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# The Effects of Child Tax Benefits on Poverty and Labor Supply: Evidence from the Canada Child Benefit and Universal Child Care Benefit


## Abstract

We investigate whether child tax benefits reduce child poverty and labor force participation among single mothers within the context of the 2015 expansion of the Canadian Universal Child Care Benefit (UCCB) and the 2016 introduction of the Canada Child Benefit (CCB). We compare single mothers to single childless women as single mothers have historically had the highest poverty rates. Our analysis indicates that both reforms reduced child poverty, although the Canada Child Benefit had the greater effect. We find no evidence of a labor supply response to either of the program reforms on either the extensive or intensive margins.



JEL Classification: H27, J13, J21, J30

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# 1 Introduction

While poverty afflicts many demographic groups, child poverty is typically viewed with particular concern. The fetal origins hypothesis (Barker (1990)) has highlighted that early life experiences can have a disproportionate impact on adult socioeconomic outcomes. The resources available to a family with young children is thought to be an important environmental factor affecting child development (see Almond et al. (2018) for a review of the recent literature).

In response, governments in many countries have designed social programs to provide resources to families with young children. Some of these programs take the form of means-tested, in-kind transfers of food (stamps), housing (vouchers), medical care and child care. Other programs provide cash transfers either in the form of an earnings subsidy (e.g. Canada Workers Benefit, Earned Income Tax Credit in the US, Working Tax Credit in the UK) that are larger for families with children, or a child allowance, which pays out a fixed amount to families per period based on a child's age (available in most EU countries, as well as Canada and Australia). Which of these alternatives is the most successful at reducing child poverty while at the same time being affordable remains an open question. However, a recent report of the National Academies of Sciences, Medicine and Engineering (2019) "A Roadmap to Reducing Child Poverty" concluded that a child allowance ($3000 per child per year) would produce the largest poverty reduction in the US among the alternatives.

Recent enhancements of the federal child allowance in Canada have been widely cited for their potential impact on child poverty in Canada.[1][2] Most well known is the 2016 reform which introduced a new Canada Child Benefit (CCB). The CCB replaced a patchwork of federal benefits including the Universal Child Care Benefit (UCCB), the Canada Child Tax Benefit (CCTB) and the National Child Benefit Supplement (NCB).[3] One of the noted features of this reform is that the entire CCB benefit is income tested, where previously the CCTB and and NCB benefits were income tested, while the UCCB benefits were taxable as per the progressivity of the Canadian income tax system. As a result some high income families–primarily single parents and one earner/two parent families–saw larger reductions in benefits in the move to the CCB. The introduction of the CCB was preceded in 2015 by an enhancement of the UCCB, which increased benefits for children aged zero to 5 years,

[1]The Canadian Department of Finance stated that the CCB helped lift roughly 300,000 children out of poverty, and that as a result of the new program child poverty would be 40 percent lower than in 2013 (see https://www.canada.ca/en/department-finance/news/2018/03/backgrounder-strengthening-the-canada-child-benefit.html).

[2]See, for example, https://www.politico.com/news/magazine/2021/02/10/biden-tax-plan-work-child-tax-credit-labor-sperling-468183 or https://www.forbes.com/advisor/personal-finance/300-monthly-payments-replace-child-tax-credit/.

[3]Unlike the UCCB which was taxable, the CCB benefit is not subject to income taxes.

and introduced a new benefit for children aged 6-17. Despite the attention that the CCB has received for its potential role in reducing child poverty, to our knowledge there is little empirical evidence of how poverty among this group has evolved over the period that the UCCB was enhanced and the CCB introduced.

This objective of this paper is to fill this gap. We estimate the effect of the UCCB expansion and subsequent introduction of the CCB on child poverty, family after-tax income and mothers' labor supply. This is policy-relevant for at least three reasons. First, child poverty is the presumptive target of these program innovations and so understanding their impacts on poverty is a key input to understanding the benefit of the reforms. Second, this evaluation can also inform policy development in other countries, as is demonstrated by the frequent citation of the Canadian experience in discussion of President Biden's proposed stimulus package, which includes expansions of child tax credits, and Senator Romney's child allowance proposal. Third, any adverse family labor supply responses to the programs increases their costs to the government, and attenuates their impacts on poverty.

Our study makes use of the public use files of the *Canadian Income Survey* (CIS) and the *Labour Force Survey* (LFS), and the confidential files of the *Longitudinal Administrative Databank* (LAD). The LAD offers large samples and administrative tax-filer based income data. The CIS offers much smaller sample sizes but is potentially more representative by capturing individuals who do not file taxes.

We use a difference-in-differences research design. Our primary focus is on single mothers, as they have historically had high poverty rates. Following much of the U.S. literature examining the impact of the Earned Income Tax Credit (EITC) on single mothers, and research examining the impact of the previous changes in the UCCB, we use childless women as a control group.

The CIS and LAD provide evidence that both the UCCB expansion and the introduction of the CCB led to increases in transfer income for single mothers relative to single women without children. In the CIS, the increase following the introduction of the CCB is roughly double the increase that followed the UCCB expansion. In the LAD, the increment due to the CCB is more than three times that due to the expansion of the UCCB. In the LAD we also find corresponding increases in after-tax income. The increment is much larger following the CCB introduction than following the UCCB expansion. In contrast, in the CIS we find little change in after tax income following either reform.

The LAD provides evidence of a small reduction in the Low Income Measure (LIM) of poverty for single mothers relative to single childless women following the UCCB expansion (1.2 percentage

points). Following the introduction of the CBB, LIM measured poverty falls roughly 5 percentage points relative to the 2014 base, or incrementally an additional 3.5+ points relative to its level after the UCCB expansion. In the CIS, using the LIM measure we find a much larger reduction in poverty following the UCCB expansion, while the reduction following the CCB introduction is close to that found in the LAD. Finally, using the Market Basket Measure (MBM) measure of poverty and the CIS the reduction in poverty following the UCCB expansion is similar to that in the LAD, but the reduction following the introduction of the CCB is much smaller. We graphically demonstrate each of these results to make transparent the role of any pre-trends in this inference.

Finally, using the LFS we find no evidence of a labor supply response to either of the program reforms on either the extensive or intensive margin.

While our evidence suggests both a decline in poverty (in both the LAD and CIS) and an increase in after tax income (in the LAD) over the period, the difference in the inference from the LAD and CIS prevents strong conclusions about the relative impacts of the two policy reforms. In particular, while it is clear that poverty rates among single mothers declined over the period, the decline in poverty for single childless women that we find in the CIS suggests that more than just the child benefits were at play. These differences underline the limitation of non experimental evaluation in some applications. On one hand the LAD offers much larger sample sizes than the CIS, and presumably more accurate administrative records of income. On the other, the coverage of the LAD is limited to individuals who file income taxes on time, which may be problematic in the lower parts of the income distribution (Messacar (2017)) –the CIS may be more representative. Also, in either data source the use of childless women as a control group, common in the literature due to few obvious alternatives, is problematic for some outcomes due to pre-trends and contemporaneous unexplained shocks. However, as these data sources and empirical strategies are those available, it is important to document the estimates given the widespread interest in these policy reforms.

The remainder of this paper is as follows. Section 2 describes the CCB policy reform, section 3 reviews the literature, section 4 describes the data and measurement of poverty in Canada, section 5 describes the empirical framework, section 6 discusses the empirical results and section 7 concludes.

## 2 The Policy Reforms

Prior to the introduction of the CCB, federal support for children was primarily through three programs: the Universal Child Care Benefit (UCCB), the Canada Child Tax Benefit (CCTB) and

the National Child Benefit Supplement (NCB). Eligibility was not conditioned on work in any of the programs. The first, and largest, was the UCCB. Established in 2006, this universal program initially paid out $100 per month, for $1200 a year, for each child under the age of 6 years. Benefits were taxable, so the net pay out was progressive according to the Canadian income tax system. The benefits were taxable in the hands of the lower income spouse in two-parent families. In single-parent families, the parent had the option of assigning the benefit to a child listed as an eligible dependent to lessen the tax impact.[4]

In 2015, the UCCB was reformed to pay out a larger amount for each child under 6—$160 per month for $1920 per year—and to establish a new benefit of $60 per month for $720 per year for each child aged 6 though 17. These reforms came into effect in January 2015, but payments started July 2015, so the initial (July) payout included retroactive benefits for January through June. As part of this reform, the government also removed the nonrefundable Child Tax Credit (CTC) worth approximately $345 in 2015 (Battle, 2015).[5] As such, the net effect of the UCCB increase would depend on the tax situation of the parent(s) accounting for both the marginal tax rate on the UCCB and the removal of the non-refundable credit. It is important to account for these changes in our empirical analysis since they occur just before the introduction of the CCB. A priori, we might expect that it will be challenging to infer how much of any change in poverty or labor supply post-2015 is due to changes in the UCCB versus the introduction of the CCB.

The second program, the CCTB, paid out a basic tax-free benefit per child under 18 years of age, and benefits were clawed back once family income surpassed a threshold. For low income households, the initial annual benefit level (in 1993) was $1020 per child, and the clawback rates were 2.5 percent for one child and 5 percent for two or more children for families with income in excess of $25,921. By 2015 the basic benefit had risen (from $1446 in 2014) to $1471 per year and the income threshold (from $43,953) to $44,701 in after-tax income. The clawback was 2 percent for one child and 4 percent for 2 or more children (Milligan (2016)). The third program, the NCB, was more targeted to lower income families. The initial annual benefit level (in 1998) was $605 for the first child and the threshold for clawback was $20,921. The original clawback rates were 12.1 percent, 20.2 percent and 26.8 percent for the first, second and third child respectively (Milligan and Stabile (2007)). In 2015,

[4]More specifically, from 2010 onward, single parents could claim the UCCB benefit as their child's income so it would not be counted in their own income. Prior to 2010, the UCCB amount had to be included in the parent's total income. In our LAD analysis we present pre-trends back to 2007 but note here that this change in 2010 could create a break in the trend before 2011, 4 years prior to the program changes of interest here.

[5]The CTC was introduced in 2006 with the UCCB. It was a $2000 tax credit for children aged 0-17 worth a maximum of $300 (2014) in federal tax relief (at the lowest marginal rate). It also provided additional relief in provincial taxes which leads to the average estimate of $345 of Battle (2015).

the basic benefit for the first child was $2279 (up from $2241 in 2014) and the income threshold for clawback was $26,021 (up from $25,584). The clawback rates were 12.2 percent for the first child, 23 percent for the second child and 33.3 percent for three or more children. Note in the sample years prior to 2015, the changes in the CCTB and NCB were due to the indexing of benefits and income thresholds to inflation not systematic reform.[6]

The Canada Child Benefit, introduced in July 2016, replaced these three programs with a single tax-free benefit. For families with income below $30,000, the annual benefit amount was $6400 per year for each child aged 0-5, and $5400 a year for each child aged 6-17. For family incomes from $30,001 through $65,000, the clawback rate varied with the number for children, from 7 percent for one child to up to 23 percent for families with 4 children. For family income in excess of $65,000 the clawback rates again varied with the number of children, from 3.2 percent through 9 percent (Kesselman (2019)).[7]

Figure 1 compares the CCB in 2016-17 to the sum of benefits provided by the UCCB, CCTB and NCB, both pre and post the expansion of the UCCB in 2015, for a family with one child aged less than 6. There are two important qualifications to the figure's depiction of the changes in resources for children the two reforms provide. First, in the figure families in the upper reaches of the family income distribution, making roughly $140,000 or more, experience a reduction of benefits with the introduction of the CCB. This depiction assumes that UCCB benefits are tax free for high income families which would be true for single parents and some one earner/two parent families. For the majority of high income, two parent families this figure overstates the reduction of benefits in the movement to the CCB.[8] Second, the increase in benefits for tax paying beneficiaries due to the UCCB expansion in the figure would be attenuated by the simultaneous removal of the CTC. For some beneficiaries the combination of the removal of the CTC and the tax owed on the new higher UCCB benefit would lead to a much smaller increase in (net) resources.[9] This said, single mothers

[6]See https://www.canada.ca/en/revenue-agency/services/child-family-benefits/information-moved/canada-child-tax-benefit-cctb-payment-amounts-tax-years-2012-2014.html (accessed March 1, 2021), Report of the Standing Senate Committee on Social Affairs (2009), Richards (2008) and Milligan (2016).

[7]Benefit payments are made monthly on a 12-month period basis starting in July of each year. To be eligible, families must file income tax returns each year even if family income is zero.

[8]This depiction is correct for single parents, who can designate a child as recipient for tax purposes, but overstates the benefit reduction in two parent families because the UCCB is taxable. In fact among two parent families with family income of $140,000 or more only about 10-15 percent had a parent with $10,000 of personal income or less implying the UCCB would be tax free. In the majority of these families the UCCB benefit would be taxable at marginal rates ranging from (2015) roughy 20 to over 50 percent.

[9]Battle (2015) cites the case of a two parent family with one child aged 0-5. The lower earning parent faces a marginal tax rate of 22 per cent (for taxable income between $43,953 and $87,907) on the increased UCCB benefit. Accounting for both the increase in the UCCB benefit of $720 and the change in tax liabilities due to the fact that a) the UCCB is taxable and b) the removal of the CTC leaves the family $217 ahead, not accounting for the increase in provincial tax liability.

are our primary focus for whom a) UCCB benefits should be tax free, and b) the removal of the CTC has less consequence to the extent that they owe little or no tax.

Figure 2 provides a different view plotting the change in benefits induced by the CCB reform for the same family structure (a single mother with one child less than 6). This is calculated net of tax, using the benefits from the 2015 tax year as a base. The largest increase in benefits is for families with roughly $50,000 in income; these families experienced an increase of about $2000 in child benefits. Families earning up to $80,000 experience the same increase in benefits as families making $30,000 or less, which is roughly an $800 increase in child benefits. Finally, the largest decrease in benefits is for very high income families, but again we assume that the UCCB benefit is tax free, which would be true for single parents, but a minority of two parent families.

# 3 Previous Literature

Previous research has explored the effects of both the NCB/CCTB and the UCCB on labor supply and poverty. Milligan and Stabile (2007) examine the effect of the NCB introduction and clawback on labor supply. Upon introduction of the NCB, some provinces agreed to subtract the federally-paid NCB Supplement benefits from provincially-paid social assistance payments. This structure allowed former welfare recipients to carry part of their social assistance payments with them into the work force, effectively lowering the welfare wall. Milligan and Stabile (2007) find large increases in labor force participation for single mothers due to the NCB reform with an implied elasticity of labor force participation with respect to the average tax rate of around 0.96. They find much less evidence of any effect on the intensive margin. We note that, in contrast to the UCCB and CCB, there were strong incentives to work built into the integration of the NCB with welfare payments.

Schirle (2015) examines the 2006 introduction of the UCCB on the labor supply of married women and finds large negative labor supply effects on both the extensive margin and intensive margin, for both low educated mothers and high educated mothers. Note that these estimates reflect a pure income effect since the UCCB does not change in work incentives. She finds an elasticity of labor supply with respect to income for married mothers in the range of -0.8 on the intensive margin which, she notes, is considerably larger than estimates for this group typically reported in the literature. In addition, Koebel and Schirle (2016) find an increase in labor force participation for divorced mothers (with no effect on hours worked) but not never married mothers following the introduction of the UCCB. As noted above, while taxable the UCCB was a fixed income transfer to families (no

clawback) in contrast to the NCB which was both clawed back and integrated (for certain periods) with other welfare payments. It is therefore not inconsistent to find the two programs had quite different effects on labor supply. Additionally, the aforementioned studies focus on different sets of mothers – single mothers for the NCB and married mothers for the UCCB and it is plausible to think that labor supply is more elastic for married mothers.

There has been extensive evaluation of cash transfers tied to work in other jurisdictions. A large literature has examined the US Earned Income Tax Credit (EITC) as a tool to promote labor supply primarily targeted at families with children (c.f. Eissa and Liebman (1996), Hotz and Scholz (2003), Hoynes and Patel (2018) among many others). Most previous evidence finds a positive if modest effect of the EITC on the labor force participation of single women (Hotz and Scholz (2003) put the range of credible estimates for the participation elasticity between 0.69 and 1.16) and a modest negative effect on hours worked on the intensive margin (smaller than the participation effect). In the UK, Gregg and Harkness (2003), Gregg et al. (2009), and Blundell et al. (2000) examine the UK Working Families Tax Credit and find that the policy increased the participation rate among lone parents in the range of 2.2 to 7.2 percentage points.

