with the number of mothers in the childcare situation.

Among mothers whose children are in part-time childcare at 9 months, Figure 2 shows Māori are the most likely to report not working due to childcare issues, at 8.3%, followed by Pasifika, then Europeans, and Asians are the least likely, at 3.9%. Among these same mothers, Europeans and Asians are 12 to 14 percentage points more likely to be working than are Māori and Pasifika. These ethnic differences suggest Māori and Pasifika may have more reasons to use childcare that are not related to the mother's work than do Europeans and Asians. For instance, they may have more responsibilities in their communities that are incompatible with caring for a child, or they may be more likely to use childcare for the cultural or social development of their child. Among these mothers at 2 years, Māori and Europeans have high rates of not working due to childcare issues and Pasifika and Asians have low rates. Europeans and Asians in the group are still considerably more likely to be working than are Māori and Pasifika.

Among mothers whose children are not in childcare due to preferences at 9 months, Figure 2 shows Europeans are most likely to report not working due to childcare access issues, at 16%, Māori are next most likely, at 14%, and Pasifika and Asians are least likely, both at 10%. Figure 3 shows this ordering is similar at 2 years.

Finally, among mothers whose children are not in childcare due to access issues, Figure 2 shows Māori are most likely to report not working due to childcare access issues, at 28%, Europeans next most likely at 24%, Asians next most likely at 23%, and Pasifika least likely at 19%; Table 3 shows none of the other ethnicities are statistically significantly different from Europeans in this regard due to the relatively small sample size. However, Māori and Pasifika in this group are statistically significantly less likely than Europeans to be working, and more likely to be not working for reasons unrelated to childcare. By 2 years, 38% of European mothers who report their child is not in care due to access issues are not working because of childcare access issues. The proportion of Māori is insignificantly lower at 33%, and those of Pasifika and Asians are statistically significantly lower at 18% and 20% respectively. These ethnic differences should be considered in the context that Europeans are least likely to have their child not in care due to access (5.5% at 2 years compared with 9.1% to 11.6% for the other ethnicities).

5.2 Relationship between childcare situation and mother's work characteristics at 9 months and 2 years

In this section we focus on mothers who have returned to work by either 9 months or 2 years, and examine how the characteristics of their work vary with their childcare situation.⁶ A working mother's work characteristics may vary with her childcare situation for a number of reasons.

⁶ The work characteristics examined at 9 months differ from those at 2 years due to data availability.

Characteristics of the mother's work may affect her ability to get childcare (for example, through affecting her earnings and thus ability to pay for childcare, or through the alignment between her work hours and the hours of operation of childcare providers), a mother may have to alter her work to accommodate limitations in the childcare she can access, and other characteristics of mothers may affect both their work characteristics and childcare situation.

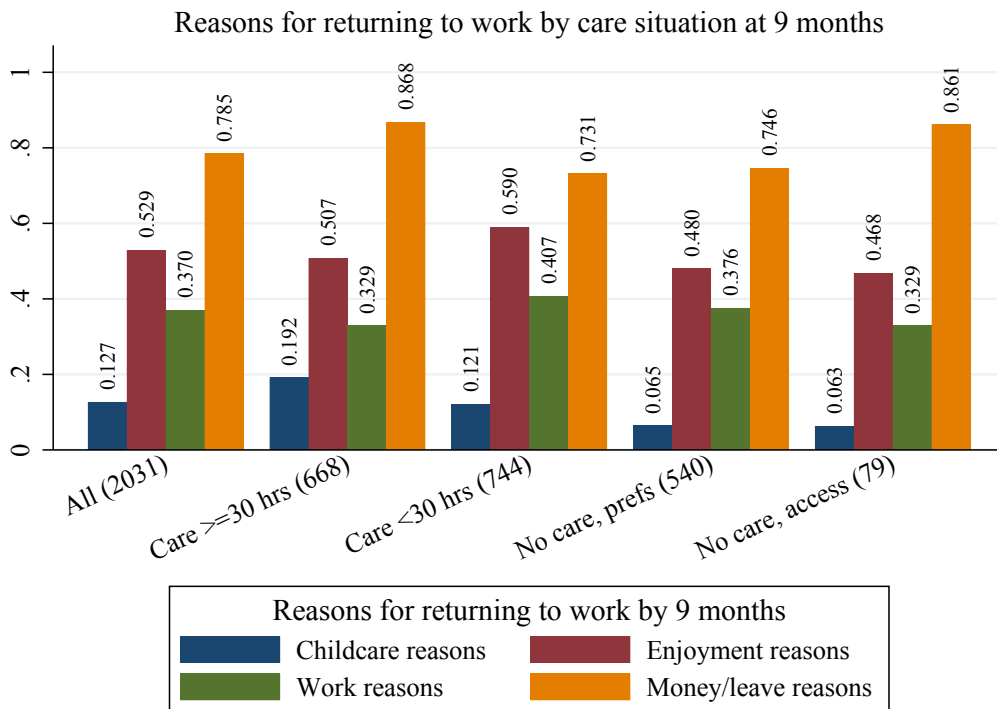
Because the number of mothers who have returned to work but have a child not in childcare due to access issues is small, we do not disaggregate by ethnicity. Appendix Tables 3 and 4 summarise the information presented below for 9 months and 2 years respectively, and indicate the statistical significance of differences in work characteristics of mothers in each other childcare situation compared with those whose child is not in care due to preferences.

5.2.1 *Reasons for returning to work by 9 months*

This subsection shows how reasons for returning to work differ among working mothers at 9 months who are in different childcare situations. Although not strictly a work characteristic, these variables capture mothers' motivations for returning to work. The left hand set of bars in Figure 4 show financial or leave-related reasons are the most common reason for mothers in the population as a whole to return to work (79%), followed by enjoyment (53%), work-related reasons (37%), and childcare reasons (13%).⁷ This broad pattern is repeated within mothers in each childcare situation, though the specific percentages vary. Mothers whose children are in care at least 30 hours per week are relatively more likely to report having returned to work for childcare reasons (19%) or money/leave reasons (87%); mothers whose children are in care for fewer than 30 hours per week are relatively more likely to report returning due to enjoyment (41%); mothers whose children are not in care due to preferences report every reason relatively infrequently; and mothers whose children are not in care due to childcare access are relatively more likely to report returning for money/leave reasons (86%). Appendix Table 3 shows mothers whose children are not in care due to preferences have similar reasons for returning to work to mothers whose children are not in care due to access: the only statistically significant difference is that the latter are more likely to report returning for money-related reasons.

⁷ The aggregation of specific reasons into these four categories is detailed in Section 3.3.3.

