DISCUSSION PAPER SERIES

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ABSTRACT

Child Penalties and Marriage Dissolution*

This paper investigates how a change in marital status can influence labour market-related child penalties, by comparing married couples and those whose marriage is dissolved after the birth of their first child. We take advantage of the rich administrative data from New Zealand and show that child penalties vary greatly by civil status: whereas the employment penalty for married mothers is 32%, for mothers who get divorced within seven years of giving birth, it is about 5% and indistinguishable from that facing fathers. The same is true of earnings, indicating that divorced mothers have a much stronger attachment to the labour market than do married mothers. Our section on mechanisms points to differences in economic need as the driver behind the discrepancy in child penalties by marital status.

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1 Introduction

The negative impact of the arrival of a first child on the labour market career of a woman (compared to the minimal impact on that of a man) is already a very well documented reality (Kleven, Landais, Posch et al., 2019; Kleven, Landais, Søgaard, 2019; Nielsen et al., 2004). Child penalties have been found in the vast majority of countries in the world (Kleven, Landais and Leite-Mariante, 2024; Sieppi and Pehkonen, 2019; de Quinto et al., 2021; Rabaté and Rellstab, 2021; Meurs and Porra, 2019) and for multiple labour market outcomes.

The underlying causes for such penalties have been the focus of a body of research that has grown exponentially in the last few years. Women's career choices in their efforts to balance work and family life, particularly childcare responsibilities, have been highlighted as one key explanation for the child penalties. The specialization of women in housework and childcare over their labour market careers may be one of the strongest mechanisms underlying the child penalty. In their attempt to reconcile family and work, women are more likely to pay the price for work flexibility by choosing more family-friendly careers (Adda et al., 2017; Goldin and Katz, 2012), less commuting (Black et al., 2014; Moreno-Maldonado, 2022; Farré et al., 2022; Albanese et al., 2022) and more part-time work (Garnero et al., 2014; Blau and Kahn, 2013; Illing et al., 2024), and by opting less frequently for atypical work schedules and irregular hours (Fontenay et al., 2021; Mas and Pallais, 2017) and more frequently for remote work (Emanuel et al., 2023) and participation in the public sector (Anghel et al., 2011). Some of these job attributes and career trajectories are typically associated with lower wages and limited progression (Cortés and Pan, 2023).

The possibility that gender norms may be behind some of the child penalties has also been considered. For the US, Kleven (2022) documents a reverse relationship between child penalties and less-traditional gender norms: the higher the gender progressivity index in a given state, the lower the child penalty in terms of labour market participation and earnings. On the contrary, biological reasons such as postpartum complications have been disregarded as an explanation for the child penalties, given that biological and adoptive mothers suffer similar child penalties (Andresen and Nix, 2022; Kleven et al., 2021). Moreover, neither a potential comparative advantage enjoyed by one of the parents (Kleven et al., 2021; Kleven, 2022) nor incentives created by government policy (Kleven, Landais, Posch et al., 2024) have been found to be behind the child penalties.

In this paper, we focus our attention on the potential role that marital status may play in understanding child penalties for women; in turn, this may contribute to a better understanding of the origin of such penalties. Multiple reasons could help explain the different child penalties between married and divorced women. First, divorce is generally associated with increased economic need, since divorced mothers can no longer take ad-

vantage of the economies of scale from living together with a partner, and nor do they benefit from income pooling. At the same time, soon after divorce — and despite the financial help that a woman may receive from her former partner — a divorced mother often needs to take on the role of breadwinner and caregiver. This is likely to change her career choices, so that she can provide for her family. Second, women who divorce are less likely to have subsequent children; this, in turn, could favour an earlier and stronger return to the labour market than in the case of married women. Third, divorced and married women may hold different gender norms that may help us understand the essential differences in their career trajectories following the birth of their first child.

As far as we know, this is the first paper to study in depth the potential importance of civil status in understanding child penalties and the mechanisms behind the differences observed between married and divorced women. Earlier studies that analyse how child penalties vary by marital status are limited and very often do not explicitly take account of the situation of divorced women, instead analysing jointly the child penalty facing partnerless mothers, regardless of how they came to be so (e.g. single, never married, separated, divorced or widowed). Most importantly, previous analyses do not reach any consensus, and their findings depend very much on context: while several papers (mainly using data from the US) have found that being married is associated with a greater child penalty than being unmarried (Emery, 2022; Kleven, 2022); Kleven (2021) documents the reverse in the case of Denmark.[1]

In this respect, in the case of the US, Kleven (2022), for example, finds greater long-run child penalties for married mothers than for unpartnered mothers, even though single motherhood is presumably associated with higher fixed working costs (for example, childcare). For annual employment, he estimates a penalty of 27% for married women, compared to 5% for single women. For weekly employment, the penalty is 28% versus 10%; and for earnings, the penalty is 34% versus 20%. Similarly — and also for the US — Emery (2022) documents a smaller penalty for lone mothers (particularly those who have never been married) than for married mothers, in terms of both participation and hours worked. By contrast, Kleven (2021) reports a higher child penalty for single mothers than for married women in Denmark. He also documents the fact that the long-run penalties (over event times 5–10 years) facing single women are greater in Denmark than in the United States (24% versus 4%). The author establishes that the different welfare systems underlie the variation, and demonstrates this through quasi-experimental evidence from a 1990s US welfare reform. Single mothers are forced to work where the government is less generous at providing aid for children.

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[1]Using conventional fixed-effects models, Budig and England (2001) and Harkness (2022), both for the US, also estimate higher income penalties for married mothers, compared to unmarried mothers. In similar fashion, Harkness (2016) finds little evidence for the UK of additional penalties facing lone mothers after the birth of their child, despite the prior assumption that lone mothers may face greater difficulty in combining work and childcare.

All in all, previous studies have not gone beyond a mere description of the child penalty by marital status, and have not devoted additional effort to trying to understand why child penalties may differ between partnered and unpartnered women — often because of data unavailability or small sample sizes. Our analysis takes advantage of the rich population-wide administrative data from New Zealand. Our main findings from event-study models indicate that the child penalties in terms of employment and earnings in New Zealand stand at 33% and 40%, respectively, and are similar to those faced by women in Australia, the US and the UK. Interestingly, such penalties vary greatly by civil status: whereas married women have an employment penalty of 32%, for mothers who get divorced within seven years of the child's birth it is about 5% and is indistinguishable from that of fathers. In the case of earnings, whereas married mothers suffer a penalty of 41%, for divorced mothers it is 13% — again, highlighting the fact that divorced women have a much stronger attachment to the labour market than do married women. Our "Mechanisms" section clearly points to differences in economic need as the driver behind the discrepancies in child penalties by marital status.

Our study contributes to the child penalties literature in two important ways. First, as far as we know, this is the first paper to estimate child penalties for New Zealand — information currently missing from the Child Penalty Atlas (www.childpenaltyatlas.org). Very few countries lack data in the atlas, but New Zealand is one of them. Thus, our estimates complement a huge effort to map all child penalties in the world undertaken by previous authors (Kleven, Landais and Leite-Mariante, 2024). Second, our study disentangles how marital status may shape child penalties across developed economies. Most importantly, we consider multiple mechanisms that provide a better understanding of the causes behind differential child penalties by civil status. This is important because, if we are to design effective policies that help mothers narrow the gender gap in the labour market, we need a better understanding of what causes it.

This paper is structured as follows. Section 2 gives information on the institutional background. Section 3 describes the data used in the analysis and provides some summary statistics. Section 4 details the empirical design used to analyse the impact of a first child on the labour market outcomes of married and divorced mothers. Section 5 presents the main results, while Section 6 delves into the potential mechanisms underlying our findings. Finally, Section 7 offers a concise summary of the key findings of this study.

2   Institutional background

This section provides succinct information on some aspects of the New Zealand context that are relevant to our study. Regarding marriage and its dissolution, the Marriage Act 1955 defines and regulates the estate of a marriage. In terms of net income, the benefits of marriage are limited, given that income is taxed at the individual level, and all

New Zealanders have access to a free, publicly funded health system. New Zealand also accepts de facto relationships as a legal form of cohabitation, where couples have similar rights when accessing tax subsidies or benefit support. The dissolution of a marriage is regulated by the Family Proceedings Act 1980. Section 39 defines the grounds for dissolution, requiring the spouses to live apart for two years "immediately preceding the filing of the application for an order dissolving the marriage". No further proof is needed.

