

The effect of universal child benefits on labour supply

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March 2014
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Abstract

I study the effect of a universal child-related income transfer on the labour supply of married individuals. Using a difference-in-differences estimator, I find the Canadian Universal Child Care Benefit has significant negative income effects on labour supply. The likelihood of lower-educated mothers to participate in the labour force is reduced 3.2 percentage points when receiving the benefit. Median hours worked per week among lower-educated mothers is reduced by 1.9 hours. The effects on higher-educated mothers are also substantial, with median hours worked among higher-educated mothers reduced by nearly one hour per week. For men, the evidence suggests small, but significant income effects on labour supply that are consistent with the literature on labour supply elasticities.

JEL: J22, J18

Keywords: Labour supply, public policy, child benefits, demogrant

Acknowledgements

Data for this study was accessed at the South Western Ontario Research Data Centre as part of the Statistics Canada Research Data Centres Program. The opinions expressed herein do not represent the opinions of Statistics Canada. The study has benefitted from a Short-Term Research Grant provided by Wilfrid Laurier University. I would like to thank Kirill Savine for research assistance. I would like to thank Hideki Ariizumi, Michael Baker, Ana Ferrer, Nicole Fortin, David Green, Stephen Jones, Shelly Lundberg, René Morissette, Arthur Sweetman, Michael Veall, participants of the Laurier Economics Internal Seminar Series, the CRDCN 2012 National Conference, the McMaster Economics Seminar Series, and CLSRN Annual Conference, and the University of Victoria Economics Seminar Series for their comments and suggestions. I also thank two anonymous reviewers for their valuable suggestions.

1 Introduction

The effect of child benefits on the labour supply of parents is an issue of substantial interest, as most industrialized countries provide income transfers to parents of young children. Often, child benefits are designed to target low-income families and many studies have examined the effects of means-tested benefits on labour supply. In the United States, a large empirical literature has examined the impacts of the Earned Income Tax Credit (EITC) on labour supply and find significant impacts on single parent households.¹ A large U.S. literature finds that welfare programs have important labour market effects and similar effects are found in Europe.² In Canada, Lemieux and Milligan (2008) have shown that more generous social assistance benefits reduce employment. Milligan and Stabile (2007) examine the integration of Canada's National Child Benefit and provincial social assistance programs and find strong labour market effects for single mothers in terms of employment. Consistent with this, Milligan and Stabile (2009) found that raising social assistance benefits reduced labour supply and increased social assistance receipt by low-education families.³ There is a large literature estimating labour supply elasticities, which suggests low-income workers have much higher labour supply elasticities than high-income workers (see McClelland and Mok, 2012). A study by Crossley and Jeon (2007) finds that Canadian women married to higher-income husbands respond significantly to changes in effective marginal tax rates. While the labour supply elasticities of married women have fallen substantially over time, they remain higher than the elasticities of men (see Blau and Kahn, 2007; Heim, 2007) .

¹Hotz and Scholz (2003) and Meyer (2010) review this literature which generally finds that while the earnings subsidy positively affects the labour force participation of single-parent households, there is a modest negative effect on participation of secondary earners in two-parent families. Chetty et al. (2012) have recently found positive effects on earnings on the 'phase-in' region of the EITC that are higher in neighbourhoods more knowledgeable about the tax code.

²See Moffitt (2002) and Immervoll et al. (2007) for summaries.

³ In contrast, Phipps (1995) argues the introduction of an earned-income supplement (which would provide a subsidy to some low-earner families) would have negligible effects on labour supply.

There are relatively few studies, however, that have examined the impact of child benefits on the labour market behaviour of parents that are not low-income, in part because such universal programs are not as common and programs are often designed in ways that make it difficult to assess their labour market impacts.⁴ There is reason to believe that child benefits may have effects quite different from other redistribution programs. Kooreman (2000) examines the expenditures of parents who receive transfers under the Dutch child benefit system (which provides a pure demogrant to families with children). His evidence suggests that parents treat child benefits differently from other income, as though they experience a moral obligation to spend a relatively large part of the benefit on children's goods. In that context, one might expect little or no effect on labour supply. This result could depend in part on which parent receives the benefit. Woolley (2004) suggests that paying child benefits to mothers should result in higher expenditures on food, household items, and children's clothing, as women are more likely than men to control these expenditures. Dooley et al. (2005) have provided some modest evidence that the cognitive and behavioural/emotional outcomes of children are associated with the mother's share of income. Lundberg et al. (1997) have shown that giving child allowances to women in the UK increases expenditures on women's and children's clothing relative to men's clothing.

More generally, there are few opportunities to examine the effect of demogrants on labour supply and obtain estimates of income effects on both the intensive and extensive margins of labour market activity. Recently, González (2013) examined the employment decisions of new mothers in response to a substantial birth grant in Spain. She found that mothers were less likely employed in the first year after childbirth when eligible for the grant. There have also been a few studies assessing

⁴A review of OECD (2011) and OECD (2013) suggests universal child benefits are more common in Europe and nine of thirty-three OECD countries offered some level of universal child benefits as cash benefits (excluding 'birth grants') in 2007. Sixteen of the thirty-three OECD countries offered some benefit (as cash benefits or tax credits) that was not means-tested. To note, there are some inaccuracies in OECD (2013) including an omission of Canada's UCCB in their list of child benefits.

the effectiveness of tax rebates broadly distributed in the United States as economic stimulus (see Shapiro and Slemrod, 2003, 2009; Taylor, 2011). They find that such stimulus packages have small effects on spending, but large effects on savings (ie. repaying debt). Labour supply impacts are not the focus of these studies.

In Canada, the federal government introduced the Universal Child Care Benefit (UCCB) in July 2006, which provides a family with \$100 per month per child under the age of 6. For two-parent families, the benefit is paid as a monthly transfer to the mother. The benefit is not a pure demogrant, however, in that the benefit is taxable: the lower-income spouse in a family is required to claim the UCCB income when filing their federal tax returns. As such, the after-tax benefit amount depends on the tax rate applied to the lower-income spouse, not the income of the family. The benefit is sizeable, representing roughly 12-18 percent of the annual cost of children.⁵ The UCCB also represents one of the largest transfer programs administered by the Canadian government, representing 4.5 percent of federal transfers to individuals.⁶

In this study, I use Canadian Labour Force Survey (LFS) monthly data from 2003-2009 to investigate whether individuals changed their labour market behaviour in response to receiving the UCCB.⁷ To identify the effect of the UCCB, a difference-in-differences estimator is used to compare the labour market activity of married Canadians whose youngest child is aged 0-5 to married Canadians whose youngest child is aged 6-17, before and after the introduction of the UCCB. Probit models are used to estimate the effect of the UCCB on labour force participation and employment and unconditional quantile regressions are used to estimate the effect on hours worked. A complementary analysis of family expenditures is conducted using information from

⁵Using estimates from Milligan (2005) and based on Phipps (1998), adjusting for the All-Item CPI (CANSIM Table 326-0021), the cost of a first child is \$9738 per year and the cost of a third child is \$6533 in 2006 Canadian dollars.

⁶Estimates for 2013-14 government expenditures are available from the Treasury Board of Canada at <http://www.tbs-sct.gc.ca/ems-sgd/20132014/me-bpd/me-bpd01-eng.asp>.

⁷I have used the confidential files of the LFS, available to researchers through the Statistics Canada Research Data Centres Program.

the Canadian Survey of Household Spending (2004-2008).

The results suggest large and significant negative income effects on labour supply for lower-educated mothers on both intensive and extensive margins. Significant income effects are found for mothers who have attained education beyond high school as well. The income effect on hours worked may reflect greater flexibility in hours while mothers enjoy job protection and employment benefits associated with children under 12 months of age. The UCCB's negative effects on father's labour supply are significant, and align with income effect estimates in the literature.

The paper is organized as follows. In the next section I describe the UCCB and other important child related benefits in Canada. In section 3 I discuss important theoretical considerations. I then discuss the data used in this study and the empirical framework used to estimate the effect of the UCCB on labour market activity. In section 6 I discuss the results and their robustness. I also provide some estimates of the UCCB's effect on family expenditures. Finally, I offer concluding remarks.

2 Child Benefits in Canada

The Universal Child Care Benefit has been distributed to parents of children under age 6 since July 2006. The UCCB is a taxable \$100 per month per child under age 6 payment. The stated goals of the program were to “help cover the cost of children”.⁸ The discussion surrounding the policy's introduction, however, suggested the intention was for parents to increase their spending on good and services consumed by their children.⁹

⁸This is the description of the UCCB as of October 2012 at http://www.servicecanada.gc.ca/eng/goc/universal_child_care.shtml. In July 2013, the information was updated to say the UCCB “provides financial support to help all Canadian families with young children choose the child care option that best suits their families needs, whether they work in the paid labour force or stay at home with their children, live in a small town, rural community or large urban centre” at http://www.hrsdc.gc.ca/eng/child_family/child_care/index.shtml.

⁹The benefit was first publicly discussed as a part of the Conservative Party of Canada's election platform for a January 2006 election, while the Liberal Party of Canada had been promoting

A recipient of the UCCB must be the primary caregiver of the child under age 6 and a resident of Canada.¹⁰ For married couples, the benefit is paid to mothers. For tax purposes, the parent with the lowest taxable income claims the UCCB income.¹¹ The UCCB is not clawed back against provincial social assistance payments. Note that in shared custody arrangements, only one parent could receive the benefit until 2010. In 2011, provisions were introduced to allow each parent in a shared custody arrangement to receive 1/2 of the benefit.

It would be rare for a family to be eligible for the UCCB and not receive it. When first introduced in 2006, parents were automatically enrolled for the UCCB if they received the Canada Child Tax Benefit (CCTB). If ineligible for the CCTB, parents can apply directly to the Canada Revenue Agency. Upon birth of a child, parents are provided with relevant forms and information by hospital staff, and payments are easily made retroactively for up to 11 months. While it is possible for a family to not apply and opt not to receive the benefit, there are very low costs to application.¹² Payments for a specific child are automatically terminated the month following the child's 6th birthday.