Figure 4: Reasons for returning to work by childcare situation

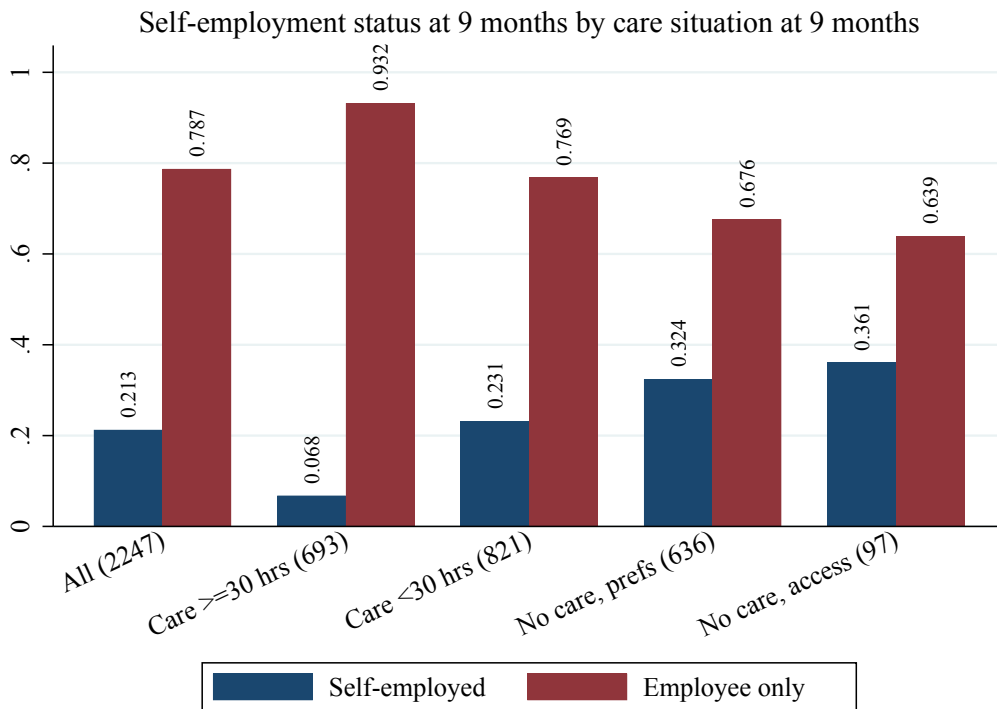


Notes: For working mothers in each childcare situation at 9 months, this figure shows the proportion of mothers who report each reason for returning to work. Multiple reasons are permitted, so the bars sum to more than 100%. Bars are labelled above with the proportion of mothers and below the horizontal axis with the number of mothers in the childcare situation.

5.2.2 Self-employment at 9 months

This subsection shows how self-employment differs among working mothers at 9 months who are in different childcare situations. The left hand pair of bars in Figure 5 show 21% of working mothers are self-employed at 9 months, either alone or as well as being employees, and the remaining 79% are employees only. Subsequent bars show self-employment is inversely related to childcare: only 7% of mothers whose children are in full-time childcare are self-employed, 23% of those whose children are in part-time childcare, 32% of those whose children are not in care due to preferences, and 36% of those whose children are not in care due to access. The difference between the last two types of mothers is not statistically significant.

Figure 5: Self-employment among working mothers by childcare situation



Notes: For working mothers in each childcare situation at 9 months, this figure shows the proportion of mothers who are self-employed or are employees only. Self-employed mothers may also be employees. Bars are labelled above with the proportion of mothers and below the horizontal axis with the number of mothers in the childcare situation.

A range of mechanisms could explain these differences. For instance, self-employed mothers may have less need for regular childcare if their work conditions are more flexible, or some mothers may have had to leave their employers and enter self-employment because their employment lacked the flexibility to accommodate raising a child. Self-employed mothers may be less able to afford childcare, or may prefer to spend more time with their child.

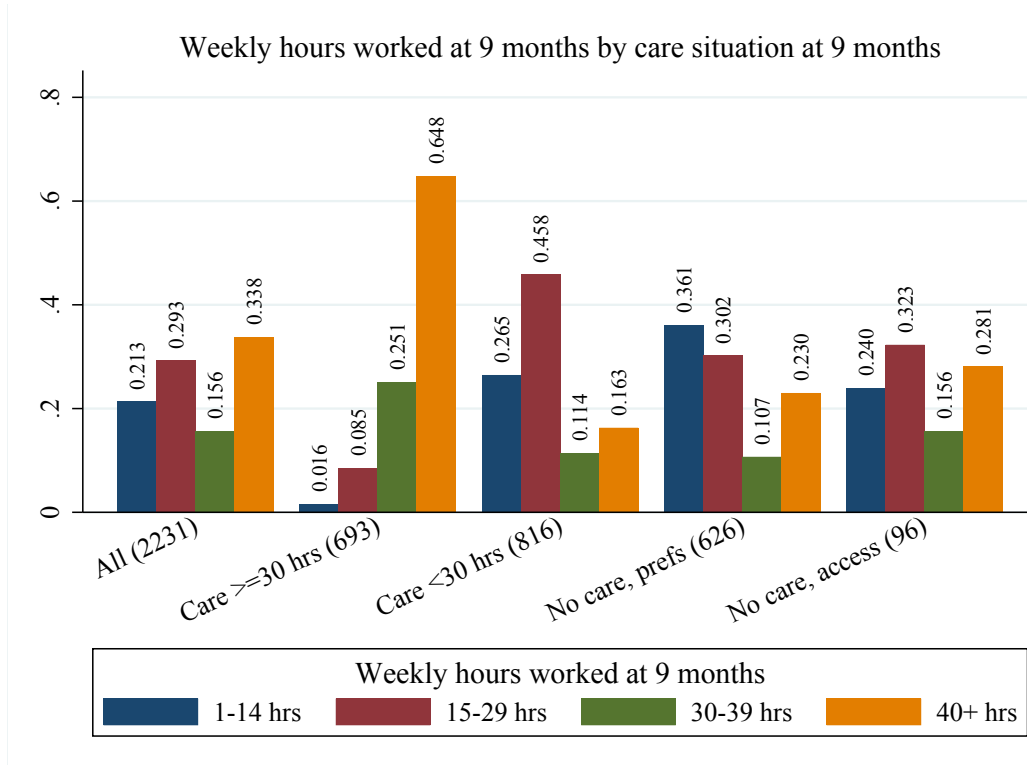
5.2.3 Weekly hours worked at 9 months and 2 years

This subsection shows the number of hours worked each week by working mothers at 9 months and 2 years who are in different childcare situations. Panel A of Figure 6 presents this information for 9 months and Panel B for 2 years. The left hand set of bars in Panel A shows 21% of working mothers worked fewer than 15 hours per week at 9 months, 29% worked 15-29 hours, 16% worked 30-39 hours, and 34% worked 40 or more hours. By 2 years, there has been a slight shift to mothers working longer hours, as well as an increase in the proportion of mothers working at all.

