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**The Unintended Effect of Paternity Leave on Union Stability:
Evidence from the Quebec Parental Insurance Program**

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Abstract

The transition to parenthood is often stressful, as parents balance work and family responsibilities and adjust to new social roles. Paid parental benefits policies are explicitly aimed to encourage return-to-work and enhance infant health. However, some recent policies also aim to equalize housework and paid work within families by earmarking weeks of parental benefits for fathers that cannot be transferred to mothers. We examine two theoretical frameworks from sociology and economics to highlight potential mechanisms through which such policies may increase or decrease union dissolution, and why the direction and magnitude of the effects might differ across subpopulations. Then, using population-level administrative data, we examine how the Quebec Parental Insurance Program affected union dissolution. We find that overall, the policy decreased the divorce/separation rate by 0.6% points, a 7% reduction in the rate overall (intent-to-treat). Further, we find that the effect of fathers using parental benefits on the risk of divorce (treatment-on-treated) is more than double the intent-to-treat estimate. The policy had the greatest effects in reducing union dissolution among couples likely to be more egalitarian in orientation, and led to no increase in divorce, even in the most traditional couples.

Keywords: policy, parental leave, divorce, family

Introduction

The transition to parenthood and early years of childrearing is a period of high stress for parents as they balance work and family responsibilities and adjust to new social roles. Parental benefits policies are explicitly aimed to help new parents balance work and family life by giving them job-protected leave from work, financial support, and encouraging return-to-work, earnings and saving in the longer term. Some recent policies have an additional aim – to increase father’s use of parental leave in order to encourage new fathers’ engagement in childrearing and more equal allocations of housework and paid work within families.

Given that the unequal division of labor is a source of stress and common cause of union dissolution after the transition to parenthood (Cowan & Cowan 1995; Doss et al. 2009), these policies that encourage the equal allotment of paid and unpaid work may inadvertently decrease union dissolution. Although policy makers do not aim to decrease the divorce rate by keeping unhappy couples together, they may want to reduce household stress around parenting. There are four papers that have examined how recent Nordic policies that earmark parental benefits for fathers have affected union dissolution. These studies find mixed results, with one study from Iceland finding the policy decreased separation (Steingrimsdottir & Vardardottir 2015), another from Sweden finding that the policy increased separation (Avdic & Karimi 2018), and two finding no effect in Norway (Cools et al. 2015; Hart et al. 2019).

Since parental benefits earmarked for fathers are being implemented in more contexts over time (Blum et al. 2017), it is important to understand how these policies can shift union stability, how the effects might differ across subpopulations and why. In this paper, we examine two theoretical frameworks from sociology and economics to examine different mechanisms through which policies that earmark paternity benefits may increase or decrease union

dissolution, and how the direction and magnitude of the effects might differ across subpopulations. Next, we use population-level administrative data to empirically examine how a parental benefits extension in the province of Quebec in Canada affected union dissolution overall and across different subpopulations. This paper makes two contributions. This is the first paper conducted outside of Scandinavia addressing this topic. Because Scandinavian countries have the highest levels of gender equality in the world, the results from these studies may not be as generalizable to other countries considering such policies. Second, in addition to estimating the effects of the policy on the level of union dissolution with intent-to-treat estimates, as the existing papers have done, we make a methodological improvement in this area by answering the question from the individual father's perspective with the treatment-on-treated estimates – the effect of *using* parental benefits on the risk of union dissolution. We then use these estimates to examine whether the effects of father's use of benefits are heterogeneous across more egalitarian or traditional couples.

Parental Benefits Policies Aimed at Gender Equality

The transition to parenthood is a time when social roles often become more traditional within heterosexual couples. The fact that mothers, and not fathers, experience pregnancy and childbirth often means that women have healing to do and need time off work to physically recover. The fact that only women can breastfeed may make it easier for the mother to do early childcare alone than for men. These biological differences are often explicitly discussed when new parents are deciding how to share paid parental benefits. In places where there are weeks of parental benefits to share, it is common for women to use most or all of the time, and these biological differences are often cited (McKay & Doucet 2010). Policies that reserve weeks of leave just for fathers make it easier for fathers to take time off to care for children and make it

easier for fathers who want to use it to bargain for within the couple and the workplace (McKay & Doucet 2010; Tremblay 2010). Those are the mechanisms through which these policies aim to affect the division of labor within the family and thereby lessen the big tension of trying to balance work and family demands for couples with young children.

Policies that reserve weeks of parental leave for fathers were first introduced in Nordic countries. Norway implemented the “daddy quota” in 1993. Four weeks of paid parental benefits (of 42 weeks) were earmarked for each parent (Bruning & Plantenga 1999) and could not be transferred from fathers to mothers as had been common. It has since been extended various times, to 5 weeks in 2005, 6 weeks in 2006, 10 weeks in 2009, 12 weeks in 2011, 14 weeks in 2013, and 15 weeks in 2018 (Lappegard et al. 2019). Similar policies were implemented in Sweden in 1995 (4 weeks), 2002 (8 weeks), and 2016 (12 weeks) (Ekberg et al. 2013; Lappegard et al. 2019), Iceland in 2001 (4 weeks), 2002 (8 weeks), and 2003 (12 weeks) (Arnalds et al. 2013), the province of Quebec in Canada in 2006 (Marshall 2008), and Germany in 2007 (Kluve & Tamm 2013). Many countries offer some leave time for fathers for just after a birth (for most countries the length is between 2 days and 2 weeks) and a smaller subset offer additional weeks of leave for after the birth that is non-transferrable to the mother with some countries offering additional leave or a financial incentive if both parents use benefits (see Blum et al. 2017 for more details about the length, transferability, and degree of earnings replacement).

Each of these policies that reserved weeks of benefits for fathers has led to an increase in the share of fathers who use parental benefits (Norway: Bruning & Plantenga 1999; Sweden: Ekberg et al. 2013; Sundstrom & Duvander 2002; Duvander & Johansson 2012; Iceland: Arnalds et al. 2013; Quebec: Patnaik 2018; Margolis et al. 2018; and Germany: Kluve & Tamm 2013). In most contexts, there is evidence that these policies have led to more equal sharing of housework

and/or care work. For example, the Norwegian policy led to parents doing more equal household labor in the long run (Kotsadam & Finseraas 2011), in Iceland, the policy led to children being born after the policy receiving considerable more care from their fathers (Arnalds et al. 2013), in Sweden, the “daddy month” reform led to fathers spending more time with their children, but no changes in shares of leave taken for sick children, a measure of household work (Ekberg et al. 2013). In Quebec, the paternity leave policy had large and persistent effects on father’s increased home production and mothers’ time at work (Patnaik 2018). Only the German reform did not seem to affect how parents share childcare (Kluve & Tamm 2013).