Introduced in 1998, the Canada Child Tax Benefit (CCTB) and the National Child Benefit Supplement (NCBS) represent the other major Federal programs for child-related benefits. These are income tested benefits available to families with

Federal-Provincial agreements and initiatives to support formal child care programs (discussed in the 2005 Federal Budget documents). A representative of the Liberal Party had publicly stated that parents could spend the UCCB payment on "beer and popcorn" if they so choose. A discussion of that comment is found in the CBC archives at <http://www.cbc.ca/archives/categories/politics/elections/fumbles-and-stumbles-eight-great-election-gaffes/liberals-deride-beer-and-popcorn-money.html>, last accessed October 17, 2012. The Conservative Party won a minority government in the 2006 election and introduced the UCCB in the 2006 Federal Budget (<http://www.fin.gc.ca/budtoc/2006/budlist-eng.asp>).

¹⁰Canadians with citizenship for less than 12 months and new residents for less than 2 years may not be eligible.

¹¹For single parents, provisions were introduced in 2010 that allow single parents to include the UCCB in the income of an eligible dependent.

¹²More recently, an automated benefits application can be completed online, which allows birth registration information to be sent directly to the Canada Revenue Agency for UCCB registration so that costs to application are near zero.

children under age 18. The CCTB eligibility income thresholds are slightly higher and clawback rates much lower than the NCBS.¹³ The CCTB and NCBS are not taxable and some provinces have integrated the NCBS payments with their social assistance programs (see Milligan and Stabile, 2007).

Though not typically considered a child benefit, it is important to note the availability of Employment Insurance (EI) benefits for maternity and parental leave in Canada. For children born December 31, 2000 or later, the total maternity and parental paid leave time was increased to one year and the threshold for eligibility was reduced to 600 hours of work in the previous year. In line with this, all jurisdictions in Canada increased job protection provisions to allow for 52 weeks of paid or unpaid maternity or parental leave. Those eligible for EI benefits will receive up to 55% of insured earnings.¹⁴ In January 2006, Quebec introduced its own Quebec Parental Insurance Plan which is considered more generous than EI.

A few small child-related benefits were introduced over the time period studied in this paper. A children's fitness tax credit was introduced (effective January 1, 2007) as a non-refundable tax credit for up to \$500 of eligible program fees.¹⁵ There is some evidence that these benefits have largely benefited higher-income families and has not changed investments in child fitness (see Spence et al., 2010). The 2006 budget also introduced the Child Disability Benefit in July 2006. The 2007 budget introduced a new \$2000 non-refundable child tax credit for each child under the age of 18 at the end of the tax year.¹⁶

¹³In 2013, the basic CCTB benefit (\$119.41 per month per child under 18) was reduced if 'adjusted family net income' was more than \$43,561 at a rate of 2% if there was one child and 4% if there was more than one child. The NCBS was reduced for income above \$25,356 in 2013 at a rate of 12.2% for families with one child, 23% for families with two children, and 33.3% for families with 3 or more children. Some provinces provide an additional supplement and Alberta varies the basic benefit by age of the child.

¹⁴A maximum benefit is set at 55% of the year's Maximum Insurable Earnings, amounting to \$501 per week in January 2013.

¹⁵This provides parents with up to \$75 in tax relief.

¹⁶ The amount of the credit increases with inflation and provides tax relief up to 15% of \$2000. See <http://www.budget.gc.ca/2007/plan/bpa5a-eng.html#child>.

An important consideration is the availability and cost of child-care, which varies substantially across provinces and has changed over time. Quebec introduced full-time kindergarten to all 5-year-olds and the provision of child care at a cost of only \$5.00 per day. The \$5.00 per day child care was phased in to cover all children aged 4 and under by 2000. It is well known that the policy had a significant impact on child-care use and maternal labour supply (Baker et al., 2008; Lefebvre and Merrigan, 2008). Ontario recently introduced full-time kindergarten for 5-year-olds, available in some schools in 2010. The initiative is being phased in, aiming to have full-day kindergarten in all schools by 2014. Full day half-time kindergarten for 4-year-olds is simultaneously being introduced to Ontario schools.

To summarize, there are a variety of child-related benefits in Canada that could affect parents' decisions regarding labour supply. However, no significant changes were made to child-related benefits over the 2003-2009 period that only affect families with children under the age of 6. The exception is the introduction of the Quebec Parental Insurance Plan, however robustness checks will demonstrate this program is not driving any results in this paper.

3 Theoretical Discussion

A simple standard static model of labour supply treats a demogrant like the UCCB as shifting the budget constraint representing individuals' potential purchases of leisure (non-market) time and consumption goods. The demogrant has a pure income effect, so that individuals receiving the benefit are expected to purchase more normal goods. As long as leisure time is a normal good, one can expect individuals to reduce their hours of work when receiving the UCCB. In this context, a demogrant also raises an individual's reservation wage, which could induce a departure from the labour force. To the extent that the tax system is progressive and the lower-earning parent is taxed

for the UCCB income, the additional income provided by the UCCB is largest for those individuals with the lowest wage offers and/or lowest hours worked.

In light of the static model's limitations, however, one might not expect to observe this income effect in the data. In a dynamic model of labour supply, the leisure and consumption goods purchased with an anticipated demogrant - though only received for a short period of time - should be distributed over the individuals' lifetime. If the marginal value of time related to household production relative to market production is highest when children are young, however, parents may choose to use that leisure time immediately. Also, parents may use the leisure time immediately if they heavily discount their future.

Further, couples might bargain over the distribution of leisure and consumption goods. If facing similar marginal tax rates and already sharing consumption equally, couples may choose to evenly split the leisure time and consumption goods purchased with the UCCB. If a secondary earner faces much lower marginal tax rates, the couple may choose to distribute leisure purchases toward the primary earner as the marginal utility of leisure for the primary earner might be larger. If, however, the primary earner faces a fixed hours constraint, then the secondary earner may gain more in leisure time as a result of the UCCB.

A formal model of the UCCB's effects on labour supply is not pursued here. From the existing frameworks, however, it seems reasonable to expect the total labour supply of married couples to be reduced by the receipt of the UCCB. The reduction in labour supply may not be substantial, as couples might choose to smooth their consumption associated with the anticipated benefit. In the presence of fixed hours constraints on primary earners, the hours of secondary earners to are expected to change more, particularly among those in lower income brackets with a lower opportunity cost of leisure time. In this same group, full departures from the labour force in response to UCCB receipt would be more likely.

4 Data

4.1 The Canadian Labour Force Survey

The main data source for this study is the Canadian Labour Force Survey (LFS), 2003-2009. Administered by Statistics Canada, the LFS is a large-scale monthly survey with a complex survey design used to ensure accurate estimates of employment and unemployment in relatively small and sparsely populated regions. Dwellings are sampled and followed for six months of the year. Each month a new incoming rotation group (ie. set of dwellings) is chosen. The confidential microdata files are being used, allowing me to observe details of characteristics that are masked in the public-use microdata files. Although basic demographic information is only collected the first month a person is interviewed, the respondents provide the date of birth for all household members. As such, I am able to see the person's actual age each month. All respondents are identified in terms of their relationship to the family's reference person which is "normally an adult with responsibility for the care or support of the family" (Statistics Canada, 2012). Of importance here, I can link children to their parent's records without mistaking them for grandchildren.

Labour market activity on the intensive and extensive margins will refer to individuals' activity in the reference week of each month's survey. For the intensive margin, the actual hours worked at all jobs is used in the analysis. Rather than 'usual hours' or hours for the main job, the actual hours at all jobs will capture hours worked in temporary and informal employment.

When creating an indicator for UCCB receipt, I am not able to observe whether an individual or their spouse actually receives the UCCB benefit. Rather, I am indicating an expectation that they are eligible - they have at least one child (by birth, marriage, or adoption) under the age of 6 in the household and are observed after July 2006. I falsely identify eligibility in cases where individuals report their children as members

of the household but the parent does not have primary custody.¹⁷ I falsely identify ineligibility in cases where individuals have primary custody of a child that is not their own (by birth, marriage, or adoption), such as a grandchild. To check the extent to which an error might occur, I used the Survey of Labour and Income Dynamics, in which I am able to observe the ages of each child in a family and whether the family is collecting the UCCB on an annual basis. An error in assigning the UCCB occurs in only 2.5 percent of families headed by a married couple, with the bulk of errors representing families deemed eligible for the UCCB, but receiving zero benefits. The error in assigning the UCCB is not more frequent among families headed by divorced or separated individuals, or married individuals who have married more than once - in other words this is not exclusively representing complex child custody arrangements. The error in UCCB assignment in SLID did not appear correlated with indicators of labour market activity (such as labour force status and hours worked).

In the analysis that follows, the distinction is made between ‘higher’ and ‘lower’ educated individuals. In the LFS, the highest level of educational attainment is recorded for each individual. I refer to individuals with educational attainment at or below high school graduation as ‘lower’ educated and those with any post-secondary training as ‘higher’ educated. The detailed categories for educational attainment are used as control variables in the analysis.¹⁸

The sample used in this study represents married women aged 25-49 and men married to women aged 25-49. The age range was chosen to represent the group of women most likely to have children under age 6, have completed their investments in education, and had the opportunity to start career jobs. In 2006, the average age

¹⁷Respondents are asked to list the names of “all persons who usually live here” and add a person if “he/she has no other usual residence elsewhere.” It is not obvious how shared custody arrangements are treated (see Statistics Canada, 2012).

¹⁸Education categories include (i) grade 8 or lower, (ii) grade 9-10, (iii) grade 11-13 non-graduate, (iv) grade 11-13 graduate, (v) some post-secondary education, (vi) trades certificate or diploma, (vii) community college, CEGEP, etc., (viii) university certificate below Bachelor’s, (ix) Bachelor’s degree, (x) above Bachelor’s degree.

of mothers at their first childbirth was 28 years (Milan, 2011). The fertility rate of women age 40-44 has increased since the early 1980s and was 7.4 per 1000 women in 2006; the fertility rate of women age 25-29 has been quite stable and was 100.5 per 1000 women in 2006 (Milan, 2011).