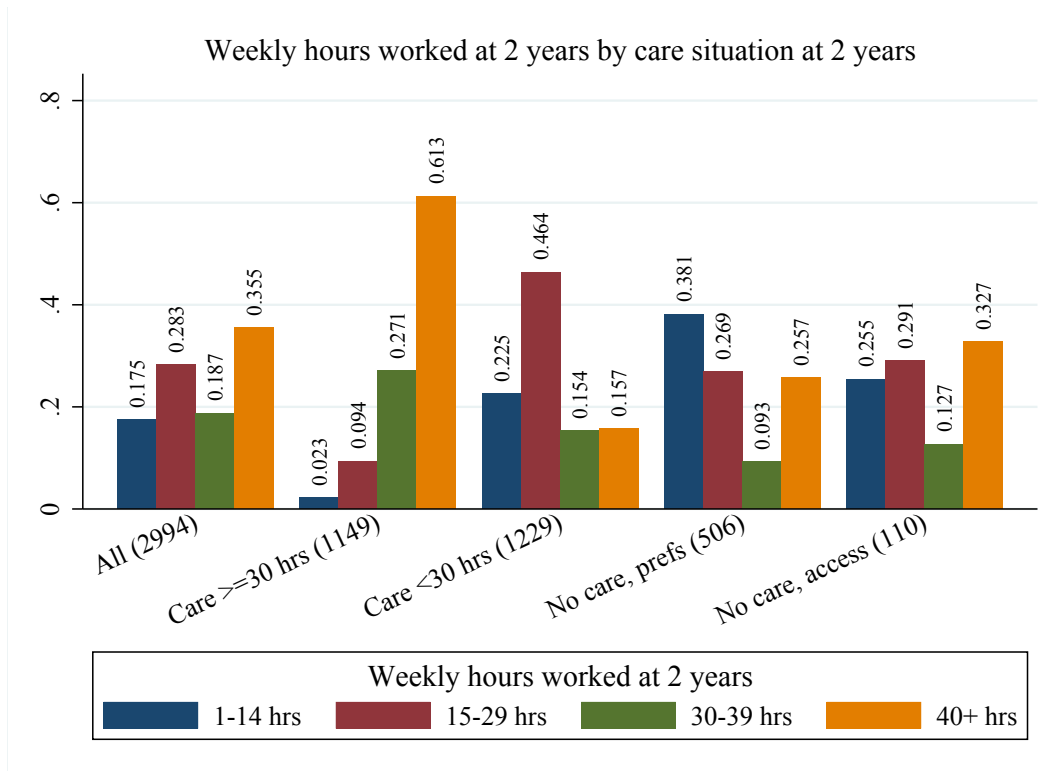
Subsequent sets of bars show how work hours vary for mothers in different childcare situations. Mothers whose children are in full-time childcare are much more likely to work longer hours; at 9 months, 65% of such mothers work full time and at 2 years 61% do. In contrast, at both 9 months and 2 years, mothers whose children are in part-time childcare work substantially less, and are disproportionately likely to work 15-29 hours per week. This is consistent with such mothers matching their childcare use to their part-time hours, striking a balance between spending time with their child and working outside the home. The two types of mothers with children not in childcare unsurprisingly work fewer hours than mothers using full-time childcare, though not necessarily fewer than those using part-time childcare. They work relatively similar hours to each other at 9 months and 2 years; the only statistically significant difference is that those with children not in care due to access are less likely to work fewer than 15 hours per week.

Figure 6: Weekly hours worked by working mothers by childcare situation

Panel A: 9 months



Panel B: 2 years



Notes: For working mothers in each childcare situation at 9 months (Panel A) and 2 years (Panel B), this figure shows the distribution of weekly hours worked. Bars are labelled above with the proportion of mothers and below the horizontal axis with the number of mothers in the childcare situation.

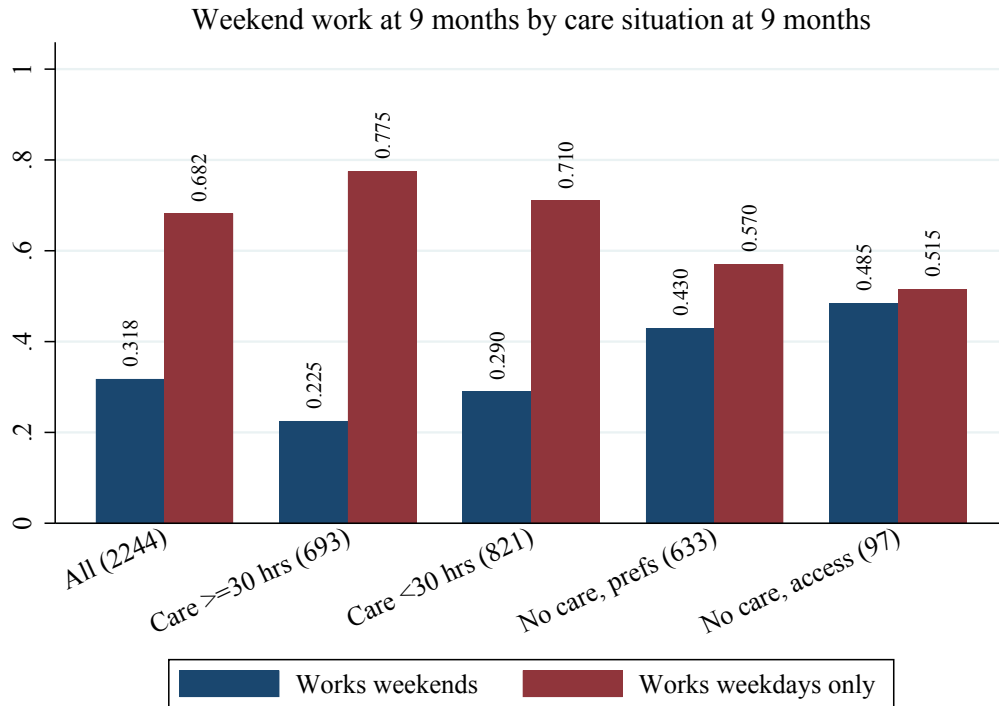
A possible explanation for the lower proportion of mothers whose children are not in care due to access who work fewer than 15 hours per week is that it is less costly and easier to find childcare for this short period.

5.2.4 Weekend, non-day, and irregular work at 9 months and 2 years

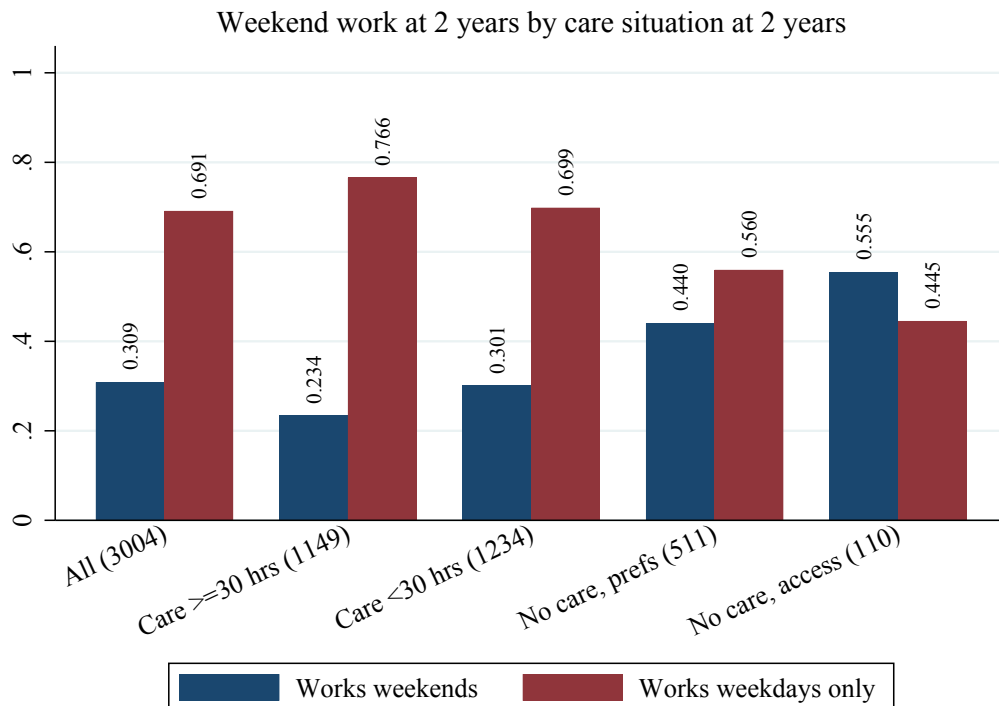
This subsection shows the proportion of working mothers in each childcare situation at 9 months and 2 years who usually work weekends, schedules other than regular day schedules, or any irregular types of schedule. Panel A of Figure 6 presents weekend work for 9 months and Panel B for 2 years. Mothers may be more likely to have to work weekends if they are in low-paying service jobs with limited flexibility in hours, are self-employed, or are in high-stress professional jobs. Weekend work is relevant for mothers' childcare situation because most childcare providers do not offer childcare over the weekend.