However, more recent US research has re-evaluated the effects of EITC on labor supply and found smaller elasticities. For example, Chetty et al. (2013) use local variation in knowledge about the EITC schedule to estimate the impact of the EITC credit on labor supply and find intensive margin elasticities in the range of 0.15 to 0.3 depending on income level (and hence phase in or phase out range, although they find elasticities as high as 0.8 in areas with highest EITC knowledge). They find extensive margin elasticities in the range of 0.19 to 0.6 with an average of around 0.36. Kleven (2020) re-evaluates the effect of the EITC on labor supply using an event-study design and finds that labor supply responses to the EITC are much smaller than previously reported, typically less than 0.20. He concludes that the only EITC reform associated with clear employment increase comes from the 1993 welfare reforms enacted in the US. However, the pattern of labor supply responses across different family structures indicate that the change was more likely due to contemporaneous welfare reform than the EITC.

Finally, in the recent report by National Academies of Sciences, Medicine and Engineering (2019) on reducing child poverty, the committee uses income elasticities for labor supply on the extensive margin of -0.05 for men , -0.12 for married women and -0.085 for single mothers. These elasticities are drawn from a comprehensive review of the literature by Blundell and Macurdy (1999).

# 4 Data and Measurement of Poverty

## 4.1 Canadian Income Survey (CIS), Longitudinal Administrative Databank (LAD) and Labour Force Survey (LFS)

We draw on three data sets to evaluate the impact of the policy reforms on poverty and labor supply. The first is the *Canadian Income Survey* (CIS). This is an annual, nationally representative, cross-sectional survey of the Canadian population. The variables available span support payments, child care expenses, inter-household transfers, personal income, and characteristics and costs of housing. Started in 2012, the sample size has grown over time from over 30,000 households to roughly 55,000 households. We use the public use files from 2012 to 2017 (the most recent survey available).

The unit of analysis for the regressions is the economic family, defined as "a group of two or more persons who live in the same dwelling and are related to each other by blood, marriage, common-law union, adoption or a foster relationship" (Statistics Canada, 2016). In our primary analysis the treatment group is defined as single mothers who are between the ages of 25 and 54, who are the head of the economic family (i.e. the major income earner) and have at least one child younger than 18. The control group consists of similarly defined single women, however, who do not have a child.

We also use data from the *Longitudinal Administrative Databank* (LAD) between 2007 and 2018. The LAD is a 20 percent random sample of tax filers. It is refreshed each year with new tax filers (e.g., young adults and immigrants) and individuals are followed until they stop filing taxes.[10] The LAD provides detailed information on income, transfers received, and whether the family is in poverty using the Canadian LIM as the low income measure. We restrict our analysis sample to women who were single and aged 25 to 54 in the calendar year. The treated group is defined as women who had at least one child aged 0 to 17 in the calendar year and the control group is defined as women who did not have children in this age group during calendar year [11]. Individuals who are in neither the treated or control groups based on these definitions are excluded from the analysis. The LAD is considerably larger than the CIS with income information taken directly from tax records. However, it might exclude individuals who do not file tax returns whereas the much smaller CIS, which is meant to be nationally representative, should be more likely to include some such individuals.

The third data set we use is the public use files of the monthly *Labour Force Survey* (LFS)

[10] Typically this is due to death, although if an individual temporarily stops filing taxes, s/he returns to the databank when s/he resumes filing.

[11] Dependents ages 0-17 in the LAD can include children other than the legal children of the respondent and hence potentially ineligible for child benefits. These cases are very infrequent.

for 2012-2019. This is the primary survey to collect labor force information in Canada, and is the source of monthly estimates of the unemployment rate. The sample size is roughly 56,000 households and 100,000 individuals. A wide variety of measures of both labor market participation and non-participation are collected in this survey. Because of the rotation group structure of the LFS, we construct a semi-annual data set using the April and October samples from each year to ensure that respondents do not appear in our data twice. For robustness, we also explore results by instead selecting the months of May and November. Due to a change in the format of the public use files of the LFS in 2017 we define our treatment and control groups somewhat differently in this analysis. Starting in 2017 the public use LFS no longer provides information on the relationship of the respondent to the head of the economic family. Therefore, we define the primary treatment group as single mothers whose family type is lone parent and single childless women whose family type is unattached individual. Excluded here are members of these groups in other family types because we are unable to observe if they are the major income earner in the family.[12] Like the CIS, the LFS is smaller than the LAD but nationally representative.

While our primary focus is on single women, we also present some results for two parent families. Here we define the treatment group as married (and common law) mothers who are between the ages of 25 and 54, and using their childless counterparts as a control group.

## 4.2 Measuring Poverty

We use two measures of poverty in our analysis: the Market Based Measure (MBM) and the Low Income Measure (LIM). The MBM measure was developed by Human Resources and Skills Development Canada (HRSDC), and is now used to define Canada's official poverty line. It is based on the costs of specified qualities and quantities of food, clothing, footwear, transportation, shelter and other expenses for a reference family of two adults aged 25 to 49 and two children aged 9 and 13. The MBM varies by 50 population centre sizes by province combinations and the square root of family size. It is updated annually for inflation and re-based periodically. Its current base is from 2008, but it is currently in revision. We use the MBM for our analysis of the CIS (and verify that our results are not substantially different when we use other poverty measures).

Importantly, the MBM can change over time as the cost of living changes. Thus, the poverty rate can change even if there is no change to the distribution of income. This will be an important factor to consider in our empirical analysis. We will explore robustness checks that attempt to control for

[12] In the CIS roughly 2% of single mothers and 11% of childless singles in are in these other family types.

changes over time in the MBM by holding fixed the MBM at the real dollar amount for 2012 and applying this threshold to the sample between 2012 and 2017. The resulting estimates therefore net out any changes in the MBM that might contribute to changes in the number of families below the poverty line (available upon request).

For our analysis of poverty using the LAD we use the LIM (the LIM is included by default in the LAD whereas the MBM is not and the LAD does not contain all the information necessary to reconstruct the MBM). The LIM threshold is defined as having household income that is less than half of the median after-tax income for all households in Canada, adjusted for household size. Using the LIM as an additional measure to complement the MBM has some benefits: 1) it allows us to assess whether the results are sensitive to the definition of poverty, and 2) it is a measure that can be easily compared to low income thresholds in other jurisdictions with dissimilar baskets of goods.

Figure 3 reports both the share of children living in poverty and the share of families with children in poverty (for all families, not just single mothers), measured by the MBM and the LIM using the CIS. Both measures and both groups display a downward trend starting in 2013. The LIM and the MBM track one another quite closely. The share of children living in poverty starts above the share of households with children in poverty and while both decline the share of children experiences larger declines by 2017. Finally, while there is a large annual decline between 2016 and 2017 – the period in which the CCB was introduced – clearly other factors were at work over this period as the rate of child poverty has been in decline since 2013.

# 5 Empirical Framework

This section outlines our research design which compares outcomes for single women with children ("treatment") to outcomes for single women without children ("control") before and after the policy reforms. Thus, our empirical framework follows a difference-in-differences (DD) strategy in which the baseline estimating equation is

$$Y_{i,p,t} = \underbrace{\alpha_p}_{\textit{province fixed effect}} + \underbrace{\gamma_t}_{\textit{time fixed effect}} + \underbrace{D_i}_{\textit{treatment fixed effect}} + \underbrace{\sum_{t' \neq 2014} 1\{t' = t\} D_i \tau_{t'}}_{\textit{treatment status by time}} + \underbrace{X_{i,p,t}}_{\textit{controls}} + \underbrace{\epsilon_{i,p,t}}_{\textit{residual}} \quad (1)$$

$Y_{i,p,t}$ is a measure of poverty or labor supply (employment and hours) for individual $i$ in province $p$ during time $t$. The treatment variable $D_i$ takes on a value of 1 if individual $i$ has a youngest child aged 0 to 17 and a value of 0 if individual $i$ does not have any children in the household (no child aged 0-17 in the LAD and the LFS). As controls, we include province effects ($\alpha_p$), time effects ($\gamma_t$), and $X_{ipt}$ includes a dummy variable for rural-urban (city fixed effects in the LAD), province-specific linear time trends and/or province-by-time (city-by-time in the LAD) fixed effects.[13] Below we report the full set of estimates for the treatment effects $\tau_{t'}$. For the analysis using the LAD and the CIS, $\tau_{t'}$ is normalized to 0 in 2014, the year before the reform of the UCCB. In the semi-annual data of the LFS, $\tau_{t'}$ is normalized to 0 in the first half of 2015, as the first payments of the reformed UCCB were not made until July 2015. We report robust standard errors for estimates from the LFS and CIS, and cluster the standard errors for estimates from the LAD on city*year.[14]

The key identifying assumption is "parallel trends"; namely, that there are no time-varying unobservables that differentially affect the treatment and control groups. Statistically insignificant estimates of $\tau$ for the years preceding the reforms lend support to this assumption. In the LAD we present pre trends stretching back to 2007. As noted above the tax treatment of UCCB benefits for single parents was changed in 2010, possibly leading to a time effect for this group in the data (see footnote 4). Also this extended period spans the effects of the financial crisis which may have differed across demographic groups.

A potential threat to identification are several provincial reforms, contemporaneous with the UCCB and CCB reforms, which targeted low-income children. British Columbia introduced the Early Childhood Tax Benefit in April 2015. This benefit provides a modest benefit of $55 per month per child under the age of 6 (Government of British Columbia, 2020). Alberta also introduced a child benefit in 2015/16 providing $1100 per year for single child families and up to $2750 for families with four or more children (Government of Alberta, 2020). These benefits are scaled to income. In light of these provincial reforms we also present estimates of the effects of the UCCB and CCB reforms excluding these provinces.[15]

The use of single women as a control group for exploring the effect of child benefits on single

[13] Recall that our sample for the LFS is semi-annual so the time effects correspond to semi-annual effects. The CIS is annual so the time effects are year effects.

[14] For each data set this is the most conservative option. In the LFS and CIS we investigated standard errors clustered on prov*year and treat*year, which were uniformly smaller. Because the same individuals appear in the LAD in multiple years, one approach to estimating standard errors for this data source is to cluster on the individual identifier. However, standard errors estimated in this way are smaller, as are robust standard errors and those clustered on city or number of kids*year.

[15] Strictly speaking, to disentangle the separate impacts of the UCCB and CCB reforms we must also assume that the impact of the UCCB reform is a level shift, and that the short run impact of this reform is also its long run impact.

mothers is, while not perfect, well established in the literature. Eissa and Liebman (1996), Meyer and Rosenbaum (2001), Hoynes and Patel (2018) among others all use single women without children as a comparison group for single mothers in examining the effects of the US EITC on poverty and labor supply of single mothers. We present evidence on the differences in trends between these groups for each of the outcomes explored below and note differences in short term and longer term trends.

# 6 Empirical Results

**Government Transfers**

Before turning to our analysis of poverty and labor supply we confirm that the CCB and UCCB had a positive effect on the income received by examining changes in government transfers. We conduct this analysis using both the CIS and the LAD. Figure 4 shows the changes in government transfers for single mother and single women without children between 2012 and 2017 in the CIS. Transfers reflect all direct payments from federal, provincial and municipal governments to individuals or families. Our control group of single women without children show no change in government transfers over the sample period. By contrast, for the treatment group we see relatively little change between 2012 and 2014 followed by a substantial increase in 2015, concurrent with the expansion in the UCCB. The level stays relatively flat through 2016 and then increases again in 2017, the first full year of the CCB. This pattern for both treatment and control is comforting as it is what we would expect to see given the program changes. In Figure 5 is the corresponding information from the LAD. From 2009 onward the picture is quite similar to that in the CIS, with little change in transfers for the control group. There is a modest upward drift in transfers for the treatment group starting in 2012, and then a sharp increase in 2015, followed by similar increases in 2016 and 2017. Pre-2009 transfers rise for the treatment group (including through the financial crisis of 2008) suggesting some differences in early pre-trends, possible due to automatic stabilizers kicking in during the crisis. We return to discuss the early pre-trends in the LAD below.

In Table 1 we formalize this inference reporting regression estimates following equation (1) using the CIS data. The specifications in the first three columns differ by the control for province-specific linear trends (column 2) or a full set of province-by-year interactions (column 3). Relative to the reference year (2014) transfers increase in 2015 by roughly $2300 for single mothers relative to single women without children. Transfers continue to increase in 2016 and the increase in 2017 (the first full year of the CCB), at roughly $4800 (relative to 2014), is the largest. In column 4 we exclude

Alberta and BC as they introduced new child benefits over this period. The increase in benefits for single parents remains large and roughly unchanged excluding these provinces, although the estimate for 2015 is now larger. Overall, these results support the inference from the unconditional means.

We repeat this analysis using the LAD in columns (1) - (3) of Table 2. Here we see transfers increase by roughly $1000 in 2015 relative to 2014, a little less than half the estimate from the CIS. Also, the estimate for 2017 (and 2018) at more than $3000 is roughly three quarters the estimate from the CIS. Excluding Alberta and BC from the sample (column 3) has almost no effect on the estimates.

## Poverty

We next turn to the effects of the CCB and UCCB expansion on poverty using the CIS and LAD. Once again, to preview our difference-in-differences results we present the time series of the share of individuals below the poverty line in both the CIS and LAD. For the CIS we present the time series using both the MBM and LIM measures, while for the LAD we present the LIM only. Figure 6 shows the shares below the MBM poverty line in the CIS. The treatment group of single mothers shows the expected pattern given the changes in government transfers. There is a decline in poverty in 2015 following the UCCB expansion which holds steady in 2016 before falling further in 2017, coincident with the first full year of the CCB. The pre-trends are reasonably similar for the treatment and control groups. However poverty levels in the control group begin to decline slightly in 2015, followed by a continued decline in 2016 and 2017. In total, this decline is almost as large as the decline for the treatment group between 2015 and 2017. Therefore while we see evidence of a decline in poverty following both the expansion of the UCCB and introduction of the CCB for single mothers, there is a substantial decline in poverty for single childless women coincidental with the CCB. Of course, since the control group is not eligible for the benefit, the decline in poverty for this group is due to other factors that might also affect poverty rates for single mothers.

In Figure 7 we present the corresponding times series for the LIM in the CIS. Poverty rates for single mothers fell in 2015, following the UCCB expansion. However, they rose again in 2016 and then fell by an even greater amount in 2017. In contrast, poverty rates increased for the control group between 2014 and 2015 only to begin to decline afterwards. Pre-trends are quite similar for the two groups between 2012 and 2014.

We present the results for the LIM using the LAD in Figure 8. The LIM rate of the control group is very stable throughout the sample period at just over 20 percent. The rate for the treatment group

displays quite modest variation between 2007 and 2014 and then a sustained decline starting in 2015.

Our regression estimates of equation (1) from the CIS and LAD formalize this difference in inference from the two data sets. The estimates from the LAD are reported in columns (4) - (6) of Table 2. As expected given the evidence in the figure, the estimate of the reduction in the LIM is relatively modest for 2015 (following the UCCB expansion) and a considerably larger following the introduction of the CCB. Relative to the 2014 base, the estimates indicate a roughly 5 percentage point decline in poverty for single mothers relative to single women without children following the introduction of the CCB. These estimates are essentially unchanged as further controls are added (column 5), or the provinces of Alberta and BC are excluded (column 6).

The corresponding estimates from the CIS are reported in tables 3 and 4. The point estimates for the MBM measure indicate a larger decline in poverty following the expansion of the UCCB than in the LAD. Also, the point estimates indicate a smaller reduction in poverty with the introduction of the CCB, partly because poverty falls for control group in these years. On net the estimates for 2015 and 2017 are fairly similar. This pattern remains, although the estimate for 2017 is attenuated, when we exclude Alberta and British Columbia from the sample. Note that due to the size of the standard errors none of these estimates is statistically significant.

The CIS estimates for the LIM are reported in Table 4. Here the estimated changes in poverty are larger. First, we find a consistently larger decline in poverty (between 9 and 10 percentage points) following the UCCB expansion than found in either the LAD or the CIS using the MBM. This is driven, in part, by the increase in poverty among single childless women between 2014 and 2015. Second, the decline following the CCB introduction, relative to the 2014 base, at around 7 percentage points is larger than observed in the LAD, but in this case is smaller than the UCCB expansion estimates (again, partly because poverty in the control group begins to decline over this period as well, and partly because the reduction between 2015 and 2017 is much smaller). Excluding Alberta and British Columbia reduces our estimates for the introduction of the CCB but not for the UCCB expansion.