The sample includes common-law marriages when referring to married individuals. Only the reference person or their spouse is sampled to ensure matching of children in a household to their own parents. The sample excludes all individuals in same-sex marriages for practical purposes - although labour market decisions within the household conditional on the presence of children are similar to those for opposite-sex couples, the analysis will be based on subsamples of men and women, making the inclusion of same-sex couples more difficult to interpret. I have chosen not to address single parents within this study as their non-labour income and time constraints differ substantially from married and common-law individuals. The resulting sample captures the vast majority of parents of young children. For example, 84 percent of parents whose youngest child was aged 0-5 were married or living in common-law relationships in the 2003-9 period; 6 percent of these parents were single (never married).¹⁹

In the analysis that follows, the main sample is restricted to parents whose youngest child (in the household) is aged 0-17 unless stated otherwise. The treatment group is defined as parents whose youngest child is aged 0-5, as this is the group that benefits from the UCCB. The control group is then comprised of parents whose youngest child is aged 6-17. As discussed in later sections, several other control groups are tested to ensure robustness of the results. First, I allow for an expansion of the control group to include parents whose youngest child is aged 6-24. Second, I restricted the control group to only include parents whose youngest child is aged 8-14. Third, I constructed a control group of ‘childless’ individuals who do not report any

¹⁹Based on author’s tabulations from the LFS public use microdata files.

of their own children under the age of 24 residing in their household. This essentially captures three groups of individuals - those who have not yet had children but intend to do so, those whose children are grown and moved away, and those who are truly ‘childless’ and plan to remain that way. I am not able to distinguish between these three groups. Finally, I construct a broader control group of all men or women who are either ‘childless’ or whose youngest child is aged 6-24.

4.2 Descriptive Statistics

Descriptive statistics for married men and women age 25-49 for the period 2003-2009 are provided in Table 1. Labour force participation and employment rates are highest among men and lowest among lower-educated mothers. Note that the participation and employment rates of the broader population (including singles) are quite similar to those presented here.²⁰ Not surprisingly, women are much more likely to be working part-time hours. Reporting 40 hours worked is modal for men, which is a standard work week in Canada (noting that 37.5 hours is commonly defined in employment contracts for full-time positions, particularly in the public sector). While the 75th percentile of hours worked by women reaches 40 hours, median hours for women is much lower. The median hours worked for lower-educated mothers is 20 hours per week and for higher-educated mothers, median hours are 20 per week. This reflects a higher likelihood of mothers to take jobs that allow for part-time and flexible hours. There is, however, a significant gap between the employment rates of highly educated mothers (78 percent) and lower-educated mothers (66 percent) that suggests these two groups are quite distinct.

Another distinction to be made between higher and lower educated mothers is the ages of their children. For example, lower educated mothers have more children aged 13-17 than higher educated mothers; higher educated mothers have more children

²⁰In CANSIM Table 282-0004, the participation rate of all women age 25-44 was 82 percent and all men age 25-44 was 92 percent.

aged 0-5 (see Table 1). The difference likely reflects two things. First, lower educated mothers may have their first child earlier than higher educated mothers so that by the time they are in this sample (aged 25-49) their children are older. Second, as educational attainment among women has risen over time, earlier birth cohorts of women are more likely to be in the lower educated group. Being older on average in my sample period, the lower educated women would have older children even if the timing of fertility were the same. It is not clear from this data whether the total fertility of the two groups is different.

Women are generally more educated than men in Canada. Among women age 25-49, 20 percent had completed a Bachelor's degree while 17 percent of their husbands had completed a Bachelor's degree (see Table 1). Similarly, fewer women in this sample have not attended some form of post-secondary education. Women, however, are more likely to attend college programs while men are more likely to obtain trades certification.

In Figure 1 the labour market activity of women, by subsample and the age of youngest child is summarized, in the months before and after the introduction of the UCCB. As one would expect, in each time period the labour supply among mothers of children aged 0-5 is lower on both the extensive and intensive margins than other mothers. For women with older children, labour supply generally increases over time. For example, (in the top panel of Figure 1) lower educated mothers whose youngest child was aged 6-17 worked 22.2 hours on average before the introduction of the UCCB and 22.8 hours after. Lower educated mothers with young children aged 0-5, however, reduced their average hours worked by 0.7 hours - from 14.6 to 13.9. Similar trends are found for the extensive margin - the employment rates of lower educated mother with children aged 6-17 increased by 1 percentage point, and fell by 3 percentage points for lower educated mothers with children aged 0-5.

The patterns for men (Figure 2) are not as distinct as they were for women. The

labour supply of fathers is generally lower in the months following the introduction of the UCCB; however the observed changes over time and the differences between those with younger and older children are very small when compared to the patterns observed for women. The most distinct pattern is for lower educated men. In the top panel of Figure 2, the average hours worked among lower-educated fathers whose child was aged 0-5 was 1.1 hours lower after the introduction of the UCCB. For lower-educated fathers with older children, average hours fell by only 0.3 hours. With respect to the extensive margin (in the second panel of Figure 2, the participation rate of lower educated men with children aged 0-5 was 1.2 percentage points lower after the introduction of the UCCB. For lower-educated fathers with older children, the participation rate fell by only 0.2 percentage points. Any observed decline in labour supply among higher educated fathers does not clearly vary with the age of their youngest child.

Figure 3 describes the labour market activity of mothers and fathers profiled over the age of their youngest child. In Canada, the availability of EI parental leave clearly affects the labour supply of mothers - when the youngest child is less than one, mothers work just over 4 hours per week. Mothers with one-year-olds, however, work on average 19 hours per week. Note that mothers employed prior to giving birth are labelled employed (on leave) in the LFS (rather than not in the labour force) as long as their child is under one year and they intend to return to work when their job-protected parental leave is over. As such, there is not a clear increase in employment rates after the youngest child turns 1. More interesting in this figure is the smooth transition towards greater labour market activity for women as their children age. In particular, there is not a clear jump at age 6 when children are typically starting their first grade in elementary school. For fathers, there is not a clear pattern for labour market activity across the age of their youngest child.²¹

²¹Note that the slight decline in men's labour market activity as children age is specific to this sample, representing entry to retirement by older husbands. The decline is not present in a sample

Overall, the descriptive statistics suggest that women, particularly mothers, are more likely to engage in employment that is part-time and allows for some flexibility in their labour market activity. Men, on the other hand, appear subject to fixed hours constraints and are less influenced by the presence of young children. Over time, there are clear changes in labour market activity that are different for mothers of young children and those without young children. This is preliminary evidence of an effect of the UCCB, and investigated more rigorously in the next sections.

5 Methods

The main estimating equation takes the form

$$Y_{it} = \beta_0 + \beta_1 UCCB_{it} + \beta_2 Under6_{it} + \beta_3 PostJuly2006_{it} + X_{it}\gamma + Z_{it}\delta + e_{it}. \quad (1)$$

The outcome Y_{it} is either hours, participation in the labour force, or employment, for individual i in month t . The variable $Under6_{it}$ indicates that the individual has a child aged 0-5 so that β_2 capture general labour market effects associated with children being young. $PostJuly2006_{it}$ indicates the individual is observed in a month after the introduction of the UCCB in July 2006. The variable $UCCB_{it}$ is an interaction term indicating the individual has a child age 5 or younger and is observed after the introduction of the UCCB. The equation then represents the standard difference-in-differences estimator.

The vector X_{it} represents the baseline set of controls used. In the baseline specification, X_{it} includes controls for the number of children in each age group (0, 1-2, 3-5, 6-12 and 13-17), indicators for the individual's age (5-year age groups), and a set of indicators for educational attainment. The vector Z_{it} captures time and province effects. The baseline regressions include a trend variable, province fixed effects of men age 25-49.

fects, province-specific trends, and seasonality of labour supply captured by indicators for each month of the year and province-specific month indicators.

The model is estimated using a probit model when Y_{it} represents participation or employment. Unconditional quantile (UQ) regressions (following Firpo et al., 2009) are used to estimate the effect of the UCCB on hours worked at various percentiles including the median.²² Hours are also estimated using a Tobit model, as a fairly large portion of women in this sample have zero hours worked. However, as the notion of latent and potentially negative desired hours worked is an odd construct to some (see for example Angrist and Pischke, 2009, p.100), I prefer to estimate the UCCB effect using the UQ regressions. OLS estimates are provided for reference, noting that individuals with zero hours worked remain in the sample when estimating the effect of the UCCB. Given that the use of fixed effects in probit models may bias estimates, I have also estimated participation and employment equations using linear probability models. Note that a variety of specifications of time and province effects (Z_{it}) were tested when estimating equation (1) for hours, participation, and employment, and the estimated effect of the UCCB was robust.²³

It is important to acknowledge concerns that the use of conventional standard errors for inference is not appropriate for difference-in-differences estimates, particularly in the case where there is only one group that experiences a treatment. For this reason, I also employ the two-step method developed by Donald and Lang (2007) to estimate the effects of the UCCB on labour supply. Similar to the strategies taken by Rossin-Slater et al. (2013) and Baker and Milligan (2008), in the first step I calculate regression-adjusted differences in outcomes between those with children aged 0-5 (the

²²I have made use of the Stata programs generously made available by the authors on Nicole Fortin's webpage at <http://faculty.arts.ubc.ca/nfortin/datahead.html>.

²³Note the estimated effect of the UCCB on hours is a bit more sensitive - for example the estimated effect on hours falls slightly in all models once provincial fixed effects are accounted for in addition to year effects. Notably, this is true for the OLS and Tobit models as well as the UQ regressions (which will have similar concerns for bias associated with fixed effects in probit models). These estimates are available from the author upon request.

treatment group) and those with children aged 6-17 (the control group) in each survey month.²⁴ Specifically, the first-stage estimating equation takes the form

$$Y_{it} = \phi_t + Under6_i\pi_t + X_{it}\gamma + Z_{it}\delta + e_{it}. \quad (2)$$

and is estimated with OLS.²⁵ The regression is estimated without a constant so that I can include indicators for each month. The time and province effects (Z_{it}) include province effects and province-specific trends. The vector $\hat{\pi}_t$ contains the estimated regression-adjusted differences between the treatment and control group for each survey month t . For the second stage, I collapse the data into 84 survey month cells and estimate the equation

$$\hat{\pi}_t = \rho_0 + \rho_1 PostJuly2006_t + u_t. \quad (3)$$

The coefficient ρ_1 then represents the effect of the UCCB on labour supply. As the second-step equation is estimated using 84 observations, inference is based on the student's t-distribution with 82 degrees of freedom.

