Universal Child Care, Maternal Labor Supply and Child Well-Being

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Abstract

The growing labor force participation of women with small children in both the U.S. and Canada has led to calls for increased public financing for child care. The optimality of public financing depends on a host of factors, such as the "crowd-out" of existing child care arrangements, the impact on female labor supply, and the effects on child well-being. The introduction of universal, highly-subsidized child care in Quebec in the late 1990s provides an opportunity to address these issues. We carefully analyze the impacts of Quebec's "$5 per day child care" program on child care utilization, labor supply, and child (and parent) outcomes. We find strong evidence of a shift into new childcare use, although approximately one third of the newly reported use appears to come from women who previously worked and had informal arrangements. The labor supply impact is highly significant, and our measured elasticity of 0.22 is slightly smaller than previous credible estimates. Finally, we uncover striking evidence that children are worse off in a variety of behavioral and health dimensions. Our analysis also suggests that the new child care program led to more hostile, less consistent parenting, and worse parental health.

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There has been a substantial rise in the share of mothers who work in the paid labor force in North America. In the U.S., the share of mothers with children under age 6 working rose from 39% in 1975 to 65% in 2000.[1] In Canada, the employment rate of mothers with at least one child younger than 6 rose from 32% in 1976 to 64% in 2000 (Statistics Canada 2003). In neither country has this trend been offset by a decline in the proportion of working fathers, necessitating an increased use of paid and unpaid child care. In 1977, 13% of children in the U.S. under 5 were being cared for in a day care center or nursery school; by 1995 the proportion had roughly doubled to 23.7% (U.S. House of Representatives, 2000). In Canada, the percentage of children aged 6 months to 5 years in some form of childcare rose from 42% in 1994-95 to 53% in 2000-01 (Statistics Canada 2005).

The increased demand for child care accompanying the rise of two-earner couples has captured the attention of public policy makers. In both Canada and the United States most childcare is provided by the private market. An alternative model is supplied by the universal public programs found in Europe.[2] If cost is a barrier to childcare use for low income families, then publicly-financed systems provide more equitable access to quality child care. Given the evidence that the labor force decisions of secondary earners are very sensitive to their net earnings, a behavioral response to subsidized childcare is likely, meaning there will be efficiency consequences as well. Moreover, if the educational content of childcare improves later life outcomes, then an early public intervention may save public dollars over the longer term.

On the other hand, public systems require extensive public funding, which comes at a cost of higher taxes, which reduce economic efficiency. Moreover, it is possible that publicly-

[1] http://www.futureofchildren.org/usr_doc/11-1_fig1.pdf accessed on March 1 2005.
[2] OECD (various years).

provided child care simply "crowds out" the private provision of care, with no net increase in either the quantity, or the quality, of care provided.

A full evaluation of publicly-financed child care, therefore, requires answers to three questions. First, does public financing affect the quality or quantity of care provided, or does it just lead to a substitution from one form of care to another? Second, if child care use does increase, how large is the associated increase in labor force participation by parents, and what does it suggest about the net cost of the policy (subsidies offered minus new tax revenue collected)? Third, what effect does any change in child care (and associated labor force participation) have on child and family outcomes? Previous studies of child care policy offer at best incomplete answers to one or two of these questions. There has been no evaluation of a full-scale public intervention which can address all three questions.

This paper provides such an evaluation using a major policy innovation in the Canadian province of Quebec in the late 1990s. The Quebec Family Policy began in 1997 with the extension of full-time kindergarten to all 5 year olds and the provision of child care at an out-of-pocket price of $5 per day to all 4 year olds. This $5 per day policy was extended to all 3 year olds in 1998, all 2 year olds in 1999, and finally all children aged less than 2 in 2000. This dramatic policy change in one province of Canada provides a terrific quasi-experimental environment for evaluating the effect of publicly-financed child care.

