

**Who Benefits from Expanded Paid Family Leave?
Impact of Family Leave Expansions in Canada on Mothers' Employment After
Birth**

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Abstract

This paper exploits the unique natural experiment created by the expansion in Canadian paid family leave from 25 to 50 weeks in 2000 to estimate the impact of paid family leave on employment dynamics of women following birth of a child. It draws on data from the Canadian National Longitudinal Survey of Children and Youth to estimate the impact of the Canadian expansion on the length of time until the mother returns to work following birth of a child. It finds that the 2000 expansion was associated with a substantial increase in the duration of time at home in Canada, and that this increase was larger for more economically advantaged groups of women. Despite the large increases in leave time, there is little evidence that there was a decline in women's relative employment rates after their child reached age one.

INTRODUCTION

This paper examines the impact of the expansion in the duration of paid maternal and parental leave benefits in Canada from 25 to 50 weeks in 2000 on the post-birth employment patterns of the mothers of young children in Canada. To do so, it estimates changes in mothers' labor market outcomes before and after the 2000 expansion for a sample of young children in Canada.

The analysis draws on data from a large representative survey of children, the National Longitudinal Survey of Children and Youth. The analysis draws on interviews from two periods that include children born prior to the expansion, Cycle 3 (November 1998- May 1999) and Cycle 4 (September 2000-May 2001), and from one that includes children born after the expansion, Cycle 5 (September 2002-June 2003). Each cycle includes information on 11,000 to 14,000 children age under age five.

The analysis focuses on three main outcomes. The first is the impact of the expansions on transfer payments. It finds that the expansions were associated with large increases in family leave and total transfer payments to the families of very young children, and that these increases were larger for more economically advantaged groups of children. This latter effect occurs both there were larger increases in leave benefits for higher income groups, and because the increased leave payments to lower income children were offset by reductions in social assistance.

The second is the impact of the expansions on the length of time until mothers return to work. Using a hazard model formulation, it finds that the expansion in paid leave was associated with a substantial increase in time at home following child-birth.

The estimates suggest that, controlling for other economic and demographic characteristics, the share of mothers remaining at home for twelve months increased from 47 percent to 67 percent following the expansions. This increase was much larger for more economically advantaged women. For example, there was nearly a thirty percentage point increase in the share of college educated mothers remaining at home for twelve months, while there was less than a two percentage point increase for high school drop-outs.

The final outcome is the impact of the expansion on employment rates of recent mothers. This analysis uses a “difference in difference” approach that uses mothers of children age 3-4 as a comparison group, in regression-based models that estimate whether there were significant changes in relative employment for women with children age zero and age one following the expansions. While, as before, the analysis found significant decreases in relative employments during the child’s first year, it also found little evidence that this impact persisted for mothers of children age one.

This research is relevant to the debate over how to increase the financial and social supports available to families with young children. Paid parental leave has the potential to increase child well-being, because it makes it possible for parents to spend more time with their children in the first year of life (Ruhm, 2004; Ruhm, 2000; Baum, 2003; Waldfogel et al, 2002). In addition, since family leave provides benefits to a broad spectrum of the population, they may offer a politically sustainable way of ensuring an adequate income for families with young children (Skocpol, 1991). For this reason, scholars have argued for paid leave policies, so that families across the income distribution are able to take advantage of parental leave (Waldfogel, 2004).

However, it is also important to assess whether there are trade-offs between the provision of paid family leave and longer-term measures of women's labor force attachment. To the extent that expansions in paid leave encourage women to drop out of the labor market, they may increase economic vulnerability of families and they may increase gender inequality. In addition, because one important rationale for expanding paid leave is to increase economic equality, it is important to assess which groups benefit most from expansions in paid leave. To the extent that parental leave programs increase benefits for higher income groups of families, it may be important to ensure that other safe-guards for the lowest income groups remain strong.

POLICY CONTEXT:

Canada provides access to paid maternity and parental leave benefits through its Employment Insurance program. Canada first began providing paid leave when it introduced 15 weeks of maternity leave benefits in 1971. In 1990, it added an additional 10 weeks of parental leave benefits, which, unlike maternity leave benefits, were available to either parent. Finally, in December 31, 2000, it expanded parental leave benefits from 15 to 35 weeks, thus increasing combined parental and maternity leave benefits to 50 weeks.¹

The amount of parental leave benefits is equal to 55% of insurable earnings, up to a maximum of \$413 per week in 2002-2003. Starting in 1997, families with incomes below \$25,921 could also receive a "family supplement" which increased employment

¹ See (Trzcinski, 2003), (Trzcinski, 2000), and (Trzcinski and Alpert, 1994) for more extensive description of changes in this program over time.

insurance payments to 80% of insurable earnings in 2000. This supplement was phased in from 65% of earnings in 1997 to 80% in 2000.

Prior to income year 2000, higher income families were also subject to claw-back provisions that reduced Employment Insurance benefits at tax collection time. This provision reduced benefits by 30 percent of net income above \$47,850, with a maximum reduction of 30 percent of the leave payment amount.

Canadian employment insurance benefits are financed by a payroll tax that is split between employers and employees. In 2000, the combined tax was equal to 6.0 percent of insurable earnings under \$39,000; this amount decreased to 5.0 percent in 2003.

Table 1 provides a summary of the reforms in December 31, 2000 that are the focus of this paper. As noted above, the program expanded combined parental and maternity benefits from 25 to 50 weeks. In addition, at the time of these expansions, many provinces also revised their labor codes to align their job-protected leave mandates with the new program. Thus, in eight provinces, the duration of job-protected leave increased from 29 to 35 weeks in the year before the expansion to 52 to 54 weeks in the year following the expansion. Quebec was the exception, since it had a 72 week mandate in effect both before and after the paid leave expansions. In addition, Alberta increased leave from 18 weeks prior to the expansion to 52 weeks afterwards.

ANTICIPATED IMPACTS

Aggregate Impacts:

An expansion in the duration of paid family leave may cause some women to delay their return to work during the period they are eligible for benefits, because it

increases the financial resources available to them while on leave. Because the expansions in paid leave were accompanied by changes in provincial regulations that increased the length of employer-mandated job protected leave, they also may have made it easier for parents to gain employer approval for longer leaves. Finally, to the extent that paid leave expansions cause large behavioral shifts, they may alter social norms regarding the appropriate length of leave.

It is harder to predict the impact of an expansion in the duration of parental leave benefits after paid leave expires. Expanded family leave increases the non-wage benefits associated with working, since women need to work a minimum number of hours to qualify for family leave benefits. Thus women who anticipate having more children may have an increased incentive to work.

However, the expansion in leave may also decrease firm's demand for women's employment, because it increases the firm's costs of accommodating family leaves, through increased costs of finding replacement personnel, and program administration. In addition, the expansion increases required employer and employee payroll contributions to the employment insurance fund.

Economic theory predicts that the expansion should increase employment if women value the additional leave benefits more than they value any potential offsetting impacts of reduced wages or higher employment insurance contributions (Summers, 1989). Since Canadian family leave benefits are financed by a payroll tax that is not "experience rated", they spread the costs of family leave across a broad segment of the employed population. Thus, it is plausible that the additional benefits from working

might exceed the potential costs for women who have the potential to use family leave benefits.

Finally, the expansion in paid leave may have dynamic impacts on women's labor market attachment. For example, by increasing the length of time that women remain at home, it may erode women's job skills and decrease their incentive to invest in human capital, or it could alter their preferences with respect to employment vs child care. This was one of the arguments in the U.S. welfare debate for placing a cap on the duration of welfare payments.

Distributional Effects:

The net benefits of expanded paid leave are likely to differ substantially across the income distribution. For families not eligible for Social Assistance, the expansions in paid leave may actually provide greater proportionate gains to low-income families. This is because Employment Insurance matching rates are higher for low-income families, and because low-income families are not constrained by the \$413 cap on weekly employment insurance payments.

However, for many low income families, the gains from expanded family leave may be offset by reductions in Social Assistance. Since these families could otherwise have received Social Assistance, any expansion in paid leave may yield relatively small net increases in the returns to remaining at home following birth.

To illustrate this point, Tables 2a and 2b compare average family leave and social assistance benefits for women with different levels of earnings in the year prior to birth.²

² Estimates for social assistance includes average social assistance payments for all ten provinces.

Table 2a assumes the woman is a single parent with one child, while Table 2b assumes the woman has two children, and she has a spouse earning \$15,000 in the current year.