Presented in the following section, several robustness tests are also conducted. To ensure the results are not driven by parents of young children responding differently to the most recent recession, the equation is estimated using only those observed before September 2008. I also provide results that address concerns about employment and wage growth among lower-educated men working in Canada's resource sector, concerns about the growing importance of EI maternity and parental leave benefits, and the introduction of the Quebec Parental Insurance Plan in 2006. I also provide results that address concerns about the purity of the control group in this study, since

²⁴The notation used here closely follows Rossin-Slater et al. (2013), who calculated the regression-adjusted differences in outcomes for each survey year of their data.

²⁵It is not clear whether the Donald and Lang methods can be applied to UQ regressions. Determination of an appropriate method for UQ regressions is beyond the scope of this paper.

some individuals were observed with 5 year olds (in the treatment group) who become 6 year-olds within the 6 months of the LFS.

6 Results

6.1 Main estimates

The baseline results for the sample of married mothers aged 25-49 are presented in Table 2. Here, I report the probit estimates for participation in the labour force and UQ (median) estimates for actual hours worked per week. (A comparable set of results for the sample of married fathers is provided in the Appendix.) Before turning to the main coefficients of interest in this study, it is interesting to consider the coefficients on other covariates.

As expected, women with the youngest children are the least likely to participate in the labour force and work the fewest hours. In the first column of Table 2, the coefficients indicate that having a child age 0 is associated with an 11 percentage point lower probability of participating in the labour force. Having a additional child aged 13-17, on the other hand, is associated with a 1.8 percentage point lower probability of participation. A similar child-age-gradient is found for median hours worked though the estimates would suggest having a child age 0 matters most at the extensive margin for women. The coefficients for fathers (Appendix Table 1) tell a similar story - more older children are associated a higher median hours of work - however the coefficients are quite small relative to those for mothers. The age coefficients suggest an expected concave age-hours profile for men and women. The estimated marginal effect of education on participation or median hours has a steep gradient for women, more so than for men. For example, while having a Bachelor's degree is associated with a 7.7 percentage point higher likelihood of participation than high school graduates among women (Table 2), the estimated coefficient for

men is only 0.006 (0.6 percentage points, see Appendix Table 1). Moreover, attaining only grade 8 or less is associated with a 22 percentage point lower likelihood of participation than high school graduates among women, but only a 7.6 percentage point lower likelihood of participation among men.

The UCCB has a significant and substantial effect on the labour market activity of mothers on both the extensive and intensive margins (Table 2). Receipt of the UCCB reduces married women's participation by 1.3 percentage points. At the median, actual hours worked is reduced by one hour. This implies a much larger income elasticity than what is typically found in the literature for married women.²⁶

In Table 3, I present the estimated effect of the UCCB on labour supply for each of the subsamples (mothers and fathers, by educational attainment) and measure of labour supply (participation, employment or hours worked). For each measure of labour supply, estimates based on the relevant modelling options are presented (including probit, OLS, Tobit, UQ, and the Donald and Lang two-step estimator). The UCCB clearly has large and significant negative effects on the likelihood of participation or employment among mothers, particularly those with lower levels of education, and the estimates are quite robust across modelling choices (see panels A and B in Table 3). While the UCCB reduces the likelihood of participation or employment of all mothers by one percentage point, the likelihood of participation among lower-educated mothers is reduced by 3.2 percentage points. Among higher educated mothers, the effect of the UCCB on participation is smaller, reducing the likelihood of participation by less than one percentage point. Notably, the results (though slightly larger in magnitude) remain significant when the Donald and Lang methods are used to estimate the UCCB effect in participation or employment. The results also suggest a small, but significant, effect on the participation of fathers - receipt of the

²⁶Using an hourly wage for women of \$20 per hour (CANSIM 282-0074, 2006 data), the income effect is $(20 * (-1.005)) / 24 = -0.8$. McClelland and Mok (2012) suggest the income elasticity is in the range 0 - -0.1.

UCCB reduces a lower-educated father’s likelihood of participation by more than one percentage point (see panel A in Table 3).

In panel C of Table 3, I present the effect of the UCCB on hours worked. Broadly speaking, the estimates suggest the UCCB has a large and significant negative effect on hours worked. The largest negative effects of the UCCB are found for lower-educated mothers. At the median, hours worked are reduced by 1.9 hours for lower-educated mothers. The effect is not nearly as strong at the 75th percentile of hours, as the UCCB’s effect on the 75th percentile of hours worked is only -0.43. The effects on higher educated mothers are more modest (the UCCB’s effect on median hours is -0.96). The Donald and Lang estimates suggest that caution regarding inference is warranted; although OLS estimates are significant for higher educated mothers, the Donald and Lang estimates are not. For men, the UCCB has a small effect on hours worked, which appears to be driven by the response of lower-educated men. For all fathers, the UCCB reduces median hours by only 0.04 (or less than 3 minutes per week). The result appears to be largely driven by the response of lower-educated fathers: at the median, hours worked among lower educated fathers is reduced by -0.14. The implied income effect is in line with estimates for men found in the literature.²⁷ Interestingly, there is a slightly larger effect on hours at the 75th percentile for men. This might reflect an opportunity and desire for fathers of young children to pass up overtime hours on occasion.

6.2 Further robustness checks

In Tables 4 and 5 I explore the robustness of the results for married women on the extensive margin and intensive margin, respectively. Compared to the baseline estimates, the exclusion of all observations after September 2008 does not substantially

²⁷Using an hourly wage for men at \$23/hour (CANSIM 282-0074, 2006), the income effect is $(23*(-0.0443))/40 = 0.026$. McClelland and Mok (2012) suggest the income elasticity is in the range 0 - -0.1.

alter the estimated effect of the UCCB on the participation, employment or hours worked by married women (presented in row 1 of Tables 4 and 5). As such, the results do not merely reflect a general reduction in labour supply by mothers in response to the recession.²⁸

Another development in recent years is the large increase job opportunities and men's hourly wages in Canada's resource sector.²⁹ To account for this, I provide two sets of estimates (in rows 2 and 3 of Tables 4 and 5). First, I include a control variable for the spouse's wage rate (which is set to zero for spouse's that are not employed and should thus be thought of as an interaction between employment and wages). This inclusion has no effect not the estimated effect of the UCCB on the intensive or extensive margins. Second, I estimate the equation using a sub-sample of married women whose husbands are not low educated (ie. have completed more than high school). The estimated effect on participation and employment is slightly smaller in this sub-sample, but a larger negative UCCB effect is found for median hours. This may capture the nature of assortative mating and the role of women as secondary earners in families with highly-educated husbands - they may be more likely to participate in the labour force, but conditional on participation have more flexible work schedules. This interesting result warrants further study beyond the scope of this paper.

²⁸Note that this is robust for the higher-educated mothers sub-sample, the estimated effect on the 75th percentiles of hours among lower educated mothers, and the marginal effects based on OLS or the Tobit model for the sample of lower educated mothers. However, the estimated effect of the UCCB on the 45th and median hours for lower educated mothers is insignificant when post-recession observations are excluded. Given this discrepancy is specific to results reflecting those working the fewest hours, it is likely this merely reflects our limited ability to use UQ regressions to estimate effects on the part of the distribution closest to zero hours. I cannot exclude the possibility, however, that during recessions low educated mothers of young children working few hours are more likely than other mothers to act as added workers in the family by raising their hours worked, but not differentially changing their likelihood of participation in the labour force to the same extent. This result likely relates to the nature of employment held by these mothers and how this changes over the business cycle, which requires further investigation beyond the scope of this study.

²⁹While nominal wages for all employees age 25-54 increased by 22% from 2003-2009, the nominal wages of men age 25-54 in the resource sector increased by 31% (tabulations based on CANSIM Table 282-0072).

Tables 4 and 5 also provide estimates that account for parameters of Canada's maternity and parental leave provisions. First, a subsample that excludes Quebec is used to account for Quebec's more generous parental leave. The results for the UCCB's effect on the extensive and intensive margins are slightly smaller (in row 4 of the tables). Second, the effect is estimated using a subsample that excludes the parents of infants (under 12 months old). This appears unimportant for the estimated effect of the UCCB on the extensive margin (row 5 of Table 4). However, the estimated effect on hours is smaller than for the broader sample (presented in row 5 of Table 5). As such, the effect of the UCCB may in part reflect more flexibility in hours for mothers of infants than flexibility in hours for mothers of toddlers and pre-schoolers.

The sixth row of Tables 4 and 5 address concerns about the purity of the control group used in this study. Because the LFS interviews the same household for 6 months, there are some parents that will end up in both the treatment and control group as their youngest child turns 6. To account for this, all children observed turning 6 over the 6 month period are removed from the sample. The sample is then reweighed so that distribution for the age of the youngest child in the household is preserved. The results for the estimated effect of the UCCB labour supply are nearly identical to the baseline estimates.

The remaining rows (7-10) of Tables 4 and 5 estimate the effect of the UCCB when alternative control groups are used. Broadening the control group to include all women aged 25-49, broadening the group to include mothers of older children (up to age 24), or narrowing the sample to those whose youngest child is aged 8-14 does not substantively change the results. The estimated effect of the UCCB is slightly smaller and even insignificant when the control group is comprised only of women who do not have their own children in the home, however (as noted earlier) it is not clear how to describe the 'childless' group of women.

Broadly speaking, the estimates presented herein suggest (i) the UCCB has large and significant negative effects on the labour force participation and employment of mothers, particularly lower-educated mothers, (ii) the UCCB has large negative effects on hours worked, particularly lower-educated mothers, and (iii) the UCCB has small, but significant effects on the participation and hours worked by lower-educated men.