As for spousal maintenance following divorce (also defined in the Family Proceedings Act 1980), this is payable if, following separation, one party cannot meet their reasonable needs. There are different qualifying circumstances for spousal maintenance, such as the ability of the party to become self-supporting, ongoing responsibilities for children, or the standard of living enjoyed during the relationship. However, there is an expectation that the receiving party should become self-supporting within a reasonable time frame. Moreover, spousal maintenance is separate from child support and is handled through a different process.

The Child Support Act 1991 defines the minimum level of financial support payable by one parent after divorce and provides for the collection and payment of child support. It includes a standardized formula for calculating child support payments and authorizes the Inland Revenue (IR) to assess and collect payments. Parents can also agree on an amount and register it with the IR (voluntary agreement) or manage payments without IR involvement (private agreement). The Child Support Amendment Bill 2011 introduced significant changes to New Zealand's child support system. It includes a comprehensive new child support formula, according to which the income of both parents is recognized, rather than just that of the liable parent.

The Parental Leave and Employment Protection Amendment Act 2002 introduced, for the first time, 12 weeks of paid parental leave. The number of weeks has increased over the past two decades (2004: 14 weeks; 2016: 18 weeks; 2018: 22 weeks; 2020: 26 weeks). Furthermore, early childhood education (ECE) services can provide children aged 3–5 years with up to 20 hours per week per child of free early childhood education.

As for public benefits potentially received by a single-earner household, it is the Ministry of Social Development (MSD) that manages New Zealand's benefits system. This includes the following support schemes for lone mothers (though other groups can also access some of the schemes): Sole Parent Support (a weekly payment for single parents with children under 14 years of age); Accommodation Supplement (financial assistance to help cover housing costs, including rent or mortgage payments); Childcare Assistance (subsidies for ECE and care services, enabling single parents to work or study); Working for Families Tax Credits (tax credit payments for families with dependent children aged 18 and under, based on yearly income and family circumstances); and finally, In-Work Tax Credit (weekly support for working single parents who work for 20 hours or more each week).

3   Data and descriptive statistics

To obtain a measure of the child penalty in New Zealand and the impact of the dissolution of a marriage on the penalty, we use the Integrated Data Infrastructure (IDI). Statistics New Zealand (StatsNZ) hosts the IDI, and it holds a large range of administrative data provided primarily by government agencies. The information is at the individual level, and each individual has an assigned identification number (snz_uid), enabling the researcher to identify the same individual in different datasets and to link the data.

Our starting point is the Department of Internal Affairs (DIA) birth records, which we use to identify children born between 2007 and 2015.[2] The birth records also hold information about the parents, which we use to exclude those couples where at least one parent already had a child with a different partner. The DIA also holds marriage and divorce records and allows us to include parents who were married before the child's birth. The DIA birth records are also used to identify the birth dates of subsequent children.

The divorce records provide information on the divorce date, enabling us to identify parents who get divorced within the first seven years of the child's birth. As explained above, in New Zealand, before a couple can apply to divorce, there is a legal requirement for them to have been separated or living apart for at least two years.[3] Next, we used the personal details file to gather all the individual characteristics relevant to our analysis. StatsNZ prepares the file by retrieving information from all administrative and survey sources. The first set of information is the parental birth date. We restrict the sample to mothers aged between 20 and 40 when the first child was born, and to fathers aged between 20 and 45. We track the parental labour market outcome for five years before the child's birth and for up to seven years after.

The second set of information we use from the personal details file is parental ethnicity. The largest ethnic group in New Zealand is European. However, it is possible to declare more than one ethnicity. There are large differences in the labour market outcomes by ethnicity in New Zealand, especially between Europeans and the indigenous Māori. To reduce the impact of sample selection by ethnicity, we restrict our sample to parents who identify as European and do not state any further ethnicity. We then use the tertiary education completion data provided by the Ministry of Education to identify whether the parent had attained a Bachelor's degree (or above) before the birth of the first child. We also link our parents to customs data, in order to flag up if a parent had stayed overseas for more than two years during the 12 years surrounding the child's birth. If that was the case, we remove those couples from our analysis. Our final sample consists of 38,922 married and 555 divorced fathers, with the exact same number of mothers.

To understand the employment and earnings pattern of the parents before and after the

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[2]While the DIA birth records hold information dating back to 1840, the tax records we need for our analysis start only in 2000.

[3]During that time window, they are permitted to live together for a total of three months.

child's birth, we link our database to the Inland Revenue's tax records. In particular, we use the subset of the employee monthly schedule table, which holds monthly information on income from wages and salaries for each individual. We use the information for the time window extending from 60 months before the first child's birth to 84 months after it. We identify someone as employed if that person received income from wages and salaries in the respective month, and as non-employed otherwise. We top-coded monthly earnings to NZ\$20,000 (in NZ\$2017 terms) to minimize the impact of outliers.[4]

Table 1 provides summary statistics for parental characteristics measured 12 months before the first child's birth, while also accounting for whether or not the person eventually divorces after the child is born. Regarding mothers, there is no statistically significant difference by civil status in terms of age, probability of being employed or duration of marriage. That is, both groups (married and divorced) are, on average, nearly 30 years of age; around 85% are employed; and they have been married for nearly two years. However, statistically significant differences are to be observed between married and divorced mothers in terms of other characteristics: for instance, married mothers are better educated, have higher earnings and give birth more often to a second child. Regarding fathers, both married and divorced have very similar characteristics, except that divorced fathers tend to be somewhat older. In the "Empirical strategy" section, we explain in detail how, in estimating the child penalty, we account for such differences between the two groups.

4   Empirical strategy

Our empirical strategy closely follows the studies by Kleven, Landais and Søgaard (2019, 2021) and Cortés and Pan (2023), including the notation used. It is an event-study approach that tracks the labour market outcomes of parents from 60 months (5 years) before the birth of the first child until 84 months (7 years) after. For all parents, their marriage date is before the child's birth date. These parents are then split into two groups: those whose marriage is not legally dissolved within the first seven years following the birth and those who have recorded their divorce with the Department of Internal Affairs within seven years of the child's birth. We apply the following specification:

$$Y_{it}^g = \boldsymbol{\alpha^{g\prime}} \mathbf{D}_{it}^{Event} + \boldsymbol{\beta^{g\prime}} \mathbf{D}_{it}^{Age} + \boldsymbol{\gamma^{g\prime}} \mathbf{D}_{it}^{Year} + \boldsymbol{\delta^{g\prime}} \mathbf{D}_{it}^{Month} + \nu_{it} \qquad (1)$$

with i referring to the individual at event time t for each gender $g = \{m, f\}$, which is measured at the monthly level. As the estimation is computationally intensive, we create four-month leaps and exclude the two periods for 0 and +4 months around the

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[4]The Inland Revenue also holds information on income from self-employment. However, this information is only provided at the annual level. Section 5.3 presents the results when we include income from self-employment; however, our main findings remain unchanged.

Table 1: Descriptive statistics

	Mothers			Fathers		
	Married (1)	Divorced (2)	*t*-stat (3)	Married (4)	Divorced (5)	*t*-stat (6)
Age	29.68	29.65	0.163	31.55	32.34	-3.722***
	(4.24)	(4.74)	(0.870)	(4.95)	(5.43)	(0.000)
Bachelor's degree	0.273	0.207	3.437***	0.136	0.077	4.011
or above	(0.445)	(0.406)	(0.000)	(0.343)	(0.268)	(0.000)
Employed	0.862	0.840	1.493	0.794	0.760	1.916*
	(0.345)	(0.367)	(0.135)	(0.405)	(0.427)	(0.056)
Earnings (in NZ$)	5,144	4,736	3.321***	6,066	5,501	3.909
	(2628)	(2287)	(0.000)	(2944)	(2769)	(0.000)
Marriage length	1.923	1.983	-0.608			
(in years)	(2.316)	(2.657)	(0.543)			
Having a second child	0.788	0.350	25.010***			
	(0.409)	(0.477)	(0.000)			
Observations	38,922	555		38,922	555	

Note: Descriptive statistics refer to 12 months before the first child's birth. Divorced parents have their divorce recorded within seven years of the child's birth. Having a second child is measured within seven years of the first child's birth. Numbers in parentheses are standard deviations in columns (1), (2), (4) and (5) and *p*-values in columns (3) and (6).
Source: Authors' computation, using data from IDI.

child's birth. Y is the labour market outcome, which is either employment or monthly earnings. The vector α^g holds the coefficients for the event time dummies, which measure the time (in months) to/from the child's birth. As the reference month, we chose $t = -12$, which means that the impact we measure is relative to one year before the child's birth (and before the woman became pregnant). We also include a full set of age, year and month dummies to control for life-cycle trends, time trends and monthly fluctuations, respectively. Regressions are run separately for mothers and fathers and by marital status; we thus end up with four specifications. We then calculate the percentage effect P_t:

$$P_t^g \equiv \frac{\hat{\alpha}_t^g}{E[\hat{Y}_{it}^g | t]} \tag{2}$$

where $\hat{Y}_{it}^g$ is the predicted outcome without the life-cycle trends, time trends and monthly fluctuations. Note that the percentage effect is calculated separately for each time point, mothers and fathers, and marital status. The difference between fathers and mothers then provides the size of the child-penalty effect.