Figure 7: Weekend work by working mothers by childcare situation

Panel A: 9 months



Panel B: 2 years



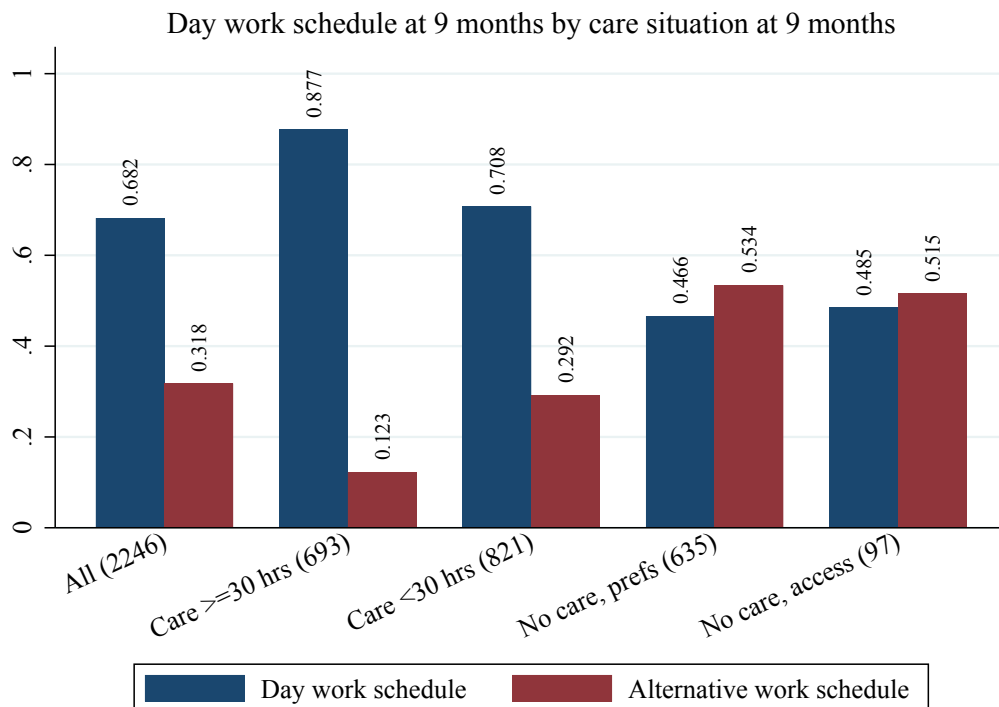
Notes: For working mothers in each childcare situation at 9 months, this figure shows the proportions of mothers who regularly work weekends and who work weekdays only. Bars are labelled above with the proportion of mothers and below the horizontal axis with the number of mothers in the childcare situation.

The figure shows 31-32% of working mothers overall work weekends, but this is only around 23% for working mothers whose children are in full-time childcare. Among working mothers whose children are in childcare part-time, 29-30% work weekends, among working mothers whose children are not in care due to preferences, 43-44%, and among working mothers whose children are not in care due to access 49% at 9 months and 56% at 2 years. The two types of mothers with children not in childcare are insignificantly different at 9 months, but the difference becomes significant at 2 years. This pattern is consistent with a lack of affordable childcare options on weekends being a real barrier for some mothers with toddlers.

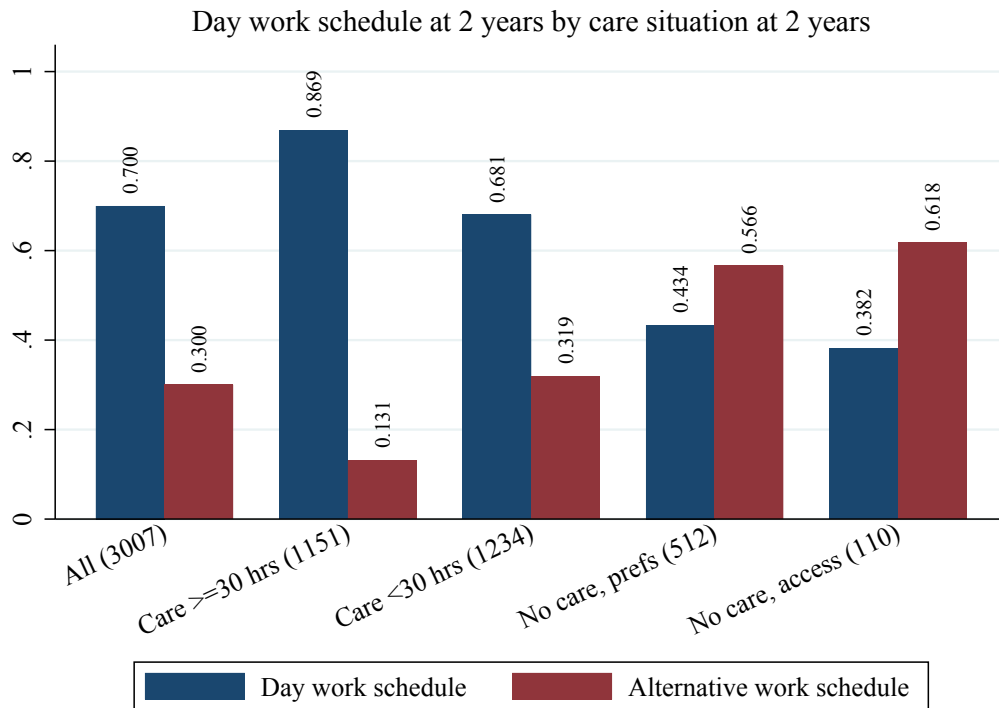
Figure 8 similarly examines how commonly mothers in different childcare situations work schedules that are not regular day schedules. These alternative schedules can be many different types, but may include hours not inside regular business hours or hours that vary week-to-week. These types of work schedule are expected to cause challenges for accessing childcare because they are either outside the hours offered by many childcare providers, or vary in a way that doesn't fit with the standard childcare provider model.