Our analysis is based on the National Longitudinal Survey of Children and Youth (NLSCY). The NLSCY is an ongoing panel data set which follows the progress of a large, nationally representative sample of Canadian children. We measure the impact of the policy change on mothers' labor supply, child care utilization and child and parent outcomes. The focus of analysis is married women, since middle and higher income families saw the largest

changes in child care subsidies under the program, and some concurrent benefit reforms complicate the inference for single mothers.

Our results are striking. The introduction of universal child care in Quebec led to a very large increase in the use of care. The proportion of 0-4 year olds in care rose by 14 percentage points in Quebec relative to the rest of the country, or roughly one-third of the baseline child care utilization rate. This rise in child care was associated with a sizeable increase in the labor force participation of married women. Participation rose by 7.7 percentage points in Quebec, or about 12% of the baseline. The difference between the rise in participation and the rise in child care utilization appears to be primarily a reduction in the number of women who report working without child care, which presumably reflects informal child care arrangements.

We also find consistent and robust evidence of *negative* effects of the policy change on child outcomes, parenting, and parent outcomes. Child outcomes are worse for a variety of parent-reported measures, such as hyperactivity, inattention, aggressiveness, and motor/social skills. Parental interactions with children worsen along all measured dimensions, and there is some evidence of deterioration in parental health. These are subjective outcomes, but the consistency of the results across a variety of measures suggests that more access to childcare is bad for kids, at least in the short run.

Our paper proceeds as follows. Section I reviews the economic literature on child care prices, child care utilization, labor supply, and child outcomes, concluding that we don't know enough from existing studies to predict the impacts of the fundamental policy change that took place in Quebec. Section II provides an overview of the policy change in Quebec. Section III discusses our data and empirical strategy. Section IV presents the results for child care utilization and labor supply. Section V presents the results for child outcomes, while Section VII

looks at parental outcomes. The final section concludes with a discussion of the policy implications of these findings and suggestions for future research.

Section I: Previous Research on Child Care

There is a large economic literature on child care, in both the U.S. and Canada. In this section, we briefly review the existing studies that might help assess the impact of a major public expansion of child care. In particular, to understand the effect of universal child care subsidies, we need to answer three questions.

Do Individuals Use the Same Amount of Childcare, More Childcare, or Shift the Site of Childcare in Response to Changes in Price?

This is clearly the most important initial question to answer in evaluating subsidy policy. If individuals simply use the same amount of childcare, or if they shift from unsubsidized to subsidized child care, then this policy may simply be "crowding out" private child care expenditures with no net effect. There is, however, relatively little work on the effect of subsidies, or child care prices in general, on the utilization of child care. Some studies have attempted to estimate the own-price and cross-price elasticities for childcare and other types of care. There is great dispersion in the estimated elasticities – both across studies and within studies across specifications.

Smaller estimates of the own price elasticity are reported by Blau and Hagy (1998) (-0.34) and Chaplin et al. (1999) (-0.405 for center based care). In contrast, Connelly and Kimmel (2003), Powell (2002), and Cleveland et al. (1996) all report estimates of -1.0 or larger.[3]

[3] One difference between Blau and Hagy (1998), who report the smallest elasticity estimates, and other studies is that they have access to provider-reported price data. It is more common to construct child care prices based on consumer reported expenditures and hours of use. However, Blau and Hagy report that they obtain even smaller elasticity estimates when they instead construct childcare care prices based on consumer reported expenditures.

Michalopoulos and Robins' (2000) report similarly large own price elasticities, but a smaller elasticity for income tax based child care subsidies (most estimates smaller than -0.3)

Some of these studies estimate separate elasticities for different types of care; Powell (2002) estimates larger elasticities for sitter care (greater than -3.0) while Michalopoulos and Robins' (2000) estimates for this type of care are not statistically significant. Blau and Hagy's (1998) estimates for different modes of care range from -0.07 to -0.34, the largest for family home based child care. Similarly, Michalopoulos and Robins' (2000) report that tax subsidies have the largest effect on non relative, non center based care.