As shown in Table 2a, even though EI benefits are equal to 80 percent of base year earnings for low income single parents, the increase in benefits net of Social Assistance is much smaller. For example, a woman working full time at \$7.50 per hour, would realize an increase in weekly transfers of \$60—or 18 percent of her earnings in the prior year. Even if her hourly wage rate increased to \$12.50 per hour, she would still receive an increase in transfers that represented only 43% of base year earnings. By contrast, Table 2b shows that there is a much larger increase in the net replacement rate for the woman with a working spouse, because she is eligible for very low levels of social assistance payments.

To show how these effects vary across province, Figures 1a and 1b compares changes in incomes of two hypothetical women, who earned \$300 per week in the year prior to birth, with and without access to family leave. Figure 1a assumes the woman is a single mother with one child, while Figures 1b assumes she has a spouse earning \$300 per hour. These estimates include social assistance, child benefits, as well as spousal earnings.

As shown in Figure 1a, family leave benefits have a relatively small impact on family income for the woman in a single-parent family, with increases in the ten provinces ranging from 5 to 30 percent. By contrast, for the woman with a working spouse, access to family leave increases family income by 32 to 58 percent (Figure 1b).

The implication of these calculations is that, even though the Employment Insurance Program has built in components that give preference to low-income families,

an expansion in paid leave is likely to have a smaller impact on many low-income families, due to the interactions of Employment Insurance with Social Assistance.

This may be further reinforced by different behavioral responses, which make it harder for low-income families to take advantage of family leave. Since low-income women lack other financial resources, they may be less able to afford even small reductions in take-home pay occasioned by taking paid leave. In addition, many low-income women may have weaker ties to the labor market, which could make them less likely to qualify for family leave or to work for employers who are willing to cooperate with their taking an extended leave.

PRIOR RESEARCH:

Research in the United States has focused on the impact of expansions in unpaid leave provisions under the Family and Medical Leave Act of 1993. This research has found some evidence that the FMLA expansions caused moderate increases in the incidence and/or the duration of maternity leave, although the results are sensitive to the specification of the target population (Waldfogel, 2003; Baum 2003b; Waldfogel, 1999, Klerman and Liebowitz, 1997). This research also found no impact of the FMLA expansions on employment rates for women throughout the first year after their child is born (Baum 2003a, Waldfogel, 1999), although it may have increased job retention (Baum 2003b).

Research in a European context offers the opportunity to learn about how more extensive paid leave programs affect the timing of returns to work. (Ronsen and Sundstrom, 2002) found that expansions in the duration of paid leave benefits in Finland,

Norway, and Sweden from 1972 to 1992 were associated with decreases in the probability that a woman returns to work during the initial period of eligibility for leave. They argue that these programs may also have increased the net transitions to post-birth employment, because they increase the incentive for women to qualify for paid leaves. In research on aggregate measures of employment rates for women, (Ruhm, 1998) found that expansions in the duration of paid leave in nine European countries from 1969 to 1993 were associated with increases in the relative employment rates of women. He also found that longer paid leave entitlements are associated with reductions in women's relative wage levels.

While there is a growing body of research on the impacts of family leave in Europe, there is less research on Canada, and all of this research has focused on the impacts during the first year of life. (Baker and Milligan, 2005) use data from the Canadian Labour Force Survey to estimate the impact of provincial unpaid job-protected leave mandates on mothers' return to work in the first four months after birth, and on employment rates of women with children under age one. (Marshall, 2003) and (Perusse, 2003) use data from the Employment Insurance Coverage Survey to analyze the impact of the 2000 paid leave expansions. However, their data only allows them to measure anticipated, and not actual, completed leave durations.

This research extends prior research on Canada by drawing on data that makes it possible to measure changes in employment patterns for up to two years following birth of a child. This makes it possible to identify more completely the impact of the leave expansions on the timing of return to work, and on post-leave employment. Second, it

uses a data set with a large number of births, which makes it possible to identify impacts on critical subgroups of women with children.

DATA SOURCES:

The data used in this analysis are drawn from the National Longitudinal Survey of Children and Youth (NLSCY). The NLSCY is a large survey of children in Canada designed to generate representative cross-sectional information on children under age five, and to generate longitudinal information on children's development. It includes successive cohorts of children age zero to one, who remain in the sample until they are age four to five. It also includes a sample of children under age eleven who will remain in the sample until they are twenty-five.

This analysis includes children under age five in cycles 3, 4, and 5 of the NLSCY. These interviews were conducted from November 1998 to May 1999 for Cycle 3, from September 2000 to May 2001 for Cycle 4, and from September 2002 to June 2003 for Cycle 5. Even though some of the Cycle 4 interviews occurred in 2001, none of the children in Cycle 4 were born prior to January 2001. Thus, the only children in the sample who were affected by the expansions were interviewed in Cycle 5.

The first component of the analysis focuses on a retrospective question that asks when mothers first started work following birth of their child.³ It includes all children in Cycle 5 who were born after the paid leave expansions in December 31, 2001. To ensure comparability, the sample includes children who were born after December 31, 1998 in

³ The question was, "Did you work at a job or a business at any point since this child's birth?" for mothers of children under age four who had not started working in the previous cycle. If the mother answered yes, she was asked how old the child was when she started working.

Cycle 4, and after December 31, 1996 in Cycle 3. This resulted in a combined sample of 14,869 children.

The second component of the analysis estimates whether there were significant changes in the employment rates at the time of the interview of women with young children.⁴ This sample for this analysis includes both children under age two, who were potentially affected by the expansion, as well as children age three to four, who serve as a comparison group. Since the analysis concerns maternal employment the sample is restricted to children with a mother present. To avoid repeated observations on the same mother, the analysis is further restricted to children who are the youngest child in the family. This resulted in a sample of 28,582 children.

ESTIMATED IMPACT ON TRANSFER INCOME

Table 3 reports estimates of Employment Insurance and other transfer income received in the prior year by age of child, for children who are the youngest child in the family. The analysis includes on cycles 4 and 5 because cycle 3 did not include questions on transfer payments. As noted above, all children age zero and age one in Cycle 5 were born after December 2000, and thus might benefit from expanded parental leave, while none of the children in Cycle 4 were born after the expansions. By contrast, most of the older children in both Cycle 4 and 5 were born before the expansions; they are included for comparative purposes.

⁴ The question asked was, “How many jobs do you currently hold?” If the mother reported she currently had a job, she was counted as employed.

As shown, the expansions in paid parental leave coincided with large increases in transfers to families with children under age two.⁵ Average Employment Insurance benefits increased by \$3100 per child for children age zero, and by \$2800 per child for children age one, while they increased by only \$70 to \$450 for older children. While these increases were offset somewhat by reductions in Social Assistance and other Child Tax Credit/Child Allowance benefits over this period, total transfers for children age one and younger increased by \$2200 to \$2400 per child, while transfers for the older age groups increased by \$500 or less.

Table 4 presents further estimates that show changes in transfer payments from cycle 4 to cycle5 for children age zero to one, based on family demographic characteristics. This table clearly shows that most of the increase in transfer payments during this period was concentrated among more economically advantaged groups of children.

The first part of this table disaggregated the analysis, based on a measure of the mother's net income, which includes her spouse's earnings as well as any other family non-labor non-transfer income. This measure is intended to reflect her potential eligibility for Social Assistance and the family supplement.⁶

As shown, Employment Insurance increased for all groups of families, with increases of \$2200 to \$2300 for families with incomes below \$30,000 and of \$3200 to \$3600 for families with net incomes above \$30,000. However, in addition, there was a large reduction in Social Assistance payments which offset the increase in leave

⁵ All means are calculated using sample population weights.

⁶ The thresholds were selected to capture differences in program rules. Many families earning less than \$20,000 are likely to be eligible for Social Assistance and the Family Supplement, while families earning between \$20,000 and \$30,000 are likely to only be eligible for the Family Supplement. This is because the "break-even" points for single parents with one child fall below \$20,000 in 2000.

payments for the lowest income group. As a consequence, total transfer income increased by only \$500 for families with incomes below \$20,000 per year, while they increased by \$2600 to \$3900 for the higher income families.

The remainder of this table shows that the increases in transfers were also higher for children from more economically advantaged groups, as defined by number of parents, by education of the mother, or by the mother's race or immigrant status. As before, this reflects both differential gains in employment insurance payments as well as differences in the extent to which they are offset by reductions in social assistance.

ESTIMATED IMPACT ON TIME UNTIL RETURN TO WORK:

Empirical Approach:

To estimate how the expansion in paid leave affected the time until the mother returns to work, this analysis relies on a retrospective question that asks mothers when they first started to work following birth of their child. To control for other demographic and economic factors that may have coincided with the change in paid leave in December 2000, the analysis estimates a series of proportional hazards models that test for whether there were significant shifts in the monthly hazard of returning to work that persist after controlling for demographic and economic factors.