As noted above, while the increase in benefits through the expansion of the UCCB or the introduction of the CCB could lead to changes in the incidence of poverty, so could changes in the poverty line, holding social benefits and incomes constant. To explore the effects of changes in the poverty line on our inference, we return to the CIS and perform a decomposition. We hold the MBM measure constant in real terms at its 2012 level and assess how poverty changed over time (both income and the MBM are in constant 2018 dollars). The results (available upon request)

indicate that if anything, changes in the poverty thresholds marginally attenuated the impacts of the program reforms on the incidence of poverty in families headed by single women, but do not affect our inference on the relative impacts of the UCCB reform and the introduction of the CCB.

## After-Tax Income

Both the MBM and LIM are low income/poverty thresholds. While the implied "head count" approach is one, widely used, measure of poverty, child benefits may have different effects at other points in the income distribution. For example, in the case of the LIM, child benefits may improve the lives of families who are earning well below one-half the median income percentile, while not providing quite enough money to push them past the threshold. To investigate, we next take a closer look at the impact of the reforms on after tax income.

We begin with our difference-in-differences framework. Trends in after tax income for both treatment and control groups in the LAD are shown in Figure 9 and for the CIS in Figure 10. The pre-trends for after tax income in the LAD are fairly similar from 2009 through 2014, while in 2007 and 2008, the increase in after-tax income for single women with children is a bit steeper than for single women without children. However, following 2014 we see that after tax income begins to rise far more rapidly for single mothers relative to single women without children, and surpasses that of single women by 2018. The trends in the CIS show no increase (albeit with large standard errors) in after tax income for single mothers from 2014 through 2016 followed by an increase in 2017. As with the declines in poverty, the control group also saw an increase in after-tax income between 2016 and 2017. Pre-trends for 2012-2013 are similar, although standard errors around these estimates are quite large.

We report the difference-in-differences regression results for after tax income in Table 5 for the CIS and Table 6 for the LAD. Our CIS estimates are consistent with the inference from the figure and indicate no real change in after tax earnings in 2015 or 2017, albeit with large standard errors. The LAD estimates are more precise. They show a modest increase in after tax income for single mothers relative to single women without children in 2015, rising to over $2000 by 2018. The estimated treatment effects are small and statistically insignificant for the years 2009-2013, as one would like to see. However, going back further to 2007 and 2008 we see some difference in pre-trends.

The LAD has sufficient sample size to allow us to plot the entire distribution of after-tax income for single women with children in bins of $1000. We present these distributions, one showing the 2015 distribution relative to the 2014 distribution and one showing the 2018 distribution relative

to the 2014 distribution, in Figures 11 and 12. We also show the low income cutoff for a three person family in the latter year as a vertical line. These figures permit a visual inspection of how the distribution of incomes changed relative to the poverty line following the UCCB expansion and the introduction of the CCB. Comparing the movements between 2014 and 2015, and 2014 and 2018, we see greater shifts in the mass of the distribution to the right in the 2014/2018 comparison, which is consistent with the greater decline in poverty and the greater effects on after tax income observed with the introduction of the CCB in the LAD.

To provide another perspective, we estimate unconditional quantile regressions at the 10th percentile. In this case we consider two samples: first we consider the sample of all single mothers and second, in order to control for differences in family size relative to the 10th percentile of the income distribution, we focus on only those single mothers with one child. The results are presented in Table 7. Relative to the estimates for the mean, new here is the negligible impact of the UCCB expansion on after tax income at this percentile.

In the LAD we observe relatively small impacts of the UCCB expansion on after tax income both at the mean and at the 10th percentile. This likely partly reflects the fact that the reform's impact on after tax income will reflect both the increase in UCCB benefits and the removal of the CTC tax credit. As noted above, the combined effects of the UCCB benefit being taxable and the removal of the CTC would lead to an attenuated after tax advantage from this reform.

## Poverty and After-Tax Income for Married Women

While our primary focus is single mothers, we next extend the analysis to the sample of married and common law families with treated children. As we note above, much of the literature focuses on single women because of the high rates of poverty among this group. Roughly 40% of single mothers in our samples are below the LIM versus roughly 10% of married mothers. However, while poverty rates among married mothers are much lower, more than two-thirds of children in poverty are in families with two parents (Appendix Table A5).

Trends in poverty (LIM) from the LAD for married women are presented in Appendix figure A1. The pre-trends between 2007 and 2014 are not as similar as the trends for single women. The poverty gap between the two groups narrows over the period 2007-2014. Starting in 2015, the LIM rate for married mothers starts on a downwards trajectory while the rate for married women without children stays roughly constant. By 2018 any poverty gap between the two groups has largely closed. Corresponding regression estimates are presented in column (2) of Appendix Table

A6. The results indicate a modest decline in poverty of just under one percentage point following the UCCB expansion and a decline, relative to the 2014 base, of 2 percentage points following the introduction of the CCB. Consistent with the figure a number of the estimates in the period 2007-2013 are statistically significant, indicating a modest reduction in the gap between the two groups between 2011 and 2014. Further complicating the analyses for married women is an additional change that was made in 2014 that allowed for income splitting of up to $50,000 in married households with children under age 18. This allowance was removed in 2017 by the new Liberal government. In sum, while the evidence in Figure A1 and A6 is of a relative decline in the LIM share for treated married families, the inference on the magnitude of the decline is imprecise.

## Labor Supply

We next turn to the impact of the reforms on labor supply. Viewing the CCB (and the UCCB) as non-labor income, the static model of labor supply predicts that the higher benefits will lead to increased consumption of leisure, and a reduction in labor supply on the intensive margin, if leisure is a normal good. On the extensive margin an increase in non-labor income will increase the reservation wage potentially leading to a reduction in labor force participation. Either of these effects would attenuate any impact of these programs on the poverty rate, by decreasing earnings from the labor market. Therefore, it is important to determine if these reforms had any impact of on the labor supply of single mothers and their married counterparts.

In Figure 13 we present trends in the employment rates sample of single women aged 15-64 with and without children over the sample period. Although the estimates are quite noisy, the figure reveals little evidence of a statistically significant treatment effect in the post-reform period. Throughout the period the rates of the two groups move roughly in tandem, although in specific month/years they appear to move in opposition.

Figure 14 is the corresponding plot for a measure of labor supply on the intensive margin–total weekly usual hours conditional on work. Again there is no obvious basis to conclude that either the UCCB expansion of the CCB introduction had an impact on this measure of labor supply.

The corresponding regression estimates for the employment of single women are reported in Table 8. The estimates in the first two columns (which vary in how we control for province-specific time-varying shocks) confirm the patterns in Figure 13. Post-UCCB reform, the estimates are all very small and statistically insignificant. Column 3 indicates that excluding the provinces of BC and Alberta does not affect the estimates. In the last two columns of the table we split the treatment

group by whether the youngest child is age 0-5 or age 13-17. At ages 0-5, children will require adult supervision, and for many child care will be needed if the parent works, as public schooling is not available. At ages 13-17, children are at school during the day and are more able to be left on their own after school. Therefore there is a priori reason to suspect that any impact of the policy reforms on labor supply might vary according to the age of the child. However, the estimates in these columns indicate that it does not. For either treatment group, there is little evidence of an impact of the policy reforms on labor supply.

The regression estimates for usual weekly hours are presented in Table 9. Consistent with Figure 14, the estimates do not indicate a statistically significant treatment effect. Although there is some evidence of a positive response in several months we do not see any evidence of a consistent statistically significant effect. Since the estimates are not consistently significant across the treatment period, we conclude that the reforms had little impact on the intensive margin. Finally, making a distinction based on the age of the youngest child does not affect the inference.

Consistent with the graphical evidence, our regression results do not indicate that the expansion of the UCCB or the introduction of the CCB had significant effects on the labor supply of single mothers. We have conducted a similar analysis of married women with eligible children (not reported) which leads to a similar conclusion for this group. Overall, it does not appear that the impacts of the policy reforms on poverty rates were amplified or attenuated by concurrent impact on women's labor supply.[16]

# 7 Conclusion

The capacity of child tax benefits to reduce child poverty is a policy-relevant issue in Canada and internationally. To inform this issue we estimate the impact of two recent Canadian initiatives on poverty, after-tax income and labor supply. In 2015 the UCCB was significantly expanded, increasing benefits for children aged 0 through 5 and creating a new benefit for children aged 6 through 17. In 2016 the entire set of child benefits was replaced with the CCB, which increased benefit levels, but also introduced more means testing such that the net benefits received by higher income families were reduced. The CCB has garnered international attention as an example of effective policy for combating child poverty.

Using data from the LAD and measuring poverty with the LIM we find a small reduction in

[16] Using the months May/November (not reported) instead of April/October does not change the inference.

the number of single mothers in poverty in 2015 following the expansion of the UCCB in 2015, and a larger reduction following the introduction of the CCB in 2017 and 2018. Using this same measure of poverty in the CIS, we find a larger decline in poverty following the UCCB expansion and comparable reduction in poverty (slightly larger) following the CCB introduction. Finally, using the MBM and the CIS, the reduction in poverty following the UCCB expansion is comparable to that in the LAD, but it is much smaller following the introduction of the CCB, primarily because poverty declined for both treatment and control groups. Our LAD estimates suggest a significant increase in after tax income for single mothers following the introduction of the CCB. We do not find such an increase in after tax income in the CIS, again because after tax income increased for both treatment and control. These differences highlight the strengths and potential weaknesses of the various data sets (while the LAD offers larger samples and accurate income information, the CIS may also be capturing non-filers, many of whom may be lower-income) and the potential limitations of using single childless women as a control group.

How do our estimates of the decline in child poverty compare with those cited in discussions of the CCB? Our difference-in-difference estimates for single mothers indicate between 2014 and 2018 (the period in which the UCCB was expanded and then the network of federal child benefits was replaced by the CCB) a decline in poverty as measured by the LIM of roughly 5 percentage points in the LAD. Off of a base rate for single mothers 40%, this represents just over a 12% decline. Our estimates for married women indicate a 2 percentage point decline off of a base of 10%, but this inference is complicated by greater deviation in the pre trends for the treatment and control groups.

We also consider the impact of these two policy reforms on women's labor supply using the public use files of the LFS. This is important because policy effects on labor supply and therefore labor market earnings can modify the direct program effects. However, we find no evidence that either the expansion of the UCCB nor the introduction of the CCB, had a significant impact on the labor supply of single or married women with treated children.

# References

Almond, D., J. Currie, and D. Valentina (2018): "Childhood Circumstances and Adult Outcomes: Act II," *Journal of Economic Literature*, 65, F1360–F1446.

Barker, D. J. (1990): "The Fetal and Infant Origins of Adult Disease," *BMJ*, 301.

Battle, K. (2015): "Child Benefits in Canada, Politics Versus Policy," Tech. rep., Maytree Foundation.

Blundell, R., A. Duncan, J. McCrae, and C. Meghir (2000): "The labour market impact of the Working Families' Tax Credit," *Fiscal Studies*, 21, 75–100.

Blundell, R. and T. Macurdy (1999): "Labor supply: A review of alternative approaches," *Handbook of Labor Economics*, 3, 1559–1695.

Chetty, R., J. Friedman, and E. Saez (2013): "Using Differences in Knowledge across Neighbourhoods to Uncover the Impacts of the EITC on Earnings," *American Economic Review*, 103, 2683–2721.

Eissa, N. and J. B. Liebman (1996): "Labor Supply Response to the Earned Income Tax Credit," *Quarterly Journal of Economics*, 111, 605–637.

Gregg, P. and S. Harkness (2003): "Welfare Reform and Lone Parents Employment in the UK," Tech. rep., CMPO, University of Bristol mimeo.

Gregg, P., S. Harkness, and S. Smith (2009): "Welfare Reform and Lone Parents in the UK," *The Economic Journal*, 119, F38–F65.

Hotz, V. J. and J. K. Scholz (2003): "The Earned Income Tax Credit," in *Means-Tested Transfer Programs in the United States*, ed. by R. Moffitt, Chicago: University of Chicago Press.

Hoynes, H. and A. J. Patel (2018): "Effective Policy for Reducing Poverty and Inequality? The Earned Income Tax Credit and the Distribution of Income," *The Journal of Human Resources*, 53, 859–890.

Kesselman, J. R. (2019): "Policy Options for Retargeting the Canada CHld Benefit," *Canadian Public Policy*, 45, 310–328.

Kleven, H. (2020): "The EITC and the Extensive Margin: A Reappraisal," *NBER Working Paper*, 26405.

Koebel, K. and T. Schirle (2016): "The Differential Impacts of Universal Child Benefits on Labour Supply of Married and Single Mothers," *Canadian Public Policy*, 42, 49–64.

Messacar, D. (2017): "Big Tax Data and Economic Analysis: Effects of Personal Income Tax Reassessments and Delayed Tax Filing," *Canadian Public Policy*, 43(3), 261–283.

Meyer, B. and D. Rosenbaum (2001): "Welfare, the Earned Income Tax Credit, and the Labor Supply of Single Mothers," *Quarterly Journal of Economics*, 116(3), 1063–1114.

Milligan, K. (2016): "The Tax Recognition of Children in Canada: exemptions, credits and cash transfers," *Canadian Tax Journal*, 64, 601–618.

Milligan, K. and M. Stabile (2007): "The Integration of Child Tax Credits and Welfare: Evidence from the Canadian National Child Benefit Program," *Journal of Public Economics*, 91, 305–326.

National Academies of Sciences, Medicine and Engineering (2019): "A Roadmap to Reducing Child Poverty," Tech. rep., National Academies of Sciences Medicine and Engineering, Washington DC.

Report of the Standing Senate Committee on Social Affairs (2009): "Early Childhood Education and Care: Next Steps," Tech. rep., Senate of Canada.

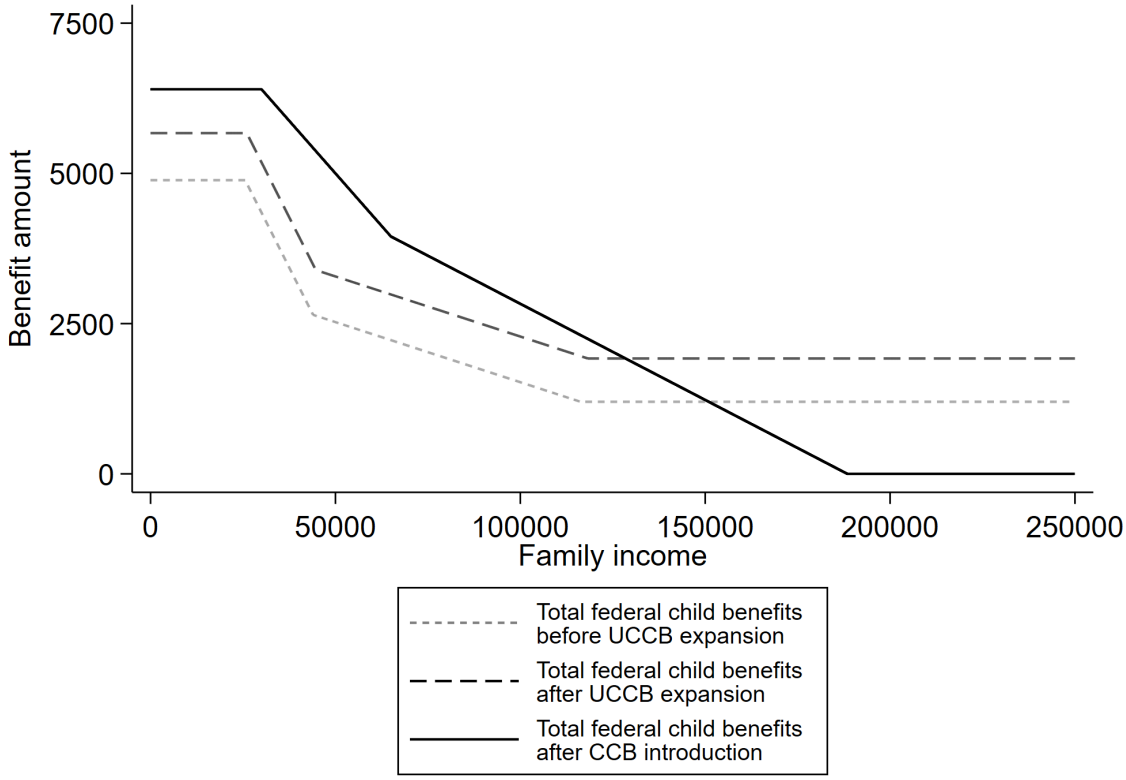
Richards, T. (2008): "Working for a Living Wage, Making Paid Work Meet Basic Family Needs in Vancouver and Victoria," Tech. rep., Canadian Centre for Policy Alternatives.