There are also estimates of cross price effects although not all studies report elasticities. Michalopoulos and Robins' (2000) find that center-based care prices have statistically significant effects on the use of relative and non relative care, but the prices of other types of care have negligible cross effects. Powell (2002) reports a cross price elasticities of center care on either relative or husband based care of roughly 1. Blau and Hagy (1998) report significant cross price effects, and that with the proportionate responses are fairly equal across competing types of care.

A problem with most of these studies is the source of variation in childcare prices. Typically, they exploit variation across individuals in prices to identify the elasticities, but given the range of child care options available, these prices are endogenous, and not observed for those not using care. These studies have not proposed a consistent instrument for either the price for those using care, or the predicted price for those not using care.[4]

Our work offers two clear advantages. First, the variation in child care prices we exploit is more likely exogenous, conditional on the region fixed effects we can include in our estimating equation. Second, the depth of data on childcare use available to us means that we

[4] Blau and Hagy (1998) use regional variation in child care prices as an instrument, but as we note below this is not likely to be exogenous to child care utilization.

can explore the nature of the substitution among childcare modes when one price is changed.

What is the Effect of Childcare subsidies on Work?

To the extent that childcare subsidies affect utilization of child care, they may also affect the labor supply decisions of families. If childcare can be purchased in continuous units, then individuals requiring childcare to work face an effective wage which falls short of their nominal market wage by the hourly price of daycare. Daycare subsidies, therefore, increase an individual's effective wage by lowering the hourly daycare cost. This model predicts that an increase in the effective wage will increase labor market participation among affected individuals. The effect on individuals who are already working before the subsidy comes into effect is ambiguous if leisure is a normal good. There is a substitution effect raising hours of work, but also an income effect working in the opposite direction. If childcare must be bought in discrete units (such as the full day) it can be modeled as a fixed cost of work, which raises individuals' reservation wages. A daycare subsidy reduces these fixed costs, lowering reservation wages, and raising labor market participation as before. The effect of the subsidy on those already working in this case is a straight income effect, which lowers hours of work if leisure is a normal good.[5]

There is an expanding empirical literature that estimates the response of labor supply (typically female) to childcare costs using U.S. data (this literature is nicely reviewed by Anderson and Levine 2000, and Blau 2003). These studies can be divided into three types. The first evaluate welfare demonstration projects that include a childcare component. These studies typically report modest increases in labor supply among welfare recipients. The fact that

[5] More complex, and realistic, models have been developed in the economics literature (eg. Heckman, 1974, Michalopoulos et al., 1992; for a full review of the literature, see Killingsworth and Heckman, 1986). These models accommodate the idiosyncrasies of particular programs or put the labor supply choice within a family context. Much of the intuition of the simpler formulation remains, however.

childcare is only one element of the package of services provided, however, makes it difficult to infer the role of childcare per se.

The second type of study use individual level variation in the "likely" costs of childcare. The likely costs of childcare are predicted using childcare cost equations estimated from a sample of working mothers. The determinants of childcare costs in these equations are factors such as the cost of childcare in the local area, or the number of children in the family. This type of evidence suffers from the fact that the identification of these cost equations is quite tenuous. Identification requires that there be some determinants of childcare costs that are not also simultaneously determinants of the employment decision. But factors such as the number of children clearly independently influence employment decisions. Also, the local area cost of child care, the most common "instrument" in this approach, is also correlated with factors that determine work decisions, such as area wages and the state of the local economy. For example, places with tighter labor markets will have both more maternal labor supply, and higher child care costs, but both are caused by the state of the economy. Perhaps as a result of these identification problems, the range of estimated elasticities of labor supply with respect to child care costs from these studies is quite wide, ranging from 0 to –1.26 (Blau 2003). The smaller number of Canadian studies using this approach indicate a modestly larger response, the elasticities ranging from -0.156 to -0.388 (e.g., Cleveland et al.1996, Powell 1997 and Michalopoulos and Robins 2000).

A third type of study attempts to surmount these difficulties by finding exogenous variation in childcare costs. One such study is Berger and Black (1992), who compare women receiving subsidized childcare to otherwise similar women who are on a waiting list for such care. They estimate an elasticity of employment with respect to subsidy rates of 0.094 to 0.35.