As we showed in Table 1, parents who get divorced after the child's birth and those who stay married differ in their observable characteristics (e.g. mothers who do eventually divorce are, on average, slightly younger, are less well educated and have a second child less often than mothers who stay married). To address this selection issue, we follow

Kleven et al. (2021) by re-weighting the sample of parents who stay married, in order to align their characteristics with those of divorced parents. The weights are generated using the following variables: (i) the child was born before 2012; (ii) the mother was aged below 30 years at the time of the birth; (iii) the mother has a Bachelor's degree; and (iv) the mother had a second child within the next seven years after the first child birth.

5   Results

We present our main findings in three parts. First, we present the overall child penalty for women in New Zealand. To the best of our knowledge, this has not been measured before in the related literature (Kleven, Landais and Leite-Mariante, 2024). Second, we present the results for the child penalty on employment participation and earnings by marital status. The last subsection focuses on other child penalties.

5.1   The child penalty in New Zealand

Figures 1a and 1b present the first event-study estimations of two child penalties in New Zealand: in terms of labour market participation and in terms of earnings. As explained above, the findings are relative to 12 months before the child is born and up to seven years after (84 months). As is clearly shown, women experience an immediate and steep drop of about 60% in the probability of employment eight months after the birth of their first child. Even though the probability of employment recovers slightly in the following months, another dip is observed in the 24–36-month time window. Only three years after the child's birth does the probability of a mother returning to the labour market start rising again. However, there is never a full recovery to the same level as that of fathers (or pre-birth), and women have a 40% lower probability of being employed even seven years after the birth of their first child, compared to the reference period. Using Equation 2, our estimations indicate that in terms of employment in New Zealand, the long-run child penalty measured at 84 months after the child's birth is 33.4%. Note that men also experience a certain decline in the probability of their being employed once they become a father; but — at less than 5% seven years after the child's birth — this is in no way comparable to what mothers experience. Table A.1 in the Appendix contains all the estimated coefficients.

How does the employment child penalty in New Zealand compare with that in other developed economies? According to data from the Child Penalty Atlas,[5] our results for New Zealand are very similar to those for Australia (34%), Italy (33%) and the UK (34%), and are in the middle range for estimated child penalties across the whole world. Thus,

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[5]www.childpenaltyatlas.org

Figure 1: Child penalties in New Zealand, 2002–2022
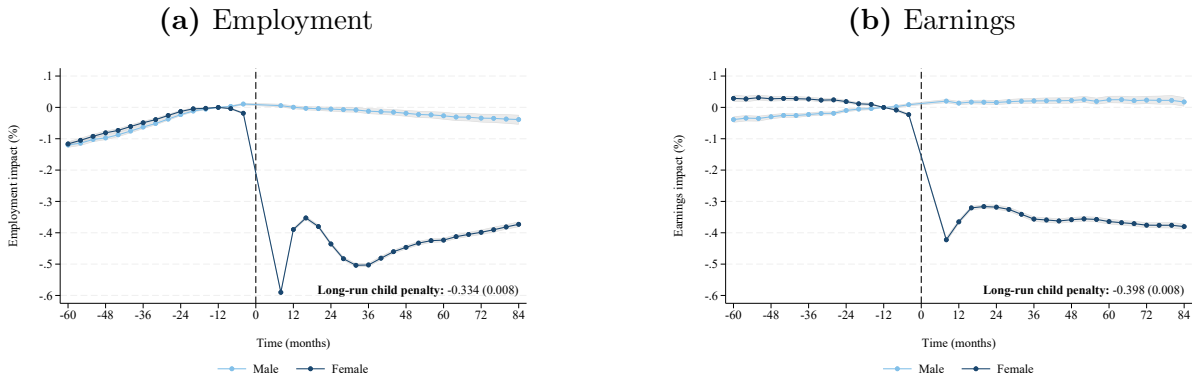
(a) Employment

(b) Earnings

Note: The figure shows the impact of having the first child (P_t^g defined in equation 2) on employment (left) and earnings (right). The long-run child penalty is defined as the average difference in the impact of having the first child between men and women seven years (84 months) after the birth of the first child. Shaded areas represent the confidence intervals calculated by bootstrapping with 500 replications. See the underlying coefficients in Table A.1 in the Appendix.

Source: Authors' computation, using data from IDI.

our estimates for New Zealand are lower than for Finland (43%), Germany (41%) and Mexico (44%), but are much higher than for Norway (3%), Sweden (9%) and China (4%).

Figure 1b shows a similar pattern for the earnings child penalty. In this case, the long-run earnings child penalty is even greater (39.8%) than the employment child penalty. It also shows that the recovery in employment that we see three years after the birth does not translate into a recovery in women's earnings. Interestingly, despite the slight dip in the participation of fathers over the years, their earnings remain at the same level as before the first child's arrival. That explains the large gap between fathers and mothers in terms of earnings.

Compared with previous analysis for other countries, the child penalty in earnings in New Zealand is similar to that seen in the US — estimated at 36% by Kleven (2022) — or the UK — put at 44% by Kleven, Landais, Posch et al. (2019). It is an earnings penalty considerably higher than that computed for Denmark (21%) or Sweden (26%), but lower than that found for Germany (61%) or Austria (51%) (Kleven, Landais, Posch et al., 2019).[6]

5.2 Divorce and the employment and earnings child penalties

Figure 2a illustrates the distinct impact of fatherhood and motherhood on the participation of married and divorced parents in the labour market. The figure clearly shows that — despite very similar levels of participation in the labour market for the four groups be-

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[6]Note that earnings child penalties are not included in the Child Penalty Atlas (Kleven, Landais and Leite-Mariante, 2024).

fore the birth of the child — both married and divorced mothers experience a very similar initial decline in participation. However, while the employment of married mothers suffers an additional decline 12–36 months after the child's birth, the employment of divorced (or soon-to-be-divorced) mothers keeps improving every month after the first year, to the point that their employment probability five years after the birth does not differ from that of fathers. As a result, the level of employment of divorced women returns to the level they had prior to the birth. All coefficients are detailed in Table A.2 in the Appendix. Our estimations indicate that the employment child penalty of divorced women is 4.6%, but statistically indistinguishable from zero. The child penalty of married mothers remains at 32%.

Figure 2: Child penalty by marital status in New Zealand, 2002–2022

**(a)** Employment   **(b)** Earnings

Note: The figure shows the impact of having the first child (P_t^g defined in equation 2) on employment (left) and earnings (right) by marital status. The sample of married parents is re-weighted to match the distribution of the divorced parents using the following variables: (i) the child was born before 2012; (ii) the mother was aged below 30 at the time of the birth; (iii) the mother has a Bachelor's degree; and (iv) the mother had a second child within the next seven years. The long-run child penalty is defined as the average difference in the impact of having the first child between men and women seven years (84 months) after the birth of the first child. Shaded areas represent the confidence intervals calculated by bootstrapping with 500 replications. The underlying coefficients can be found in Table A.2 in the Appendix.
Source: Authors' computation, using data from IDI.