Figure 8: Day work schedule among working mothers by childcare situation

Panel A: 9 months



Panel B: 2 years



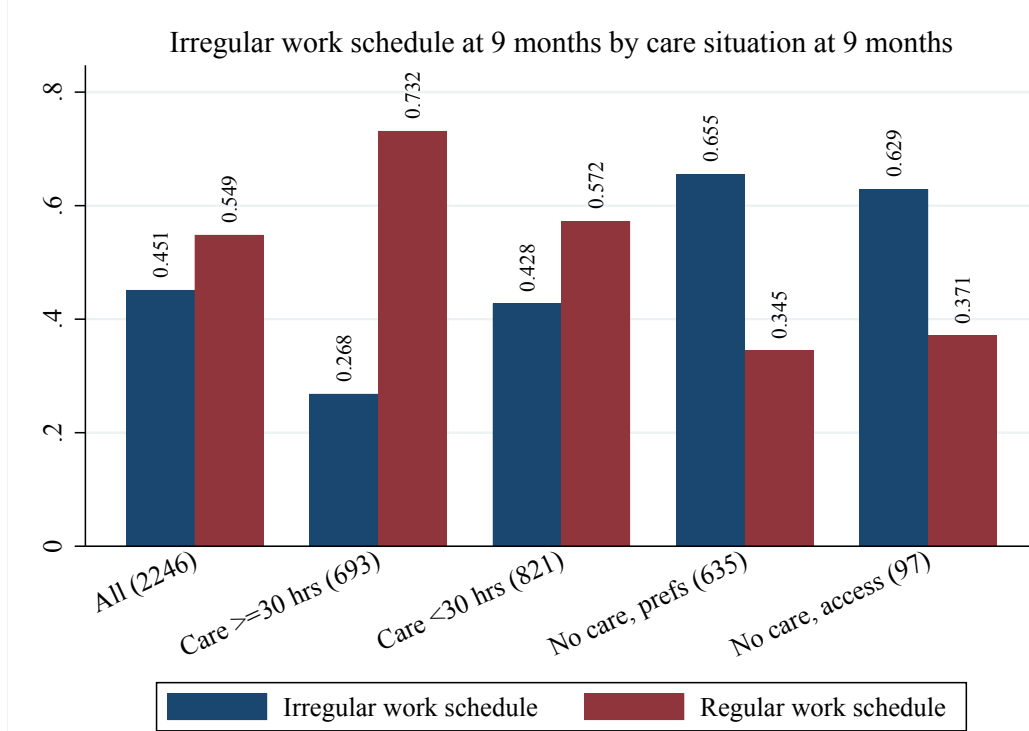
Notes: For working mothers in each childcare situation at 9 months, this figure shows the proportions of mothers who work day schedules and who alternative schedules. Bars are labelled above with the proportion of mothers and below the horizontal axis with the number of mothers in the childcare situation.

We see a similar pattern with alternative schedules as we do with weekend work: mothers with children in less childcare and particularly in no childcare are less likely to work day schedules and more likely to work alternative schedules. However, in this case differences between mothers whose children are not in care due to preferences and mothers whose children are not in care due to access are not statistically significant at either age.

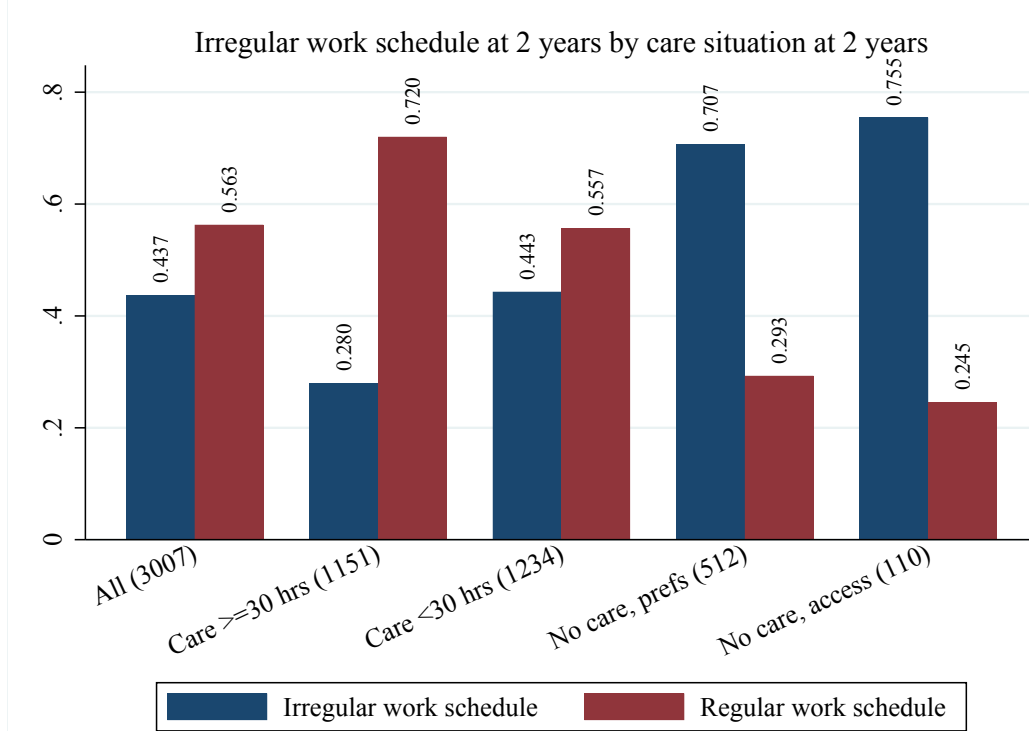
Finally, Figure 9 shows how the proportion of working mothers in irregular work varies with childcare situation. Here irregular work is any work that is expected to be more difficult to cater to in terms of childcare, namely either weekend work or an alternative schedule as described above. Nearly half of mothers overall have a work schedule that may make finding childcare more difficult, and this increases to roughly 60-75% among mothers whose children are not in childcare. A full three quarters of mothers whose children are not in care at 2 years due to access work such schedules.

Figure 9: Irregular work schedules among working mothers by childcare situation

Panel A: 9 months



Panel B: 2 years



Notes: For working mothers in each childcare situation at 9 months, this figure shows the proportions of mothers who work irregular schedules, these being schedules that either involve weekend work or are alternatives to day schedules. Bars are labelled above with the proportion of mothers and below the horizontal axis with the number of mothers in the childcare situation.

The relationships presented in this subsection are consistent with most childcare providers catering primarily to weekdays within normal business hours, yet a substantial proportion of mothers having to work hours that don't fit this profile and experiencing challenges accessing childcare as a result.⁸ Note also that these figures are all for mothers who are working; many more mothers who would have to work irregular hours if they did work are expected to have remained out of work due to childcare difficulties.

5.3 The cost of lack of access to childcare

In this section we estimate the cost to individuals and the economy of mothers not working because they can't access affordable childcare. To do this, we assume information about the cohort of GUINZ mothers in the past also applies to the current cohort of NZ mothers with children of the same age. Note these calculations rely on a set of strong assumptions and should be interpreted as suggestive only.

The first subsection summarises our estimates. Subsequent subsections lay out the methodology and assumptions used to generate them.

5.3.1 Summary of estimates for the NZ population

Table 3 summarises the main estimates for the full New Zealand population, the Māori population (based on total response ethnicity), and the Pasifika population.

The total population is the number of mothers resident in New Zealand who had a child in the 2020 March year. These form the basis for all population estimates. The rows for affected mothers present estimates of the number of these mothers who, at 9 months and at 2 years, are not working due only to childcare access. They suggest around 1,700 of the 59,000 mothers who have a child each year are not working at each point in time when their child is very young only because they can't access affordable childcare.

⁸ Along similar lines, the 2017 Childcare in New Zealand Survey found childcare not being available at the times it was needed was a common issue with childcare (<https://www.stats.govt.nz/news/childcare-a-challenge-for-1-in-6-working-parents>).

Table 3: Summary of estimates of cost to the economy of mothers not working due to lack of childcare access

Estimated value	Timing	Population		
		All NZ mothers	Māori mothers	Pasifika mothers
Total population		58,820	12,920	6,780
Affected mothers				
Number not working due only to childcare access:	at 9 months	1,750	360	200
	at 2 years	1,640	580	150
Hours of work missed				
Average weekly hours of work missed by mothers not working due only to childcare access:	at 9 months	24	25	28
	at 2 years	27	28	33
Wage earnings missed				
Average monthly wages missed by mothers not working due only to childcare access:	at 9 months	\$2,660	\$2,400	\$2,350
	at 2 years	\$3,500	\$3,230	\$3,350
Annual value of wage earnings missed by mothers not working due only to childcare access:	in their child's 1st year	\$34 million	\$6 million	\$4 million
	in their child's 2nd year	\$47 million	\$15 million	\$4 million
	in their child's 3rd year	\$35 million	\$11 million	\$3 million
	in their child's 1st three yrs	\$116 million	\$32 million	\$11 million

Notes: This table summarises the main estimates of the cost of missed work by mothers due to lack of access to affordable childcare for the full NZ population, Māori, and Pasifika. Population totals are totals over all the mothers who have a child in one year. All estimates rely on strong assumptions and simplifications, and should be interpreted as suggestive only.