A second is Gelbach (2002), who uses variation in the quarter of birth of children as an instrument for whether they are enrolled in kindergarten at age 5. He finds that there is a significant impact on labor supply of having one's child eligible earlier for kindergarten, with an implied elasticity of labor supply with respect to child care costs of –0.13 to –0.36. Thus, both of these studies suggest elasticities at the lower end of the range cited above. Yet both still have limitations. There are a number of reasons why those on waiting lists may not be an ideal control group for those accepted into the subsidy programs; see Parsons (1991) and Bound (1991) for a discussion of this set of issues in the context of the Disability Insurance program. The Gelbach study considers only five year olds, so that there is little guidance for younger ages that are at least of equal interest to policy makers.

Finally, concurrent with our analysis is a very recent paper by Lefevbre and Merrigan (2005) that also analyses the effect of this new Quebec policy on labor supply. Their analysis is based on a different data set, and more substantively a) pools married and single mothers and b) focuses on mothers of children aged 0 to 5, thereby estimating the combined effect of the subsidization of child care and the introduction of full day kindergarten. They find positive effects of the policy on labor market participation (7 to 9 percentage points of a base of 0.53), annual hours worked (140-150 hours off a base of 980) and weeks worked (3 to 4.5 weeks off a base of 30), although the statistical significance of the some of these results varies by specification. Assuming daycare prices fell by 50 percent on average, the authors calculate elasticities from these results ranging from -0.25 to -0.34.

How Does Childcare Utilization Affect Child Development?

The final question of importance for evaluating child care subsidies is how childcare utilization affects child development. Parents who respond to subsidies by moving their children

from home to subsidized child care are substituting the care of others for their own care. Whether this substitution results in an increase or decrease in the net resources children receive depends on the quality of parental and non-parental childcare at stake. For example, non-parental care could have a positive effect in dysfunctional families, or help overcome some of the disadvantages of poverty. On the other hand, childcare at very young ages may limit the period that the child is breastfed, which may have detrimental consequences. At older ages, childcare may reduce the amount of time children receive direct interaction with, and stimulation by, an adult, since caregiver-child ratios are typically higher in childcare than in the average family. Finally, assuming that childcare is utilized to permit employment, there may be additional effects of employment on child well-being: more income may have positive effects, but more parental stress may have negative effects.

There has been an impressive amount of research on childcare and child development, mostly outside of economics but growing within economics as well. In the child development field, much research in the last decade has been based on a panel study by the National Institute Child Health and Development Early Child Care Research Network. For example, NICHD-ECCRN (2003a) finds evidence that the amount of time through the first 4.5 years of life that a child spends away from his or her mother is a predictor of assertiveness, disobedience, and aggression. However, NICHD-ECCRN (2004) associates childcare with improved first grade performance. In both of these cases, family background characteristics are stronger predictors, but childcare is found to contribute independently. Another consistent finding links the quality of care to improved child outcomes. NICHD-ECCRN (2003b p. 467) conclude that the evidence is " . . . mixed and the 'effect', if any, is not large . . ." They do find stronger evidence for a link to cognitive development. A positive relationship between child care quality and development is

consistent with the results of other recent studies (Clarke-Stewart 1991, Field 1991).

A related literature in economics examines the relationship between Head Start and other early child intervention programs and child development; the literature is reviewed by Karoly et al. (1998) and Blau (2003). Karoly et al.(1998) conclude that early interventions can have persistent positive effects in some situations, such as the Perry Preschool project. Random assignment was used in many of the projects reviewed in the survey, providing exogenous variation in the intervention across children. Typical results from these studies are short-lived positive effects on IQ, and longer term effects on other measures of achievement. Currie and Duncan (1995) use sibling comparisons to show that Head Start effects persist for whites, but not for blacks.