Schirle, T. (2015): "The Effects of Universal Child Benefits on Labour Supply," *Canadian Journal of Economics*, 48, 437–463.

Statistics Canada (2016): "Dictionary, Census of Population, 2016 - Economic family," .

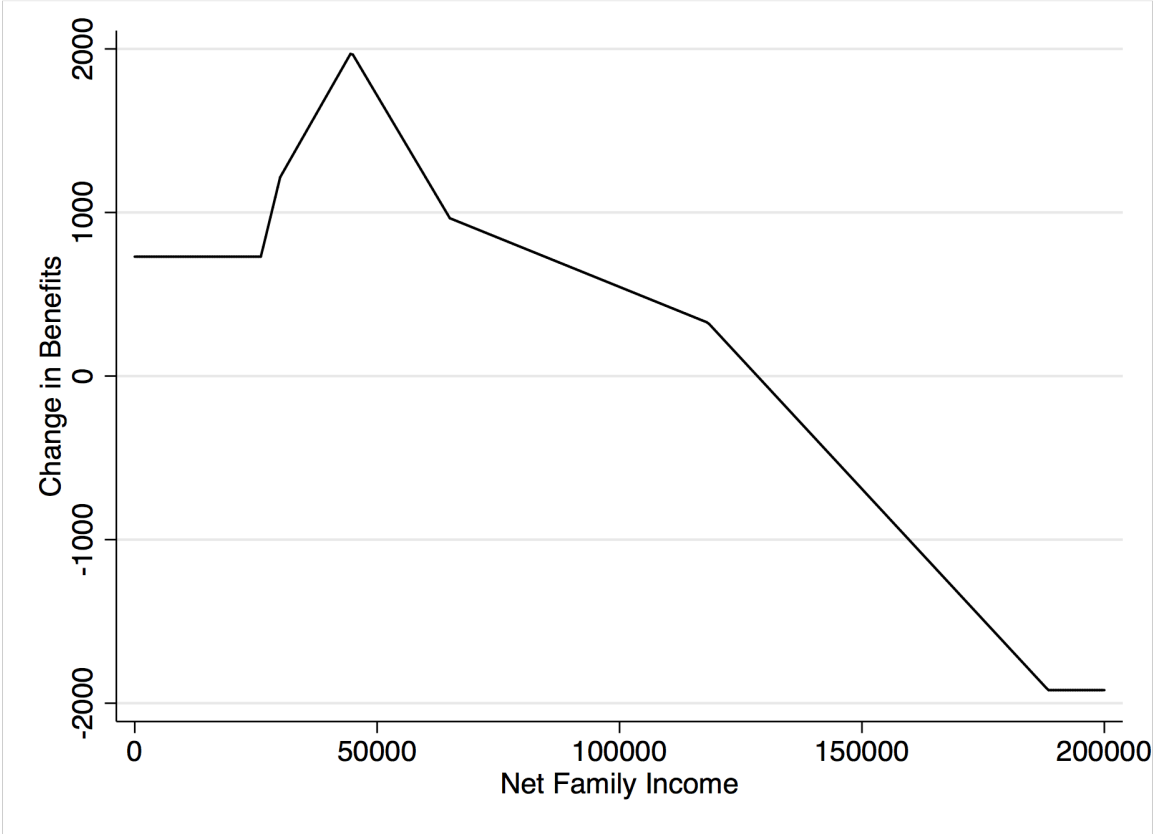
# Tables and Figures

Figure 1: The Canada Child Benefit (2016) and Expanded Universal Child Care Benefit(2015) relative to Child Benefits in 2014 - 1 child under age 6



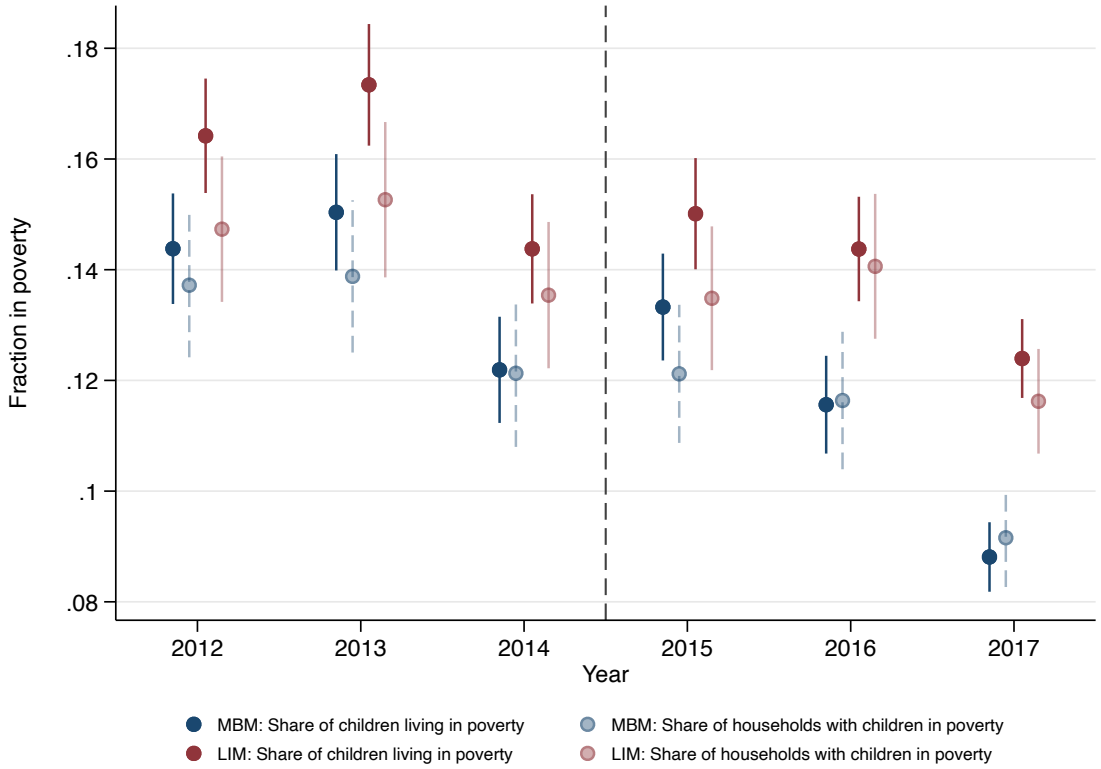

*Note*: Source: Authors' calculations. Universal Child Care Benefit (UCCB) amounts shown pre-tax. CCB refers to Canada Child Benefit

Figure 2: Changes in Benefits by Net Family Income due to the Introduction of the Canada Child Benefit - Single Mother, 1 child under age 6



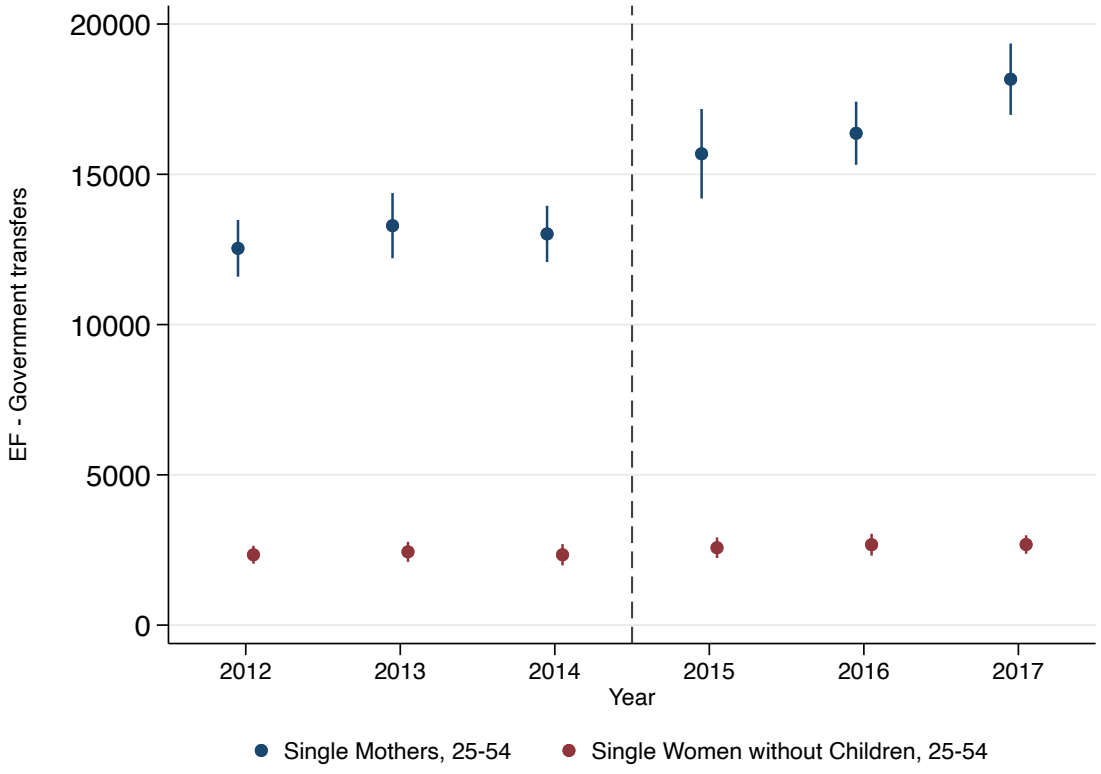

*Note*: Source: Author' calculations using the Canadian Tax and Credit Simulator (CTaCS) and the 2015 tax year a base for comparison. Change in benefits is net of tax. The calculation assumes that the Universal Child Care Benefit is tax free for high income families.

Figure 3: Low-Income Status of Children, Individual and Family Based Measures: 2012-2017, CIS



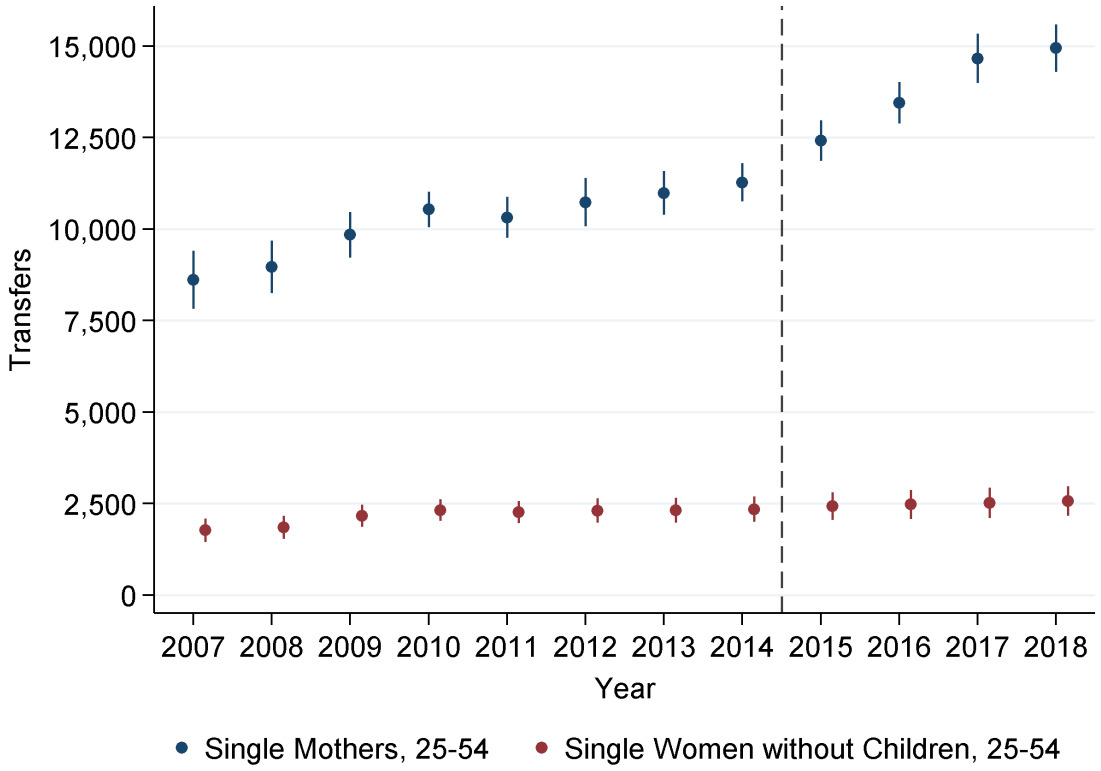

*Note*: Source: Author' calculations using the Canadian Income Survey (CIS). The 95% confidence intervals reported. The vertical line marks the expansion of the Universal Child Care Benefit (UCCB) in the data. MBM-Market Based Measure, LIM-Low Income Measure.

Figure 4: Government Transfers, Single Women: 2012-2017, CIS



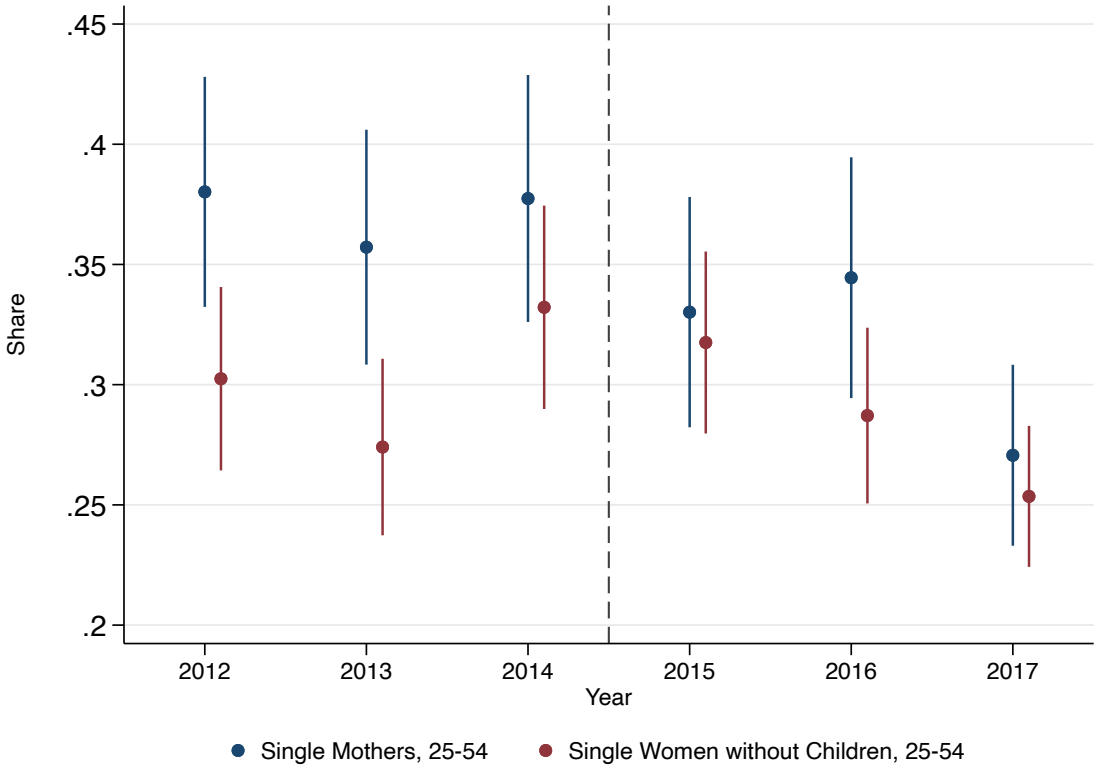

*Note*: Source: Author' calculations using the Canadian Income Survey. The 95% confidence intervals reported. The vertical line marks the expansion of the Universal Child Care Benefit (UCCB) in the data.