The analysis estimates proportional hazard models that express the monthly hazard rate of returning to work in terms of the following equation:

$$h_{imt} = \exp(\beta_1 Z_i + \beta_2 E_{it} + \gamma_{tm})$$

where h_{imt} is the probability that the i^{th} woman returns to work in time period t in the month m following child-birth, given that she had not returned to work by the end of the prior month. The

first term represents the estimated impact of demographic characteristics, Z_i which vary across individuals but not time, while the second term represents the impact of changes in provincial economic conditions, E_{it} . The final term, γ_{tm} , is an indicator that allows the monthly hazard rate to vary with the number of months the mother has remained at home without returning to work.

The analysis allows the baseline hazard parameters, γ_{tm} , to vary with both time since birth, and with calendar time (captured by whether the interview occurred in cycle 3, 4, or 5 of the survey). To simplify the analysis, it assumes that the baseline hazard rate is constant for months 1-6, month 7, months 8-12, month 13, and months greater than 13. It then uses a series of interactions to test for whether the hazard rate shifts for children in Cycle 5 relative to Cycles 3 and 4 during each of these intervals. It also includes an indicator for Cycle 4 to allow for shifts from Cycle 3 to Cycle 4 of the NLSCY.

These assumptions imply that γ_{tm} can be expressed as follows:

$$\begin{aligned} \gamma_{tm} = & \beta_1 \text{Month } 1-6_m + \beta_2 \text{Month } 7_m + \beta_3 \text{Month } 8-12_m + \beta_4 \text{Month } 13_m + \beta_5 \text{Month } > 13_m \\ & + \beta_6 \text{Cycle } 5_t * \text{Month } 1-6_m + \beta_7 \text{Cycle } 5_t * \text{Month } 7_m + \beta_8 \text{Cycle } 5_t * \text{Month } 8-12_m + \\ & + \beta_9 \text{Cycle } 5_t * \text{Month } 13_m + \beta_{10} \text{Cycle } 5_t * \text{Month } > 13_m + \beta_{11} \text{Cycle } 4_m \end{aligned}$$

Each of the Month terms are indicators for the number of months that the mother has remained at home without returning to work as of month m . The Cycle 5, and Cycle 4 terms are each dummy variables for whether the child was included in Cycle 4 or 5 of the NLSCY. Since only Cycle 5 children were born after the expansions, Cycle 5 is also a test for whether the hazard rates shifted in each of these intervals following the expansions in paid leave.

If the presence of paid leave has an impact on the timing of leaves, one would anticipate that the probability of returning to work would be much lower during the first

six months following child-birth in Cycles 3 and 4, since this was the initial length of paid leave, and that there may be a large increase in return to work hazards in month 7 if most women respond rapidly to the termination in leave payments. In this case, β_1 should be smaller (more negative) than the remaining coefficients, and, β_2 should be larger (more positive) than β_2 reflecting the spike in hazard rates when leave payments expire.

If the expansion in paid leave to twelve months in December 2000 increased leave durations, one would anticipate each of the coefficients on the interaction terms between Cycle 5 and the Month 1-6, Month 7, and Month 8-12 indicators to be negative, indicating a reduction in the probability of returning to work during these intervals. As before, if there women respond immediately to the termination of leave payments, the coefficient on the interaction term with Month 13 should be large and positive.

As noted above, the estimates were presented for a limited number of baseline hazard parameters because this makes it possible to test whether there are distinct shifts in the baseline hazard that coincide with the timing of paid family leave. To test whether these assumptions are plausible, the analysis included one specification that allowed for separate monthly hazard indicators in each cycle of the data. As shown in Appendix Figure 1, which graphs the monthly hazards from this analysis, this specification appears to be reasonably plausible.⁷

Estimated Results:

Table 5 reports the results from this analysis. Part A reports the estimated impact of the demographic and economic controls, while Part B reports estimated monthly

⁷ While this specification is approximately valid, it did fail a likelihood ratio test for whether there is a statistically measurable difference between the specification that allows all monthly parameters to vary and the one that assumes they are constant within intervals shown here. However, estimates that allow the baseline parameters to vary by month and constrain the cycle 5 interactions to be constant within the above yield results that are similar to those shown here.

hazards, and hazard interactions. For both parts of this table, Model 1 presents estimates without economic controls, while Model 2 includes monthly provincial employment rates and median wage rates for women age 25-54.

As shown in 5A, the estimated impacts of family demographic characteristics are consistent across both models, and they are in line with prior expectations. The hazard rate for returning to work is higher for women with fewer children and for women with high levels of educational attainment. It is lower for single parents, and for women who are immigrants, particularly those from countries outside of Europe or the United States. The estimates in Model 2 suggest that the hazard rate is positively related to provincial employment rates for women, while the provincial wage rate measure was insignificant.

The results in part B of Table 5 confirm the hypothesis that the Canadian leave expansions initially delayed returns to work. Each of the first three interaction terms, Cycle 5 *Month 1-6, Cycle 5*Month 7, and Cycle 5*Month 8-12, are negative and highly significant in both Models 1 and 2. This suggests that the return-to-work hazard rate decreased following the expansions for women during their first year after child-birth. The next two interactions are positive and significant, which indicates that women returned to work at higher rates once their new leave benefits were exhausted.

A comparison of Model 1 to Model 2 suggests that adding controls for the employment rate and the median hourly wage rate for women does not appreciably change the estimated interaction effects between Cycle 5 and changes in hazard parameters.

To test for whether the impacts of the leave expansions were primarily attributable to expansions in paid versus job protected leave, Table 6a exploits the fact

that all provinces except Quebec increased their job protected leaves at the same time they increased paid leave, while Quebec's job protected leave remained constant at 72 months. To the extent that job-protected leave is important, there should be larger changes in baseline hazards in the other provinces than in Quebec following the expansions.

To test this hypothesis, the first model shown in Table 6 present estimates from a model which include interactions between Quebec and each of the hazard parameters shown in the previous table. As shown, the first three interaction terms in the second row of this table are positive and significant, indicating that larger increases in leave times in other provinces than in Quebec. While this may be attributable to the new labor regulations in other provinces, it also may reflect expansions in child-care in Quebec that coincided with the expansions [Baker, Gruber and Milligan, 2005].⁸

The remainder of this table presents interactions between family demographic characteristics and the hazard parameters. These models show that there were smaller increases in leave durations for single parents (Model 2), for women with lower levels of education (Model 3), and for immigrants (Model 4).

To interpret the magnitude of these results, Figure 2 presents estimates of the probability that mothers have not yet returned to work as of a given month. These estimates are based on the parameter estimates in Model 2 of Table 5, and evaluated at sample mean characteristics. These estimates are also shown in Appendix Table 1.

⁸Other estimates not shown here tested whether there was a larger increase in the probability of remaining at home in months 4 to 6 in Alberta relative to other provinces, since this Alberta had larger increases in employer mandated leave than the other provinces. This analysis failed to find a larger change in leaves in Alberta.

As shown, the expansion in paid leave in December 2000 was associated with a dramatic increase in the time women spent at home following birth of a child. Controlling for economic and demographic characteristics, the proportion of women remaining at home at month twelve increased from 46 percent to 70 percent. After month 13, the three survival functions converged that there was little change in maternal employment after parental benefits expired.

Figure 3A to 3D show how these results vary by subgroups, based on the hazard estimates shown in Table 6. These estimates are also shown in Appendix Table 1. Figure 3A shows that the proportion of women remaining at home in months twelve increased by 10 percentage points in Quebec after the expansions, which is substantially lower than the increase of 24 percentage points in the remaining provinces. Unlike Figure 1, however, the results also show that the probability of returning to work continued to be higher in Quebec after month 12, suggesting there may have been a more general increase in employment rates in Quebec in Cycle 5.

Figures 3B shows how the impacts vary by education of the mother. As shown, the impact of the expansions is highly correlated with education. While there are negligible changes in time at home for high school drop-outs following the expansions, the proportion of women remaining at home for twelve months increased by 19 percentage points for high school graduates, and by nearly thirty percentage points for college graduates. Figures 3C and 3D also show that the increase in time spent at home was larger for two-parent families, and for natives than it was for single-parents or immigrants from non-European/non-U.S. countries.

ESTIMATED IMPACT ON EMPLOYMENT RATES:

This section presents regression-adjusted estimates of trends in the relative employment rates of women with children age 0 and 1 in Canada. To control for economic or policy factors that may influence employment of women with children over this period, women with children age 3-4 are used as a comparison group.⁹ These women would not have been eligible to receive expanded parental leave benefits, but are likely to have responded to other changes in economic conditions that affected women with younger children. To ensure that only one observation is included on each mother, the sample is restricted to children who are the youngest children in the family.