Theoretical Perspectives on Parental Benefits and Union Dissolution

We rely on two longstanding perspectives in sociology and economics to draw out predictions about how gender equality focused policies might affect union dissolution, and how the same policy may have different effects for different types of couples with specific orientations towards specialization. We refer to them as the traditionalist and egalitarian frameworks.

The traditionalist framework’s building blocks were first articulated by Durkheim, and then Parsons and Becker. This tradition argues that specialization within marriage enhances social integration and union stability. Therefore, when a policy seeks to promote similar gender roles, this could decrease the utility gained from the union or lead to increased role conflict. Both of these mechanisms would predict higher union dissolution.

In 1893, Durkheim addressed the issue of specialization in promoting social integration in his book *The Division of Labor in Society*. In his framework (1960), there are two kinds of social solidarity – one based on similarity (mechanical solidarity), and the other on the

interdependence produced by the division of labor (organic solidarity). These ideas are used to explain occupational differentiation and its effects on social integration, but Durkheim also applies them to the sexual division of labor. As an example of organic solidarity, he writes, “the most remarkable effect of the division of labor is not that it increases the output of functions divided, but that it renders them solidary...Permit the sexual division of labor to recede below a certain level and conjugal society would eventually subsist in sexual relations pre-eminently ephemeral” (Durkheim 1960: 60-61). For Durkheim, the sexual division of labor is necessary for social and moral order. This idea was again articulated in sociology when Parsons (1949) wrote that sex-role segregation is functionally necessary for marital stability and for the viability of society because it prevents competition between spouses. He writes “it is scarcely conceivable that the main lines of the present situation could be altered without consequences fatal to the total of our unique society” (Parsons 1949: 268). Both theorists see the division of labor as keeping marriages running smoothly.

Becker’s theory of marital dissolution (Becker et al. 1977) also sees specialization as an integrative mechanism, but for different reasons. This theory of marriage is framed in a trading model in economics based on comparative advantage. In this framework, the major gain to marriage arises because spouses specialize in certain functions (typically, women in domestic production and men in market work) and this specialization creates an interdependency between spouses. The gain to marriage is based on trading the outputs of these different skills. Having children is thought to be a stabilizing force since children increase the gains from sex specialization. For Becker, if specialization is reduced, and one spouse moves into the other person’s arena, the gains to marriage decline and union dissolution becomes more likely.

There are two mechanisms whereby a policy that encourages men to take leave to care for children might *increase* union dissolution under the traditionalist framework. First, if we treat traditional preferences or values as given, then a policy which encourages men to take time off to do parenting might diminish a couple's total utility by putting them into non-traditional circumstances. The marriage may be less utility-enhancing in this new world and the lower utility may lead to a higher risk of union dissolution. A second mechanism is that couples who used to specialize might have higher levels of role conflict caused by the policy, as men are being encouraged to do a task that had not been in their plan, and the new stress and role strain lead to a higher risk of union dissolution. Incentives for gender equality in parenting could cause relationship conflict if expectations for parenting are unclear, changing, or not agreed upon. This would increase the risk of separation.

A second perspective, which we refer to as the egalitarian perspective, was articulated by Oppenheimer who argued that role flexibility within a union, not sex specialization, promotes union stability (Oppenheimer 1994; 1997). Her "flexibility model" highlights unrealistic assumptions about the benefits of the specialization model of marriage. For example, the specialization model generally assumes that the conditions are favorable and the family's needs are unchanging over time. Sex role specialization is a high risk and inflexible strategy for the family with considerable costs for individuals and society, if for example, a temporary or permanent loss of one specialist in the family leads to key duties in the family no longer being performed. This could be a husband/father becoming ill or dying, losing their job, or not supporting the family, or a wife/mother affected by a health shock leaving no one to care for children. In a modern world without lifelong employment or extended family households to help in case of a shock, sex role specialization puts the family at high risk. Oppenheimer argued that

shared responsibility for both income and housework/childcare makes marriages stronger by reducing income risk. She writes that flexibility is key to dealing with changes in a family's internal composition and with the stresses posed by its environment. For Oppenheimer sex role specialization is just too risky, and shared responsibility is a rational risk reduction strategy, which ends up strengthening marriages.

Another framework with which to view the links between gender equality and union stability is the gender revolution (Goldscheider et al. 2015). This perspective argues that union dissolution risks are high when men's participation in family obligations has not yet become equal to women's. Policies that encourage more equal sharing of both paid and unpaid work will relieve women of the "triple burden" of employment, household work and care work, and will thereby increase relationship satisfaction and decrease union dissolution.

There are three mechanisms that flow from these frameworks through which a policy that encourages men to be more involved in childcare might *decrease* union dissolution. The first is a direct implication of Oppenheimer's framework. A new leave policy makes shared responsibility for childcare more common, and this reduces risk within households, and the reduced risk makes union dissolution less common because couples are experiencing lower levels of risk that challenge their unions. A second mechanism works through reducing role conflict. Psychologists have shown that one of the main pathways through which having children reduces marital satisfaction is by redefining relationship roles to be more traditional in couples that prefer egalitarian roles (Twenge et al. 2003). This shift towards traditional roles increases stress, so a policy which encourages equal roles would increase marital satisfaction by reducing role conflict, and thereby decrease union dissolution, especially among couples that are more egalitarian in orientation. This mechanism can be thought of a feminist theory, where the policy

increases shared responsibility and makes happier partners in a more egalitarian marriage which stabilizes unions. A third mechanism is another kind of feminist idea whereby the policy might increase the bargaining power of women (Breen & Cooke 2005), since societal expectations have shifted with the new policy. Stronger women may be better able to get their partners to do childcare, which then in turn strengthens unions (Goldscheider et al. 2015; Lappegard et al. 2019).

The direction of the policy effect and the mechanism at work are both important for whether the policy may be desirable. For example, if the traditionalist perspective is correct in predicting an increase in divorce, it could be desirable to some but not others. If the increase in divorce occurs because it's accelerating the contradictions between antiquated relationship norms and the structure of gender equality in society, then this may be desirable for feminists but perhaps not for others. If the egalitarian perspective is correct in predicting a decrease in divorce through happier and more empowered female partners and stronger relationships, this may be a huge moral justification for such a policy.