6.3 UCCB effects on expenditures and other decisions

The results presented thus far have suggested significant negative income effects on labour supply associated with child-related demogrants. In some subsamples, it appears the UCCB reduces individual labour supply to the extent that there might not be an increase in average families' expenditures, including purchases of child-related goods and services, in response to UCCB receipt.³⁰ To examine this more closely, I make use of the Canadian Survey of Household Spending (2004-2008). I construct a sample of two-parent families headed by (opposite-sex) married couples where the wife is age 25-49 and the youngest child is age 17 or under. I then test whether the UCCB has a significant effect on various aspects of families' spending. I consider several categories of spending, including total consumption, food purchases, clothing, and household operations.

I estimate a version of equation (1), where Y_{it} represents annual expenditures (in 2006 Canadian dollars). I include indicators for 2006 or later, whether the youngest child is under age 6 and their interaction to capture UCCB receipt. As covariates, X_{it} includes husbands' and wives' age, education, working full-time full-year, the number of children age 0-4 and 5-17, and Z_{it} includes a trend and province fixed effects.

The results are presented in Table 6. First, the estimates indicate that the UCCB

³⁰As a reference point, provincial minimum wages ranged from \$6.70 in New Brunswick to \$8 in British Columbia in 2006. For lower educated women, a 1.85 hour per week reduction in labour supply implies a minimum \$50-60 per month reduction in earnings - more than 1/2 of the UCCB benefit amount per month.

had no significant effect on total household consumption or expenditures (which includes consumption, payroll taxes, insurance premiums, and gifts). Within categories of spending, however, there is some indication that families change their consumption patterns (noting results with single stars are statistically significant at the 15 percent level).³¹ For example, in households where the mother is more highly educated, there is an increase in purchases of food from stores associated with the UCCB, and a reduction in spending on personal care and household furnishings. For households with lower-educated mothers, the UCCB is associated with a slight increase in purchases of children’s clothing (by \$53) and a slight reduction in expenditures on children’s camps (\$26). In the sample of all families, there is some evidence of a reduction in expenditures on women’s clothing associated with the UCCB. Overall, the evidence is relatively weak but suggests that families shift their expenditures towards items that could benefit children, and potentially represent a higher level of household production. Unfortunately, there does not exist appropriate time-use data to properly assess whether the UCCB has led to a change in parents’ household production or general activities with children in a way that clearly benefits children.

In this study, it is not possible to ascertain the effect of the UCCB on fertility, which may be of concern if there is selection into becoming a new parent related to labour market attachment. Milligan (2005) shows that Quebec transfer payments to new parents (up to \$8000) had a significant effect on fertility. The research on teen fertility suggests that government transfers will have negligible effects on the choices of teens and that economic opportunities are likely to matter more (Kearney and Levine (2012), Ariizumi and Sen (2013)). A recent study of a Spanish income transfer to new parents found significant effects on fertility, in part through a reduction in abortions (González, 2013). In Canada, there has been a general upward trend in fertility over

³¹There are over 200 categories of expenditures in the SHS to consider. Other categories were tested but the results were not statistically significant. Tested categories included tobacco and alcohol, education, recreation, health care and miscellaneous expenditures.

the 2000-2009 period (Milan, 2011). However, there is no clear break in trend between 2005 and 2007. Furthermore, the increase in fertility appears to be falling after 2007. The effects on fertility warrant further investigation beyond the scope of this study.

7 Concluding Remarks

Universal child benefits in Canada have had significant and substantial negative effects on the labour supply of women, particularly those with lower education. The main estimates in this study indicate that women with high school graduation or less reduced their likelihood of participating in the labour force by 3.2 percentage points and reduced their likelihood of being employed by 2.4 percentage points. Median hours worked per week is reduced by 1.85 hours for lower educated women in response to the introduction of the UCCB. The magnitude of the UCCB's effect on higher-educated mothers is much smaller: the UCCB reduces their likelihood of participation in the labour force by 1 percentage point. The evidence suggests that the UCCB's effect on mothers' hours worked may in part represent flexibility in the choice of hours while children are under 12 months of age and many mothers enjoy job protection and employment benefits. The evidence does not suggest there are large effects on the labour supply of fathers. Estimates for the 75th percentile of hours among fathers does suggest a slight and noteworthy reduction in hours worked.

The estimates represent relatively large negative effects on labour supply for lower-educated mothers in two-parent families, on both the intensive and extensive margins. This is not necessarily representing an effect of demogrants on low-income families, rather an effect on secondary earners with children. Rather than spending the entire value of child-related benefits on goods and services for children, the parents are using that income to purchase more time away from the paid labour market. Unfortunately the available time-use data in Canada does not allow us to measure an effect of the

UCCB on the time parents spend in activities that directly benefit their children (such as playing or reading with children) or indirectly benefit their children (for example by making more nutritious meals for the family or improving their own mental health). As such, this study is unable to determine whether children are benefitting from the extra time parents spend away from the paid labour market when receiving child benefits.

References

- Angrist, Joshua D., and Jorn-Steffen Pischke (2009) *Mostly Harmless Econometrics: An Empiricist's Companion*
- Ariizumi, Hideki, and Anindya Sen (2013) 'Teen families, welfare transfers, and the minimum wage: Evidence from Canada.' *Canadian Journal of Economics* 46(1), 338–360
- Baker, Michael, and Kevin Milligan (2008) 'Maternal employment, breastfeeding, and health: Evidence from maternity leave mandates.' *Journal of Health Economics* 27(4), 871–887
- Baker, Michael, Jonathan Gruber, and Kevin Milligan (2008) 'Universal child care, maternal labor supply, and family well-being.' *Journal of Political Economy* 116(4), 709–745
- Blau, Francine D., and Lawrence M. Kahn (2007) 'Changes in the labor supply behavior of married women: 1980-2000.' *Journal of Labor Economics* 25, 393–438
- Chetty, Raj, John N. Friedman, and Emmanuel Saez (2012) 'Using differences in knowledge across neighborhoods to uncover the impacts of the eitc on earnings.' NBER Working Papers 18232, National Bureau of Economic Research, Inc, July
- Crossley, Thomas F., and Sung-Hee Jeon (2007) 'Joint taxation and the labour supply of married women: Evidence from the Canadian tax reform of 1988.' *Fiscal Studies* 28(3), 343–365
- Donald, Stephen G., and Kevin Lang (2007) 'Inference with Difference-in-Differences and Other Panel Data.' *The Review of Economics and Statistics* 89(2), 221–233
- Dooley, Martin, Ellen Lipman, and Jennifer Stewart (2005) 'Exploring the good

- mother hypothesis: Do child outcomes vary with the mother's share of income?' *Canadian Public Policy* 31(2), 123–144
- Firpo, Sergio, Nicole M. Fortin, and Thomas Lemieux (2009) 'Unconditional quantile regressions.' *Econometrica* 77(3), 953–973
- González, Libertad (2013) 'The effect of a universal child benefit on conceptions, abortions, and early maternal labor supply.' *American Economic Journal: Economic Policy* 5(3), 160–188
- Heim, Bradley T. (2007) 'The incredible shrinking elasticities: Married female labor supply, 1978–2002.' *Journal of Human Resources*
- Hotz, Joseph V., and John Karl Scholz (2003) 'The earned income tax credit.' In *Means-Tested Transfer Programs in the United States*, ed. Robert A. Moffitt (Chicago: University of Chicago Press) pp. 141–197
- Immervoll, Herwig, Henrik Jacobsen Kleven, Claus Thustrup Kreiner, and Emmanuel Saez (2007) 'Welfare reform in European countries: a microsimulation analysis.' *Economic Journal* 117(516), 1–44
- Kearney, Melissa S., and Phillip B. Levine (2012) 'Why is the teen birth rate in the United States so high and why does it matter?' *Journal of Economic Perspectives* 26(2), 141–63
- Kooreman, Peter (2000) 'The labeling effect of a child benefit system.' *American Economic Review* 90(3), 571–583
- Lefebvre, Pierre, and Philip Merrigan (2008) 'Child-care policy and the labor supply of mothers with young children: A natural experiment from Canada.' *Journal of Labor Economics* 26(3), 519–548

- Lemieux, Thomas, and Kevin Milligan (2008) ‘Incentive effects of social assistance: A regression discontinuity approach.’ *Journal of Econometrics* 142(2), 807–828
- Lundberg, Shelly J., Robert A. Pollak, and Terence J. Wales (1997) ‘Do husbands and wives pool their resources? evidence from the United Kingdom child benefit.’ *Journal of Human Resources* 32(3), 463–480
- McClelland, Robert, and Shannon Mok (2012) ‘A review of recent research on labor supply elasticities.’ Working Paper 2012-12, Congressional Budget Office, October
- Meyer, Bruce D. (2010) ‘The effects of the earned income tax credit and recent reforms.’ In *Tax Policy and the Economy*, ed. Jeffrey R. Brown, vol. 24 (University of Chicago Press) chapter 5, pp. 153–180
- Milan, Anne (2011) ‘Fertility: Overview, 2008.’ Technical Report Catalogue no. 91-209-X, Statistics Canada, Ottawa
- Milligan, Kevin (2005) ‘Subsidizing the stork: New evidence on tax incentives and fertility.’ *The Review of Economics and Statistics* 87(3), 539–555
- Milligan, Kevin, and Mark Stabile (2007) ‘The integration of child tax credits and welfare: Evidence from the Canadian National Child Benefit program.’ *Journal of Public Economics* 91(1-2), 305–326
- Milligan, Kevin, and Mark Stabile (2009) ‘Child benefits, maternal employment, and children’s health: Evidence from Canadian child benefit expansions.’ *American Economic Review* 99(2), 128–32
- Moffitt, Robert A. (2002) ‘Welfare programs and labor supply.’ In *Handbook of Public Economics*, ed. A. J. Auerbach and M. Feldstein, vol. 4 of *Handbook of Public Economics* (Elsevier) chapter 34, pp. 2393–2430