The next row of the table shows that if mothers not working at 9 months due only to childcare access were working, we estimate they would be working an average of 24 hours per week. The following row shows that at 2 years this increases to 27 hours. The rows of “average monthly wages missed” similarly show that if the mothers not working at 9 months were working we estimate they would be earning an average of \$2,660 per month; we estimate those not working at 2 years would be earning \$3,500 per month. Another way to interpret these wages is as monthly earnings affected mothers miss out on because they can’t access affordable childcare.

The final four rows of the table present estimates of the wage earnings missed economy-wide in one year by three different groups of mothers: those with a child under one year, those with a child between 1 and 2 years, those with a child 2 to 3 years, and those with a child under

three years. We estimate the total annual value of wages lost by mothers with a child under 3 due to lack of childcare access to be \$116 million in 2020 dollars.

5.3.2 *Definition of not working due only to lack of childcare access*

To estimate how lack of access to affordable childcare affects the work of mothers, we require an estimate of which GUiNZ mothers are not working due only to childcare access issues. These are the mothers who would potentially return to work if their childcare access issues were resolved.

At both 9 months and 2 years, we assume a mother is not working only because she cannot access affordable childcare if she:

- a. is not currently working;
- b. states as a reason for not working that there is no suitable childcare and/or working is not worthwhile with childcare costs; and
- c. does not state as a reason for not working any of: partner earns enough; no jobs available; no job interests me; not enough flexibility; lose government benefits; I am studying; or other.

However, she may state she is not working to look after her own children or because she is too busy with her family.

Conceptually, these are the mothers who are not working because of lack of childcare and who likely would be working if they did have access to affordable childcare. We include mothers who say they are not working because they are looking after their own children or because they are too busy with their family on the assumption affordable childcare could address these reasons to not work.

5.3.3 *The number of mothers not working due only to lack of childcare access*

In this subsection we estimate the number of NZ mothers who had a child in the 2020 March year who were not working at 9 months or at 2 years due only to childcare access.

In our GUiNZ population of 5,933 mothers about whom we have complete information, 2.9% are not working due only to childcare access at 9 months, and 2.6% are not working due only to childcare access at 2 years.

When we reweight the GUiNZ population to be representative of the full population of mothers resident in NZ who had a child in the 2020 March year in terms of age structure and partnership status, these estimates increase to 3.0% at 9 months and 2.8% at 2 years. This suggests 1,750 mothers (95% confidence interval 1,480 to 2,010) from the total population of 58,820 NZ mothers who had a child in the 2020 March year can be expected to not be working

when their child 9 months old due only to lack of access to childcare.⁹ At 2 years, the number is 1,640 (95% confidence interval 1,370 to 1,910).

Using a similar calculation, we estimate 360 (CI: 210 to 520) of the 12,920 Māori mothers who had a child in the 2020 March year will not be working at 9 months due only to childcare access and 580 (CI: 390 to 760) at 2 years. Among the 6,780 Pasifika mothers who had a child in the 2020 March year, we estimate 200 (CI: 120 to 280) at 9 months and 150 (CI: 80 to 220) at 2 years will not be working due only to childcare access.

5.3.4 Weekly hours of work foregone due to lack of childcare access

In this subsection we estimate the average number of hours of work per week foregone by NZ mothers who had a child in the 2020 March year and were not working at 9 months or at 2 years due only to childcare access.

To estimate the hours non-working GUiNZ mothers would work if they didn't have childcare access issues, we use the hours worked by *working* GUiNZ mothers who are similar antenatally. Specifically, at each of 9 months and 2 years, for GUiNZ mothers who are working we regress weekly hours worked (using the midpoints of reported bands and 45 for 40+ hours) on dummies for antenatal weekly hours worked (5 categories including 0), a dummy for being self-employed antenatally, a dummy for this being the mother's first child, a dummy for the pregnancy being planned, dummies for self-prioritised ethnicity (Māori, Pasifika, Asian/MELAA, European/NZer/Other/Missing), and a dummy for having below-median antenatal personal income. We then use the estimated relationship between antenatal characteristics and hours worked postnatally to predict hours worked for mothers who are not working due only to childcare access.

To estimate average work hours missed for the full New Zealand population of mothers who do not work due only to childcare access, we take the weighted average of these estimated hours worked where the weights are calculated to make our population representative of the NZ population of mothers in terms of age structure and partnership status.

We estimate at 9 months the average New Zealand mother who is not working due only to childcare access would be working 24 hours per week if she were working. At 2 years, such mothers would be working 27 hours per week.

Repeating this analysis separately for Māori women, we find 25 hours of missing work each week at 9 months and 28 hours at 2 years. Pasifika women miss 28 hours at 9 months and 33 hours at 2 years.

⁹ Note the confidence interval here is derived from sampling error only.

5.3.5 Monthly earnings foregone due to lack of childcare access

In this section we estimate the average monthly wage earnings foregone by New Zealand mothers who are not working at 9 months or 2 years due only to childcare access.

Because GUINZ does not contain earnings data at 9 months or 2 years, we use monthly earnings estimates from Sin et al. (2018). This earlier research calculates, for women who had their first child in 2005, average monthly earnings in the months worked of the first year after the child's birth, of the second year after the child's birth, and of the third year after the child's birth for groups of mothers with different characteristics. We use the breakdown by mother's education and month of return to work given in Appendix Table 2A, Panel B. We assume mothers who are not working due only to childcare access are similar to mothers with the same level of education who return to work in months 7-12 after having their child. Values in Sin et al. (2018) are given in real 2005 dollars. We first use the CPI to convert them back to nominal values, and then inflate them to nominal 2020 dollars using the Labour Cost Index.

We assume a mother not working due only to childcare issues at 9 months would earn the average monthly amount for her age group in the first year after their child's birth, and a mother not working due only to childcare issues at 2 years would earn the average amount for her age group in the second year after their child's birth. These values may overstate the actual counterfactual earnings because lower-earning mothers are more likely to face childcare access issues than are their peers with the same level of education, but the extent of this overstatement should be limited by the fact these are mothers who don't also face other barriers to work, which are also generally higher among individuals with lower earning potential. However, there are a number of reasons to think the values may understate true counterfactual earnings; these are discussed at the end of the following subsection.

We calculate average monthly earnings for the population of New Zealand mothers using weights that make our GUINZ mothers replicate the New Zealand population of mothers in terms of age structure and partnership status.

We find at 9 months mothers not working only due to childcare issues are missing out on an average of \$2,660 per month and at 2 years they are missing out on \$3,500. Such Māori mothers are missing out on \$2,400 at 9 months and \$3,230 at 2 years. Such Pasifika mothers are missing out on \$2,350 at 9 months and \$3,350 at 2 years.¹⁰

¹⁰ Note all these estimates come with considerable uncertainty, but confidence bands cannot be calculated through this simple estimation strategy.