Figure 5: Government Transfers, Single Women: 2007-2018, LAD



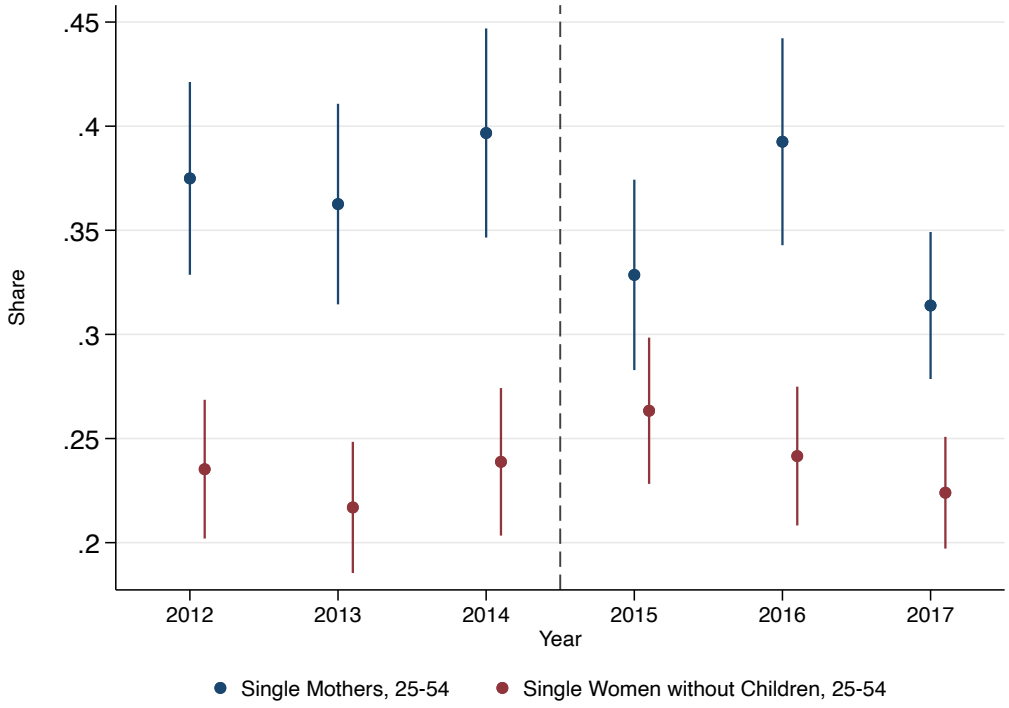

*Note*: Authors' calculations using the Canadian Longitudinal Administrative Databank (LAD). The 95% confidence intervals reported. The vertical line marks the expansion of the Universal Child Care Benefit (UCCB) in the data.

Figure 6: Low-Income Status, Single Women - MBM Measure: 2012-2017, CIS



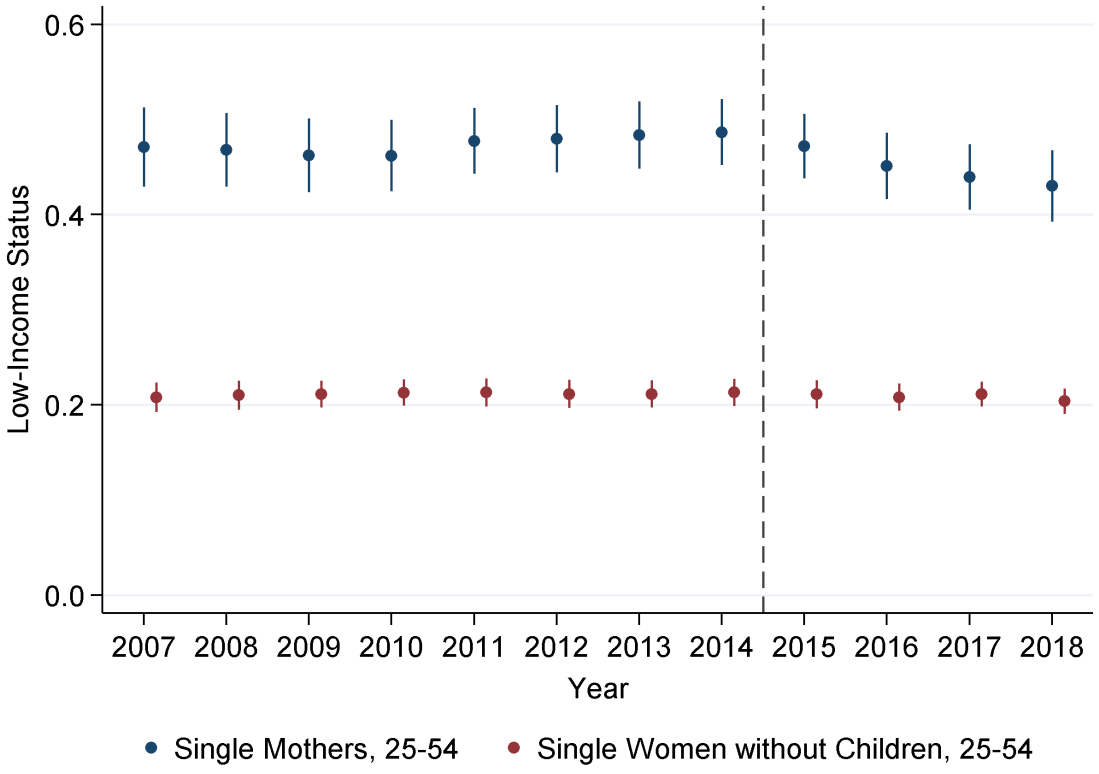

*Note*: Source: Author' calculations using the Canadian Income Survey (CIS). The 95% confidence intervals reported. The vertical line marks the expansion of the Universal Child Care Benefit (UCCB) in the data. MBM-Market Based Measure.

Figure 7: Low-Income Status, Single Women - LIM Measure: 2012-2017, CIS



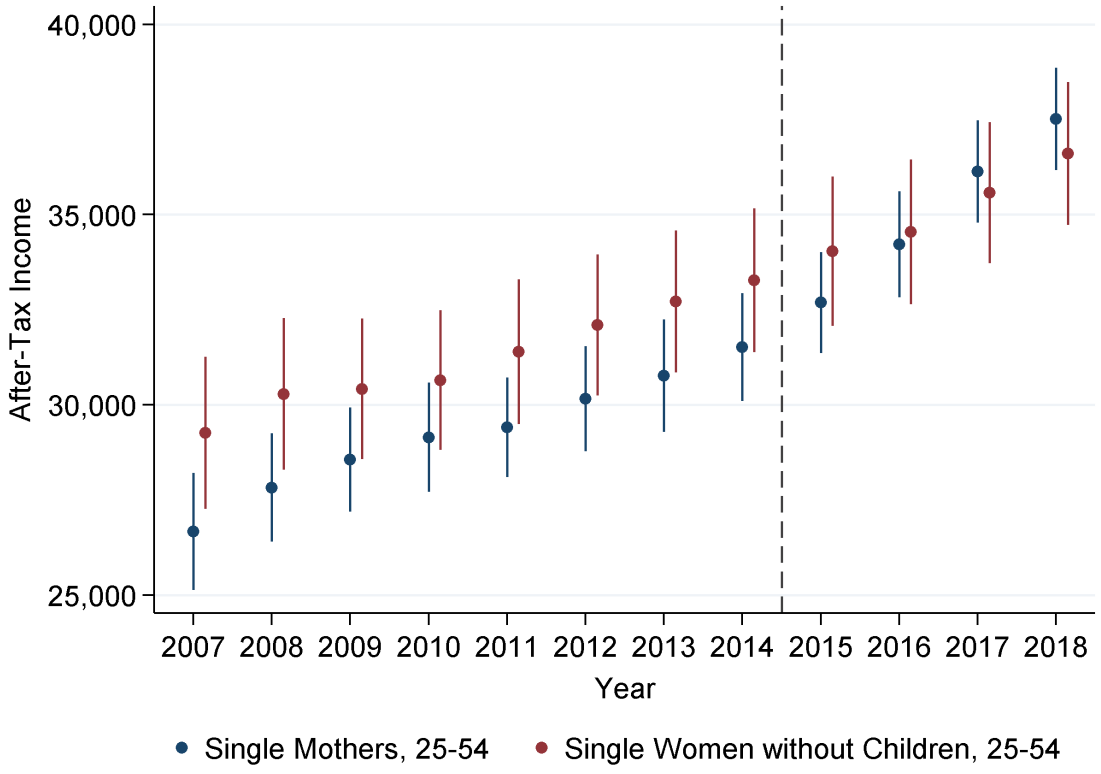

*Note*: Source: Author' calculations using the Canadian Income Survey (CIS). The 95% confidence intervals reported. The vertical line marks the expansion of the Universal Child Care Benefit (UCCB) in the data. LIM-Low Income Measure.

Figure 8: Low-Income Status, Single Women - LIM Measure: 2007-2018, LAD



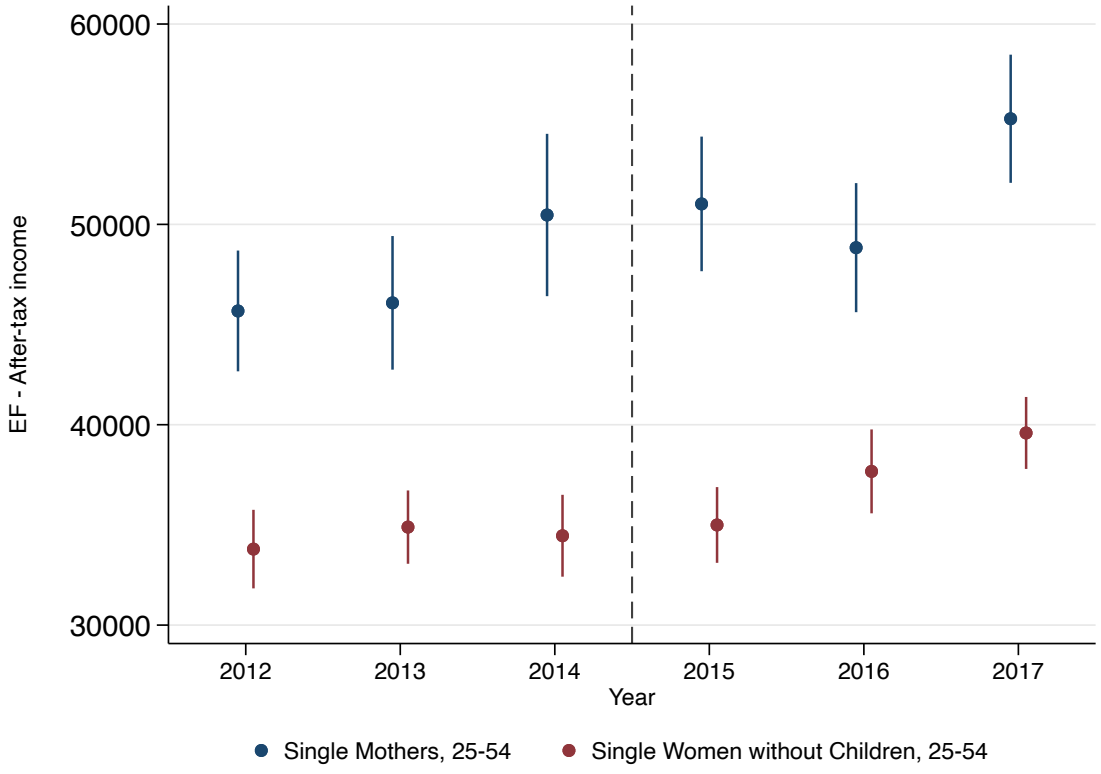

*Note*:Authors' calculations using the Canadian Longitudinal Administrative Databank (LAD). The 95% confidence intervals reported. The vertical line marks the expansion of the Universal Child Care Benefit (UCCB) in the data. LIM-Low Income Measure.

Figure 9: After Tax Income, Single Women: 2007-2018, LAD



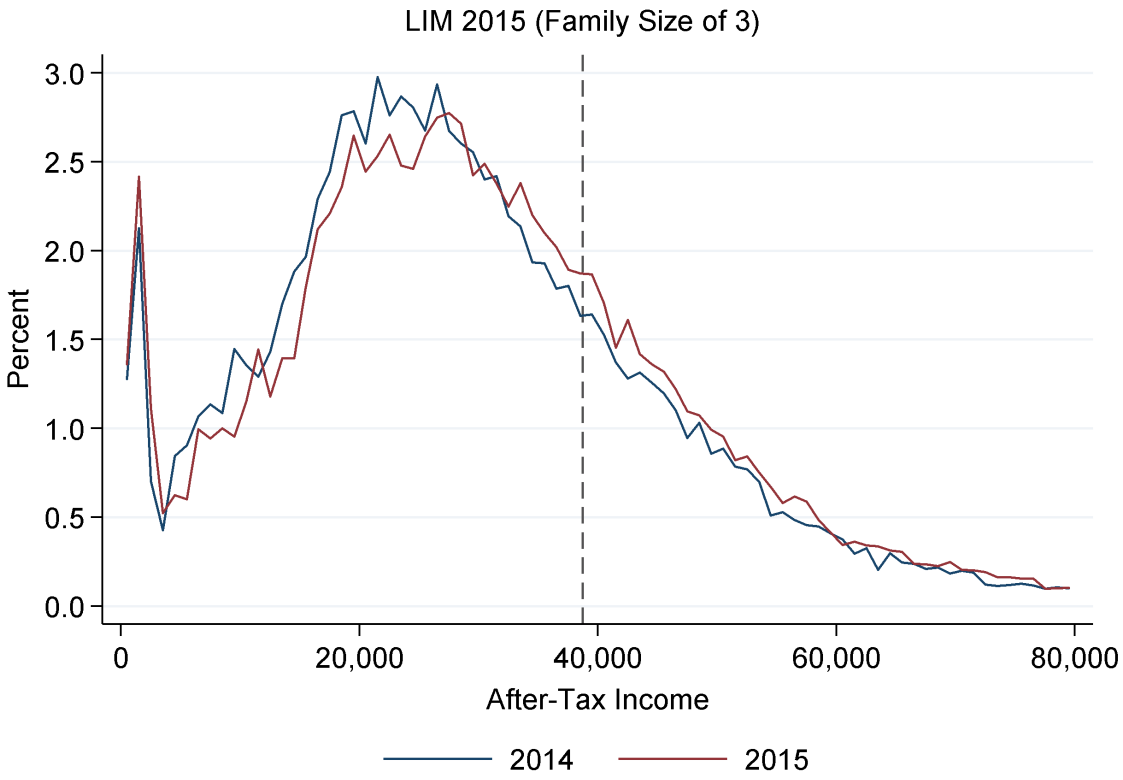

*Note*: Authors' calculations using the Canadian Longitudinal Administrative Databank (LAD). The 95% confidence intervals are reported. The vertical line marks the expansion of the Universal Child Care Benefit (UCCB) in the data.

Figure 10: After Tax Income, Single Women: 2012-2017, CIS



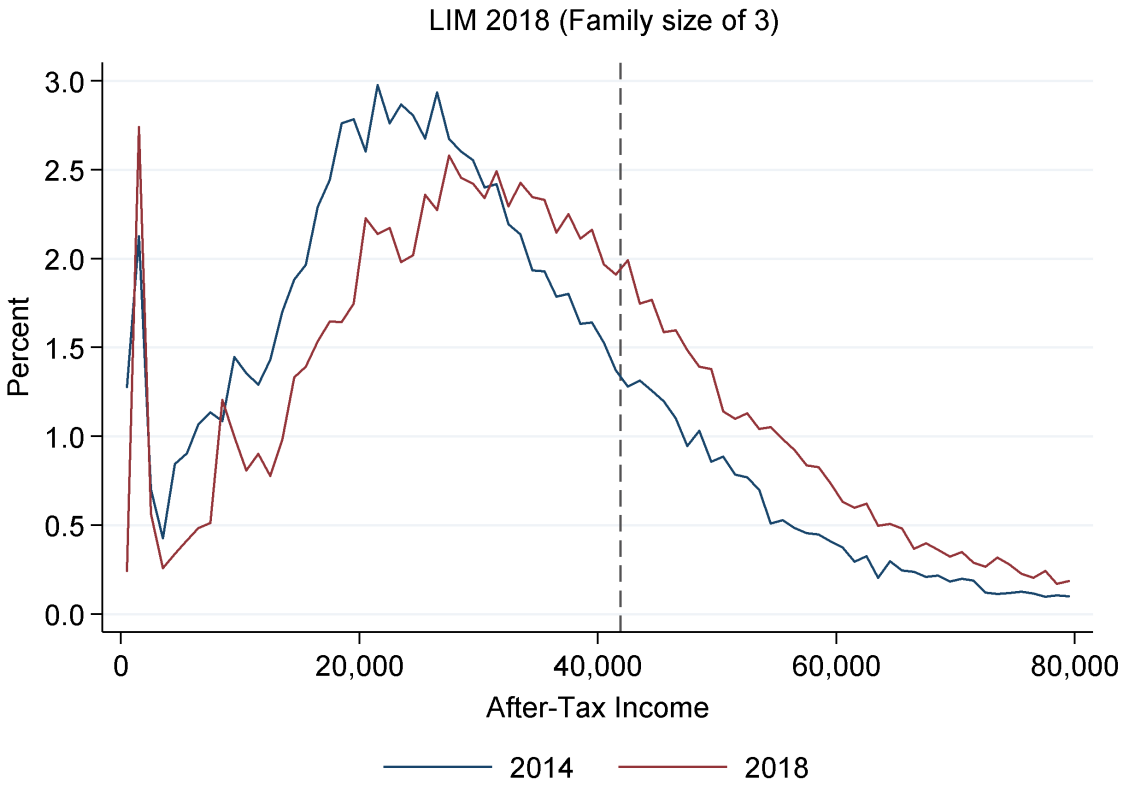

*Note*: Source: Author' calculations using the Canadian Income Survey (CIS). The 95% confidence intervals are reported. The vertical line marks the expansion of the Universal Child Care Benefit (UCCB) in the data.