Empirical Evidence: Mixed Results and Heterogeneous Effects

A recent paper examines whether fathers who used parental leave in Norway, Sweden and Iceland have lower union dissolution risks. This paper does not causally examine the effects of specific policy changes, but examines the associations between the endogenous use of parental leave of men and their union dissolution risks (Lappegard et al. 2019). They find that fathers who use parental leave have lower risks of union dissolution than those who do not, and this finding is consistent across the three countries. This paper might overestimate the differences in union dissolution between couples where fathers use benefits and those who do not because fathers

who use parental leave may be more committed to the relationship and to the family than those who do not, and this may bias the results.

There are only four papers that examine how parental benefits policies that encourage men to take leave affect union dissolution. All four papers investigate the intent-to-treat, which can be interpreted as the effect of the policy on the overall level of separation/divorce. Below, we describe each paper and explain the context for the findings.

The first paper examines how an Icelandic policy, which implemented one month of paid parental leave for fathers in 2001, affected marital stability over 10 years (Steingrimsdottir and Vardardottir 2015). They use a difference-in-differences approach using a small sample of Icelandic parents. They compare union dissolution for couples who had a child born in the three months after the reform compared to those who had a child born in the same months but one year earlier. They find that overall, the policy led to a large (6 percent) decrease in separation/divorce. However, their limited sample size makes the estimate imprecise. In addition to the large overall negative effect on union dissolution, the authors also investigate whether the size of the effect varies for different subpopulations, expecting that the stabilizing effect of paternity leave on unions should be strongest among parents who aim for equal division of labor at home, rather than those who prefer to specialize. They stratified their analysis by relative education as a proxy for specialization and find the decrease in separation/divorce is strongest among parents who have the same level of education. There were no significant effects for those with unequal levels of education, but the direction of the effect points towards a decrease in divorce among those with couples where woman is more educated than her partner, and the direction is an increase in divorce for couples with fathers having more education.

Two other papers examine the effects of similar paternity leave policy in Norway on families (Cools et al. 2015; Hart et al. 2019). One policy reserved four weeks of leave for fathers, which could not be taken by the mother. Another examined the increase of the paternity quota from 6 to ten weeks. These analyses used the same empirical strategy as the Icelandic paper, examining parents who had children just before and after the reforms. They both find no effects on union dissolution.

A third paper examines how a 1995 reform implementing one month of leave reserved for fathers affected union stability in Sweden (Avdic & Karimi 2018). They also use a difference-in-differences framework and examine parents whose child was born in a 12-month window, either before or after the reform. This paper documents a small increase in divorce over three years due to the paternity leave policy (about one percentage point). The authors stratified by level of mother's pre-birth income, and find that the findings were concentrated among couples where the mother had low incomes. They argue that the small increase in divorce due to the 1995 reform was due to dynamics among low-income families, whereby the fathers that were induced to take leave by this policy were those who were more traditional, and had not planned to take any leave (the more egalitarian fathers were already using parental benefits and thus were not affected by this reform). Hence, they argue that the reform did not fit the norms of gendered division of labor within the households of this subpopulation affected. Hence, at the time, the policy may have increased role conflict within certain subsets of the population. They also find that a second reform in 2001 which reserved even more paid leave for fathers had no effect on divorce rates.

The mixed results from the three Nordic studies examining the policy changes point to the need to understand why similar policies which incentivize men to take parental leave might

have varied results in different places. Moreover, the results from Sweden and Iceland highlight that the policies affected some subpopulations more than others. It could be that both the traditional and egalitarian frameworks can explain how parental benefits affect union dissolution, but for different segments of society. The traditional framework might describe the dynamics of couples with traditional gender roles, where parental leave for men might increase union dissolution like was found among low income couples in Sweden, and the proposed mechanisms might also apply to foreign-born fathers, low income couples, couples where the father is the sole breadwinner, or couples with large age gaps between them. The egalitarian framework might better explain how these policies might lower rates of union dissolution among couples with more similar incomes, higher levels of education, native-born Canadians, and couples of similar ages. This accords with the finding from Iceland where the decrease in divorce due to the policy was greatest among couples with similar levels of education.

Parental Benefits in Canada

Canada is an important context for those interested in paid parental benefits policies, especially in North America because the current federal policy offers a similar length of paid time off to many European countries, but at the low end of earnings replacement compared to what is generally offered in Europe. That said, on both dimensions of length of time off and earnings replacement, the Canadian policy is much more generous than the United States. Canada's paid maternity benefits policy was instituted in 1971, and it was extended in 1990 and 2001, becoming more generous each time. As of 2001, the federal policy included 15 weeks of maternity benefits (for the birth mother) and an additional 35 weeks for parents to share, all paid at a rate of 55% of earnings up to \$413/week (HRSDC 2005).

As of January 1, 2006, Quebec instituted its own Parental Insurance Plan (QPIP) which replaced the federal Employment Insurance Parental Benefits Program (PBP) for administering paid benefits to new birth or adoptive parents in the province of Quebec. The parental benefits plan described above remained in effect in all other provinces. The 2006 policy change in Quebec had two main aims. First, it aimed to increase fathers' use of benefits. Second, its longer-term aim was to break down gender stereotypes and promote gender equality by changing the expectation that women in the labor force would be doing more parenting than men. Quebec's 2006 policy made five important changes. First, it instituted a new five-week non-transferable leave for fathers. Second, it increased benefit rates from 55% of average earnings, to a maximum of \$413 per week, to 70% of average earnings to a maximum of \$767 per week (Marshall 2008). Third, it allowed for more flexibility in the time and replacement rate of benefits with two options that parents should choose from. The non-transferable leave for fathers, along with the higher levels of pay and flexibility, were all designed to increase use among fathers. Fourth, QPIP increased eligibility for parental benefits by including self-employed people and removing the work hours requirement and replacing it with requiring at least \$2,000 of earnings in the last year. Last, it eliminated the two-week waiting period for benefits. These last two parts of the reform were aimed to broaden eligibility for workers with low earnings.

Patnaik (2018) is the only study that has examined the effects of QPIP on family dynamics. Her findings show that QPIP narrowed the gender gap in parental leave participation, increased mother's time spent on market work 1-3 years later, and increased fathers' time spent on housework and childcare. The effects of QPIP on union stability is unknown.

The Current Study

In this analysis, we examine how Quebec's 2006 parental benefits extension affected union stability. First, we can answer this question from the policy maker's perspective with the intent-to-treat estimates – the effect of the policy on the level of union dissolution. A second way to answer this question is from the individual father's perspective with the treatment-on-treated estimates – the effect of *using* parental benefits on the risk of union dissolution. Last, we estimate whether there were heterogeneous effects of using benefits from the policy extension on union stability.