Similarly, Figure 2b presents the results of the event study for monthly earnings. In line with the aforementioned results on employment, divorced women do not see such a large decline in their earnings as married women after the birth of their child. However, while earnings recover soon after the birth, they do not grow at the same pace as is observed for employment, and therefore never reach the level attained prior to the birth — or that of fathers. This possibly indicates that, despite a relatively strong attachment by divorced women to the labour market, they are never paid at the same level as before the birth, since they need to reconcile work and child responsibilities. Meanwhile, the earnings of married women never recover after the birth, and remain at the same low level as when the women leave the labour market to give birth to their first child. We estimate an earnings child penalty of 40.6% for married women and 12.7% for divorced

Figure 3: Number of hours worked per week by parents in our sample, accounting for gender and marital status, New Zealand, 2013, 2018
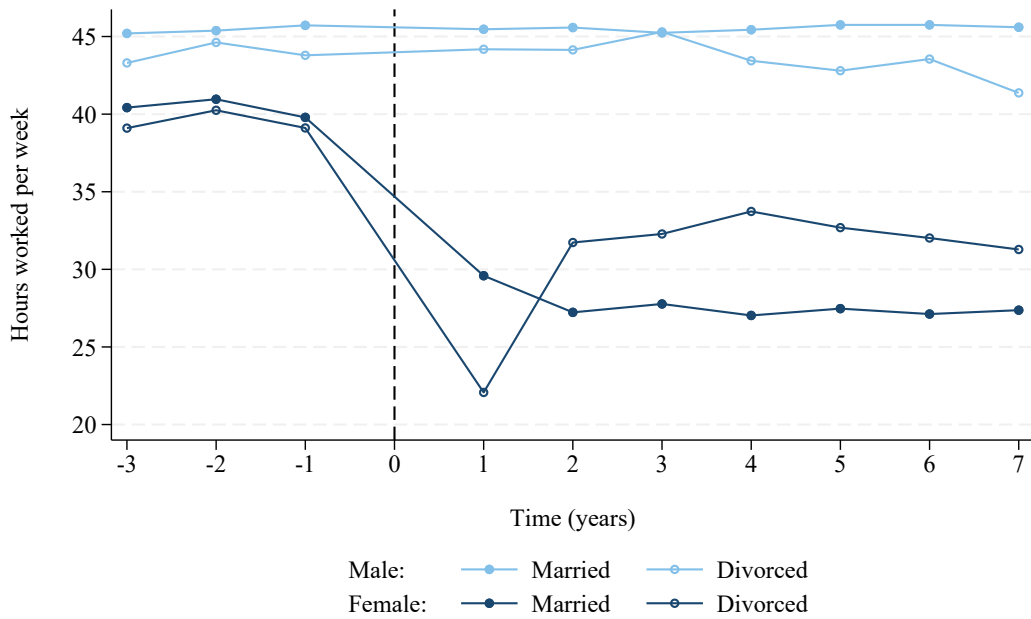
Note: The figure shows the average working hours per week for those stating that they are employed, as reported in the 2013 and 2018 censuses. The time refers to the difference between census date and the child's birth date.
Source: Authors' computation, using data from the 2013 and the 2018 censuses.

women.

5.3 Divorce and the other child penalties

This section considers other penalties that can provide additional insights to help in understanding the results described above. We focus first on the number of hours worked per week. Unfortunately, there are no administrative records on working hours, and so we need to rely on cross-sectional data from the census, which is conducted every five years. Our sample refers to 2013 and 2018.[7] As the information is not longitudinal, we cannot apply an event-study approach. Thus, our results are simple averages. Figure 3 shows the child penalties in the number of hours worked per week, by gender and marital status. The results parallel those for employment: they show that divorced women gain a stronger attachment to the labour market soon after the birth. For example, as early as in the second year following the birth, divorced women work, on average, five hours more per week than married women, and the gap persists in the following years. Thus, child penalties suffered by women are present not only at the extensive margin, but also at the intensive margin.

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[7]The first official census was run in 1851 and, with a few exceptions, since 1877 there has been a census held every five years. However, the 2013 census was the first to be integrated into the IDI.

Figure 4: Probability of working in a firm with 80% of staff of the same gender, New Zealand, 2002–2022
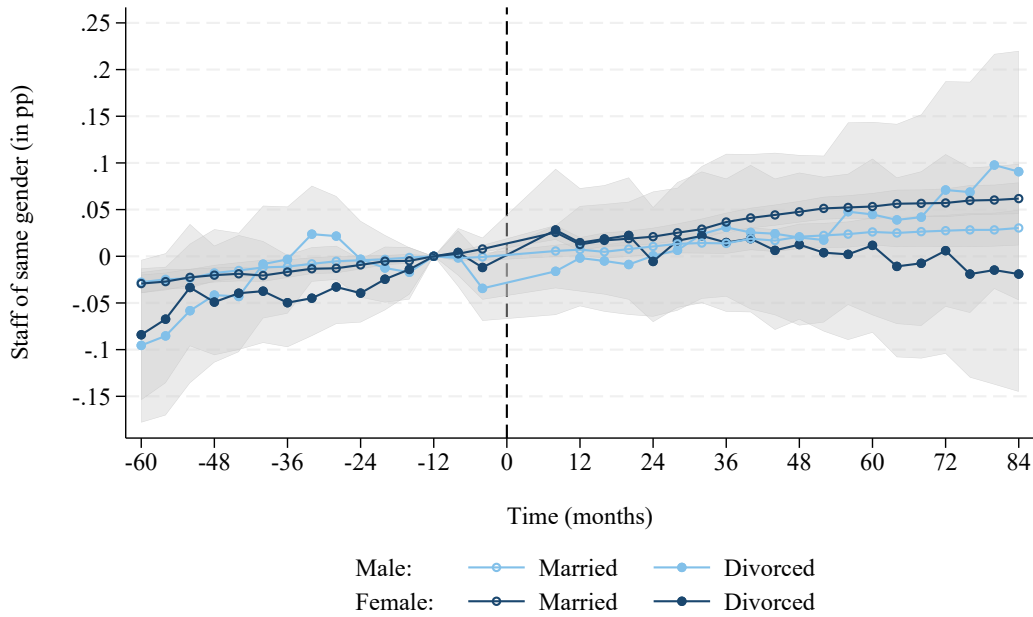
Note: The figure shows the likelihood (in percentage points) of working in a firm with 80% of staff of the same gender, by marital status. The sample of married parents is re-weighted to match the distribution of divorced parents using the following variables: (i) the child was born before 2012; (ii) the mother was aged below 30 at the time of the birth; (iii) the mother has a Bachelor's degree; and (iv) the mother had a second child within the next seven years. Shaded areas represent the confidence intervals calculated by bootstrapping with 500 replications.
Source: Authors' computation, using data from IDI.

The type of company in which men and women work after the birth of their child has also been considered to be a potential source of penalties among females, as it has been found that women working in mostly "female occupations" (possibly more family-friendly) often receive lower wages. The Inland Revenue records contain a unique employer identifier, enabling us to determine the number of employees and their characteristics at the monthly level. Linking such information with the StatsNZ personal details files, we can assign a gender to each employee and calculate the gender composition accordingly. Figure 4 shows that, in our sample, the probability of fathers and mothers working in a firm with a large percentage of males (for fathers) and females (for mothers) does not change after the birth — irrespective of whether couples stay together or get a divorce. Thus, in New Zealand, the data indicates no child penalty for the type of firm that parents work at (in terms of gender composition).

So far in our analysis we have focused on employment and earnings patterns where income is from wages and salaries. We now expand our analysis by also accounting for income from self-employment. As mentioned earlier, income from self-employment is recorded at the annual level and refers to the financial year, which starts in April and runs

through March of the following year.[8] As the proportion of individuals who receive income from self-employment is small (below 5% for mothers 12 months before the child's birth), we aggregate income from wages, salaries and self-employment at the annual level. We then construct a binary employment indicator, which takes the value of 1 if the person received annual income of NZ\$10,000 or higher and 0 otherwise.[9] Our second marker refers to annual income levels. As can be seen from Figures 5a and 5b, the findings are very similar to those patterns presented earlier.

Figure 5: Child penalty by marital status accounting for income from self-employment in New Zealand, 2002–2022

(a) Employment and self-employment

(b) Income from wages, salaries and self-employment
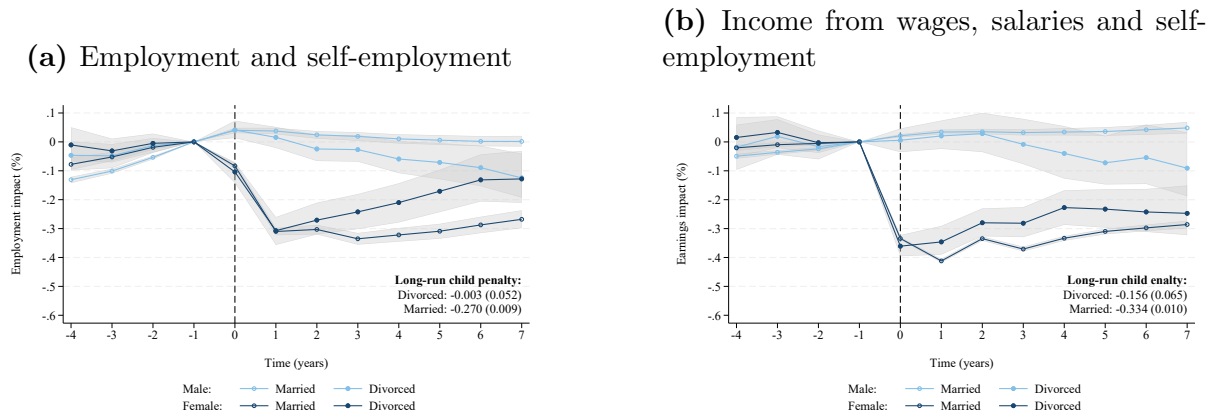
Note: The figure shows the impact of having the first child (P_t^g defined in equation 2) on (self-)employment (left) and income (right), by marital status. The sample of married parents is re-weighted to match the distribution of the divorced parents using the following variables: (i) the child was born before 2012; (ii) the mother was aged below 30 at the time of the birth; (iii) the mother has a Bachelor's degree; and (iv) the mother had a second child within the next seven years. The long-run child penalty is defined as the average difference in the impact of having the first child between men and women seven years (84 months) after the birth of the first child. Shaded areas represent the confidence intervals calculated by bootstrapping with 500 replications.
Source: Authors' computation, using data from IDI.