Figure 11: Distribution of After Tax Income for Single Mothers: 2014 vs. 2015, LAD



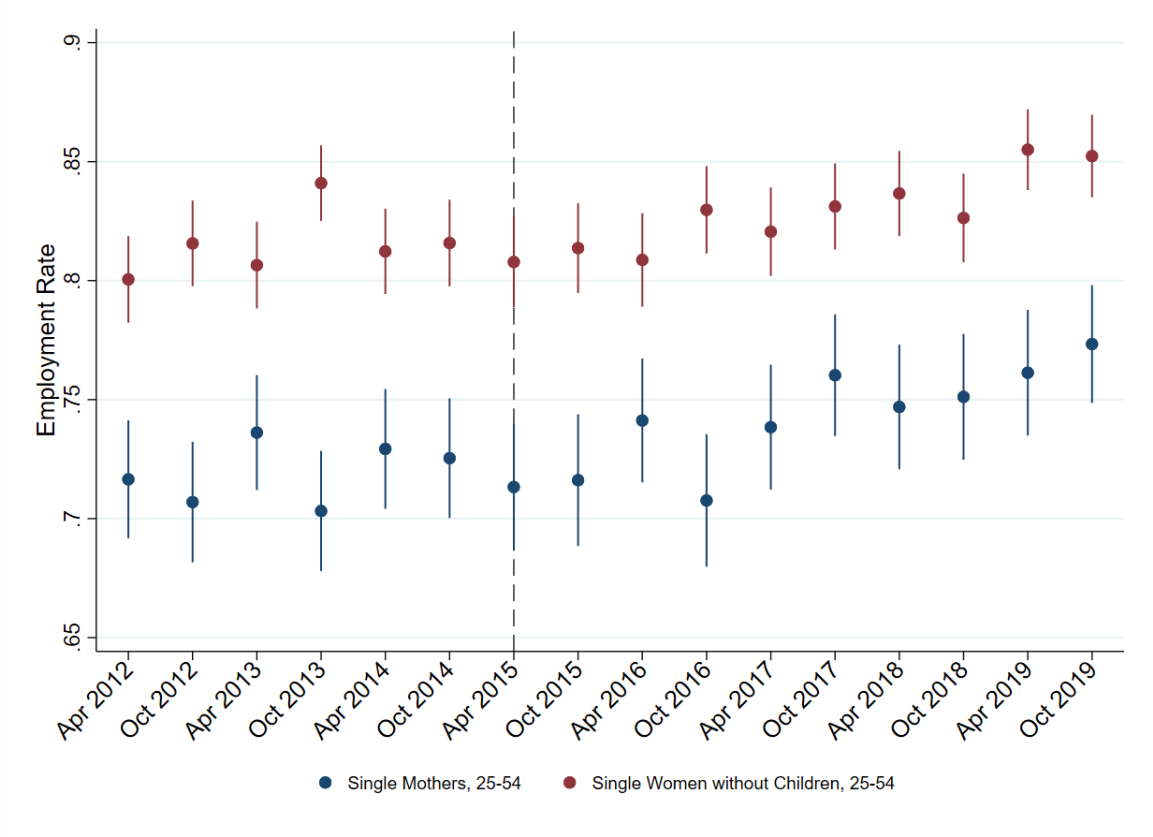

*Note*: Authors' calculations using the Canadian Longitudinal Administrative Databank (LAD). After tax income is calculated in bins of $1000. The LIM-Low Income Measure cutoff is based on a three person family in 2015.

Figure 12: Distribution of After Tax Income for Single Mothers: 2014 vs. 2018, LAD



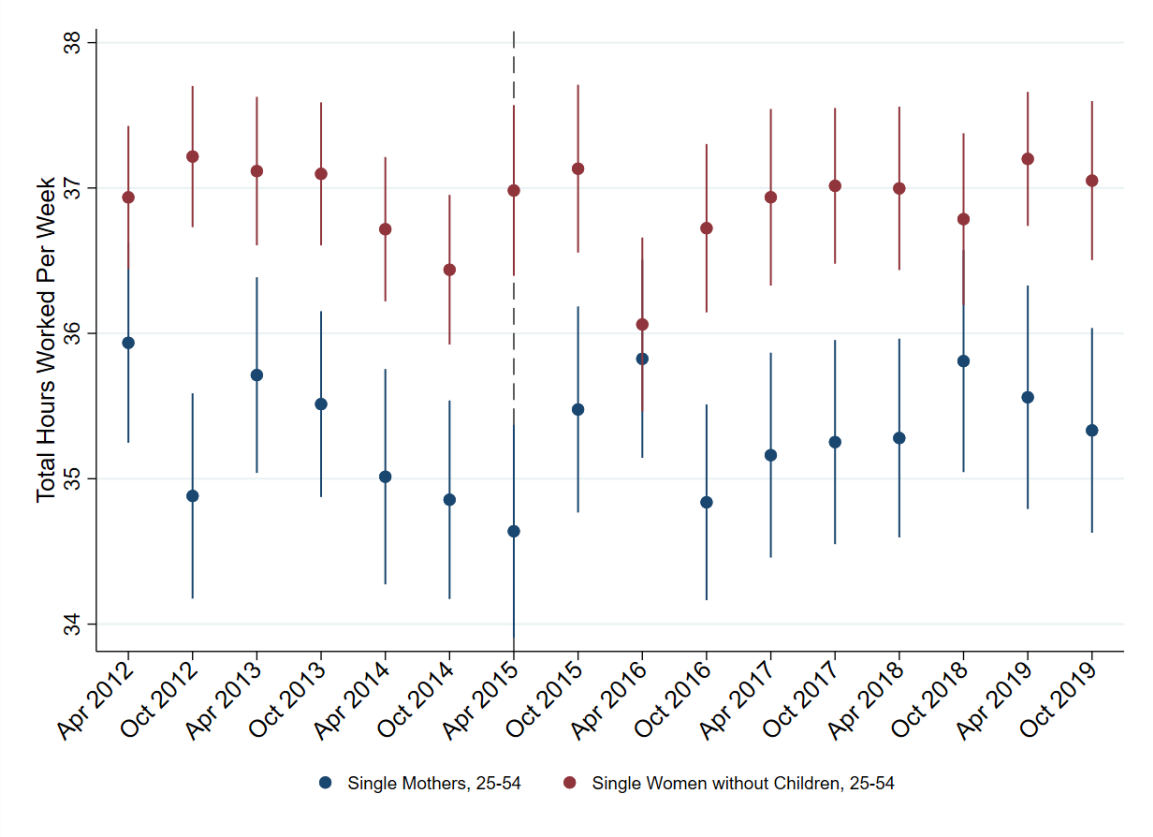

*Note*: Authors' calculations using the Canadian Longitudinal Administrative Databank (LAD). After tax income is calculated in bins of $1000. The LIM-Low Income Measure cutoff is based on a three person family in 2018. UCCB-Universal Child Care Benefit. CCB-Canada Child Benefit.

Figure 13: Employment Rate, Single Women: 2012-2019, LFS




*Note*: Authors' calculations using the Canadian Labour Force Survey (LFS). The 95% confidence intervals are reported. The vertical line marks the expansion of the Universal Child Care Benefit (UCCB) in the data. UCCB-Universal Child Care Benefit. CCB-Canada Child Benefit.

Figure 14: Usual Hours Worked, Single Women: 2012-2019, LFS




*Note*: Authors' calculations using the Canadian Labour Force Survey (LFS). The 95% confidence intervals are reported. The vertical line marks the expansion of the Universal Child Care Benefit (UCCB) in the data. UCCB-Universal Child Care Benefit. CCB-Canada Child Benefit.

Table 1: Estimates of Treatment Effects of the UCCB Expansion and the CCB on Government Transfers to Single Mothers, 2012-2017, CIS

| | (1) Single mothers 25-54 | (2) Single mothers 25-54 | (3) Single mothers 25-54 | (4) Single mothers 25-54 |
|---|---|---|---|---|
| Treatment 2017 | 4748.174*** | 4817.821*** | 4778.590*** | 4833.139*** |
| | (807.568) | (810.314) | (815.698) | (891.443) |
| Treatment 2016 | 2980.631*** | 3021.002*** | 2969.823*** | 3399.197*** |
| | (758.507) | (758.825) | (763.199) | (861.820) |
| Treatment 2015 | 2380.033*** | 2401.769*** | 2290.905** | 3528.949*** |
| | (920.898) | (921.613) | (922.651) | (1064.024) |
| Treatment 2013 | 195.941 | 176.077 | 104.285 | 249.389 |
| | (768.146) | (768.670) | (775.483) | (876.449) |
| Treatment 2012 | -492.850 | -526.246 | -587.036 | -30.779 |
| | (710.412) | (709.918) | (715.953) | (821.979) |
| N | 15227 | 15227 | 15227 | 11861 |
| Rural FE | x | x | x | x |
| Province FE | x | x | x | x |
| Year FE | x | x | x | x |
| Provincial Time Trends | | x | | |
| Province x Year FE | | | x | x |
| AB and BC excluded | | | | x |
| R2 | 0.397 | 0.397 | 0.398 | 0.408 |

*Note:* Authors' calculations using the Canadian Income Survey. Each column represents a separate regression. Treatment _year represents the interaction between single mother and year. Robust standard errors in parentheses – * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: Estimates of Treatment Effects of the UCCB Expansion and the CCB on Government Transfers to, and Low-Income Status (LIM) of Single Mothers, 2007-2018, LAD

| | Government Transfers | | | Below LIM Cutoff | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Treatment 2018 | 3459.516*** | 3228.893*** | 3018.267*** | -0.047*** | -0.053*** | -0.054*** |
| | (242.759) | (341.600) | (257.673) | (0.021) | (0.016) | (0.018) |
| Treatment 2017 | 3221.741*** | 3031.591*** | 2838.808*** | -0.045*** | -0.049*** | -0.049*** |
| | (249.978) | (338.683) | (251.732) | (0.021) | (0.016) | (0.018) |
| Treatment 2016 | 2046.507*** | 1931.439*** | 1802.003*** | -0.030*** | -0.033*** | -0.034*** |
| | (235.213) | (361.633) | (262.423) | (0.021) | (0.016) | (0.018) |
| Treatment 2015 | 1062.866*** | 956.064*** | 926.281*** | -0.013*** | -0.015*** | -0.016*** |
| | (248.433) | (394.158) | (280.788) | (0.020) | (0.016) | (0.017) |
| Treatment 2013 | -262.945** | -209.478* | -293.126* | -0.002 | -0.001 | -0.000 |
| | (256.312) | (407.516) | (354.040) | (0.021) | (0.017) | (0.019) |
| Treatment 2012 | -500.449*** | -399.639** | -526.470** | -0.005** | -0.003 | -0.003 |
| | (274.994) | (401.712) | (371.052) | (0.022) | (0.017) | (0.019) |
| Treatment 2011 | -879.261*** | -716.443*** | -977.330*** | -0.009*** | -0.005*** | -0.003* |
| | (238.915) | (346.736) | (299.541) | (0.021) | (0.016) | (0.018) |
| Treatment 2010 | -710.686*** | -490.110*** | -687.732*** | -0.024*** | -0.019*** | -0.020*** |
| | (217.304) | (338.505) | (258.598) | (0.021) | (0.017) | (0.019) |
| Treatment 2009 | -1247.062*** | -923.418*** | -1200.214*** | -0.023*** | -0.015*** | -0.014** |
| | (257.985) | (342.366) | (298.080) | (0.022) | (0.017) | (0.019) |
| Treatment 2008 | -1807.945*** | -1429.748*** | -1708.441*** | -0.016*** | -0.008 | -0.006 |
| | (289.570) | (367.672) | (354.189) | (0.021) | (0.017) | (0.019) |
| Treatment 2007 | -2085.183*** | -1664.884*** | -1960.258*** | -0.011* | -0.002 | 0.001 |
| | (326.214) | (417.462) | (443.295) | (0.022) | (0.018) | (0.021) |
| N | 4,223,465 | 4,223,465 | 3,166,294 | 4,223,465 | 4,223,465 | 3,166,294 |
| Prov FE | X | | | X | | |
| Year FE | X | | | X | | |
| Age FE | | X | X | | X | X |
| City * Year FE | | X | X | | X | X |
| No. Children FE | | X | X | | X | X |
| AB and BC excluded | | | X | | | X |
| R-Squared | 0.327 | 0.470 | 0.488 | 0.066 | 0.089 | 0.085 |

*Note:* Authors' calculations using the LAD. Each column represents a separate regression. Treatment _year represents the interaction between single mother and year. Standard errors in parentheses clustered at the city-year level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Estimates of Treatment Effects of the UCCB Expansion and the CCB on Low-Income Status (MBM) of Single Mothers, 2012-2017, CIS

| | (1) Single mothers 25-54 | (2) Single mothers 25-54 | (3) Single mothers 25-54 | (4) Single mothers 25-54 |
|---|---|---|---|---|
| Treatment 2017 | -0.027 | -0.027 | -0.041 | -0.030 |
| | (0.042) | (0.042) | (0.042) | (0.048) |
| Treatment 2016 | 0.013 | 0.014 | 0.001 | 0.029 |
| | (0.046) | (0.046) | (0.046) | (0.053) |
| Treatment 2015 | -0.031 | -0.031 | -0.052 | -0.052 |
| | (0.046) | (0.046) | (0.046) | (0.053) |
| Treatment 2013 | 0.040 | 0.039 | 0.021 | 0.023 |
| | (0.046) | (0.046) | (0.046) | (0.053) |
| Treatment 2012 | 0.034 | 0.033 | 0.018 | 0.052 |
| | (0.046) | (0.046) | (0.046) | (0.053) |
| N | 15215 | 15215 | 15215 | 11850 |
| Rural FE | x | x | x | x |
| Province FE | x | x | x | x |
| Year FE | x | x | x | x |
| Provincial Time Trends | | x | | |
| Province x Year FE | | | x | x |
| AB and BC excluded | | | | x |
| R2 | 0.011 | 0.012 | 0.018 | 0.015 |

*Note:* Authors' calculations using the Canadian Income Survey. Each column represents a separate regression. Treatment _year represents the interaction between single mother and year. Robust standard errors in parentheses – * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Estimates of Treatment Effects of the UCCB Expansion and the CCB on Low-Income Status (LIM) of Single Mothers, 2012-2017, CIS

| | (1) Single mothers 25-54 | (2) Single mothers 25-54 | (3) Single mothers 25-54 | (4) Single mothers 25-54 |
|---|---|---|---|---|
| Treatment 2017 | -0.070* | -0.069* | -0.069* | -0.033 |
| | (0.038) | (0.038) | (0.038) | (0.045) |
| Treatment 2016 | -0.008 | -0.008 | -0.014 | 0.024 |
| | (0.043) | (0.044) | (0.044) | (0.051) |
| Treatment 2015 | -0.094** | -0.094** | -0.103** | -0.094* |
| | (0.043) | (0.043) | (0.043) | (0.050) |
| Treatment 2013 | -0.010 | -0.010 | -0.014 | 0.007 |
| | (0.043) | (0.043) | (0.043) | (0.051) |
| Treatment 2012 | -0.017 | -0.017 | -0.021 | 0.014 |
| | (0.042) | (0.042) | (0.043) | (0.050) |
| N | 15227 | 15227 | 15227 | 11861 |
| Rural FE | x | x | x | x |
| Province FE | x | x | x | x |
| Year FE | x | x | x | x |
| Provincial Time Trends | | x | | |
| Province x Year FE | | | x | x |
| AB and BC excluded | | | | x |
| R2 | 0.027 | 0.028 | 0.032 | 0.024 |