Table 7 presents estimates from linear regressions that estimate whether there were changes in employment rates in Cycle 4 and in Cycle 5, after controlling for demographic and economic characteristics. These models include controls for province, number of siblings, immigrant status of parent, parental education, number of parents in family, age of mother, and the monthly provincial employment rate and log wage rate. All estimates are weighted by sample weights.

The first two sections of this table show estimates for individual groups of children age zero and age one. As shown, the results in Table 7, Model 1 indicate that there was a significant decrease in relative employment rates of mothers of infants in Cycle 5 relative to Cycle 4, with point estimates suggesting a 12.0 percentage point decline in employment.¹⁰

⁹ Children age two were not used as a control group since some of these children in Cycle 5 were born after the expansions in 2001.

¹⁰ It is hard to predict how women on paid leave interpreted the employment status question. As noted above, the question asked was, "How many jobs do you currently hold?" If the mother reported she currently had a job, she was counted as employed. There was no direction for respondents on how to count paid leave. Thus, some women who said they were not employed may have been on paid leave. While this is not an optimal question, it was used because it was the only employment status question asked in all three cycles of the NLSCY.

Model 2 shows that by the time children reach age one, the reduction in employment is much smaller in magnitude, indicating a 2 percentage point decrease in employment, and the estimate is not statistically significant. Thus, despite the large increase in women's time out of work, they have very small or insignificant reductions in employment once their child reaches age one.

The next three models show how these trends compare with the trends in employment rates for older groups of children, who were not influenced by the expansions.¹¹ As shown, employment rates of women with children age three decreased by nearly 6 percentage points, while they were constant for children age four, for an average reduction of nearly 3 percentage points for children in both age groups. These differing results suggest that estimates of changes in relative employment rates will be sensitive to the choice of control group.

The final four models in this table estimate changes in employment rates for the two treatment groups age three (Model 6 and 8), or relative to children age four (Models 7 and 9). These estimates are intended to control for underlying changes in economic conditions by using older children as comparison groups.

As shown in Models 6 and 7, there continues to be evidence of a reduction in employment for women with children age zero, with estimated reductions in relative employment rates of six to seven percentage points. By contrast, in Models 8 and 9, the estimated relative employment impacts for women with children age one are no longer negative, and if anything suggest an increase in relative employment rates.

Table 8 repeats the regression shown in Table 7 Model 9 for some of the demographic sub-groups discussed earlier. The nature of the experiment is to determine

¹¹ Children age two were excluded since some were, and some were not born following the expansions.

whether groups that had disproportionate increases in time at home during the first year after birth also had larger reductions in relative employment rates once their child reached age one. The first four columns of this table suggest that if anything the converse is true. Relative employment rates increased more for two parent families than for single parents (Model 1b vs 1a), and for women with at least some college than for women with a high school degree or less (Model 2b vs 2a). The final two columns (Model 3a and 3b) also find larger increases in relative employment rates for women with children age one in Quebec than in other provinces, although the results are not significantly different.

CONCLUSION

This research has documented that the expansions in parental leave benefits in Canada in December 2000 coincided with large increases in the length of time that mothers stay at home following birth. The estimates suggest that the probability of not having yet returned to work within twelve months increased by twenty-three percentage points following the expansions in paid leave.

The estimates also suggest that the increases in both transfers income and time at home were concentrated among more advantaged groups, defined by income, educational attainment, number of parents or immigration status.

Finally, this study does not find strong evidence that the increase in leave benefits reduced the employment prospects of women after their children reach age one. While there was a small reduction in employment rates for women with children age one following the expansion, this reduction was not larger than the trends faced by older groups of children. In addition, there is no evidence that relative employment rates

decreased more for demographic groups that had the largest increase in time at home during the first year after birth.

It is important to note that these conclusions are based on a short window of time following the implementation of the expansions, and that the Canadian data have a relatively limited set of measures of employment status and family income. Thus, it would be helpful to replicate these results as more data become available.

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**Table 1:
Canadian Maternity & Family Leave Benefits**

	1997 -2000	2001+
Maximum Weeks Paid Leave	25	50
Weekly Benefit		
Low Income ¹ (<\$25,921)	65%-80% insurable earnings to max \$413	80% insurable earnings to max \$413
Medium Income	55% insurable earnings to max \$413	55% insurable earnings to max \$413
High Income ² (>\$48,750)	Benefits reduced up to 30%	No Reduction
Weeks Job Protected Leave		
Quebec	72	72
Alberta	18	52
Other Provinces	29-35	52-54
Eligibility Requirement	700 hours prior year	600 hours prior year

¹ Starting in January 1997, the “Family Income Supplement” topped up benefits for families who had incomes below \$25,921 and who received the Child Tax Benefits. Matching rate started at 65% and increased by 5 percentage points each year to 80% in 2000. Prior to 1997, replacement rate was 60% for low income families.

² Prior to the 2000 taxation year, families with high incomes were required to pay back some of their benefits at tax time. This reduced benefits by \$0.30 per dollar of family income above \$48,750, with maximum reduction of 30% of the benefit payment.

Sources: Canada Employment Insurance Commission, Employment Insurance 2003 Monitoring and Assessment Report, March 2004, http://www.hrsdc.gc.ca/en/ei/reports/eimar_2003.shtml ; [Baker and Milligan, 2005].

**Table 2:
Family Leave Benefits Compared to Social Assistance Payments
By Family Type, and Base Year Earnings, 2000**

A. Single Parent and One Child

Base Year Earnings		Family Leave Per Week	Social Assistance Per week ¹	Family Leave / Earnings	Social Assistance/ Earnings	Change in Replacement Rate
Hourly Wage	Weekly Earnings					
\$5.00	\$200	\$160	\$185	0.80	0.93	0.000
\$7.50	\$300	\$240	\$185	0.80	0.62	0.183
\$10.00	\$400	\$320	\$185	0.80	0.46	0.338
\$12.50	\$500	\$400	\$185	0.80	0.37	0.430
\$15.00	\$600	\$413	\$185	0.69	0.31	0.380
\$17.50	\$700	\$413	\$185	0.59	0.26	0.326
\$20.00	\$800	\$413	\$185	0.52	0.23	0.285

B. Two Parents and Two Children, One Parent Earns \$15,000 in Current Year

Base Year Earnings		Family Leave Per Week	Social Assistance Per week ¹	Family Leave / Earnings	Social Assistance/ Earnings	Change in Replacement Rate
Hourly Wage	Weekly Earnings					
\$5.00	\$200	\$160	\$35	0.80	0.17	0.63
\$7.50	\$300	\$240	\$35	0.80	0.12	0.68
\$10.00	\$400	\$320	\$35	0.80	0.09	0.71
\$12.50	\$500	\$400	\$35	0.80	0.07	0.73
\$15.00	\$600	\$413	\$35	0.69	0.06	0.63
\$17.50	\$700	\$413	\$35	0.59	0.05	0.54
\$20.00	\$800	\$413	\$35	0.52	0.04	0.47

¹ Average social assistance for all provinces except Northwest Territories and Yukon in 2000. Assumes family has no other income, and assets fall below asset limits.

Source: National Council of Welfare, Welfare Incomes, 2000 and 2001, Spring 2002
Canada Employment Insurance Commission, Employment Insurance 2003
Monitoring and Assessment Report, March 2004

**Table 3:
Transfer Payments Received in Prior Year, by Age of Child**

Age of Child / Survey Year	Employment Insurance	Social Assistance	Child Tax Credit	Total
0-11 Months				
	2486	1127	1931	5544
Cycle 4 (2000-01)	(114)	(112)	(64)	(172)
	5589	528	1843	7960
Cycle 5 (2002-03)	(214)	(74)	(81)	(241)
	3103	-599	-88	2417
<i>Change 4-5</i>	(243)	(134)	(104)	(296)
1 Year				
	1137	1196	1981	4313
Cycle 4 (2000-01)	(63)	(89)	(52)	(121)
	3971	506	2105	6582
Cycle 5 (2002-03)	(147)	(58)	(72)	(174)
	2835	-690	124	2269
<i>Change 4-5</i>	(160)	(106)	(89)	(212)
2 Years				
	435	894	1888	3217
Cycle 4 (2000-01)	(31)	(56)	(39)	(75)
	884	674	2132	3690
Cycle 5 (2002-03)	(69)	(65)	(76)	(122)
	449	-220	244	473
<i>Change 4-5</i>	(76)	(86)	(86)	(143)
3 Years				
	533	965	2047	3545
Cycle 4 (2000-01)	(41)	(64)	(52)	(92)
	828	542	2204	3574
Cycle 5 (2002-03)	(80)	(58)	(76)	(170)
	295	-423	157	-29
<i>Change 4-5</i>	(90)	(87)	(92)	(193)
4 Years				
	589	699	1611	2899
Cycle 4 (2000-01)	(57)	(77)	(55)	(110)
	657	628	2128	3414
Cycle 5 (2002-03)	(58)	(57)	(68)	(223)
	68	-70	517	515
<i>Change 4-5</i>	(81)	(96)	(88)	(248)

Notes: Standard errors reported in parentheses. Income reported in 2000 Canadian dollars. Sample includes 17,007 children who were the youngest child in the family in Cycles 4 and 5 of the NLSCY. Means are estimated using sample weights..