6 Mechanisms

In this section, we explore the potential mechanisms that may help in understanding the differential results for the child penalties of married and divorced mothers. First, we consider economic need (often associated with divorce) as the source of such differences. Second, we take into account the possibility that subsequent fertility is driving our results. Third, we deal with the possibility that divorced and married women hold different gender norms, which may help us understand their different attachments to the labour market after childbirth.

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[8]For example, the financial year 2010 starts in April 2009 and ends in March 2010.

[9]We tested a large range of different thresholds, but our findings remained unchanged.

Economic need. Divorce is often associated with a sharp increase in economic need, since families that separate cannot count any longer on household economies of scale or income pooling. In what follows, we show clear evidence of this occurring in New Zealand, using data from the censuses and the Ministry of Social Development.

In the 2013 and 2018 censuses, households were asked about their annual income from all sources. The information was provided in bands, and we chose NZ$50,000 as the cut-off point.[10] In Table 2, we can see the proportion of married and divorced parents with annual income of below NZ$50,000. While the figure is about 4% before the birth, for married couples it hovers at around 5–9% in the seven years after the child is born.[11] In the case of divorced fathers, one can observe a rise in the proportion of low-income families to 16% seven years after the child's birth. However, for divorced mothers, the increase in the proportion who become economically vulnerable is substantially greater: the share in the bottom part of the income distribution stands at 26.5% by the time the child is one year of age and at over 46% by the time the child turns seven.

We also link our sample to the data from the Ministry of Social Development, which is the national agency in charge of benefits. The dataset holds information on the benefits that a person receives and the corresponding start and end dates. There are different sorts of benefits, but here we focus on *hardship benefits* (e.g. Sole Parenting Support, Supported Living Payment, Emergency Benefit, Emergency Maintenance Allowance and Accommodation Supplement). Figure 6 shows a large increase in the share of divorced women claiming hardship benefits after the birth. Whereas before the birth, women and men in both groups were similarly likely to claim hardship benefits, the need increases sharply for divorced women (but not for divorced men), to the point that it reaches 35%. It is therefore not surprising that, given the economic need of these single-mother families, the women increase their attachment to the labour market at both the extensive and the intensive margin.

A further piece of evidence regarding social need as the mechanism behind the differences in child penalties by marital status can be analysed by considering separately early divorcees and late divorcees. Early divorce refers to having the divorce registered between 1.5 and 4 years (18 to 60 months) of the child's birth. Late divorce refers to having the divorce 5–7 years (61 to 84 months) after the birth of the first child.[12] If the

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[10]According to StatsNZ, median household income for 2013 was NZ$63,800 (retrieved on 15 August 2024: `https://www.stats.govt.nz/assets/Uploads/Retirement-of-archive-website-project-files/Reports/2013-Census-QuickStats-about-income/quickstats-income.pdf`).

[11]Note that the information is only provided at the household level, and thus only one figure is shown for married couples, since they share the same household.

[12]Note that in New Zealand there is a two-year rule: before one applies for a divorce, known as a dissolution order, through the Family Court, one needs to have been separated or living apart from one's partner for at least two years. Thus, one needs to file for divorce; but only after two years will it be recorded (assuming it is approved by the court). This means that those who have their divorce recorded 1.5 years after the child's birth had filed for divorce six months before the child's birth.

Table 2: Probability of having an annual household income below $50,000, by gender and marital status, New Zealand, 2013, 2018

Months since childbirth	Married Families	Divorced Mothers	Divorced Fathers
-33 to -12	0.042	0.072	0.035
-11 to 12	0.048	0.068	0.046
13 to 24	0.090	0.265	0.137
25 to 36	0.065	0.180	0.070
37 to 48	0.063	0.274	0.066
49 to 60	0.062	0.464	0.138
61 to 72	0.068	0.410	0.128
73 to 84	0.069	0.457	0.157
Total	72,939	1,014	1,023

Note: The table shows the proportion of households reporting annual household income of below NZ$50k in the 2013 and 2018 censuses. Note that each individual reports his/her annual household income twice, which doubles the number of observations. "Months since childbirth" refers to the difference between the census date and the child's birth date.
Source: Authors' computation, using data from IDI.

economic need associated with divorce plays an important role, we can expect to see a stronger attachment to the labour market among women who divorce early than among those who divorce late and who have had more time to benefit from income pooling during the child's first years. And this is precisely what Figures 7a to 7d indicate. Women in a partnership who have already filed for divorce, or who are planning to do so, return to the labour market much sooner than those in a late divorce — with the probability of being employed already on the rise soon after the child turns one year of age. In the case of late divorcees, the impact on employment is very similar for married and divorced women up to 24 months after the birth. At that point, the trends start to diverge, with a much stronger attachment to the labour market for divorced women. In any case, the graphs prove that the sooner the economic need caused by divorce makes itself felt, the sooner women return to the labour market.

Fertility. Rather than economic need, one could hypothesize that married women suffer greater child penalties than divorced women because the former are much more likely to bear a second child than the latter, an effect which adds to the child penalty already suffered because of the first child. To discount the possibility that subsequent children are driving our results, in Figure 8a and 8b, we restrict our sample to fathers and mothers who produce a single child during our period of observation. As can be seen, a very similar pattern to that of our main results can be observed for both employment and earnings, indicating that our results are likely not driven by subsequent fertility.

Gender norms. To consider the possibility that divorced and married women hold different gender norms and that this could explain the differences in gender penalties by

Figure 6: Percentage of individuals in our sample taking up the Ministry of Social Development hardship benefits, by gender and marital status, considering the birth of the first child timing, New Zealand, 2002–2022
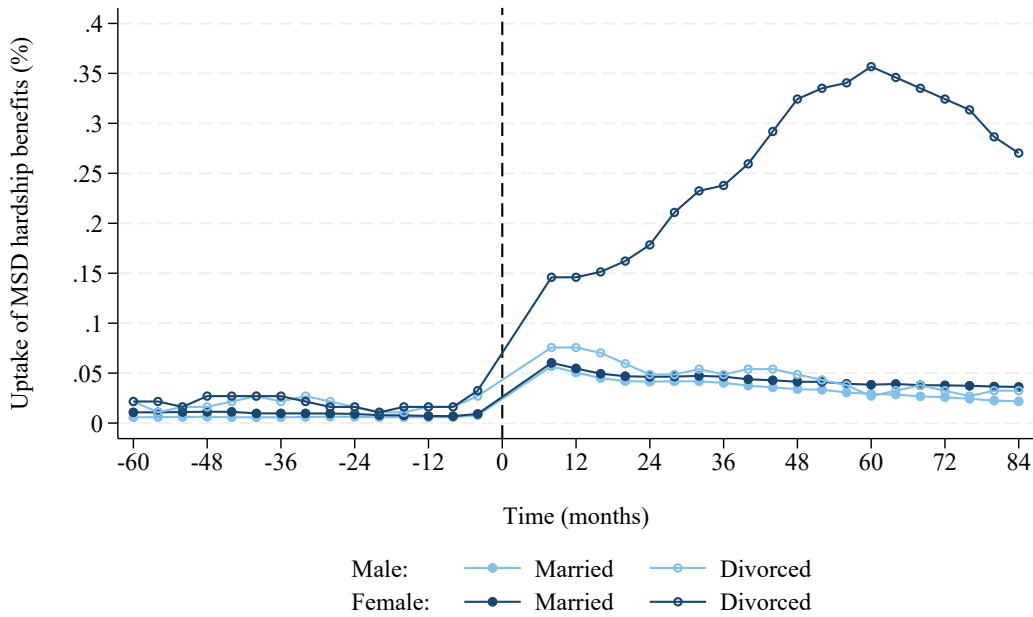
Note: The figure shows the uptake of MSD hardship benefits by marital status. Hardship benefits include schemes like Sole Parenting Support, Supported Living Payment, Emergency Benefit, Emergency Maintenance Allowance, Accommodation Supplement, etc.
Source: Authors' computation, using data from IDI.

marital status, we use data from the World Values Survey for the four waves in which New Zealand is represented (1994–1998, 2005–2009, 2010–2014 and 2017–2022). After dealing with missing values, keeping only mothers, and dropping those whose marital status is not either married, divorced or separated, we are left with 1,266 observations. In that sample, 86.6% of mothers are married and 13.4% are separated or divorced.