*Note:* Authors' calculations using the Canadian Income Survey. Each column represents a separate regression. Treatment _year represents the interaction between single mother and year. Robust standard errors in parentheses – * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Estimates of Treatment Effects of the UCCB Expansion and the CCB on After Tax Income of Single Mothers, 2012-2017, CIS

| | (1) Single mothers 25-54 | (2) Single mothers 25-54 | (3) Single mothers 25-54 | (4) Single mothers 25-54 |
|---|---|---|---|---|
| Treatment 2017 | -167.523 | -24.572 | 251.071 | 137.926 |
| | (2955.219) | (2959.505) | (2967.206) | (3370.454) |
| Treatment 2016 | -4755.838 | -4667.423 | -4145.314 | -4187.531 |
| | (3005.611) | (3008.766) | (3011.746) | (3338.701) |
| Treatment 2015 | 180.890 | 214.377 | 701.927 | 659.573 |
| | (3020.352) | (3021.755) | (3029.516) | (3363.034) |
| Treatment 2013 | -5025.678* | -5027.178* | -4286.364 | -4570.956 |
| | (3002.508) | (3002.109) | (2978.570) | (3439.551) |
| Treatment 2012 | -4277.431 | -4300.108 | -3896.713 | -4200.248 |
| | (2925.621) | (2927.473) | (2922.811) | (3439.187) |
| N | 15227 | 15227 | 15227 | 11861 |
| Rural FE | x | x | x | x |
| Province FE | x | x | x | x |
| Year FE | x | x | x | x |
| Provincial Time Trends | | x | | |
| Province x Year FE | | | x | x |
| AB and BC excluded | | | | x |
| R2 | 0.071 | 0.071 | 0.075 | 0.069 |

*Note:* Authors' calculations using the Canadian Income Survey. Each column represents a separate regression. Treatment _year represents the interaction between single mother and year. Robust standard errors in parentheses – * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Estimates of Treatment Effects of the UCCB Expansion and the CCB on After Tax Income of Single Mothers, 2007-2018, LAD

| | After-Tax Income | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Treatment 2018 | 2614.514*** | 2485.410*** | 2238.491*** |
| | (920.511) | (989.548) | (1158.921) |
| Treatment 2017 | 2267.218*** | 2170.149*** | 1913.934*** |
| | (949.174) | (1017.863) | (1194.758) |
| Treatment 2016 | 1394.798*** | 1306.490*** | 1187.859*** |
| | (929.748) | (981.436) | (1120.121) |
| Treatment 2015 | 393.933*** | 334.555*** | 352.495** |
| | (933.421) | (990.119) | (1083.915) |
| Treatment 2013 | -182.560 | -135.879 | -239.741** |
| | (960.584) | (1012.110) | (1169.200) |
| Treatment 2012 | -186.021 | -115.426 | -305.324*** |
| | (935.009) | (995.767) | (1148.908) |
| Treatment 2011 | -226.447 | -130.501 | -445.311*** |
| | (878.271) | (950.342) | (1079.446) |
| Treatment 2010 | 263.292 | 347.163 | 143.867 |
| | (830.441) | (884.868) | (966.778) |
| Treatment 2009 | -101.702 | 16.441 | -276.733 |
| | (845.078) | (901.730) | (998.348) |
| Treatment 2008 | -688.570** | -518.168* | -954.717*** |
| | (833.241) | (914.637) | (1037.972) |
| Treatment 2007 | -829.349*** | -683.564** | -1128.547*** |
| | (821.025) | (897.755) | (1007.209) |
| N | 4,223,465 | 4,223,465 | 3,166,294 |
| Prov FE | X | | |
| Year FE | X | | |
| Age FE | | X | X |
| City * Year FE | | X | X |
| No. Children FE | | X | X |
| AB and BC excluded | | | X |
| R-Squared | 0.018 | 0.046 | 0.043 |

*Note:* Authors' calculations using the LAD. Each column represents a separate regression. Treatment _year represents the interaction between single mother and year. Standard errors in parentheses clustered at the city-year level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Quantile Regression Estimates of Treatment Effects of the UCCB Expansion and the CCB on After Tax Income at the 10th Percentile of Single Mothers, 2007-2018, LAD

| | After-Tax Income | |
|---|---|---|
| | All | Only 1 child |
| | (1) | (2) |
| Treatment 2018 | 1075.565* | 1561.868** |
| | (560.550) | (548.096) |
| Treatment 2017 | 777.111 | 1392.947** |
| | (484.949) | (515.008) |
| Treatment 2016 | 333.284 | 512.607 |
| | (280.451) | (311.804) |
| Treatment 2015 | -210.474 | 180.305 |
| | (142.301) | (239.507) |
| Treatment 2013 | -203.882 | -321.135 |
| | (138.070) | (223.241) |
| Treatment 2012 | -280.383 | -373.687 |
| | (225.592) | (269.389) |
| Treatment 2011 | 184.577 | 37.478 |
| | (275.764) | (228.543) |
| Treatment 2010 | 557.889*** | 437.843 |
| | (132.609) | (255.926) |
| Treatment 2009 | 510.543** | 392.222*** |
| | (182.940) | (122.735) |
| Treatment 2008 | -197.772 | -53.618 |
| | (282.416) | (224.510) |
| Treatment 2007 | -464.088 | -286.354 |
| | (536.773) | (381.143) |
| N | 4,223,465 | 3,763,650 |
| Prov FE | x | x |
| Year FE | x | x |
| R-Squared | 0.002 | 0.002 |

*Note:* Authors' calculations using the LAD. Each column represents a separate regression. Treatment _year represents the interaction between single mother and year. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Estimates of Treatment Effects of the UCCB Expansion and the CCB on Employment of Single Mothers, 20012-2019, LFS

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Age of youngest child | 0-17 | 0-17 | 0-17 | 0-5 | 13-17 |
| Treatment Oct 2019 | 0.017 | 0.017 | 0.019 | 0.012 | 0.026 |
| | (0.023) | (0.023) | (0.027) | (0.040) | (0.034) |
| Treatment April 2019 | 0.003 | 0.008 | 0.006 | 0.027 | 0.027 |
| | (0.023) | (0.023) | (0.028) | (0.040) | (0.035) |
| Treatment Oct 2018 | 0.021 | 0.021 | 0.032 | 0.023 | 0.046 |
| | (0.023) | (0.023) | (0.028) | (0.040) | (0.036) |
| Treatment April 2018 | 0.007 | 0.006 | 0.018 | 0.052 | 0.015 |
| | (0.023) | (0.023) | (0.027) | (0.039) | (0.036) |
| Treatment Oct 2017 | 0.026 | 0.027 | 0.024 | 0.024 | 0.028 |
| | (0.023) | (0.023) | (0.027) | (0.039) | (0.037) |
| Treatment April 2017 | 0.012 | 0.013 | 0.022 | -0.003 | 0.011 |
| | (0.023) | (0.023) | (0.028) | (0.041) | (0.036) |
| Treatment Oct 2016 | -0.026 | -0.027 | -0.023 | -0.019 | 0.011 |
| | (0.024) | (0.024) | (0.028) | (0.042) | (0.036) |
| Treatment April 2016 | 0.027 | 0.028 | 0.033 | -0.024 | 0.063* |
| | (0.024) | (0.024) | (0.028) | (0.042) | (0.035) |
| Treatment Oct 2015 | -0.004 | -0.002 | -0.010 | -0.017 | 0.027 |
| | (0.024) | (0.024) | (0.028) | (0.041) | (0.036) |
| Treatment Oct 2014 | 0.003 | 0.003 | 0.017 | 0.003 | -0.000 |
| | (0.023) | (0.023) | (0.027) | (0.040) | (0.036) |
| Treatment April 2014 | 0.009 | 0.011 | 0.006 | 0.017 | 0.050 |
| | (0.023) | (0.023) | (0.027) | (0.039) | (0.034) |
| Treatment Oct 2013 | -0.044* | -0.041* | -0.040 | -0.088** | 0.003 |
| | (0.023) | (0.023) | (0.027) | (0.040) | (0.033) |
| Treatment April 2013 | 0.023 | 0.024 | 0.018 | 0.016 | 0.048 |
| | (0.023) | (0.023) | (0.027) | (0.039) | (0.034) |
| Treatment Oct 2012 | -0.016 | -0.015 | -0.020 | -0.049 | 0.041 |
| | (0.023) | (0.023) | (0.027) | (0.040) | (0.034) |
| Treatment April 2012 | 0.008 | 0.009 | -0.006 | 0.007 | 0.033 |
| | (0.023) | (0.023) | (0.027) | (0.040) | (0.034) |
| N | 80861 | 80861 | 62070 | 57132 | 56931 |
| Rural FE | x | x | x | x | x |
| Province FE | x | x | x | x | x |
| Semiannual FE | x | x | x | x | x |
| Provincial Time Trends | x | | | | |
| Province x Semiannual FE | | x | x | x | x |
| AB and BC excluded | | | x | | |
| R2 | 0.018 | 0.019 | 0.018 | 0.040 | 0.008 |

*Note:* Authors' calculations using the Labour Force Survey. Each column represents a separate regression. Treatment_year represents single mother * half-year. Robust standard errors in parentheses – * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

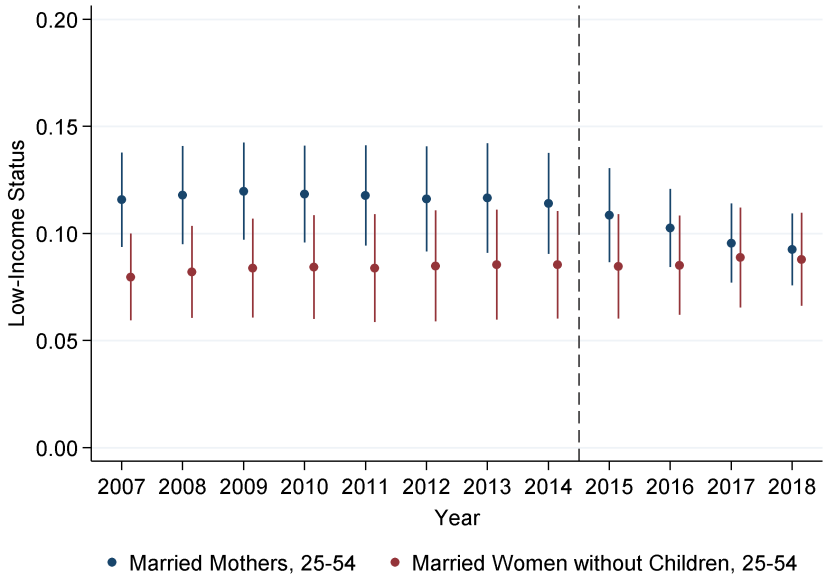
Table 9: Estimates of Treatment Effects of the UCCB Expansion and the CCB on Usual Hours of Single Mothers, 20012-2019, LFS

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Age of youngest child | 0-17 | 0-17 | 0-17 | 0-5 | 13-17 |
| Treatment Oct 2019 | 0.582 | 0.596 | 0.361 | 0.519 | 1.805 |
| | (0.658) | (0.659) | (0.761) | (1.130) | (1.120) |
| Treatment April 2019 | 0.680 | 0.746 | 0.268 | 1.440 | -0.061 |
| | (0.661) | (0.661) | (0.768) | (1.100) | (1.056) |
| Treatment Oct 2018 | 1.338* | 1.316* | 0.493 | 1.186 | 2.042* |
| | (0.685) | (0.688) | (0.791) | (1.188) | (1.088) |
| Treatment April 2018 | 0.532 | 0.550 | -0.383 | 1.074 | 1.494 |
| | (0.657) | (0.659) | (0.761) | (1.097) | (1.102) |
| Treatment Oct 2017 | 0.518 | 0.588 | 0.600 | 0.729 | 0.630 |
| | (0.657) | (0.654) | (0.755) | (1.147) | (1.030) |
| Treatment April 2017 | 0.536 | 0.571 | 0.227 | 0.733 | 0.834 |
| | (0.672) | (0.674) | (0.756) | (1.175) | (0.952) |
| Treatment Oct 2016 | 0.441 | 0.500 | -0.194 | 0.918 | 1.564* |
| | (0.658) | (0.659) | (0.753) | (1.216) | (0.939) |
| Treatment April 2016 | 2.074*** | 2.117*** | 1.710** | 1.735 | 2.081** |
| | (0.665) | (0.664) | (0.764) | (1.137) | (1.054) |
| Treatment Oct 2015 | 0.681 | 0.767 | 0.633 | 1.401 | 0.534 |
| | (0.666) | (0.667) | (0.772) | (1.149) | (1.043) |
| Treatment Oct 2014 | 0.710 | 0.696 | 0.542 | 0.975 | 2.073** |
| | (0.645) | (0.647) | (0.738) | (1.166) | (1.019) |
| Treatment April 2014 | 0.586 | 0.617 | 0.159 | 0.262 | 0.851 |
| | (0.658) | (0.659) | (0.751) | (1.167) | (1.042) |
| Treatment Oct 2013 | 0.733 | 0.796 | 0.109 | 0.343 | 1.383 |
| | (0.629) | (0.628) | (0.723) | (1.175) | (0.906) |
| Treatment April 2013 | 0.915 | 0.913 | 0.268 | 1.949* | 1.059 |
| | (0.642) | (0.643) | (0.733) | (1.106) | (0.987) |
| Treatment Oct 2012 | -0.013 | 0.021 | -0.552 | 0.138 | 0.369 |
| | (0.648) | (0.647) | (0.738) | (1.139) | (0.961) |
| Treatment April 2012 | 1.246* | 1.312** | 0.529 | 2.035** | 1.272 |
| | (0.641) | (0.639) | (0.716) | (1.021) | (0.955) |
| N | 61887 | 61887 | 46925 | 43557 | 45328 |
| Rural FE | x | x | x | x | x |
| Province FE | x | x | x | x | x |
| Semiannual FE | x | x | x | x | x |
| Provincial Time Trends | x | | | | |
| Province x Semiannual FE | | x | x | x | x |
| AB and BC excluded | | | x | | |
| R2 | 0.014 | 0.016 | 0.014 | 0.022 | 0.014 |

*Note:* Authors' calculations using the Labour Force Survey. Each column represents a separate regression. Treatment_year represents single mother * half-year. Robust standard errors in parentheses – * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

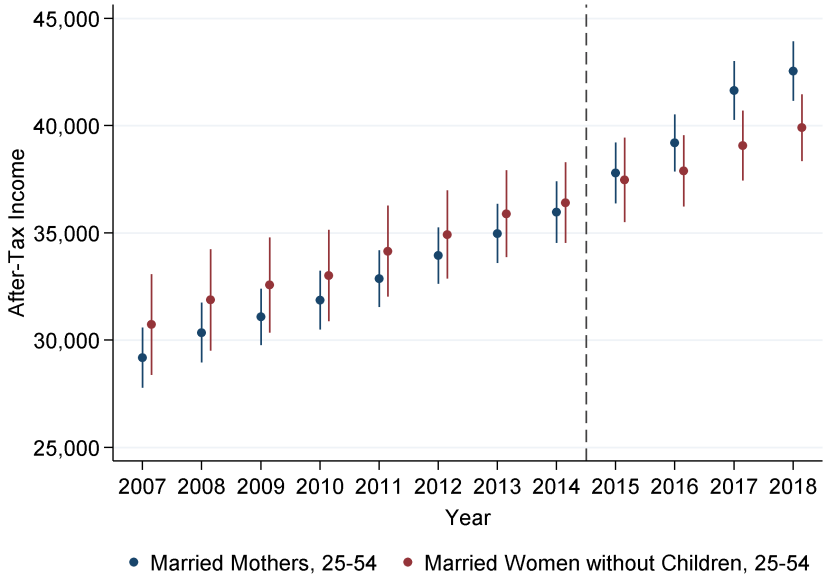
# Appendices

Figure A1: Low-Income Status of Married Women - LIM Measure: 2007-2018, LAD




*Note*: Authors' calculations using the Canadian Longitudinal Administrative Databank (LAD).

Figure A2: After-tax Income for Married Women - LIM Measure: 2007-2018, LAD




*Note*: Authors' calculations using the Canadian Longitudinal Administrative Databank (LAD).