Table 4:
Change in Transfer Payments Received in Prior Year
from Cycle 4 (2000-01) to Cycle 5 (2001-02)
Women with Youngest Child Age 0-1

	Employment Insurance	Social Assistance	Child Tax Credit	Total
Net Income Group				
	2306	-1757	-74	474
Y < \$20,000	(328)	(369)	(182)	(526)
	2269	-247	598	2619
\$20,000 <=Y < \$30,000	(341)	(129)	(230)	(431)
	3226	-106	442	3562
\$30,000 <=Y < 48,000	(254)	(55)	(105)	(281)
	3596	-11	363	3947
Y >=48,000	(217)	(95)	(77)	(249)
Family Composition				
	1863	-1424	836	1275
Single Parent	(349)	(422)	(243)	(599)
	2996	-561	-14	2421
Two Parents	(147)	(78)	(68)	(179)
Education				
	1783	-1001	134	918
Less than High School	(201)	(209)	(148)	(326)
High School Grad/ Some college	2716	-148	291	2858
	(319)	(160)	(167)	(394)
	3477	-83	235	3628
College Graduate	(208)	(71)	(80)	(234)
Race				
	1812	-1811	-332	-332
Non-White	(293)	(308)	(187)	(464)
	3240	-314	147	3073
White	(154)	(72)	(71)	(185)
Immigration Status				
	2252	-414	-214	1634
Immigrant	(319)	(252)	(194)	(451)
	3134	-718	99	2516
Non-Immigrant	(152)	(87)	(72)	(189)

Notes: Tabulated from a sample of 5793 children age 0-23 months in Cycles 4 and 5 of the National Longitudinal Survey of Children and Youth who were the youngest child in the family. Net income includes wage and salary, and self employment income of father, and other family non-wage, non-transfer income. Dollar amounts reported in 2000 Canadian dollars. Estimates for employment insurance adjusted for claw back of employment insurance income in 2000. Means are estimated using sample weights.

Table 5:
Estimates from Proportionate Hazard Model
Time Until Mother Returns to Work

A. Economic and Demographic Controls

	Sample Means (Std Dev)	Model 1 (Total Sample)	Model 2 (Total Sample)
No siblings	0.400 (0.009)	0.608 (0.058)	0.609 (0.058)
1 sibling	0.397 (0.009)	0.486 (0.057)	0.487 (0.057)
2 siblings	0.143 (0.006)	0.277 (0.062)	0.280 (0.062)
Girl	0.485 (0.009)	-0.015 (0.022)	-0.016 (0.022)
Mother is Immigrant, US/Europe	0.040 (0.004)	-0.180 (0.063)	-0.179 (0.063)
Mother is Immigrant, non-US/Europe	0.167 (0.007)	-0.560 (0.043)	-0.560 (0.043)
Single Parent Family	0.096 (0.096)	-0.266 (0.041)	-0.263 (0.041)
Age of Mother	30.149 (0.099)	0.006 (0.002)	0.006 (0.002)
Mother not High School Graduate	0.116 (0.006)	-0.972 (0.047)	-0.972 (0.047)
Mother has High School Degree	0.150 (0.006)	-0.318 (0.033)	-0.317 (0.033)
Mother Attended Some College	0.208 (0.006)	-0.194 (0.028)	-0.194 (0.028)
Provincial Monthly Employment Rate, Women 25-54	55.7 (3.9)		0.049 (0.011)
Log Provincial Median Hourly Wage Rate, Women 25-54	2.75 (0.01)		-0.596 (0.560)

B. Baseline Hazard Estimates

	Model 1 (Total Sample)	Model 2 (Total Sample)
Cycle 5 * Month 1-6	-0.594 (0.056)	-0.703 (0.067)
Cycle 5 * Month 7	-1.948 (0.097)	-2.057 (0.104)
Cycle 5 * Month 8-12	-0.481 (0.049)	-0.587 (0.062)
Cycle 5 * Month 13	1.624 (0.079)	1.526 (0.086)
Cycle 5 * Month > 13	0.410 (0.107)	0.303 (0.113)
Month 1-6	-3.813 (0.108)	-4.765 (1.846)
Month 7	-1.741 (0.108)	-2.699 (1.847)
Month 8-12	-2.966 (0.108)	-3.935 (1.848)
Month 13	-2.982 (0.122)	-3.959 (1.851)
Month > 13	-4.487 (0.119)	-5.464 (1.853)
Cycle 4	-0.083 (0.027)	-0.150 (0.034)
-2* Log Likelihood	58,056	58,030
Province Effects	Y	Y
Number of Child-Month Observations	161,122	161,122
Number of Children	14,869	14,869

Notes: Reports estimated parameters and standard errors from proportionate hazard model of the number of months until mother returns to work following birth. Sample includes children who are under 28 months old, and who are born on or after January 1, 2001 in Cycle 5, on or after January 1, 1998 and prior to December 31, 2000 in Cycle 4, and on or after January 1997 in Cycle 3 of the National Longitudinal Survey of Children and Youth.

Table 6:
Interactions between Family Characteristics and Months Since Birth
In Time to Work Hazard Model

	Months Since Birth				
	Months 1 to 6	Month 7	Months 8 to 12	Month 13	Months > 13
Model 1:					
Cycle 5	-0.651 (0.063)	-2.169 (0.116)	-0.574 (0.055)	1.628 (0.087)	0.308 (0.118)
Cycle 5*Quebec	0.256 (0.137)	0.960 (0.211)	0.500 (0.122)	-0.018 (0.201)	0.605 (0.282)
Quebec	0.015 (0.148)	-0.084 (0.151)	-0.052 (0.152)	0.281 (0.206)	-0.026 (0.207)
Model 2:					
Post	-0.614 (0.059)	-1.994 (0.101)	-0.537 (0.051)	1.655 (0.083)	0.431 (0.113)
Single Parent*Post	0.287 (0.183)	0.640 (0.359)	0.701 (0.176)	-0.451 (0.288)	-0.173 (0.357)
Single Parent	0.044 (0.162)	-0.579 (0.172)	-0.558 (0.170)	-0.205 (0.241)	-0.132 (0.220)
Model 3:					
Cycle 5	-0.654 (0.099)	-1.887 (0.164)	-0.470 (0.093)	1.592 (0.133)	0.162 (0.177)
LT High School*Cycle 5	0.617 (0.194)	0.301 (0.448)	0.715 (0.229)	-0.701 (0.347)	-0.138 (0.447)
LT High School	-0.428 (0.079)	-0.901 (0.099)	-1.163 (0.109)	-0.484 (0.204)	-0.684 (0.184)
College* Cycle 5	-0.109 (0.120)	-0.296 (0.204)	-0.306 (0.105)	-0.080 (0.167)	0.312 (0.227)
College	0.021 (0.044)	0.273 (0.046)	0.578 (0.049)	0.502 (0.133)	0.214 (0.120)
Model 4:					
Cycle 5	-0.585 (0.058)	-1.932 (0.099)	-0.503 (0.051)	1.647 (0.082)	0.414 (0.111)
Cycle 5*Immigrant	-0.105 (0.219)	-0.244 (0.428)	0.315 (0.183)	-0.260 (0.281)	-0.003 (0.414)
Immigrant	-0.321 (0.170)	-0.504 (0.173)	-0.712 (0.175)	-0.553 (0.258)	-1.011 (0.271)

Notes: Reports interactions between family characteristics and baseline hazards from a proportionate hazard model of the number of months until mother returns to work following birth. Models are similar to one shown in Table 5, model 2., except they also include the additional interactions with baseline hazards, shown here. Standard errors reported in parentheses.