Data

Our analysis is based on longitudinal administrative data. The primary source for data is the T1 Family File (T1FF) which Statistics Canada aggregates from the primary tax return (the T1 form). The T1FF includes all individuals who filed an individual tax return, their non-filing spouses, and children who live with their parent. These data have almost complete coverage of Canada's population, accounting for about 96% of Canada's total population in 2014 (Statistics Canada 2016). The T1FF can also be used to identify parents with newborns (defined as children born in the tax/calendar year). Since the institution of the Universal Child Care Benefit in 2005, there is extremely high coverage of newborns in the administrative tax files, with the tax data capturing between 96% and 98% of births in vital statistics (Hou et al. 2017). We link individuals in the administrative data across multiple years using a unique person identifier, capturing characteristics of parents in the year before a birth, the birth year, and the following years (e.g., age, marital status, number of children, earnings, and parental benefits). These data represent population-level longitudinal data to examine the effects of a policy change on family

dynamics over time, and a large enough sample to examine heterogeneous effects across subpopulations.

Our analytic sample focuses on fathers who had a newborn child between January 2005 and December 2006, one year before or after the parental benefits extension (January 2006). We restrict our sample to fathers we observe in the pre-birth year, birth year, and one year after the birth year and those who reported as married or living common law with the same spouse/partner in the pre-birth and birth years and had a valid spouse in the year before the child's birth (N=539,108). We also restrict the analytic sample to those aged 18-45 in the birth year and those who live in Canada in the birth year, pre-birth year, and five years after the birth year (N=435,608). Two percent of these parents have a child in both 2005 and 2006, and in this case, we consider the 2005 birth the focal birth. These restrictions leave us with the analytic sample of 425,171 fathers. There is a small amount of attrition over time, with 420,579 fathers seven years after the birth.

The outcome of interest is separation or divorce five years after the birth year. We code this as occurring if the individual reports being married or living common law with a partner in the year of and the year before the birth, but divorced, separated, single, or married or common law with a new partner five years after the birth. We also test for separation/divorce two to eight years after the birth (Figure 1).

The key independent variables are exposure to the QPIP reform for 'intent-to-treat' (ITT) estimates and individual-level use of parental leave for 'treatment-on-treated' (TOT) estimates. Exposure to the QPIP is measured by a dummy variable indicating if the individual had a child born in 2006 and lived in Quebec in the birth year. For individual-level use of the benefit, we define use of parental benefits based on individuals' receipt of benefits over and above the level

of unemployment benefits.¹ Other variables include demographic information from the T1FF such as gender, age, marital status, province of residence, number of existing children before the focal birth, and individual earnings and total family income measured in the year before the focal birth. We also use immigrant status extracted from the administrative Longitudinal Immigration Database.

Methods

To examine the effects of the 2006 parental benefits policy extension in Quebec on union dissolution, we use two estimation strategies. The first is an intent-to-treat estimator (ITT) which gives the effect of the reform on union dissolution overall. This answers the question of the effect of the policy on union dissolution from the policy maker's perspective. We estimate the ITT effect of the policy on union dissolution using a difference-in-differences estimator as shown in equation 1.

$$y_{it} = \lambda_1 \text{Quebec}_i + \lambda_2 \text{Post}_t + \lambda_3 \text{Quebec}_i \cdot \text{Post}_t + \mathbf{X}_{it} \pi + \varepsilon_{it} \quad (1)$$

In this model, we compare the probability of union dissolution between those who benefited from QPIP (those who lived in Quebec and had a child in 2006) compared to those who did not benefit from QPIP (i.e. parents living outside of Quebec or parents who had children in Quebec in 2005 before the reform). The outcome is the variable y_{it}^τ , which takes the value 1 if the couple divorced/broke up τ years after having the child (in year t) and zero otherwise. The variable *Quebec* is a dummy variable indicating whether the family was residing in the province of Quebec or in the rest of Canada in the year of the focal birth. *Post* is a dummy variable indicating

¹ Parental benefits and unemployment benefits are funded by the same source and are often indistinguishable on the tax forms except from the level of benefits if employer (record of employment) forms are not filled out, which they often are not. We also examined other definitions of benefits use and found that this is preferable.

whether the family had the focal child in 2006 (the year of the QPIP reform in Quebec) versus 2005. The interaction term $Quebec_i \cdot Post_t$ indicates the effect of being exposed to the policy by having a child in Quebec after the reform as opposed to living in Quebec before the reform or in another province. The key coefficient in the above model is the interaction term measuring the ITT effect of the policy. This represents the effect of being offered extended leave on whether the union dissolves, whether or not the father used the benefits. This analysis is similar to the approach used by the three papers that we reviewed in the Literature Review (Avdic & Karimi 2018; Cools et al. 2015; Steingrimsdottir & Vardardottir 2015).

In order for the above model estimate to be a causal effect, there cannot be any selection in or out of the treatment group (parents in Quebec who had children in 2006). Patnaik (2018) finds no evidence that parents moved systematically between provinces around the reform. Another assumption that must hold for the model to estimate a causal effect is that couples cannot self-selected into having children because of the reform. We examine this by checking the fathers' average age at the time of the of birth of the focal children in our analysis (in 2005 and 2006). Our descriptive results find that over the study period, the age of the parents remains stable across provinces and across time and provinces leading us to believe that there is no selection into fertility because of the reform. Moreover, there were no major changes in child care policy in Quebec during either 2005 or 2006.

The second part of our analysis estimates the local average treatment effect (LATE), the effect of *using* parental leave on union dissolution among those use the benefit. To do some, we use the Wald difference-indifferences estimator (Wald-DID) approach, a type of instrumental variable (Chaisemartin & D'Haultfoeille 2017). This analysis is motivated by the fact that the use of parental benefits is endogenous because individuals who are more likely to use benefits

may also be more committed to staying on in a relationship compared to individuals who are less likely to use parental benefits. In order to estimate the causal effect of using benefits on union dissolution we use the QPIP reform as an instrumental variable. That is, we use being exposed to QPIP as a variable that increases the use of benefits but that has no direct effect of union dissolution.

First, we predict whether a father uses parental benefits:

$$Takeup_{it} = \gamma_1 Quebec_i + \gamma_2 Post_t + \gamma_3 Quebec_i \cdot Post_t + \mathbf{X}_{it} \boldsymbol{\delta} + \varepsilon_{it} \quad (2)$$

where $Takeup$ indicates whether the i^{th} father used parental benefits in the year t of the birth of the child and the interaction term $Quebec_i \cdot Post_t$ is our instrumental variable as we assume that living in a particular province is uncorrelated with any unobservable variable, conditional on any average pre/post differences across the QPIP reform (captured by “Post”) and any average differences between Quebec and other provinces (captured by “Quebec”). The model also controls of a vector of covariates, X_{it} including dummy for legal marriage and dummies for province of residence and cubic polynomials in age.