In order to proxy the level of gender progressivity by marital status among women, we consider the level of agreement or disagreement with the following statement: "When jobs are scarce, men should have more right to a job than women". Respondents can indicate their opinion with three possible answers: 1 — "agree"; 2 — "disagree"; and 3 — "neither". We recode the variable, so that a higher value indicates higher gender progressivity: agreeing with the statement ('1'), neither agreeing nor disagreeing ('2') and disagreeing with the statement ('3'). Table 3 shows the percentage of women in each category, depending on their marital status. While the differences are not striking, the number of divorced women who disagree with the statement is somewhat larger than the figure for married women, while the reverse is true for agreement with the statement. A similar percentage of both groups neither agrees nor disagrees. However, a simple OLS regression with the answers to the statement as the main outcome variable, and

Figure 7: Child penalty, by marital status and divorce timing in New Zealand, 2002–2022
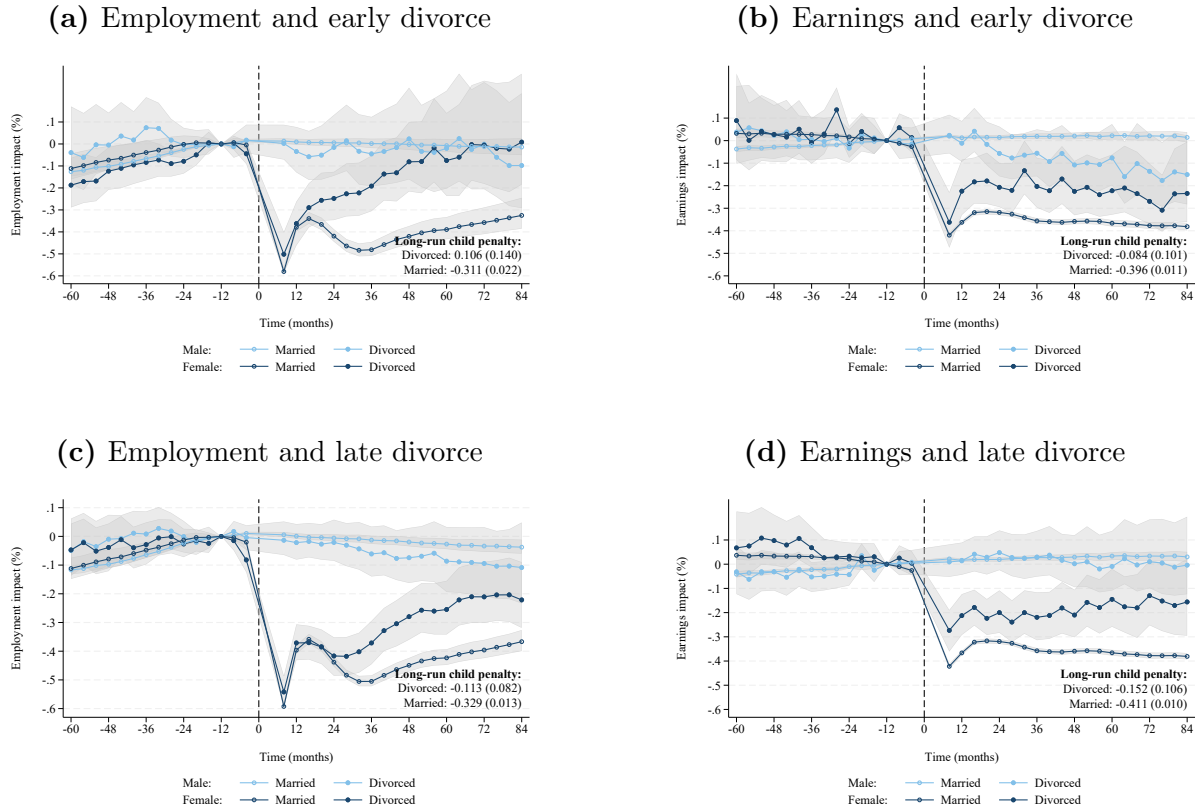
(a) Employment and early divorce

(b) Earnings and early divorce

(c) Employment and late divorce

(d) Earnings and late divorce

Note: The figure shows the impact of having the first child (P_t^g defined in equation 2) on employment (left) and earnings (right), by marital status. Early divorce refers to having the divorce registered between 1.5 and 4 years (18 to 60 months) of the child's birth. Late divorce refers to having the divorce 5–7 years (61 to 84 months) after the birth of the first child. The sample of married parents is re-weighted to match the distribution of the divorced parents using the following variables: (i) the child was born before 2012; (ii) the mother was aged below 30 at the time of the birth; (iii) the mother has a Bachelor's degree; and (iv) the mother had a second child within the following seven years. The long-run child penalty is defined as the average difference in the impact of having children between men and women seven years (84 months) after the birth of the first child. Shaded areas represent the confidence intervals calculated by bootstrapping with 500 replications.
Source: Authors' computation, using data from IDI.

with marital status and wave as the two independent variables, indicates that, while women have become more gender progressive over the period of analysis, the differences by marital status are not statistically significant. Another specification that interacts with marital status and wave provides the same findings. All in all, and despite the considerable limitations of the data to hand, it does seem that divorced mothers and married mothers do not necessarily hold different gender norms. This could potentially rule out this mechanism as the driver of our findings.

Figure 8: Child penalty by marital status in families with a single child, 2002–2022

(a) Employment for single-child parents

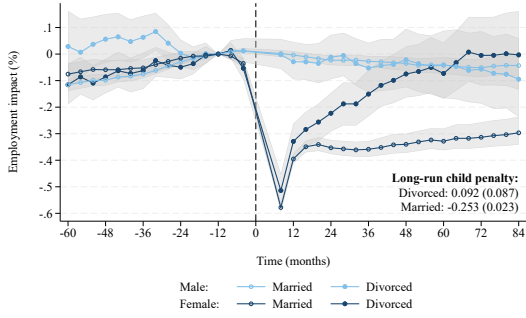**(b)** Earnings for single-child parents
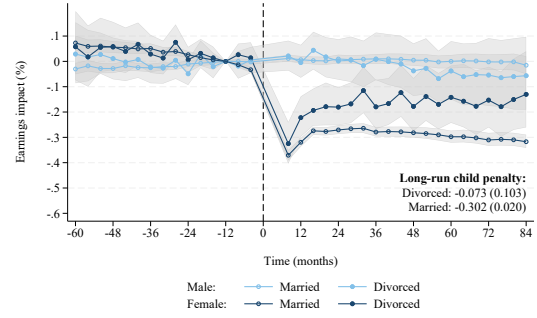
Note: The figure shows the impact of having the first child (P_t^g defined in equation 2) on employment (left) and earnings (right) by marital status and parents without a second child born within the seven years after the birth of the first child. The sample of married parents is re-weighted to match the distribution of the divorced parents using the following variables: (i) the child was born before 2012; (ii) the mother was aged below 30 at the time of the birth; and (iii) the mother has a Bachelor's degree. The long-run child penalty is defined as the average difference in the impact of having the first child between men and women seven years (84 months) after the birth of the first child. Shaded areas represent the confidence intervals calculated by bootstrapping with 500 replications.
Source: Authors' computation, using data from IDI.

Table 3: Gender progressivity indicator among mothers, by marital status, New Zealand, 1994–2022

	Married	Divorced
Agree	10.67	7.10
Neither agree nor disagree	14.13	14.79
Disagree	75.21	78.11
Total	100.00	100.00

Note: The numbers show the level of agreement or disagreement with the statement: "When jobs are scarce, men should have more right to a job than women." The number of observations in the married category is 1,097 and in the divorced category is 169. Unweighted results.
Source: Authors' computation, using data from the World Values Survey for waves 3 (1994–1998), 5 (2005–2009), 6 (2010–2014) and 7 (2017–2022).