Table 7.
Regression-Estimates of Changes in Employment Rates by Age of Child

Sample Population/ Comparison Group	Cycle 5 (January 2002 or later)	Cycle 4 or 5 (January 2000 or later)
<i>Affected by Expansion Paid Leave in Cycle 5</i>		
Model 1: Age 0	-0.116 (0.025)	-0.002 (0.026)
Model 2: Age 1	-0.021 (0.015)	-0.065 (0.017)
<i>Not Affected by Paid Leave Expansion in Cycle 5</i>		
Model 3: Age 3	-0.056 (0.021)	-0.104 (0.024)
Model 4: Age 4	-0.007 (0.022)	0.101 (0.022)
Model 5: Age 3 or 4	-0.026 (0.015)	0.017 (0.016)
<i>Difference in Difference Estimates</i>		
Model 6: Age 0 vs Age 3	-0.064 (0.026)	0.078 (0.025)
Model 7: Age 0 vs Age 3 or 4	-0.071 (0.022)	0.001 (0.021)
Model 8: Age 1 vs Age 3	0.049 (0.020)	0.038 (0.020)
Model 9: Age 1 vs Age 3 or 4	0.040 (0.017)	-0.039 (0.017)

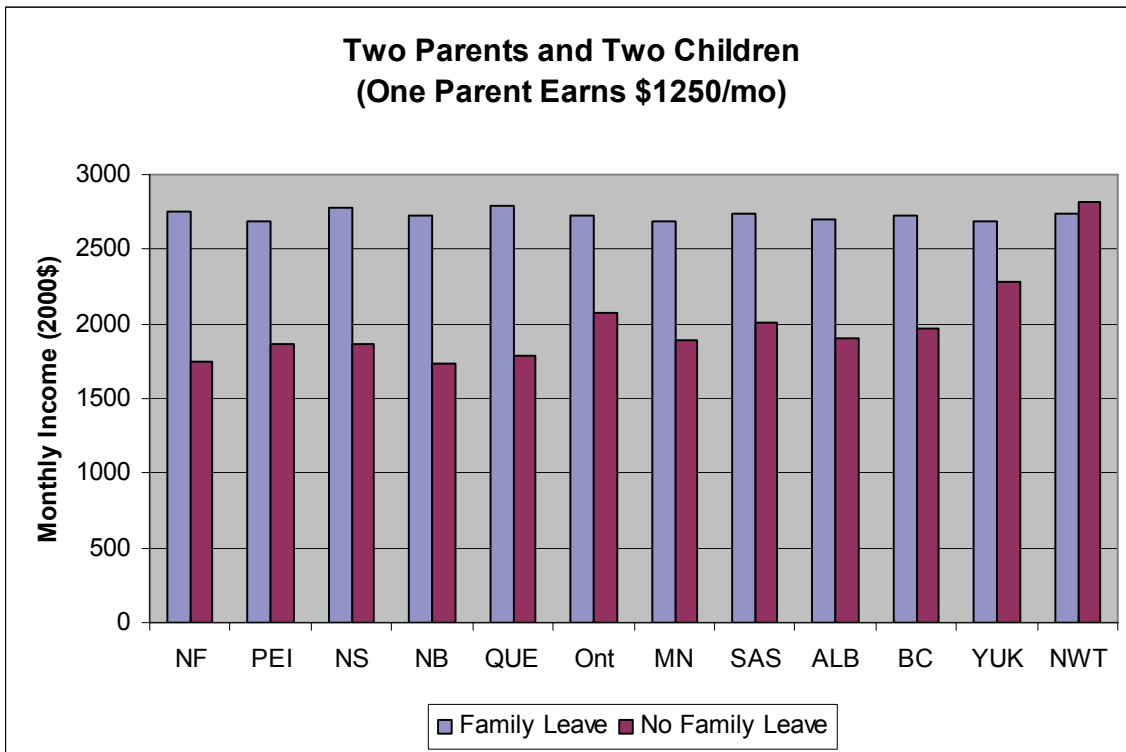
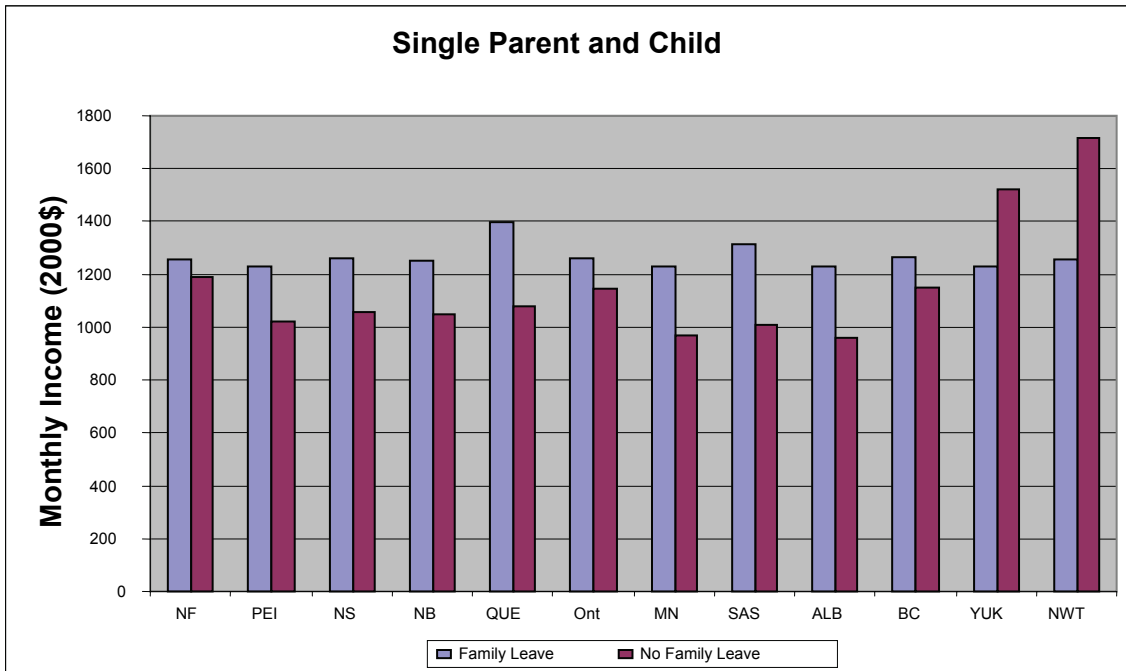
Reports estimated parameters and standard errors of period effects from linear regression models of the probability mother is employed in interview month for samples of children from Cycles 3-5 of the NLSCY. "Cycle 5" is an indicator for whether mother was interviewed in Cycle 5, while "Cycle45" indicates the interview occurred in either Cycle 4 or Cycle 5.

Table 9.
Difference in Difference Estimates of Employment Effects for
Women With Children Age 1 Compared to Women with Children Age 3-4
By Demographic Characteristics

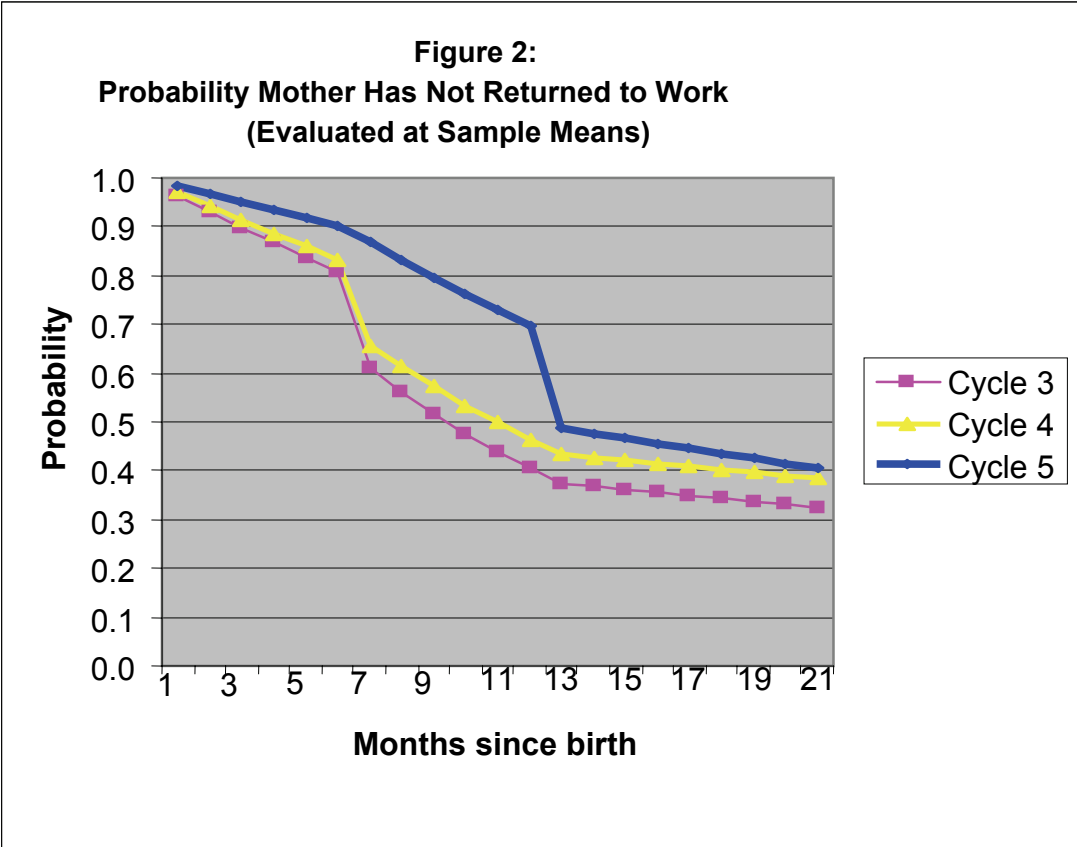
	Model 1a Single Parents	Model 1b Two Parents	Model 2a High School	Model 2b Post -HS	Model 3a Quebec	Model 3b Other Provinces
Age1 * Cycle 5	0.023 (0.051)	0.038 (0.018)	-0.032 (0.033)	0.063 (0.020)	0.057 (0.044)	0.032 (0.018)
Age1 * Cycle 4 or 5	0.046 (0.049)	-0.051 (0.018)	0.027 (0.033)	-0.062 (0.020)	0.066 (0.076)	-0.044 (0.018)
Age 1	-0.179 (0.032)	-0.066 (0.012)	-0.111 (0.023)	-0.066 (0.014)	-0.046 (0.031)	-0.088 (0.013)
2002-03	-0.033 (0.031)	-0.043 (0.014)	0.005 (0.022)	-0.050 (0.015)	0.072 (0.099)	-0.041 (0.012)
2000-01	0.037 (0.031)	-0.004 (0.015)	0.004 (0.025)	0.003 (0.016)	0.066 (0.076)	0.011 (0.012)
Adj R2	0.138	0.065	0.060	0.032	0.093	0.070
N	2634	16079	5750	12963	3264	15449