- OECD (2011) 'The balance of family policy tools - benefit packages, spending by age and families with young children.' In 'Doing Better for Families' (OECD Publishing.) pp. 55–88. <http://dx.doi.org/10.1787/9789264098732-4-en>
- (2013) 'Benefits and wages: Policies.' Accessed March 4, 2014 at www.oecd.org/els/benefitsandwagespolicies.htm
- Phipps, Shelley (1995) 'Canadian child benefits: Behavioural consequences and income adequacy.' *Canadian Public Policy* 21(1), 20–30
- Phipps, Shelley A. (1998) 'What is the income 'cost of a child'? exact equivalence scales for Canadian two-parent families.' *The Review of Economics and Statistics* 80(1), 157–164
- Rossin-Slater, Maya, Christopher J. Ruhm, and Jane Waldfogel (2013) 'The Effects of California's Paid Family Leave Program on Mothers Leave-Taking and Subsequent Labor Market Outcomes.' *Journal of Policy Analysis and Management* 32(2), 224–245
- Shapiro, Matthew D., and Joel Slemrod (2003) 'Consumer response to tax rebates.' *American Economic Review* 93(1), 381–396
- (2009) 'Did the 2008 tax rebates stimulate spending?' *American Economic Review* 99(2), 374–79
- Spence, John C., Nicholas L. Holt, Julia K. Dutove, and Valerie Carson (2010) 'Uptake and effectiveness of the children's fitness tax credit in Canada: the rich get richer.' *BMC Public Health* 10, 356
- Statistics Canada (2012) 'Guide to the Labour Force Survey.' Technical Report Catalogue no. 71-543-G, Statistics Canada, Ottawa

Taylor, John B. (2011) ‘An empirical analysis of the revival of fiscal activism in the 2000s.’ *Journal of Economic Literature* 49(3), 686–702

Woolley, Frances (2004) ‘Why pay child benefits to mothers?’ *Canadian Public Policy* 30(1), 47–69

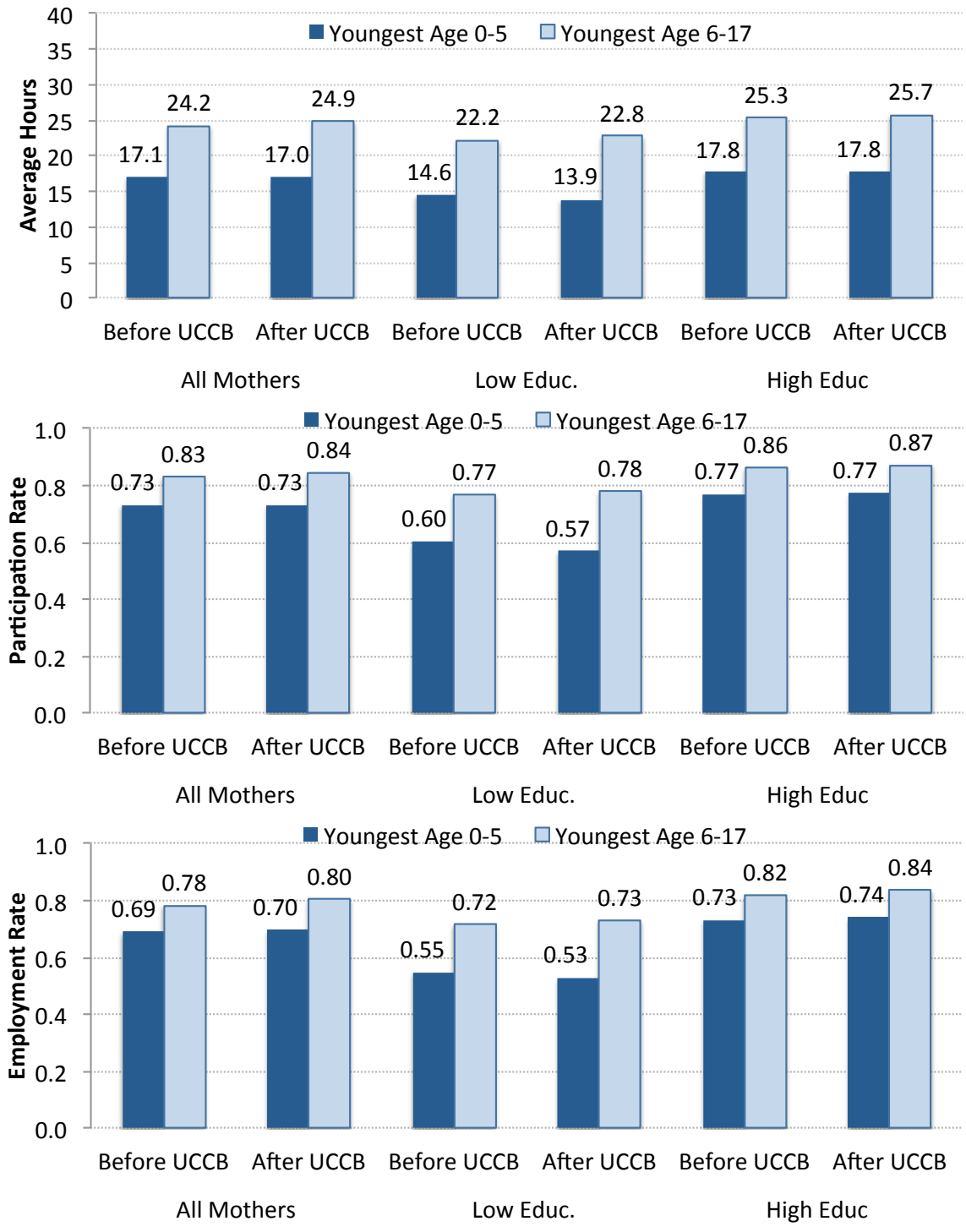


Figure 1: Labour Market Activity of Married Women, Age 25-49, 2003-2009
 NOTES: Sample includes married mothers aged 25-49 whose youngest child is aged 0-17.

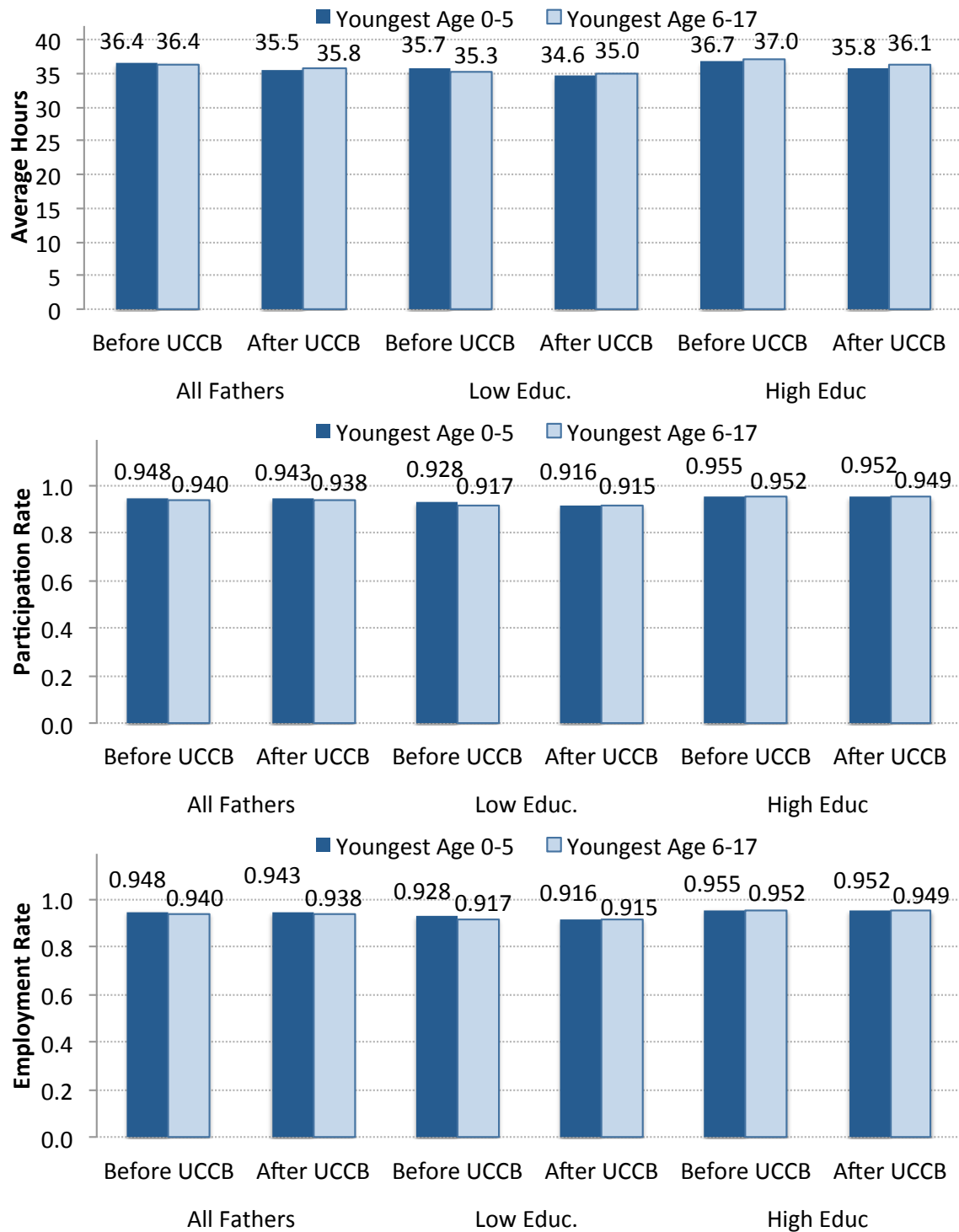
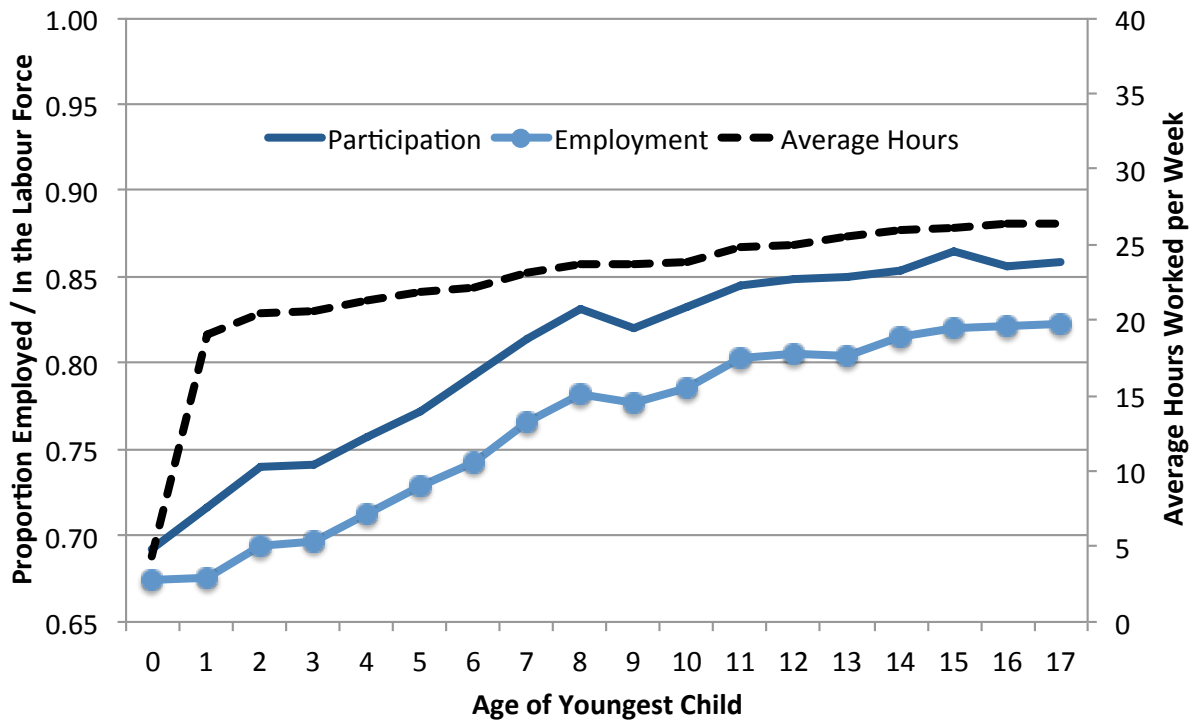
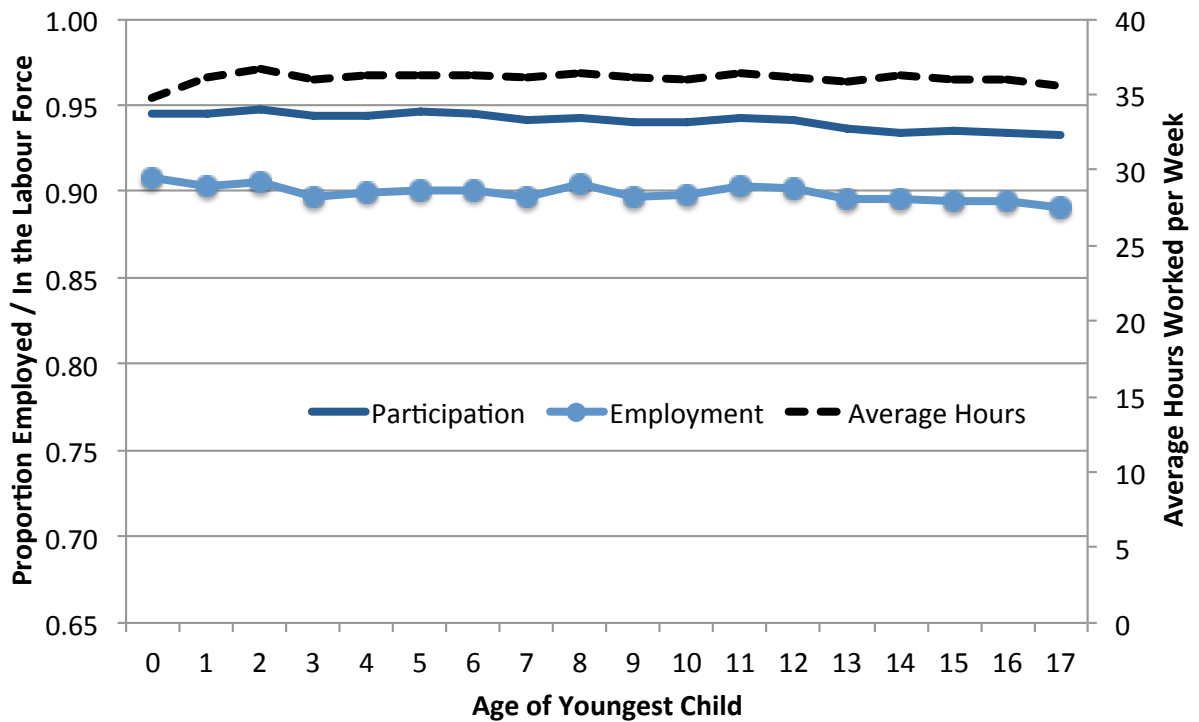