7   Conclusions

This paper studies the influence of marital status on child penalties in New Zealand, using rich administrative data for the period between 2002 and 2022. Our main results show that while the overall employment child penalty is 33% for all women, it stands at 32% when we consider only married mothers, and falls to 5% when we measure divorced mothers. The corresponding figures for earnings are 40% (all women), 41% (married) and 13% (divorced). Thus, mothers who go through divorce in New Zealand have a stronger attachment to the labour market, at both the extensive and the intensive margin, as

indicated by the greater number of hours worked per week by divorced mothers, compared to married mothers.

What are the mechanisms that drive such findings? The data to hand has allowed us to consider three possibilities: (i) increased economic need among divorced women, (ii) a greater likelihood of subsequent fertility among married women, and (iii) differences in gender norms between married and divorced women. Multiple pieces of evidence point to increased need among divorced mothers as the most likely driver behind our findings. Among divorced mothers, the uptake of hardship benefits increases sharply after the birth of their child. They are more likely to be positioned at the lower end of the annual income distribution than are married women. Moreover, women who get divorced soon after the birth show a stronger attachment to the labour market than do mothers who divorce much later, providing an additional piece of evidence that economic need may explain our findings. While we cannot totally disregard the other two potential mechanisms, it would seem that subsequent fertility does not drive our findings, as we observe a similar pattern for married and divorced mothers of a single child. Nor in this context does the limited cross-sectional evidence from the World Values Survey point to any statistically significant differences in terms of gender progressivity between married and divorced women.

Previous research by Kleven (2022) showed that in the US single women face much smaller child penalties than married women, while another piece from the same author — this time using data from Denmark — documents the reverse (Kleven, 2021). The author argues that, as government support is much greater in the Scandinavian country, single mothers in Denmark can absorb a large penalty on the labour market and still be able to support their children. If that argument is correct, our findings indicate that the support mothers receive in New Zealand after a divorce is not sufficient — either from their ex-partners or from the government — as divorced mothers are faced with a need to return to the labour market quickly — not necessarily always under the most conducive circumstances. This is indicated both by the size of the earnings penalty, which is larger than the employment penalty, and by the urgent need to claim hardship benefits.

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A   Appendix

A.1   Disclaimer

The findings of this paper are not official statistics: they have been created for research purposes from the Integrated Data Infrastructure (IDI), managed by Statistics New Zealand. The opinions, findings, recommendations and conclusions expressed in this paper are those of the authors, not Statistics NZ.

The results are based in part on tax data supplied by the Inland Revenue to Statistics NZ under the Tax Administration Act 1994. This tax data may be used solely for statistical purposes, and no individual information may be published or disclosed in any other form or provided to the Inland Revenue for administrative or regulatory purposes. Every person who has had access to the unit record data has certified that he/she has been shown, has read and has understood section 81 of the Tax Administration Act 1994, which relates to confidentiality. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes and is not related to the data's ability to support the Inland Revenue's core operational requirements.

Access to the anonymized data used in this study was provided by Statistics NZ in accordance with the security and confidentiality provisions of the Statistics Act 1975. Only people authorized by the Statistics Act 1975 are allowed to see data about a particular person, household, business or organization, and the findings contained in this paper have been anonymized to protect these groups from identification. Careful consideration has been given to the privacy, security and confidentiality issues associated with using administrative and survey data from the IDI.

Further details can be found in the Privacy Impact Assessment for the Integrated Data Infrastructure, available at www.stats.govt.nz.

A.2 Additional tables

Table A.1: Event-study estimates for employment and earnings, by gender

Months to/from birth	Employment		Earnings	
	Female	Male	Female	Male
-60	-0.117***	-0.12***	0.029***	-0.039***
	(0.004)	(0.004)	(0.005)	(0.005)
-56	-0.105***	-0.114***	0.027***	-0.034***
	(0.004)	(0.004)	(0.005)	(0.004)
-52	-0.092***	-0.102***	0.031***	-0.035***
	(0.003)	(0.004)	(0.004)	(0.004)
-48	-0.081***	-0.097***	0.028***	-0.03***
	(0.003)	(0.004)	(0.004)	(0.004)
-44	-0.073***	-0.087***	0.029***	-0.025***
	(0.003)	(0.004)	(0.004)	(0.003)
-40	-0.061***	-0.075***	0.028***	-0.026***
	(0.003)	(0.003)	(0.004)	(0.003)
-36	-0.049***	-0.063***	0.027***	-0.023***
	(0.003)	(0.003)	(0.003)	(0.003)
-32	-0.039***	-0.051***	0.023***	-0.019***
	(0.003)	(0.003)	(0.003)	(0.003)
-28	-0.026***	-0.037***	0.024***	-0.019***
	(0.002)	(0.003)	(0.003)	(0.003)
-24	-0.013***	-0.023***	0.019***	-0.01***
	(0.002)	(0.002)	(0.002)	(0.002)
-20	-0.005***	-0.012***	0.011***	-0.005**
	(0.002)	(0.002)	(0.002)	(0.002)
-16	-0.003**	-0.006***	0.01***	-0.004*
	(0.001)	(0.001)	(0.002)	(0.002)
-12		*reference*		
-8	-0.004***	0.003**	-0.008***	0.002
	(0.001)	(0.001)	(0.002)	(0.002)
-4	-0.019***	0.011***	-0.023***	0.009***
	(0.002)	(0.002)	(0.002)	(0.002)
8	-0.59***	0.006**	-0.422***	0.02***
	(0.003)	(0.003)	(0.004)	(0.003)
12	-0.39***	0.001	-0.365***	0.014***
	(0.003)	(0.003)	(0.003)	(0.003)
16	-0.353***	-0.003	-0.321***	0.017***
	(0.003)	(0.003)	(0.003)	(0.003)
20	-0.38***	-0.004	-0.316***	0.017***
	(0.003)	(0.003)	(0.003)	(0.003)
24	-0.436***	-0.005	-0.318***	0.016***
	(0.003)	(0.004)	(0.004)	(0.004)
28	-0.483***	-0.007*	-0.325***	0.018***
	(0.003)	(0.004)	(0.004)	(0.004)
			Continued on next page	

Months to/from birth	Employment		Earnings	
	Female	Male	Female	Male
32	-0.504***	-0.008*	-0.341***	0.02***
	(0.003)	(0.004)	(0.004)	(0.004)
36	-0.503***	-0.012***	-0.356***	0.021***
	(0.003)	(0.004)	(0.004)	(0.004)
40	-0.481***	-0.014***	-0.359***	0.021***
	(0.003)	(0.005)	(0.004)	(0.005)
44	-0.46***	-0.015***	-0.362***	0.021***
	(0.003)	(0.005)	(0.004)	(0.005)
48	-0.446***	-0.019***	-0.358***	0.022***
	(0.003)	(0.005)	(0.004)	(0.005)
52	-0.433***	-0.023***	-0.356***	0.025***
	(0.003)	(0.005)	(0.004)	(0.005)
56	-0.425***	-0.024***	-0.357***	0.019***
	(0.003)	(0.006)	(0.004)	(0.005)
60	-0.423***	-0.027***	-0.364***	0.024***
	(0.003)	(0.006)	(0.004)	(0.006)
64	-0.412***	-0.031***	-0.368***	0.025***
	(0.004)	(0.006)	(0.004)	(0.006)
68	-0.405***	-0.031***	-0.371***	0.021***
	(0.004)	(0.006)	(0.004)	(0.006)
72	-0.398***	-0.034***	-0.376***	0.023***
	(0.004)	(0.007)	(0.004)	(0.006)
76	-0.39***	-0.035***	-0.376***	0.022***
	(0.004)	(0.007)	(0.004)	(0.007)
80	-0.381***	-0.037***	-0.376***	0.022***
	(0.004)	(0.007)	(0.005)	(0.007)
84	-0.373***	-0.039***	-0.38***	0.017**
	(0.004)	(0.008)	(0.005)	(0.007)

Note: The table shows the impact of having the first child (P_t^g defined in equation 2) on employment and earnings. Standard errors are in parentheses and have been bootstrapped (500 replications). Significance level: * < 10%, ** < 5%, *** < 1%.

Source: Authors' computation, using data from IDI.