Second, we model whether using parental benefits affects separation/divorce. The outcome is the variable y_{it}^{τ} , which takes the value 1 if the couple divorced/broke up τ years after having the child (in year t) and zero otherwise. The equation of interest thus looks like:

$$y_{it}^{\tau} = \beta_1 Takeup_{it} + \beta_2 Quebec_i + \beta_3 Post_t + \mathbf{X}_{it} \boldsymbol{\beta} + e_{it} \quad (3)$$

where β_1 measures the average effect of taking up leave on divorce/breakup τ years after having the child.

By estimating fitted values of take-up based on equation 2 and inserting the fitted values in equation 3, we purge all endogenous variation in use of benefits, as the fitted values of use now only contain exogenous variation given the assumption that movements in and out of

Quebec are independent of the error terms in (2) and (3). This improves upon the way that past research has examined the effect of using benefits. All existing papers examine the ITT effect, which includes families who did not use the benefit, and therefore may underestimate the effect of use among those who use it. This is the contribution that our paper makes to answering the question and we find that results of benefits use are about twice as large as the intent-to-treat effect.

Results

Table 1 provides descriptive characteristics of the fathers in the estimation sample in Quebec and the rest of Canada, by whether they had the focal child just before the reform in 2005 or just after the reform in 2006. The top of the table presents three characteristics of fathers in the birth year: the proportion of fathers who used parental benefits, their age, and whether they were legally married or common-law. There were no changes in the use of parental benefits for fathers outside Quebec (where the policy did not affect them) from 2005-2006, where 13% of fathers used benefits. However, in Quebec, the use of parental benefits before the policy was twice as high compared to the rest of Canada, at 24%, and after the policy change, it increased dramatically to 66%. The average age of the new fathers in our sample is 33 years old; it's slightly lower in Quebec compared to the other provinces. Parents in Quebec are much less likely to be legally married than in the rest of Canada, with less than half of new fathers in Quebec being married at the time of the birth compared to almost nine out of ten fathers in other provinces.

The bottom of Table 1 shows the proportion of fathers separated three, five, and seven years after the birth year. Fathers in Quebec are much more likely to be separated in the years

following the focal birth, compared to those living in the rest of Canada. For example, separation rates in the rest of Canada increase from 4.7% three years after the birth to 7.6% five years after, and to 10.3% seven years after, but these do not seem to change around Quebec's 2006 reform. In Quebec, separation rates are higher than in the rest of Canada, and they are lower post-reform than before the reform. Separation rates were 6.8, 11.6, and 15.8 percent at three, five, and seven years after the focal birth before the reform and decreased to 6.5, 11.3, and 15.5 percent after the reform.

Table 2 displays descriptive characteristics of the fathers in the analytic sample, broken down by whether they were in Post-reform Quebec, Pre-reform Quebec, or the rest of Canada, and whether they used parental benefits or not. The first row presents separation rates. Among those not exposed to the reform (pre-QPIP Quebec and Rest of Canada), fathers who use parental benefits have higher separation rates than those who do not. However, in Quebec after the reform, there is essentially no difference in separation rates between those who use benefits and those who do not. Separation rates of fathers who did not use parental benefits were the same at 11.2% before and after the reform in Quebec, but separation rates of fathers who used benefits were 12.9% before the reform and 11.3% after the reform.

Outside of Quebec, the characteristics of fathers who use parental benefits and those who do not are similar. However, in Quebec, there are larger differences between fathers who use and do not use parental benefits. Fathers in Quebec who use parental benefits are more likely to be in a common-law relationship, have been born in Canada, and be under age 35 than fathers who do not use benefits. They are also more likely to have an age gap of two or fewer years with their partner. Before the focal birth, fathers who use parental benefits are more likely to have no children and have a partner contributing a similar share to family income. In terms of absolute

family income, those who do not use benefits are more likely to be from a low-income family and less likely to be from a middle-income family, whereas similar shares of fathers are from the top family income quartile. All the differences between fathers who use benefits and those who do not increase after the reform.

Next, we examine the effect of the policy extension on overall rates of union dissolution, in terms of the intent-to-treat. The first column on Table 3 presents the results from our difference-in-differences intent-to-treat estimates of the effects of QPIP on union dissolution five years after the birth. The first coefficient, the interaction between 2006 and Quebec shows that after controlling for legal marital status, province, and age, the parents whose child was born in Quebec after the QPIP reform are 0.6 percentage points less likely to be separated or divorced five years after the birth. As the average separation rate five years after birth is 8.6%, this effect size is equivalent to a 7% reduction.

Next, we examine what the effect of using parental benefits is on the risk of union dissolution, among those who use it. Compared to the intent-to-treat, this treatment-on-treated estimate should be larger, reflecting that not everyone is bound to be affected by the reform. The treatment-on-treated estimate is shown in the right column of Table 3, showing the effects of using parental leave on union dissolution five years after the birth of the focal child. We estimate that father's use of parental leave lowers the likelihood that a couple breaks up five years after birth by 1.4% points.

The results in Table 3 were estimated on couples five years after the focal birth. We next examine how stable the treatment-on-treated effects of the policy on union dissolution were by examining the effects over time. Figure 1 shows estimates from the treatment-on-treated Wald DID models separately for each year, from two to eight years after the focal birth. The estimated

coefficients for fathers are negative and decrease through the fifth year, and then get a little smaller and statistically insignificant for years six to eight. Our estimates suggest that the use of parental leave strengthens union stability for five years after a birth.

Last, we examine whether the effects of fathers using parental benefits (treatment-on-treated) vary by subpopulations. Table 4 shows the local average treatment effects of using QPIP on the probability of being separated or divorced five years after the birth, estimated separately by six categorical variables. The egalitarian perspective would predict that the strongest negative effects on union dissolution would be within egalitarian couples — those where both partners work and earned similar incomes before the birth, among native-born fathers, those with a small age gap between partners, and more recent cohorts of parents (younger parents). The traditional perspective would predict that the policy would increase dissolution among traditional couples where fathers are the sole breadwinner, foreign-born fathers, and couples with a larger age gap. We also expect that couples having a third child and couples in the lowest income quartile will have more traditional preferences, while those earning more will be more egalitarian in orientation. The right column of Table 4 notes our theoretical expectations for the findings.