Table A1: Sample Means: 2012-2017, CIS

| | Single Women and Mothers | | | | | Married Women and Mothers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | Std. Dev. | Min | Max | N | Mean | Std. Dev. | Min | Max |
| Mothers (=1) | 15227 | 0.276 | 0.447 | 0.000 | 1 | 39506 | 0.626 | 0.484 | 0.000 | 1 |
| Disposable Income (current $) | 15227 | 35,619 | 25,156 | -56,975 | 616,415 | 39506 | 93,779 | 59,183 | -112,224 | 1,311,338 |
| Disposable Income (constant $) | 15227 | 37,733 | 26,576 | -61,893 | 640,419 | 39506 | 99,400 | 62,632 | -121,911 | 1,381,773 |
| No. of Children (only mothers) | 6507 | 1.641 | 0.883 | 1.000 | 6 | 24975 | 1.952 | 0.889 | 1.000 | 5 |
| Age Group: | | | | | | | | | | |
| 25 to 29 years | 15227 | 0.233 | 0.422 | 0.000 | 1 | 39506 | 0.083 | 0.275 | 0.000 | 1 |
| 30 to 34 years | 15227 | 0.171 | 0.376 | 0.000 | 1 | 39506 | 0.149 | 0.356 | 0.000 | 1 |
| 35 to 39 years | 15227 | 0.157 | 0.364 | 0.000 | 1 | 39506 | 0.177 | 0.382 | 0.000 | 1 |
| 40 to 44 years | 15227 | 0.159 | 0.366 | 0.000 | 1 | 39506 | 0.189 | 0.392 | 0.000 | 1 |
| 45 to 49 years | 15227 | 0.129 | 0.336 | 0.000 | 1 | 39506 | 0.191 | 0.393 | 0.000 | 1 |
| 50 to 54 years | 15227 | 0.151 | 0.358 | 0.000 | 1 | 39506 | 0.211 | 0.408 | 0.000 | 1 |
| Province: | | | | | | | | | | |
| Newfoundland and Labrador | 15227 | 0.014 | 0.115 | 0.000 | 1 | 39506 | 0.016 | 0.125 | 0.000 | 1 |
| Prince Edward Island | 15227 | 0.004 | 0.064 | 0.000 | 1 | 39506 | 0.004 | 0.066 | 0.000 | 1 |
| Nova Scotia | 15227 | 0.030 | 0.171 | 0.000 | 1 | 39506 | 0.025 | 0.156 | 0.000 | 1 |
| New Brunswick | 15227 | 0.020 | 0.139 | 0.000 | 1 | 39506 | 0.021 | 0.144 | 0.000 | 1 |
| Quebec | 15227 | 0.241 | 0.428 | 0.000 | 1 | 39506 | 0.152 | 0.359 | 0.000 | 1 |
| Ontario | 15227 | 0.373 | 0.484 | 0.000 | 1 | 39506 | 0.431 | 0.495 | 0.000 | 1 |
| Manitoba | 15227 | 0.031 | 0.174 | 0.000 | 1 | 39506 | 0.038 | 0.192 | 0.000 | 1 |
| Saskatchewan | 15227 | 0.027 | 0.162 | 0.000 | 1 | 39506 | 0.034 | 0.182 | 0.000 | 1 |
| Alberta | 15227 | 0.121 | 0.326 | 0.000 | 1 | 39506 | 0.140 | 0.347 | 0.000 | 1 |
| British Columbia | 15227 | 0.139 | 0.346 | 0.000 | 1 | 39506 | 0.138 | 0.344 | 0.000 | 1 |

*Note:* Source: Canadian Income Survey (CIS), using population weights. Pooled over 2012-2017.

Table A2: Sample Means: 2007-2018, LAD

| | | Single Mothers | | Single Women Without Children | |
|---|---|---|---|---|---|
| | Year | Mean | Std. Dev. | Mean | Std. Dev. |
| Low Income Status | 2007 | 47.1% | 49.9% | 20.8% | 40.6% |
| | 2008 | 46.8% | 49.9% | 21.0% | 40.7% |
| | 2009 | 46.2% | 49.9% | 21.1% | 40.8% |
| | 2010 | 46.2% | 49.9% | 21.3% | 40.9% |
| | 2011 | 47.7% | 49.9% | 21.3% | 40.9% |
| | 2012 | 48.0% | 50.0% | 21.1% | 40.8% |
| | 2013 | 48.3% | 50.0% | 21.1% | 40.8% |
| | 2014 | 48.6% | 50.0% | 21.3% | 40.9% |
| | 2015 | 47.2% | 49.9% | 21.1% | 40.8% |
| | 2016 | 45.1% | 49.8% | 20.8% | 40.6% |
| | 2017 | 43.9% | 49.6% | 21.1% | 40.8% |
| | 2018 | 43.0% | 49.5% | 20.4% | 40.3% |
| After-Tax Income | 2007 | $26,667 | $17,681 | $29,257 | $27,212 |
| | 2008 | $27,821 | $26,544 | $30,282 | $38,468 |
| | 2009 | $28,558 | $18,573 | $30,416 | $24,878 |
| | 2010 | $29,144 | $20,525 | $30,647 | $23,766 |
| | 2011 | $29,405 | $19,474 | $31,392 | $24,619 |
| | 2012 | $30,155 | $20,605 | $32,093 | $24,819 |
| | 2013 | $30,764 | $20,720 | $32,709 | $31,049 |
| | 2014 | $31,517 | $21,330 | $33,273 | $25,633 |
| | 2015 | $32,684 | $30,044 | $34,036 | $27,249 |
| | 2016 | $34,216 | $21,277 | $34,544 | $26,162 |
| | 2017 | $36,132 | $27,337 | $35,571 | $30,099 |
| | 2018 | $37,512 | $23,327 | $36,598 | $27,103 |

*Note:* Source: Longitudinal Administrative Database (LAD).

Table A3: Sample Means: 2012-2019, LFS

| | Treatment Group Membership | | | | | |
|---|---|---|---|---|---|---|
| | Control | | Treatment | | Total | |
| | N | % | N | % | N | % |
| **Survey time** | | | | | | |
| Apr 2012 | 3217 | 6.81 | 2308 | 6.86 | 5525 | 6.83 |
| Oct 2012 | 3093 | 6.55 | 2273 | 6.76 | 5366 | 6.64 |
| Apr 2013 | 3164 | 6.70 | 2253 | 6.70 | 5417 | 6.70 |
| Oct 2013 | 3076 | 6.51 | 2204 | 6.56 | 5280 | 6.53 |
| Apr 2014 | 3087 | 6.53 | 2155 | 6.41 | 5242 | 6.48 |
| Oct 2014 | 2968 | 6.28 | 2144 | 6.38 | 5112 | 6.32 |
| Apr 2015 | 2849 | 6.03 | 2033 | 6.05 | 4882 | 6.04 |
| Oct 2015 | 2977 | 6.30 | 2063 | 6.14 | 5040 | 6.23 |
| Apr 2016 | 2891 | 6.12 | 2035 | 6.05 | 4926 | 6.09 |
| Oct 2016 | 2909 | 6.16 | 1999 | 5.95 | 4908 | 6.07 |
| Apr 2017 | 2938 | 6.22 | 2082 | 6.19 | 5020 | 6.21 |
| Oct 2017 | 2924 | 6.19 | 2083 | 6.20 | 5007 | 6.19 |
| Apr 2018 | 2894 | 6.13 | 2078 | 6.18 | 4972 | 6.15 |
| Oct 2018 | 2724 | 5.77 | 2027 | 6.03 | 4751 | 5.88 |
| Apr 2019 | 2847 | 6.03 | 1933 | 5.75 | 4780 | 5.91 |
| Oct 2019 | 2680 | 5.67 | 1953 | 5.81 | 4633 | 5.73 |
| **Five-year age group of respondent** | | | | | | |
| 25 to 29 | 10772 | 22.80 | 4097 | 12.19 | 14869 | 18.39 |
| 30 to 34 | 7466 | 15.81 | 6117 | 18.19 | 13583 | 16.80 |
| 35 to 39 | 5539 | 11.73 | 7563 | 22.49 | 13102 | 16.20 |
| 40 to 44 | 5380 | 11.39 | 7665 | 22.80 | 13045 | 16.13 |
| 45 to 49 | 7236 | 15.32 | 5531 | 16.45 | 12767 | 15.79 |
| 50 to 54 | 10845 | 22.96 | 2650 | 7.88 | 13495 | 16.69 |
| **Highest educational attainment** | | | | | | |
| 0 to 8 years | 896 | 1.90 | 630 | 1.87 | 1526 | 1.89 |
| Some secondary | 2795 | 5.92 | 3082 | 9.17 | 5877 | 7.27 |
| Gr 11 to 13, graduate | 7355 | 15.57 | 6111 | 18.18 | 13466 | 16.65 |
| Some post secondary | 2892 | 6.12 | 2422 | 7.20 | 5314 | 6.57 |
| Post secondary certificate or diploma | 17584 | 37.22 | 15255 | 45.37 | 32839 | 40.61 |
| University: bachelors degree | 10877 | 23.03 | 4481 | 13.33 | 15358 | 18.99 |
| University: graduate degree | 4839 | 10.24 | 1642 | 4.88 | 6481 | 8.01 |
| **Province** | | | | | | |
| Newfoundland | 1345 | 2.85 | 1320 | 3.93 | 2665 | 3.30 |
| Prince Edward Island | 1176 | 2.49 | 852 | 2.53 | 2028 | 2.51 |
| Nova Scotia | 2657 | 5.62 | 2034 | 6.05 | 4691 | 5.80 |
| New Brunswick | 1942 | 4.11 | 1838 | 5.47 | 3780 | 4.67 |
| Quebec | 8547 | 18.09 | 5874 | 17.47 | 14421 | 17.83 |
| Ontario | 12180 | 25.78 | 9190 | 27.33 | 21370 | 26.43 |
| Manitoba | 4070 | 8.62 | 3104 | 9.23 | 7174 | 8.87 |
| Saskatchewan | 3333 | 7.06 | 2608 | 7.76 | 5941 | 7.35 |
| Alberta | 5428 | 11.49 | 3241 | 9.64 | 8669 | 10.72 |
| British Columbia | 6560 | 13.89 | 3562 | 10.59 | 10122 | 12.52 |
| **Labour force status** | | | | | | |
| Employed, at work | 35185 | 74.48 | 22320 | 66.38 | 57505 | 71.12 |
| Employed, absent from work | 2416 | 5.11 | 1966 | 5.85 | 4382 | 5.42 |
| Unemployed | 2072 | 4.39 | 2156 | 6.41 | 4228 | 5.23 |
| Not in labour force | 7565 | 16.01 | 7181 | 21.36 | 14746 | 18.24 |
| **Full-time or part-time** | | | | | | |
| Full-time | 32168 | 85.55 | 19559 | 80.54 | 51727 | 83.58 |
| Part-time | 5433 | 14.45 | 4727 | 19.46 | 10160 | 16.42 |

*Note:* Authors' calculations using the Labour Force Survey (LFS).

Table A4: Estimates of Low-Income Status (MBM) of Women and Children, 2012-2017, CIS

| | (1) Single women with children | (2) Single women without children | (3) Married women with children | (4) Married women without children | (5) Poor children in single mother family |
|---|---|---|---|---|---|
| 2012 | 0.380 | 0.302 | 0.0999 | 0.0726 | 0.290 |
| | (0.024) | (0.019) | (0.008) | (0.009) | (0.016) |
| 2013 | 0.357 | 0.274 | 0.100 | 0.0503 | 0.293 |
| | (0.025) | (0.019) | (0.008) | (0.008) | (0.017) |
| 2014 | 0.377 | 0.332 | 0.0842 | 0.0588 | 0.325 |
| | (0.026) | (0.022) | (0.008) | (0.009) | (0.019) |
| 2015 | 0.330 | 0.318 | 0.0896 | 0.0627 | 0.247 |
| | (0.024) | (0.019) | (0.008) | (0.010) | (0.015) |
| 2016 | 0.344 | 0.287 | 0.0792 | 0.0454 | 0.352 |
| | (0.026) | (0.019) | (0.007) | (0.007) | (0.020) |
| 2017 | 0.271 | 0.254 | 0.0664 | 0.0604 | 0.284 |
| | (0.019) | (0.015) | (0.005) | (0.007) | (0.016) |
| $N$ | 6503 | 8712 | 24964 | 14528 | 8981 |

*Note:* Authors' calculations using the Canadian Income Survey. The first four columns represent the share of the column title above or below the Market Basket Measure. The last column is the share of children below the MBM that are from single mother families. All women are restricted to be between 25-54 years old. Values are weighted and standard errors are displayed in parentheses.

Table A5: Estimates of Low-Income Status (LIM) of Women and Children, 2012-2017, CIS

| | (1) Single women with children | (2) Single women without children | (3) Married women with children | (4) Married women without children | (5) Poor children in single mother family |
|---|---|---|---|---|---|
| 2012 | 0.375 | 0.235 | 0.114 | 0.0824 | 0.260 |
| | (0.024) | (0.017) | (0.008) | (0.009) | (0.014) |
| 2013 | 0.363 | 0.217 | 0.115 | 0.0572 | 0.262 |
| | (0.025) | (0.016) | (0.009) | (0.008) | (0.015) |
| 2014 | 0.397 | 0.239 | 0.0986 | 0.0642 | 0.292 |
| | (0.026) | (0.018) | (0.008) | (0.009) | (0.016) |
| 2015 | 0.329 | 0.263 | 0.105 | 0.0854 | 0.225 |
| | (0.023) | (0.018) | (0.008) | (0.011) | (0.013) |
| 2016 | 0.393 | 0.242 | 0.0989 | 0.0574 | 0.324 |
| | (0.025) | (0.017) | (0.008) | (0.008) | (0.017) |
| 2017 | 0.314 | 0.224 | 0.0879 | 0.0686 | 0.258 |
| | (0.018) | (0.014) | (0.006) | (0.007) | (0.012) |
| *N* | 6507 | 8720 | 24975 | 14531 | 11191 |

*Note:* Authors' calculations using the Canadian Income Survey. The first four columns represent the share of the column title above or below the Low Income Measure (LIM). The last column is the share of children below the LIM that are from single mother families. All women are restricted to be between 25-54 years old. Values are weighted and standard errors are displayed in parentheses.

Table A6: Estimates of Treatment Effects of the UCCB Expansion and the CCB on Government Transfers, and Low-Income Status (LIM) and After-Tax Income of Married Mothers, 2007-2018, LAD

| | (1) Government Transfers | (2) Below LIM Cutoff | (3) After-Tax Income |
|---|---|---|---|
| | (1) | (2) | (3) |
| Treatment 2018 | 2807.849*** | -0.020*** | 2583.860*** |
| | (439.506) | (0.003) | (880.245) |
| Treatment 2017 | 2742.917*** | -0.019*** | 2668.077*** |
| | (436.394) | (0.003) | (844.962) |
| Treatment 2016 | 1826.015*** | -0.009*** | 1507.663*** |
| | (416.812) | (0.003) | (851.888) |
| Treatment 2015 | 993.660*** | -0.004*** | 597.733*** |
| | (387.133) | (0.003) | (863.605) |
| Treatment 2013 | -48.663*** | 0.002** | -410.897* |
| | (396.742) | (0.003) | (925.914) |
| Treatment 2012 | -110.565*** | 0.001* | -412.129 |
| | (392.402) | (0.003) | (973.220) |
| Treatment 2011 | -231.125*** | 0.004*** | -669.467** |
| | (381.227) | (0.003) | (975.287) |
| Treatment 2010 | -288.373*** | 0.004*** | -533.687** |
| | (376.378) | (0.003) | (945.682) |
| Treatment 2009 | -394.305*** | 0.005*** | -819.710** |
| | (376.409) | (0.003) | (982.466) |
| Treatment 2008 | -474.358*** | 0.005*** | -857.444** |
| | (372.588) | (0.003) | (1005.898) |
| Treatment 2007 | -515.319*** | 0.005*** | -886.351*** |
| | (371.879) | (0.003) | (984.716) |
| N | 10,824,824 | 10,824,824 | 10,824,824 |
| Age FE | X | X | X |
| City * Year FE | X | X | X |
| No. Children FE | X | X | X |
| R-Squared | 0.356 | 0.026 | 0.026 |

*Note:* Authors' calculations using the LAD. Each column represents a separate regression. Treatment _year represents the interaction between single mother and year. Standard errors in parentheses clustered at the city-year level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$