Table A.2: Event-study estimates for employment and earnings, by gender and marital status

Months to/	Married				Divorced			
from birth	Employment		Earnings		Employment		Earnings	
	Female	Male	Female	Male	Female	Male	Female	Male
-60	-0.112***	-0.120***	0.035***	-0.040***	-0.094***	-0.045	0.080	-0.012
	(0.015)	(0.006)	(0.007)	(0.005)	(0.033)	(0.043)	(0.055)	(0.046)
-56	-0.1***	-0.115***	0.033***	-0.034***	-0.07**	-0.03	0.053	-0.029
	(0.014)	(0.006)	(0.007)	(0.005)	(0.032)	(0.041)	(0.049)	(0.042)
-52	-0.088***	-0.103***	0.036***	-0.036***	-0.087***	-0.024	0.088*	-0.011
	(0.014)	(0.006)	(0.006)	(0.005)	(0.03)	(0.039)	(0.048)	(0.037)
-48	-0.077***	-0.099***	0.032***	-0.03***	-0.063**	-0.007	0.077*	-0.017
	(0.013)	(0.005)	(0.006)	(0.004)	(0.03)	(0.035)	(0.042)	(0.035)
-44	-0.07***	-0.089***	0.032***	-0.026***	-0.042	0.007	0.059	-0.026
	(0.013)	(0.005)	(0.005)	(0.004)	(0.029)	(0.034)	(0.037)	(0.035)
-40	-0.057***	-0.077***	0.031***	-0.027***	-0.055**	0.012	0.088**	-0.012
	(0.012)	(0.005)	(0.005)	(0.004)	(0.026)	(0.03)	(0.035)	(0.03)
-36	-0.045***	-0.065***	0.03***	-0.022***	-0.044*	0.028	0.042	-0.033
	(0.011)	(0.004)	(0.005)	(0.004)	(0.026)	(0.03)	(0.031)	(0.028)
-32	-0.035***	-0.053***	0.025***	-0.021***	-0.026	0.04	0.028	-0.033
	(0.011)	(0.004)	(0.004)	(0.003)	(0.023)	(0.027)	(0.027)	(0.026)
-28	-0.022**	-0.039***	0.025***	-0.019***	-0.031	0.019	0.066**	-0.024
	(0.009)	(0.003)	(0.004)	(0.003)	(0.02)	(0.025)	(0.026)	(0.025)
-24	-0.009	-0.024***	0.02***	-0.01***	-0.045**	-0.002	0.016	-0.04**
	(0.008)	(0.003)	(0.003)	(0.003)	(0.018)	(0.02)	(0.021)	(0.02)
-20	-0.001	-0.012***	0.011***	-0.006**	-0.027*	-0.014	0.031	0.03
	(0.007)	(0.002)	(0.003)	(0.003)	(0.015)	(0.017)	(0.02)	(0.022)
-16	-0.001	-0.006***	0.009***	-0.004	-0.015	-0.003	0.02	-0.014
	(0.005)	(0.002)	(0.003)	(0.002)	(0.012)	(0.014)	(0.019)	(0.021)
-12				*reference*				
-8	-0.001	0.004**	-0.011***	0.003	-0.008	0.008	0.036**	-0.001
	(0.004)	(0.002)	(0.003)	(0.002)	(0.012)	(0.015)	(0.018)	(0.021)
-4	-0.015***	0.012***	-0.026***	0.008***	-0.069***	0.002	0.006	-0.003
	(0.006)	(0.002)	(0.003)	(0.002)	(0.017)	(0.017)	(0.021)	(0.02)
8	-0.589***	0.008**	-0.421***	0.021***	-0.528***	-0.007	-0.306***	0.014
	(0.005)	(0.004)	(0.005)	(0.003)	(0.023)	(0.023)	(0.035)	(0.025)
12	-0.391***	0.004	-0.365***	0.015***	-0.367***	-0.024	-0.219***	0.006
	(0.007)	(0.004)	(0.004)	(0.003)	(0.025)	(0.027)	(0.034)	(0.026)
16	-0.352***	0	-0.321***	0.018***	-0.344***	-0.029	-0.18***	0.041
	(0.008)	(0.004)	(0.004)	(0.003)	(0.024)	(0.027)	(0.031)	(0.03)
20	-0.379***	-0.001	-0.316***	0.018***	-0.343***	-0.033	-0.207***	0.014
	(0.008)	(0.005)	(0.004)	(0.004)	(0.025)	(0.029)	(0.03)	(0.032)
24	-0.432***	-0.002	-0.319***	0.018***	-0.362***	-0.019	-0.202***	0.013
	(0.008)	(0.005)	(0.004)	(0.004)	(0.025)	(0.031)	(0.034)	(0.032)
28	-0.477***	-0.004	-0.326***	0.021***	-0.357***	-0.015	-0.229***	-0.008
	(0.008)	(0.006)	(0.005)	(0.004)	(0.025)	(0.033)	(0.034)	(0.032)
32	-0.499***	-0.004	-0.342***	0.022***	-0.346***	-0.038	-0.169***	-0.005
	(0.008)	(0.006)	(0.005)	(0.004)	(0.026)	(0.035)	(0.034)	(0.035)
36	-0.498***	-0.008	-0.357***	0.025***	-0.315***	-0.055	-0.21***	0.000
	(0.009)	(0.006)	(0.005)	(0.005)	(0.029)	(0.035)	(0.037)	(0.037)
40	-0.476***	-0.010	-0.361***	0.024***	-0.268***	-0.050	-0.214***	-0.007
	(0.01)	(0.007)	(0.005)	(0.005)	(0.031)	(0.039)	(0.037)	(0.038)
44	-0.455***	-0.011	-0.363***	0.025***	-0.25***	-0.06	-0.176***	-0.009
	(0.010)	(0.007)	(0.005)	(0.005)	(0.031)	(0.040)	(0.040)	(0.039)

Continued on next page

Months to/	Married				Divorced			
	Employment		Earnings		Employment		Earnings	
from birth	Female	Male	Female	Male	Female	Male	Female	Male
48	-0.44***	-0.014*	-0.359***	0.026***	-0.218***	-0.046	-0.213***	-0.037
	(0.011)	(0.007)	(0.005)	(0.006)	(0.034)	(0.044)	(0.038)	(0.041)
52	-0.425***	-0.017**	-0.357***	0.03***	-0.201***	-0.058	-0.176***	-0.029
	(0.012)	(0.008)	(0.005)	(0.006)	(0.036)	(0.045)	(0.041)	(0.044)
56	-0.416***	-0.018**	-0.359***	0.025***	-0.183***	-0.053	-0.204***	-0.05
	(0.012)	(0.008)	(0.006)	(0.006)	(0.038)	(0.046)	(0.043)	(0.043)
60	-0.413***	-0.021**	-0.366***	0.03***	-0.197***	-0.068	-0.176***	-0.034
	(0.013)	(0.009)	(0.006)	(0.007)	(0.039)	(0.05)	(0.044)	(0.046)
64	-0.400***	-0.024***	-0.37***	0.031***	-0.168***	-0.056	-0.192***	-0.044
	(0.013)	(0.009)	(0.006)	(0.007)	(0.041)	(0.052)	(0.046)	(0.048)
68	-0.391***	-0.025***	-0.373***	0.027***	-0.143***	-0.071	-0.203***	-0.038
	(0.014)	(0.010)	(0.006)	(0.007)	(0.043)	(0.052)	(0.05)	(0.049)
72	-0.384***	-0.027***	-0.378***	0.030***	-0.144***	-0.065	-0.184***	-0.041
	(0.015)	(0.01)	(0.006)	(0.008)	(0.044)	(0.056)	(0.047)	(0.051)
76	-0.374***	-0.027**	-0.378***	0.029***	-0.142***	-0.086	-0.213***	-0.060
	(0.015)	(0.01)	(0.006)	(0.008)	(0.045)	(0.056)	(0.05)	(0.052)
80	-0.364***	-0.029***	-0.377***	0.030***	-0.144***	-0.097*	-0.196***	-0.059
	(0.016)	(0.011)	(0.006)	(0.008)	(0.048)	(0.057)	(0.052)	(0.053)
84	-0.354***	-0.030***	-0.381***	0.025***	-0.146***	-0.100*	-0.183***	-0.056
	(0.017)	(0.011)	(0.007)	(0.009)	(0.049)	(0.06)	(0.057)	(0.054)

Note: The table shows the impact of having the first child (P_t^g defined in equation 2) on employment and earnings, by marital status. The sample of married parents is re-weighted to match the distribution of the divorced parents using the following variables: (i) the child was born before 2012; (ii) the mother was aged below 30 at the time of the birth; (iii) the mother has a Bachelor's degree; and (iv) the mother had a second child within the next seven years (84 months). Standard errors are in parentheses and have been bootstrapped (500 replications). Significance level: * < 10%, ** < 5%, *** < 1%.
Source: Authors' computation, using data from IDI.