5.3.6 *Lost wage earnings in the economy due to childcare access*

In this section we estimate for the total New Zealand economy the value of wage earnings foregone by mothers not working due to lack of access to affordable childcare. We do this separately for mothers in the first year of their child's life, mothers in the second year of their child's life, and mothers in the third year of their child's life. Adding the three together gives an estimate of annual wage earnings foregone due to lack of childcare access by mothers with a child under the age of three. When children reach three years old they become eligible for 20 hours ECE. Although this is unlikely to fully resolve childcare access issues, we conservatively assume no further wages are lost after this age.

We first estimate for each mother in our GUiNZ sample the number of weeks of work foregone in each of the first three years. We then estimate the wage earnings foregone in each week of work missed using data from Sin et al. (2018), and add up the total over the three years. Finally, we scale up our GUiNZ population to be representative of the NZ population of mothers in terms of age structure and partnership status, and add up foregone earnings over individuals.

Because we know if mothers are not working only due to childcare access at only two points in time (when their child is 9 months old and when he is 2 years old), we have to make assumptions about work foregone in the rest of the three years.

We assume mothers not working due only to childcare access at 9 months would have returned to work at the same time as the average GUiNZ mother who a) is the same as them in terms of whether the child was planned and whether it's their first child,¹¹ but b) is working at 9 months. Estimated counterfactual return to work is earliest for non-planned non-first children, at 19 weeks, and latest for planned first children, at 22 weeks. We also assume work status from 9 months until midway between 9 months and 2 years is the same as at 9 months, and from this midpoint until 2 years is the same as at 2 years. Finally, we assume mothers not working due to childcare access at 2 years resolve this issue 6 months later. Taken as a whole, these predictions are likely to be very poor for individual GUiNZ mothers, because there is a lot of churn over time in which mothers are not working due to childcare issues (see interim report 2). However, aggregated over the population to get the proportion and characteristics of mothers not working at each point in time they will be a lot closer.

Having thus estimated for each GUiNZ mother the number of weeks of work foregone due to childcare issues in each of the first three years, we combine these estimates with monthly earnings from Sin et al. (2018) to estimate wage earnings foregone each year. We use estimates

¹¹ These characteristics were chosen because they divide the population fairly evenly and strongly predict the date of return to work.

for mothers with the same level of education who returned to work in months 7 to 12. Estimated monthly wages from the first the year are assumed to apply for that full year, and similarly for the second and third years.

We estimate that, as a result of lack of access to affordable childcare, New Zealand mothers each year forego \$34 million in wages in the first year after having a child, \$47 million in the second year, and \$35 million in the third year, for a total of \$116 million over their child's first three years. Among Māori mothers we find an annual total of \$32 million, and among Pasifika mothers an annual total of \$11 million. Notably, although Māori mothers are only 22% of those giving birth each year, they bear an estimated 28% of this wage cost; this is largely because Māori mothers are substantially overrepresented among mothers not working due only to childcare access at 2 years.

As noted previously, these estimates of lost wages require many assumptions, and should be considered suggestive only. In particular, they may be underestimates for a number of reasons. First, they assume no additional wages lost after children reach the age of two-and-a-half, whereas 20 hours ECE does not become available until children reach 3 years. Alternatively assuming mothers who are not working due only to childcare access at 2 years remain in this state until their children reach age 3 would double the wage cost in year 3, an increase of \$35 million. Second, the estimates ignore wages lost by mothers who are working, but are working fewer hours or in lower-paying jobs than they would be if they did not have childcare issues. Section 5.1 shows a non-trivial number of mothers both report childcare issues and are working, so ignoring the loss of this work may be material. Third, the estimates ignore dynamic effects, wherein mothers' ability to find work or their pay in the long run might be affected by gaps in their employment caused by lack of childcare access. Interim report 5 will explore this possibility. Fourth, the higher attrition from GUINZ of mothers in more deprived families, who are more likely to experience childcare access issues, means we may underestimate the proportion of mothers who are not working due only to childcare issues. This bias could remain even though we adjust our population to be representative of NZ mothers in terms of age structure and partnership status.

The values could also be overestimates for a range of reasons. In particular, we assume the mothers described in Section 5.3.2 would be working if they did not have childcare access issues, and include their foregone wages accordingly. However, some such mothers might not work even if their access issues were resolved.

6 Discussion and implications

One important and oft-studied aspect of policy and system design is the incentives they provide for people to work. However, this research highlights the importance of the other side, what the childcare system does or does not do to enable people to work. In the case of mothers, we showed a lack of access to affordable childcare can be a major impediment to labour market attachment, and many mothers who can get some form of regular childcare are prevented from working, or from working as much as they'd prefer, by lack of access to childcare when they need it. Because childcare access is more likely to be challenging for mothers in disadvantaged families, its lack will tend to compound existing disadvantage.

The report also highlights the mismatch between mothers' work hours and the hours when childcare is available. This mismatch seems unlikely to be resolved without government intervention because most affected mothers appear to respond by leaving work or trying to make do with precarious or unsuitable childcare arrangements.

The detailed GUINZ questions about reasons mothers are not working allowed us to identify mothers who want to work but don't only because they can't access suitable, affordable childcare. We estimate the value of the wages these mothers forego to be considerable. These foregone wages are also unlikely to represent the full cost of mothers not working due to lack of childcare. Engagement with the labour market is expected to offer broader benefits to mothers and their children and families in the short and long term, such as skill development that leads to a more financially secure future for mothers, and freedom from material deprivation that helps children to achieve their potential.

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Appendix Table 1: Multinomial logit regressions of mother's work situation on childcare situation and personal characteristics

Survey wave:	9 months		2 years	
	Working	Not working due to childcare access	Working	Not working due to childcare access
Outcome (reference category: not working for non-care reasons):				
Current childcare situation (omitted: Not in care due to preferences)				
In care	12.275*** (0.957)	0.923 (0.126)	7.197*** (0.530)	0.853 (0.095)
Not in care due to access to childcare issues	1.453*** (0.202)	2.274*** (0.306)	1.821*** (0.256)	3.284*** (0.450)
Mother's self-prioritised ethnicity (omitted: European)				
Maori	1.015 (0.126)	0.555*** (0.084)	0.856 (0.098)	0.655*** (0.101)
Pacific	1.141 (0.157)	0.472*** (0.081)	0.813 (0.102)	0.338*** (0.064)
Asian	1.060 (0.145)	0.659** (0.128)	1.146 (0.148)	0.528*** (0.108)
MELAA	0.912 (0.245)	0.377** (0.153)	0.563** (0.138)	0.186*** (0.100)
Other	1.696 (1.182)	0.000 (0.001)	1.513 (1.157)	0.000 (0.001)
New Zealander	0.967 (0.305)	1.272 (0.466)	0.873 (0.254)	0.694 (0.308)
Mother's antenatal age (omitted: under 25)				
25 to 34	1.455*** (0.174)	0.752** (0.098)	1.432*** (0.153)	1.077 (0.150)
35 and over	1.357** (0.185)	0.582*** (0.093)	1.547*** (0.191)	0.848 (0.146)
Mother's qualifications (omitted: none)				
School qualifications	1.143 (0.217)	1.360* (0.252)	1.416** (0.236)	0.972 (0.182)
Post-school qualifications	1.609** (0.300)	1.540** (0.282)	1.482** (0.243)	1.112 (0.203)
Bachelor's degree	1.328 (0.260)	1.093 (0.228)	1.717*** (0.299)	0.908 (0.192)
Higher degree	1.301 (0.267)	0.959 (0.224)	1.477** (0.271)	0.681 (0.162)
Child is mother's first	0.730*** (0.059)	0.533*** (0.060)	0.661*** (0.051)	0.847 (0.097)
Mother's migrant status (omitted: NZ born)				
Migrated to NZ as child	0.933 (0.123)	0.721* (0.129)	0.993 (0.122)	1.340* (0.232)
Migrated to NZ as adult	1.093 (0.120)	0.775* (0.118)	1.004 (0.105)	0.865 (0.139)
Mother is partnered antenatally	2.069*** (0.351)	0.805 (0.137)	1.405** (0.209)	0.833 (0.153)
Mother lives with extended family and/or non-kin antenatally	1.096 (0.098)	0.901 (0.104)	1.056 (0.088)	0.785** (0.097)
Pregnancy was planned	0.931 (0.079)	0.975 (0.104)	0.887 (0.071)	0.892 (0.101)
Deprivation Index in current survey	1.010 (0.014)	0.972 (0.018)	1.010 (0.014)	0.997 (0.020)
Mother lives in a rural area currently	1.083 (0.147)	0.802 (0.134)	1.262* (0.161)	1.398** (0.228)
Mother's antenatal labour force status (omitted: employed)				
Unemployed	0.167*** (0.031)	1.342* (0.240)	0.178*** (0.027)	0.721* (0.138)
Student	0.659*** (0.089)	1.063 (0.234)	0.675*** (0.088)	0.542** (0.134)
Not in workforce	0.115*** (0.013)	1.940*** (0.228)	0.165*** (0.015)	0.922 (0.114)
Antenatal household income (\$00,000s)	0.578*** (0.058)	0.514*** (0.071)	0.732*** (0.070)	0.868 (0.123)
Mother received any benefit antenatally	0.789 (0.125)	0.700** (0.106)	0.721** (0.099)	1.096 (0.175)
Mother earned self-employment income antenatally	2.074*** (0.223)	1.209 (0.201)	1.027 (0.110)	0.924 (0.158)
Observations	5,933		5,933	