The left column presents the results from the first stage of the estimation, predicting the effect of the policy on father's use of parental benefits, and although the size of the coefficient varies some across subgroups, the policy increased father's use across all segments of the population. The second column shows the 2nd stage coefficient, which is the effect of father's using benefits on the risk of union dissolution. The first three sets of stratifying variables show strong support for the egalitarian perspective. The negative effects of the policy on union dissolution are concentrated within families where both partners earned income before the birth (where males earn 40-60% or 60-99% of family income), and the effects are largest (-2.0%) in

couples where both partners earn about the same amount (40-60% each). There are no significant effects of the policy among couples where fathers earn all the income, or where females earn more than 60% of family income. Second, the policy had large negative effects among native-born fathers (-1.6%) but no significant effect among immigrant fathers. And third, the policy decreased union dissolution by 1.4% among couples similar in age (two-year age gap or smaller between partners) and no effect among those with a larger age gap. All of the subgroups for which we find negative effects of the policy are those hypothesized to be more egalitarian and results conform to these theoretical expectations.

Next, we examine whether the effects of the policy vary by father's age. Note that father's age is conflated with cohort, so we do not know whether the differences are due to age or birth cohort. We find that the policy had clear negative effects on union dissolution for fathers aged 30-34. The estimate for younger fathers is similar to those aged 30-34, but only significant at the .10 level. Among older fathers, there is no effect of the policy.

We examine whether benefits use matters similarly for families with no, one or two or more previous children before the focal child is born in 2005 or 2006. We find that using benefits decreased union dissolution among couples with one child born before the focal child. When the focal child is the first child, fathers' use has no effect on union stability five years after they become parents. For parents with two or more children, their bargaining power or division of labor are likely to be already determined before the focal child is born. For example, compared to fathers with fewer children, fathers in this subgroup may be more likely to have a stay-at-home wife before the birth year or to have a working wife with a plan to quit her job after birth of the child. Also, this group's smaller increase in benefits use due to the QPIP reform may be consistent with this story. When parents with an older child take parental leave, they spend time

in not only nursing the focal child but also taking care of the older child. In terms of household production, a father with two children produces and contributes more household services to the family compared to a father with only one baby.

Last, we examine whether the effects of using parental leave on union dissolution differ across different levels of pre-birth family income. We find the effects are strongest among families between median and 75th percentile income before the birth, but smaller and insignificant effects for the richest and bottom half of households.

To put the results from Table 4 into perspective, we show some descriptive statistics of the fathers in each population subgroup in Table 5. The left column shows the distribution of fathers in the sample by family characteristics, and the next three columns present the separation rates observed in those subpopulations in pre-reform Quebec, post-reform Quebec, and the rest of Canada. The groups that we found the strongest negative effects of fathers' use of benefits on union dissolution are not rare subgroups, but rather the majority of families. For example, families where the father earned 40-60% of families comprise 33 percent of families, and those where the father earned 61-99% of family income is 49.7 percent. We also found strong negative effects for native-born fathers, who represent 78 percent of fathers, and those with a small age gap (52 percent of fathers).

Discussion

The transition to parenthood can be stressful, as parents rebalance work and family responsibilities and adjust to caregiving. The formal aims of parental benefits policies are focused on employment and earnings-based outcomes – encouraging female labour force participation, earnings and savings, and health outcomes of children. Several recent policies have

had the additional aims of encouraging new fathers' engagement in childrearing and more equal housework and paid work within families. These policies were not aimed to affect union stability of couples, yet since the unequal division of labor is a common cause of union dissolution after the transition to parenthood (Doss et al. 2009), these policies that encourage the equal allotment of paid and unpaid work may inadvertently keep relationships stronger and decrease union dissolution.

Our findings show that the Quebec Parental Insurance Program instituted in 2006 decreased the divorce rate by 0.6 percentage points overall. From an average divorce rate of 8.6, this constitutes a 7% decrease, similar in direction and magnitude to the findings from Iceland (Steingrimsdottir and Vardardottir 2015). We also estimated the effect of fathers using parental benefits on their risk of divorce and found the effects to be about twice as much as the policy overall (1.4% points is the treatment-on-treated estimate). The size of these estimates is remarkable, especially given that most policies aimed to strengthen relationships such as the Building Strong Families Project and Supporting Healthy Marriage Project had *no effects* on union stability (Knox et al. 2012; Wood et al. 2010).

The mechanisms behind these findings can be understood with two competing theoretical perspectives. On the one hand, a traditionalist perspective argues that specialization within marriage enhances union stability, and a policy which encourages the more equal sharing of roles could destabilize unions, either by decreasing the utility gained from such a union, or by increasing role conflict (Becker 1973; 1991; Durkheim 1960; Parsons 1949). Our results did not show any strong support for the traditional perspective, which would expect the policy to increase union dissolution, especially among couples with a traditional orientation. However, we did find a positive treatment-on-treated estimate for the effect of using parental benefits

increasing divorce among couples where fathers were the sole earner before the birth (estimate was 3.4%). However, the result is not statistically significant and we note that this represents a small group, less than 3% of fathers. We found no positive coefficients for other groups where we'd expect a more traditional orientation, for example foreign-born parents, older cohorts, or those with two or more children).

On the other hand, the egalitarian perspective put forth by Oppenheimer (1994; 1997) argues that shared responsibility for both income and housework/childcare makes marriages stronger by reducing risk. Under this framework, a policy encouraging men to use parental benefits and share more equally in both paid work and childcare would *decrease* union dissolution. This could be through three different mechanisms. Flowing directly from Oppenheimer's theory, having more shared responsibility reduces risk within households and couples break up less often because they are experiencing lower levels of risk. It could also work through reducing role conflict by increasing happiness among mothers, or strengthening mothers by increasing their bargaining power. These mechanisms are likely stronger among couples who have an egalitarian framework before childbearing. As predicted by the egalitarian theoretical framework, there were strong effects on population subgroups that are more likely to be egalitarian in orientation. For example, the effect of men's use of leave on union dissolution was two percentage points lower among dual earner couples that earn similar amounts, native-born Canadians (1.6% points), and couples with a small age gap (-1.4% points). We also found similar sized negative effects on union dissolution for younger fathers, however, we interpret these results carefully since age and cohort cannot be distinguished between in our analysis. Last, the negative effects of men's use of benefits on union dissolution were strong among those with one

previous child (-2% points) and those between median and 75th percentile of the income distribution (-1.6% points).