Estimated parameters and standard errors from linear regression models of probability mother is employed at interview month. Sample includes all mothers of children who were the youngest child in the family and were age 1, 3 or 4 in Cycles 3, 4, or 5 of the NLSCY. Models also include controls for province, number of siblings, immigrant status of parent, parental education, number of parents in family, age of mother, and the monthly provincial employment rate and log wage rate.

**Figure 1:
How Much Would Paid Family Leave Affect Family Income?
Single vs Two-Parent Families, in Canada, 2000**



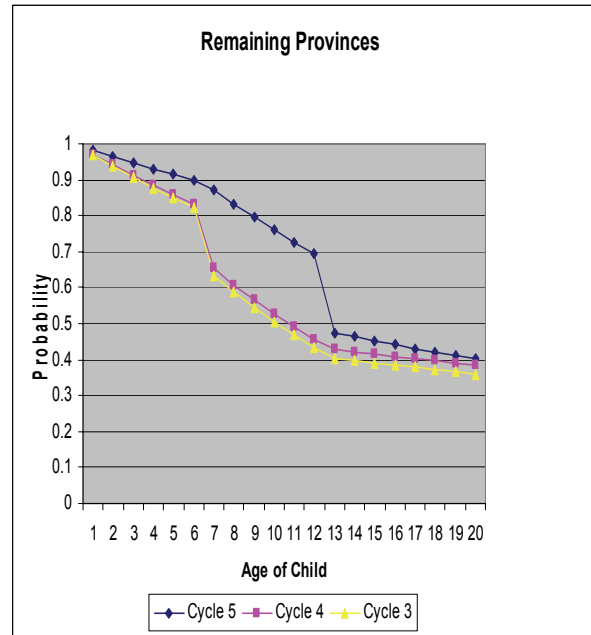
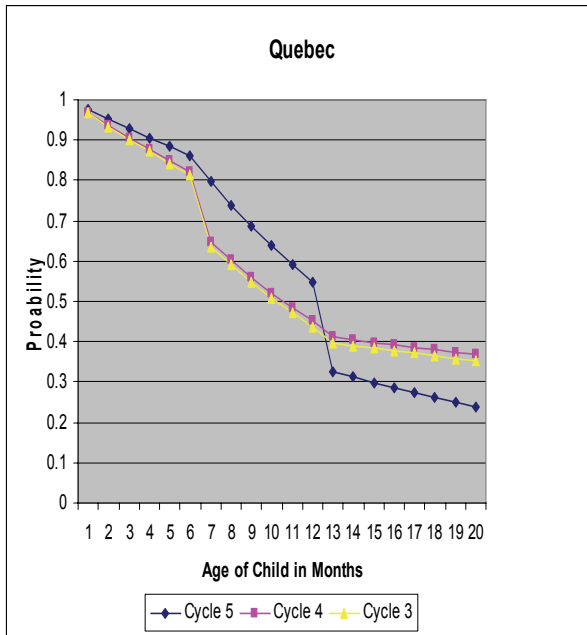
Assumes mother earned \$300 per week in prior year. "Family Leave" includes family leave, child benefits, and earnings. "No Family Leave" includes social assistance, child benefits, and earnings. Source: National Council of Welfare, 2002; Canada Employment Insurance Commission, 2004.



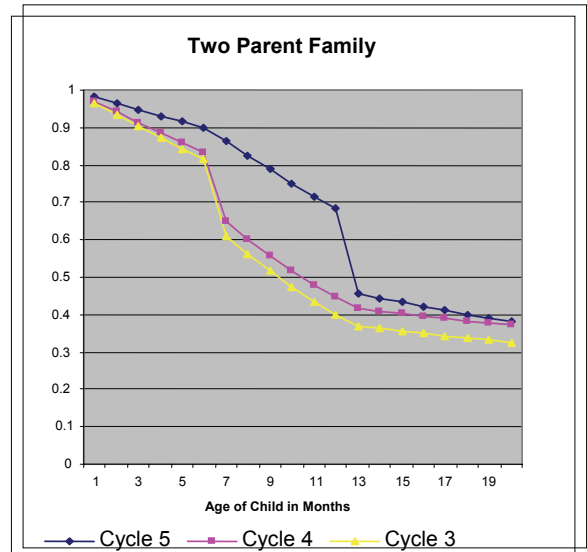
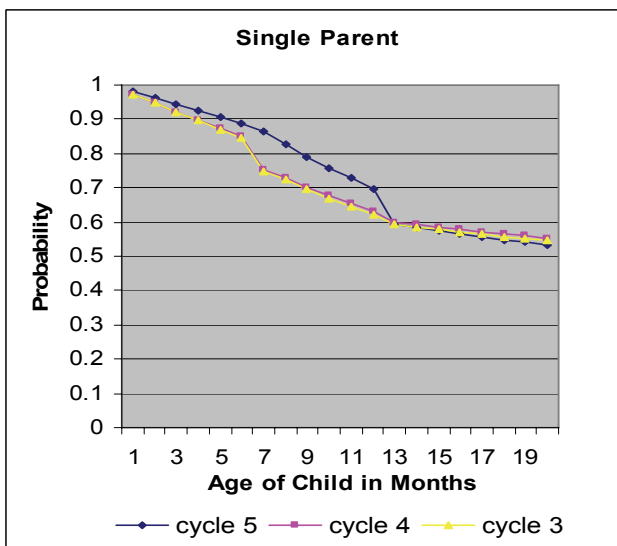
Note: Based on estimates from hazard model in Table 5, Model 2. Survival probabilities are evaluated at sample means.