Notes: This table presents the results of two multinomial logit regressions of mother's work situation (at 9 months and at 2 years) on personal and antenatal characteristics and care situation at the same survey wave. The reference outcome is the mother is not working for reasons unrelated to childcare. Relative risk ratios are presented with their standard errors in parentheses (so a coefficient below 1 implies the characteristic is associated with a lower probability of the outcome). The sample is all mothers who are present in the antenatal, 9-month, and 2-years surveys, who have known work and childcare situations at 9 months and 2 years. Dummies are included to capture missing controls. Asterisks indicate: * p<0.10, ** p<0.05, *** p<0.01

Appendix Table 2: Ethnic differences in mother's work situation by childcare situation

	Mother's ethnicity (total responses)			
	European	Māori	Pasifika	Asian
Panel A: 9 months				
Total number of mothers	3,907	1,035	889	879
Among all mothers:				
% working	38.9	33.9***	31.6***	41.5
% not working for non-care reasons	49.0	54.0***	58.8***	49.8
% not working for access to care reasons	12.1	12.1	9.6**	8.6***
Number of mothers not using childcare due to access	227	90	105	77
Percentage of mothers not using childcare due to access	5.8	8.7***	11.8***	8.8***
Among mothers not using childcare due to access:				
% working	26.9	11.1***	18.1*	24.7
% not working for non-care reasons	49.3	61.1*	62.9**	51.9
% not working for access to care reasons	23.8	27.8	19.0	23.4
Panel B: 2 years				
Total number of mothers	3,907	1,035	889	879
Among all mothers:				
% working	54.0	43.4***	37.9***	52.8
% not working for non-care reasons	34.6	44.6***	54.6***	40.3***
% not working for access to care reasons	11.5	12.0	7.5***	6.9***
Number of mothers not using childcare due to access	213	112	103	80
Percentage of mothers not using childcare due to access	5.5	10.8***	11.6***	9.1***
Among mothers not using childcare due to access:				
% working	27.2	18.8*	20.4	28.7
% not working for non-care reasons	34.7	48.2**	61.2***	51.2***
% not working for access to care reasons	38.0	33.0	18.4***	20.0***

Notes: This table summarises mothers' work situations at 9 months (Panel A) and 2 years (Panel B) for each common ethnicity (columns), overall and among mothers who are not using childcare due to access issues. The columns for Māori, Pasifika, and Asian include asterisks on the percentage variables to indicate statistically significant differences from European mothers: * <0.10, ** <0.05, *** <0.01.

Appendix Table 3: Mother's work characteristics by childcare situation at 9 months

	Childcare situation				
	All	In care 30+ hours per week	In care <30 hours per week	Not in care due to preferences	Not in care due to access issues
Reasons for returning to work					
Childcare-related	0.127	0.192***	0.121***	0.0648	0.0633
Enjoyment-related	0.529	0.507	0.590***	0.480	0.468
Work-related	0.370	0.329*	0.407	0.376	0.329
Money-related	0.785	0.868***	0.731	0.746	0.861**
Observations	2,031	668	744	540	79
Self-employed					
Observations	2,247	693	821	636	97
Weekly hours worked					
1-14 hours	0.213	0.0159***	0.265***	0.361	0.240**
15-29 hours	0.293	0.0851***	0.458***	0.302	0.323
30-39 hours	0.156	0.251***	0.114	0.107	0.156
40+ hours	0.338	0.648***	0.163***	0.230	0.281
Observations	2,231	693	816	626	96
Characteristics of schedule					
Works weekends	0.318	0.225***	0.290***	0.430	0.485
Observations	2,244	693	821	633	97
Works a schedule other than days	0.318	0.123***	0.292***	0.534	0.515
Observations	2,246	693	821	635	97
Works an irregular schedule	0.451	0.268***	0.428***	0.655	0.629
Observations	2,246	693	821	635	97

Notes: This table summarises characteristics of the mother's work at 9 months for all working mothers (first column) and working mothers in each childcare situation (subsequent columns). For each characteristic given in the left of table, the proportion of mothers with that characteristic and the number of mothers to which the proportion applies are given. Asterisks denote significant differences from mothers with children "not in care due to preferences": * p<0.1, ** p<0.05, *** p<0.01.

Appendix Table 4: Mother's work characteristics by childcare situation at 2 years

	Childcare situation				
	All	In care 30+ hours per week	In care <30 hours per week	Not in care due to preferences	Not in care due to access issues
Weekly hours worked					
1-14 hours	0.175	0.0226***	0.225***	0.381	0.255**
15-29 hours	0.283	0.094***	0.464***	0.269	0.291
30-39 hours	0.187	0.271***	0.154***	0.0929	0.127
40+ hours	0.355	0.613***	0.157***	0.257	0.327
Observations	2,994	1,149	1,229	506	110
Characteristics of schedule					
Works weekends	0.309	0.234***	0.301***	0.440	0.555**
Observations	3,004	1,149	1,234	511	110
Works a schedule other than days	0.300	0.131***	0.319***	0.566	0.618
Observations	3,007	1,151	1,234	512	110
Works an irregular schedule	0.437	0.280***	0.443***	0.707	0.755
Observations	3,007	1,151	1,234	512	110

Notes: This table summarises characteristics of the mother's work at 2 years for all working mothers (first column) and working mothers in each childcare situation (subsequent columns). For each characteristic given in the left of table, the proportion of mothers with that characteristic and the number of mothers to which the proportion applies are given. Asterisks denote significant differences from mothers with children "not in care due to preferences": * p<0.1, ** p<0.05, *** p<0.01.

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