Figure 2: Labour Market Activity of Married Men, 2003-2009

NOTES: Sample includes married fathers whose wife is aged 25-49 and whose youngest child is aged 0-17.



A. Mothers



B. Fathers

Figure 3: Labour Market Activity of Married Mothers and Fathers, by Age of Youngest Child, 2003-2009

NOTES: Sample includes married mothers aged 25-49 and fathers whose wife is aged 25-49.

Table 1: Descriptive Statistics

	All Mothers	Low-Educated Mothers	High-Educated Mothers	All Fathers
In labour force	0.79	0.71	0.82	0.94
Employed	0.75	0.66	0.78	0.90
Hours				
Average ^a	21.2	19.6	21.9	36.0
40th Percentile	12.0	0.0	15.0	38.0
45th Percentile	20.0	12.0	21.0	40.0
50th Percentile	24.0	20.0	25.0	40.0
75th Percentile	37.5	37.5	37.5	45.5
UCCB	0.22	0.17	0.25	0.22
Under 6	0.44	0.35	0.47	0.44
# kids by age				
Age 0	0.10	0.06	0.11	0.10
Age 1-2	0.20	0.15	0.22	0.20
Age 3-5	0.30	0.26	0.32	0.30
Age 6-12	0.76	0.80	0.74	0.76
Age 13-17	0.56	0.70	0.50	0.56
Age (years)	37.90	38.08	37.84	40.56
Age Group				
Age 25-29	0.11	0.12	0.10	0.05
Age 30-34	0.20	0.18	0.21	0.15
Age 35-39	0.26	0.24	0.26	0.23
Age 40-44	0.26	0.27	0.26	0.27
Age 45-49	0.17	0.18	0.16	0.20
Education				
Grade 8 or less	0.02	0.07		0.02
Grade 9-10	0.04	0.13		0.05
Grade 11-13, non-grad.	0.03	0.10		0.03
Grade 11-13, graduate	0.20	0.71		0.19
Some post-secondary	0.06		0.09	0.06
Trades	0.09		0.12	0.16
CEGEP, comm. coll.	0.27		0.37	0.20
University below BA	0.03		0.04	0.03
Bachelor's	0.20		0.28	0.17
Above Bachelor's	0.07		0.10	0.10
Spouse's Age	40.56	41.14	40.33	37.91
N	876723	257660	619063	882464

NOTES: a. Average hours per week includes observations with zero hours.

Sample includes married mothers and fathers, with youngest child aged 0-17 and wife aged 25-49.

Table 2: Model Results, Married Mothers Aged 25-49

	Participation (Probit ME)	Hours (UQ median)	Participation (Probit ME)	Hours (UQ median)
UCCB	-0.013 (0.002)	-1.005 (0.203)	-0.003 (0.003)	0.090 (0.237)
Under 6	-0.034 (0.003)	-4.510 (0.244)		
Post-July 2006	0.010 (0.003)	1.371 (0.222)		
# kids				
Age 0	-0.116 (0.002)	-34.266 (0.180)	-0.220 (0.005)	-12.551 (0.382)
Age 1-2	-0.095 (0.002)	-6.769 (0.165)	-0.137 (0.004)	-9.224 (0.285)
Age 3-5	-0.072 (0.002)	-4.453 (0.147)	-0.071 (0.004)	-5.021 (0.312)
Age 6-12	-0.051 (0.001)	-4.613 (0.069)	0.012 (0.002)	-1.014 (0.227)
Age 13-17	-0.018 (0.001)	-1.778 (0.084)	0.056 (0.002)	2.523 (0.201)
Age (25-29 omitted)			0.090 (0.001)	4.741 (0.149)
Age 30-34	0.036 (0.002)	2.406 (0.183)	0.075 (0.003)	5.002 (0.317)
Age 35-39	0.040 (0.002)	3.507 (0.192)	0.077 (0.002)	3.629 (0.166)
Age 40-44	0.025 (0.002)	2.095 (0.212)	0.090 (0.002)	5.625 (0.233)
				357.4 (122.724)

NOTES: Robust standard errors in parentheses. All specifications include controls for trends, province effects, province-specific trends, month effects and province-specific month effects. Probit marginal effects are evaluated at the mean values of covariates. Sample for estimating median hours includes observations with zero hours.