**Figure 3:
Probability Mother Has Not Yet Returned to Work
by Selected Characteristics**

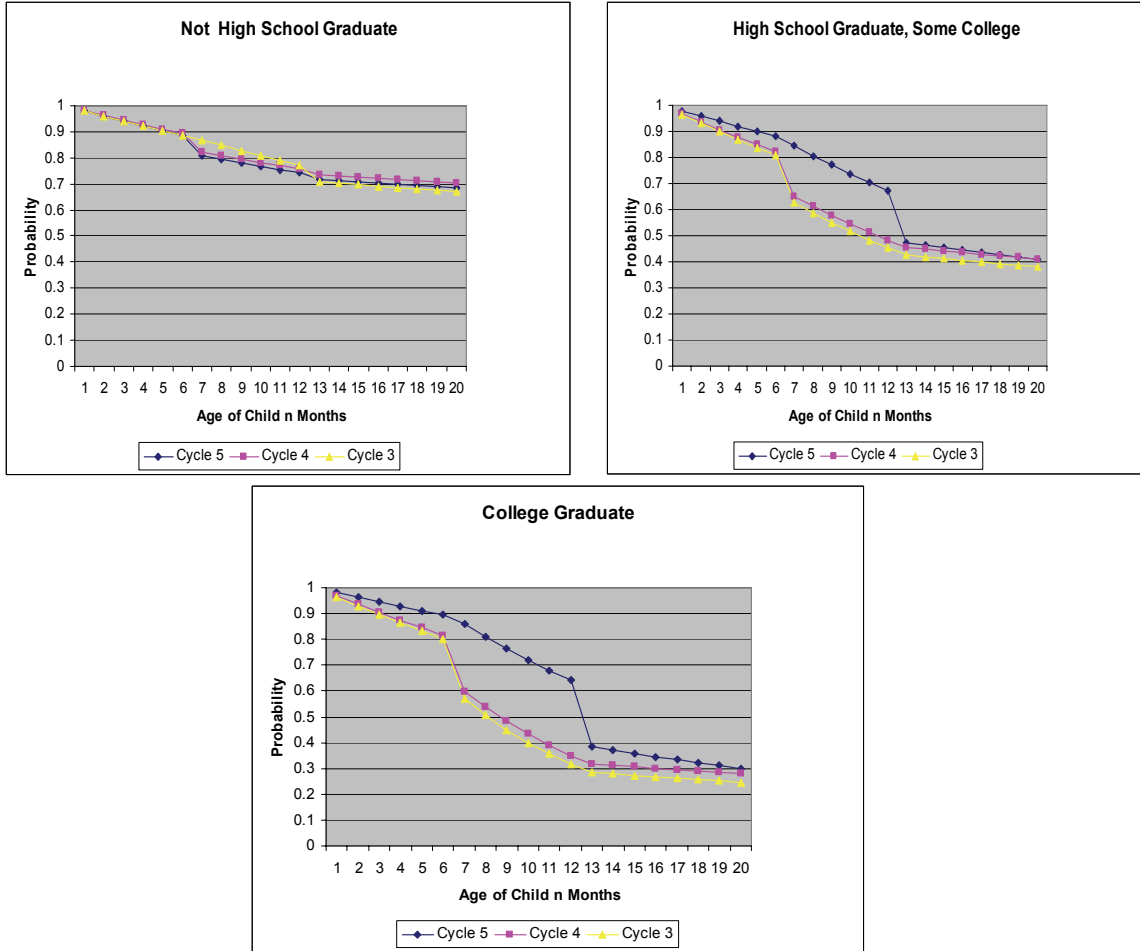
A. By Province



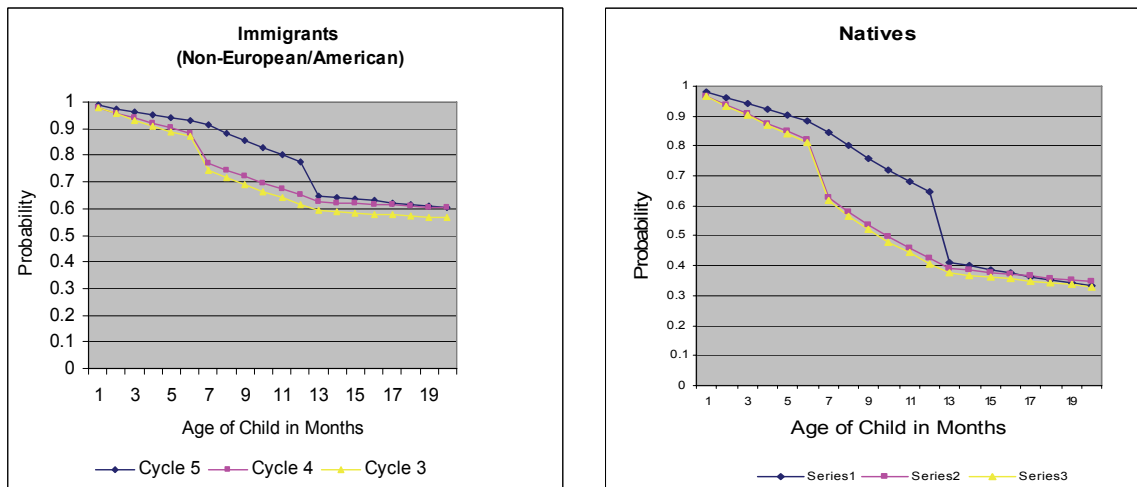
B. By Family Structure



C. By Education

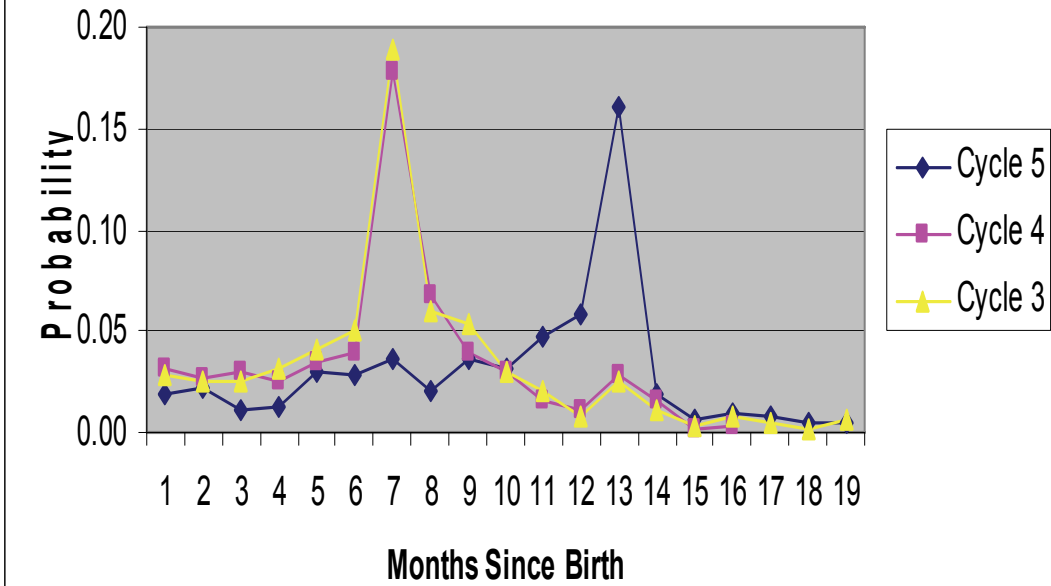


D. By Immigrant Status



Note: Based on estimates from hazard model in Table 6, Model 3. Estimates are evaluated at population weighted sample means.

**Appendix Figure 1:
Monthly Hazard for Returning to Work**



**Appendix Table 1:
Change in Predicted Probability Mother Has Not Returned to Work
By Months Since Birth**

Model/ Group	Data Period	Months Since Birth			
		6	12	15	18
Main Model					
	Cycle 4-Cycle 3	0.027	0.060	0.060	0.061
	Cycle 5-Cycle 4	0.068	0.233	0.045	0.032
Province					
Quebec	Cycle 4-Cycle 3	0.007	0.014	0.015	0.015
	Cycle 5-Cycle 4	0.041	0.098	-0.099	-0.118
Not Quebec	Cycle 4- Cycle 3	0.010	0.023	0.024	0.024
	Cycle 5-Cycle 4	0.065	0.236	0.037	0.025
Education					
LT High School	Cycle 4-Cycle 3	0.007	0.015	0.017	0.018
	Cycle 5-Cycle 4	-0.009	0.013	-0.029	-0.030
High School Grad/ Some College	Cycle 4- Cycle 3	0.014	0.029	0.030	0.030
	Cycle 5-Cycle 4	0.060	0.189	0.012	0.003
College	Cycle 4- Cycle 3	0.016	0.034	0.033	0.033
	Cycle 5-Cycle 4	0.078	0.292	0.051	0.032
Family Structure					
Single Parent	Cycle 4-Cycle 3	0.003	0.007	0.007	0.008
	Cycle 5-Cycle 4	0.039	0.067	-0.012	-0.017
Two Parents	Cycle 4- Cycle 3	0.020	0.045	0.046	0.046
	Cycle 5-Cycle 4	0.065	0.238	0.031	0.017
Immigrant					
Immigrant	Cycle 4-Cycle 3	0.013	0.034	0.036	0.036
	Cycle 5-Cycle 4	0.060	0.158	0.051	0.044
Native	Cycle 4- Cycle 3	0.008	0.017	0.017	0.017
	Cycle 5-Cycle 4	0.062	0.221	0.008	-0.006

This table uses the estimated models from Table 5, model 2, and Tables 6a, and 6b to compute changes in predicted survival probabilities for subgroups of children in the NLSCY cycles 5(born 1/1/01 to 12/31/02), cycle 4(born 1/1/99-12/31/00), and cycle 3(born 1/1/97-12/31/98). Estimates listed under “main model” are evaluated at the sample means across all cycles of data. All remaining estimates are evaluated at the means for each subgroup within each cycle of data.