This study has some limitations. First, we could not examine the health of the mother. It could be that relationships are strengthened by having the father around to help the mother recuperate from a birth, and through improved physical or mental health (Persson and Rossin-Slater 2019), the risk of dissolution is reduced. Our data did not allow the study of health as a mechanism. Further, we did not show comparable analysis on the effects of mother's use of benefits. This is because the 2006 reform did not increase mothers' use of benefits that much, since almost all eligible mothers were using maternity benefits that had been available long before the 2006 reform. Thus, the policy was not as strong as instrument for mother's use of benefits as it was for father's. Last, we cannot differentiate which of the changes that occurred in 2006, or which combination of them was most influential in leading to the large effects here. The higher earnings replacement was likely important in promoting men's use of leave in addition to the "daddy quota." However, because they were all implemented as a package, we cannot say how the effects would have differed with a slightly different policy mix.

The federal government of Canada recently implemented a five-week parental sharing benefit for couples who share paid parental benefits (Canada 2018). This policy provides an additional five weeks of parental benefits (on top of 15 weeks of maternity benefits and 35 weeks of parental benefits to share) if both parents use some benefits, and it is open to opposite sex, same sex and adoptive parents. The explicit justification for the policy is gender equality at home and in the workplace. This is similar to the Quebec policy in its mission and length of paid benefits being made available. However, the federal policy still has a lower earnings replacement rate than Quebec and higher eligibility criteria to qualify in terms of hours worked. Despite the

differences in eligibility and earnings replacement, the fact that there is now a period of parental benefits that cannot be taken by the mother is likely to shift expectations and time spent doing care work both at home and in the workplace, as has been seen in other contexts. Perhaps fathers' use will not be as high federally as has been seen in Quebec since earnings replacement is lower and use of parental benefits was already higher in Quebec before their policy extension. However, it is likely that the new policy will serve to increase men's child care and allow couples who strive for an egalitarian partnership to better implement that, and thereby have stronger unions.

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Tables

Table 1. Sample Characteristics of Fathers

	Quebec		Rest of Canada		Total
	2005 Births	2006 Births	2005 Births	2006 Births	
<u>Characteristics at the birth year</u>					
Use of parental benefits	24.5	66.4	12.7	12.7	20.9
Mean Age	32.6	32.7	33.1	33.3	33.1
Legally married (vs. common law)	46.3	44.0	89.8	89.2	78.5
Observations	50,954	53,644	160,298	160,275	425,171
<u>Separation Rates</u>					
3 years after the focal birth	6.8	6.5	4.7	4.8	5.2
5 years after the focal birth	11.6	11.3	7.6	7.7	8.6
7 years after the focal birth	15.8	15.5	10.4	10.3	11.6

Notes: Data are from Statistics Canada, the Historical T1 Family File. The sample for characteristics at the birth year is restricted to observations used in our analysis for separation five years after birth. Our sample is restricted to parents who had a newborn child between January 2005 and December 2006, reported as married to the same spouse or living as common law with the same partner in the pre-birth and birth year, were aged between 18 and 45 in the birth year, and were observed in the pre-birth year, birth year, and one year after the birth year.

Table 2. Descriptive Statistics: Fathers Who Used Parental Benefits Versus Those Who Did Not

	<u>Post-QPIP Quebec</u>		<u>Pre-QPIP Quebec</u>		<u>Rest of Canada</u>	
	Used Benefits (1)	Did not Use Benefits (2)	Used Benefits (3)	Did not Use Benefits (4)	Used Benefits (5)	Did not Use Benefits (6)
Separation rates five years after birth	11.3	11.2	12.9	11.2	8.6	7.5
<u>Characteristics at the birth year</u>						
Legally married	38.6	54.6	38.2	48.9	88.1	89.7
Native-born	87.4	72.7	88.7	80.8	74.7	76.0
Father's Age at Birth						
Under 30	29.3	23.9	34.0	27.3	24.0	23.6
30 to 34	40.1	33.9	38.2	37.2	36.7	37.4
35 or older	30.6	42.2	27.8	35.4	39.3	39.0
Age Gap between Parents						
2 or fewer years	51.6	46.0	50.6	49.0	50.8	52.4
3 years or more	48.4	54.0	49.4	51.0	49.2	47.6
<u>Characteristics at the pre-birth year</u>						
Number of Previous Children						
None	47.1	34.8	46.1	41.6	43.1	42.4
One	39.5	41.6	39.7	40.6	38.7	38.6
Two or more	13.4	23.6	14.2	17.8	18.2	19.0
Relative Income Earned of Total Family Income						
Male earns 100%	11.3	16.0	16.0	12.9	25.2	14.8
Male earns 60-99%	41.8	30.1	41.9	37.4	36.4	37.6
Male earns 40-60%	33.8	17.8	32.7	25.7	25.3	24.6
Male earns 1-40%	9.0	10.9	7.9	9.7	10.6	8.8
Female earns 100%	3.0	12.9	0.8	7.6	1.4	7.8
Missing	1.1	12.2	0.7	6.7	1.1	6.5
Absolute Income (Total)						
Q1	20.2	18.1	17.1	18.2	23.9	28.2
Q2	32.9	17.3	31.2	24.5	24.2	24.9
Q3	31.3	24.6	30.9	28.5	26.5	23.3
Q4	15.6	39.9	20.8	28.7	25.3	23.5
Missing	0.0	0.1	0.0	0.1	0.0	0.1
Number of observations	35,646	17,998	12,465	38,489	40,655	279,918

Notes: Data are from Statistics Canada, the Historical T1 Family File. The sample for characteristics at the birth year is restricted to observations used in our analysis for separation five years after birth. Our sample is restricted to parents who had a newborn child between January 2005 and December 2006, reported as married to the same spouse or living as common law with the same partner in the pre-birth and birth year, were aged between 18 and 45 in the birth year, and were observed in the pre-birth year, birth year, and one year after the birth year.

Table 3. Estimates of the Effects of QPIP on Union Dissolution Five Years after the Focal Birth

	ITT Estimates	TOT Estimates
Use of Parental Benefits	--	-0.014**
2006*Quebec	-0.006**	--
2006 birth (2005 birth)	0.001	0.001
Province (Ontario)		
Newfoundland and Labrador	0.003	0.003
Prince Edward Island	0.015*	0.015*
Nova Scotia	0.013***	0.014***
New Brunswick	0.018***	0.019***
Quebec	-0.004*	-0.003
Manitoba	-0.004	-0.004
Saskatchewan	0.000	-0.001
Alberta	-0.005***	-0.005***
British Columbia	-0.003*	-0.003*
Territories	-0.002	-0.002
Legally Married (Common-law)	-0.097***	-0.098***
Age	-0.197***	-0.195***
Age ² /100	0.459***	0.454***
Age ³ /1000	-0.036***	-0.035***
Constant	2.940***	2.917***
First stage coefficient on instrument	--	.418***
R-squared	0.033	0.033
Number of Observations	425,171	425,171

* $p < .05$. ** $p < .01$. *** $p < .001$.