Table 3: Model Results - Effect of the UCCB on Labour Supply

	All Mothers	Low-Educ. Mothers	High-Educ. Mothers	All Fathers	Low-Educ. Fathers	High-Educ. Fathers
A. Participation						
LPM	-0.0101 (0.0023)	-0.0321 (0.0049)	-0.0061 (0.0026)	-0.0037 (0.0013)	-0.0114 (0.0027)	-0.0010 (0.0014)
Donald-Lang	-0.0101 (0.0025)	-0.0325 (0.0054)	-0.0060 (0.0025)	-0.0036 (0.0013)	-0.0111 (0.0027)	-0.0011 (0.0014)
Probit ME	-0.0129 (0.0023)	-0.0319 (0.0051)	-0.0090 (0.0026)	-0.0036 (0.0013)	-0.0116 (0.0029)	-0.0009 (0.0014)
B. Employment						
LPM	-0.0099 (0.0024)	-0.0229 (0.0051)	-0.0089 (0.0028)	-0.0003 (0.0017)	-0.0050 (0.0034)	0.0008 (0.0019)
Donald-Lang	-0.0099 (0.0028)	-0.0232 (0.0055)	-0.0088 (0.0029)	0.00002 (0.0016)	-0.0042 (0.0035)	0.0009 (0.0018)
Probit ME	-0.0131 (0.0025)	-0.0235 (0.0053)	-0.0123 (0.0028)	-0.0004 (0.0017)	-0.0049 (0.0035)	0.0007 (0.0019)
C. Hours/week						
OLS	-0.4096 (0.0998)	-0.7483 (0.1964)	-0.2882 (0.1165)	-0.3601 (0.1068)	-0.7534 (0.2069)	-0.1955 (0.1253)
Donald-Lang	-0.3995 (0.2283)	-0.7571 (0.2698)	-0.2814 (0.2702)	-0.3266 (0.1645)	-0.6767 (0.2684)	-0.1830 (0.1917)
Tobit	-0.6661 (0.1600)	-1.4308 (0.3591)	-0.4998 (0.1791)	-0.4010 (0.1269)	-0.9023 (0.2559)	-0.2082 (0.1465)
UQ - 45th p.	-0.9884 (0.2327)	-4.2305 (1.1950)	-1.0748 (0.2870)	-0.0443 (0.0179)	-0.1453 (0.0427)	-0.0200 (0.0214)
UQ - Median	-1.0054 (0.2029)	-1.8514 (0.5279)	-0.9594 (0.2515)	-0.0443 (0.0179)	-0.1453 (0.0427)	-0.0200 (0.0214)
UQ - 75th p.	-0.2321 (0.0870)	-0.4305 (0.1791)	-0.1334 (0.0963)	-0.4289 (0.1020)	-0.6296 (0.1952)	-0.2487 (0.1175)
N	876723	257660	619063	882464	286339	596125

NOTES: Robust standard errors in parentheses. All specifications include covariates listed in Table 2 and controls for trends, province effects, province-specific trends, month effects and province-specific month effects. Probit marginal effects are evaluated at the mean values of covariates. Sample for estimating hours includes observations with zero hours.

Table 4: Robustness Checks - Effect of the UCCB on Mothers' Participation and Employment

	Participation		Employment		N
	LPM	Probit ME	LPM	Probit ME	
Baseline	-0.0101 (0.0023)	-0.0129 (0.0023)	-0.0099 (0.0024)	-0.0131 (0.0025)	876723
1. Pre-September 2008 sample	-0.0102 (0.0026)	-0.0128 (0.0027)	-0.0100 (0.0028)	-0.0134 (0.0029)	713738
2. Include spouse's wage rate	-0.0101 (0.0023)	-0.0129 (0.0023)	-0.0100 (0.0024)	-0.0131 (0.0025)	876723
3. Sample exclude low-educ. husbands	-0.0033 (0.0027)	-0.0060 (0.0027)	-0.0049 (0.0029)	-0.0080 (0.0030)	593339
4. Sample excludes Quebec	-0.0067 (0.0025)	-0.0086 (0.0026)	-0.0085 (0.0027)	-0.0109 (0.0028)	724748
5. Sample excludes new parents	-0.0114 (0.0025)	-0.0136 (0.0024)	-0.0101 (0.0026)	-0.0130 (0.0026)	800551
6. Ensure purity of control group	-0.0104 (0.0023)	-0.0131 (0.0024)	-0.0103 (0.0025)	-0.0134 (0.0025)	862070
7. Control group - Mothers of kids 6-24	-0.0114 (0.0022)	-0.0142 (0.0022)	-0.0114 (0.0024)	-0.0147 (0.0024)	970672
8. Control group - Mothers of kids 8-14	-0.0081 (0.0025)	-0.0115 (0.0027)	-0.0095 (0.0027)	-0.0135 (0.0029)	677258
9. Control group - 'childless' women	-0.0075 (0.0024)	-0.0100 (0.0026)	-0.0056 (0.0026)	-0.0091 (0.0028)	680904
10. Control group - All women 'childless' and kids age 6+	-0.0095 (0.0021)	-0.0117 (0.0019)	-0.0088 (0.0022)	-0.0119 (0.0021)	1288271

NOTES: Robust standard errors in parentheses. The baseline specification and sample is that presented in Table 2. Probit marginal effects are evaluated at the mean values of covariates. See text for a description of each row.

Table 5: Robustness Checks - Effect of the UCCB on Mothers' Hours Worked per Week

	OLS	Tobit	UQ - 45th	UQ - median	UQ - 75th
Baseline	-0.4096 (0.0998)	-0.6661 (0.1600)	-0.9884 (0.2327)	-1.0054 (0.2029)	-0.2321 (0.0870)
1. Pre-September 2008 sample	-0.3523 (0.1151)	-0.5820 (0.1849)	-0.7055 (0.2747)	-0.8198 (0.2360)	-0.3255 (0.0987)
2. Include spouse's wage rate	-0.4091 (0.0998)	-0.6652 (0.1600)	-0.9887 (0.2327)	-1.0056 (0.2029)	-0.2315 (0.0870)
3. Sample exclude low-educ. husbands	-0.2934 (0.1192)	-0.4513 (0.1889)	-0.8895 (0.2828)	-1.0416 (0.2468)	-0.1052 (0.1031)
4. Sample excludes Quebec	-0.2868 (0.1110)	-0.4285 (0.1778)	-0.9731 (0.3893)	-0.5935 (0.2170)	-0.1844 (0.1001)
5. Sample excludes new parents	-0.2039 (0.1110)	-0.3163 (0.1632)	-0.5738 (0.2099)	-0.6127 (0.2170)	-0.1167 (0.0810)
6. Ensure purity of control group	-0.4302 (0.1009)	-0.6987 (0.1617)	-1.0088 (0.2361)	-1.0253 (0.2052)	-0.2478 (0.0880)
7. Control group - Mothers of kids 6-24	-0.4700 (0.0964)	-0.7660 (0.1552)	-1.1096 (0.2234)	-1.1349 (0.2038)	-0.2511 (0.0818)
8. Control group - Mothers of kids 8-14	-0.4678 (0.1129)	-0.7432 (0.1775)	-1.6325 (0.3801)	-1.5973 (0.3252)	-0.3600 (0.1029)
9. Control group - 'childless' women	-0.1576 (0.1137)	-0.3966 (0.1740)	-0.5707 (0.3301)	-0.4150 (0.3493)	-0.0669 (0.0575)
10. Control group - All women 'childless' and kids age 6+	-0.3577 (0.0898)	-0.6110 (0.1453)	-0.7843 (0.1869)	-0.6746 (0.1614)	-0.1064 (0.0361)

NOTES: Robust standard errors in parentheses. The baseline specification and sample is that presented in Table 2. Sample for estimating hours includes observations with zero hours. See text for a description of each row.

Table 6: OLS Estimates - Effect of the UCCB on Annual Family Expenditures

	All Families	Low-Educ. Mothers	High-Educ. Mothers	
Total consumption	-691.9 (1401.0)	-1541.3 (2302.4)	-484.1 (1735.1)	
Total expenditures ^a	1226.2 (2087.7)	417.9 (3118.3)	1359 (2678.4)	
Food from stores	126.2 (160.7)	-261.7 (304.5)	306.4 (189.4)	*
Food from restaurants	21.6 (92.1)	167.8 (161.3)	-88 (113.0)	
Clothing, women and girls	-162.3 (104.9)	-261.8 (208.1)	-114.7 (116.2)	*
Clothing, child under 4	26 (20.7)	53.8 (33.4)	12 (25.6)	*
Child care	156.7 (132.8)	251.4 (182.1)	36.7 (170.4)	
Children's camps	10.4 (20.0)	-26.3 (17.1)	40.7 (29.5)	*
Shelter	-42.5 (508.0)	94.5 (795.2)	-261.6 (638.4)	
Household furnishings	-191.6 (107.9)	-135.2 (172.6)	-207.7 (136.2)	**
Household equipment	-91.2 (71.8)	-134.9 (132.6)	-81.1 (87.0)	
Transportation	-149.9 (568.0)	-736.7 (886.6)	179.2 (724.8)	
Personal care	-82.1 (50.1)	-53.3 (89.8)	-93.9 (60.9)	*
N	13620	4548	9072	

NOTES: Robust standard errors in parentheses. **, * denote statistical significance at the 10% and 15% levels, respectively. Sample includes married couples with children under age 17 and the wife is aged 25-49, 2004-2008. See text for regression details.

a. Expenditures includes consumption plus personal taxes, insurance payments and pension contributions.

Table A.1. Model Results, Married Fathers with Wives Aged 25-49

	Participation (Probit ME)	Hours (UQ median)	Participation (Probit ME)	Hours (UQ median)
UCCB	-0.004 (0.001)	-0.044 (0.018)	0.004 (0.002)	-0.088 (0.024)
Under 6	-0.004 (0.002)	-0.067 (0.022)	-0.035 (0.002)	-0.480 (0.026)
Post-July 2006	-0.002 (0.001)	0.207 (0.019)		
# kids		Education		
Age 0	-0.0005 (0.001)	Grade 8 or less -0.091 (0.019)	-0.076 (0.003)	-0.474 (0.029)
Age 1-2	0.001 (0.001)	Grade 9-10 0.052 (0.015)	-0.035 (0.002)	-0.238 (0.021)
Age 3-5	0.002 (0.001)	Grade 11-13, non-grad. 0.058 (0.014)	-0.014 (0.002)	-0.118 (0.024)
Age 6-12	-0.002 (0.000)	Some Post-Secondary 0.047 (0.006)	-0.008 (0.001)	-0.145 (0.020)
Age 13-17	-0.001 (0.001)	Trades 0.113 (0.007)	0.015 (0.001)	0.063 (0.014)
Age (25-29 omitted)		CEGEP, college	0.024 (0.001)	-0.078 (0.014)
Age under 25	-0.033 (0.006)	University below BA -0.565 (0.071)	0.006 (0.002)	-0.259 (0.030)
Age 30-34	0.007 (0.001)	Bachelor's degree 0.027 (0.022)	0.015 (0.001)	-0.295 (0.015)
Age 35-39	0.008 (0.001)	Above Bachelor's 0.030 (0.022)	0.014 (0.001)	-0.221 (0.019)
Age 40-44	0.008 (0.001)	Constant 0.025 (0.022)		238.973 (10.741)

NOTES: Robust standard errors in parentheses. All specifications include controls for trends, province effects, province-specific trends, month effects and province-specific month effects. Probit marginal effects are evaluated at the mean values of covariates. Sample for estimating median hours includes observations with zero hours.