Note: Data are from Statistics Canada, the Historical T1 Family File.

Table 4. Heterogeneous Effects of Using Parental Benefits on Union Dissolution Five Years after the Focal Birth by Family Characteristics.

	First Stage Coefficient	2 nd Stage Coefficient: TOT Effect of Use of Parental Benefits on Union Dissolution	Expectations for direction of effect	Relevant theoretical framework (Bold if evidence supports hypotheses)
Relative Income Earned of Total Family Income				
Male earns 100%	0.237***	0.034	+	Traditional
Male earns 60-99%	0.429***	-0.015*		Unclear
Male earns 40-60%	0.463***	-0.020**	-	Egalitarian
Males earns 1-40%	0.307***	0.004		Unclear
Female earns 100%	0.114***	0.305		Unclear
Nativity				
Native-born	0.440***	-0.016**	-	Egalitarian
Immigrant	0.318***	-0.008	+	Traditional
Age gap between parents				
2 or fewer years	0.437**	-0.014*	-	Egalitarian
3 or more years	0.399***	-0.015	+	Traditional
Father's Age at Birth				
Under 30	0.420***	-0.021†	-	Egalitarian
30-34	0.449***	-0.022**		Unclear
35 and above	0.385***	-0.004	+	Traditional
Number of Previous children				
None	0.461***	-0.01		Unclear
One	0.413***	-0.020*		Unclear
Two or more	0.323***	-0.01	+	Traditional
Family Income				
Q4 (Highest Quartile)	0.453***	-0.011	-	Egalitarian
Q3	0.498***	-0.016*	-	Egalitarian
Q2	0.452***	-0.01	-	Egalitarian
Q1 (Lowest Quartile)	0.247***	-0.012	+	Traditional

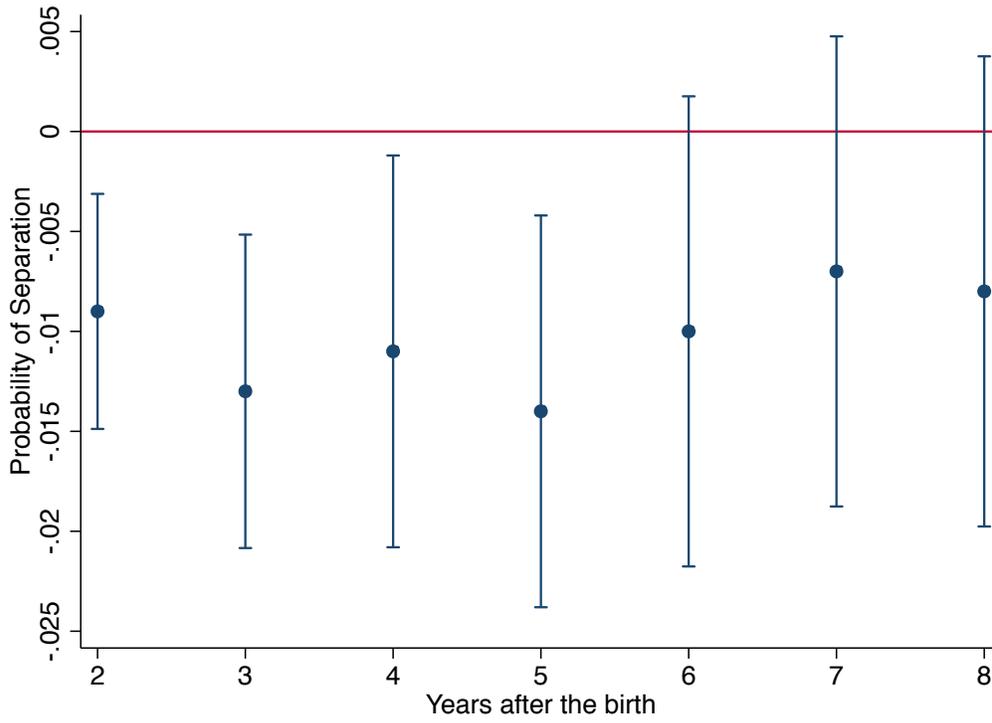
† p<.10, * p<.05. ** p<.01. *** p<.001.

Note: Data are from Statistics Canada, the Historical T1 Family File. The table reports point estimates of β_1 from equation (3) with IV for couple separation five years after birth. The model is estimated separately for each category. The sample for this analysis is restricted to the individuals whose own and spousal total incomes have a non-negative value and family total income is strictly positive. The sample for relative income is additionally restricted to the individuals whose own and spousal total incomes have a non-negative value and family total income is strictly positive. All specifications similar to Table 3.

Table 5. Separation rates five years after the focal birth by family characteristics

	Distribution of fathers in the sample	Separation rate five years after birth		
		Pre- Quebec	Post- Quebec	Rest of Canada
Relative Income Earned of Total Family				
Income				
Male earns 100%	2.6	5.7	7.0	7.5
Male earns 61-99%	49.7	11.8	11.5	7.8
Male earns 40-60%	33.4	11.6	10.9	6.8
Males earns 1-40%	12.8	11.3	12.1	8.3
Female earns 100%	1.0	13.1	13.5	15.2
Nativity				
Native-born	77.5	12.7	12.3	8.4
Immigrant	22.5	6.4	6.3	5.1
Age Gap between Parents				
2 or fewer years	51.6	10.4	9.9	6.9
3 or more years	48.5	12.8	12.6	8.5
Father's Age at Birth				
Under 30	24.8	15.3	14.8	12.2
30-34	37.4	10.9	10.5	6.7
35 and above	37.8	9.2	9.2	5.8
Number of Previous Children				
None	42.6	10.4	10.4	7.1
One	39.0	13.0	12.2	7.8
Two or more	18.4	11.4	11.2	8.5
Family Income				
Q4 (Highest Quartile)	25.4	7.7	7.4	4.5
Q3	25.3	10.0	9.5	6.5
Q2	25.0	12.9	13.0	8.7
Q1 (Lowest Quartile)	24.1	14.4	14.3	11.3

Figure 1. Year-by-Year Treatment-on-treated Effects of QPIP on Union Dissolution



Note: Data are from Statistics Canada, the Historical T1 Family File. The table reports point estimates of β_1 from equation (3) with IV for take-up of the policy on couple separation. The model is estimated separately by the number of years after birth. Bands around point estimates indicate 95% confidence intervals (point estimate $\pm 1.96*s.e.$).