Economic research has focused more closely on the effects of maternal employment on child development. The review offered by Ruhm (2004) identifies studies offering both positive (e.g., Vandell and Ramanan 1992, Parcel and Menaghan 1994) and negative (e.g., Leibowitz 1977, Stafford 1987, Mott 1991) effects of this employment on development, typically measured by the Peabody Picture Vocabulary Test performance of 3 and 4 year olds. Others offer mixed results that vary with the timing of work, or the specific group analyzed (e.g., Blau and Gossberg 1992, Wadfolgel et al. 2000). Ruhm argues that a consensus view (e.g. Blau and Grossberg 1992) is that the net effects are small: positive effects of employment in the second and third years offset negative effects in the first year. There is as yet limited evidence of longer term effects. Ruhm (2005) investigates the effects of maternal employment on development measured at ages 10 and 11. He reports some modest negative effects on cognitive development of long hours of work in the infant and toddler years. Perhaps surprisingly, the larger adverse effects are found for more advantaged children.

A potential weakness of any of this research is that maternal employment and variation in daycare mode and quality across children is a typically a result of parents' choices. The estimated relationship between maternal employment or childcare quality and child development will therefore also capture any unobserved factors that are correlated with these variables. For example, families that choose paid child care may be quite different than families that choose informal care; if paid care is viewed to be of higher quality, for example, families who choose paid care will be those that are more devoted to child quality along other dimensions as well. If women who work are high ability in both the labor market and home production, maternal employment could be positively correlated with child outcomes although no causal link exists.

It is also possible that pre-existing differences in the types of children in non-parental or parental care bias results. Norberg (1998) provides evidence that the mothers of high risk and developmentally challenged children are slower to return to work. This would positively bias any relationship between maternal employment and cognitive development. She also provides evidence that mothers of "difficult" children return to work earlier. This would suggest that existing estimate overstate any behavioral hazards of maternal employment.

Researchers are aware of these concerns about causality. NICHD-ECCRN (2003ab) directly address the issue and argue that their methodology, including controls for family background among other strategies, increases the plausibility of a causal link. Still, NICHD-ECCRN (2003a) cautions that, "the correlational nature of our longitudinal data does not permit an unambiguous determination of causal direction."

Section II: The Policy Change

Our empirical approach exploits the introduction of a unique childcare policy in the province of Quebec. In this section, we describe the relevant aspects of the policy. In addition, we provide information on other changes to the policy environment both in Quebec and the rest of Canada. These details shape our empirical strategy toward the goal of providing plausible causal inferences from the data.

Quebec's Universal Daycare Plan

In 1997, the government of Quebec introduced a new set of family policies, including large changes to government subsidies for childcare. The centerpiece was a childcare program intending to provide regulated childcare spaces to all children aged 0 to 4 in Quebec at a parental contribution of $5 per day.[6] Children were eligible whether or not the parents were working. The program was phased in starting with four year olds in September 1997. Subsequently, three year olds became eligible in September 1998, two year olds in 1999 and children aged zero and one in September 2000.[7]

Prior to 1997 (and through the transition period), direct subsidies for childcare were available for low income families. For example, in 1998, a full subsidy of up to $16.14 per day was available to married parents with annual incomes up to $14,400. This was reduced for each dollar of family income over that threshold.[8] There were also refundable tax credits at a rate that depended on family income; from 75% for those with the lowest incomes down to 26% for those with family incomes greater than $48,000. Through these existing policies, lower income families received a substantial subsidy even before the introduction of the $5 program. For this reason, the greatest change in subsidy with the introduction of the new program was for middle

[6] This contribution was eligible for the federal tax deduction for child care expenses but not for the provincial tax credit In 2004, the price was increased from $5 to $7 per day. Since this change occurred after the time period covered by our data, we refer to the $5 amount in this paper.

and higher income families. Married women with a working husband would have seen little benefit under the income-tested system, as their husband's income would take most families above the relevant thresholds.

The provision of new subsidized places was accomplished through a fundamental re-organization of the childcare sector in Quebec. A new Ministry was created, the Ministère de la Famille et de l'Enfance, to oversee the system. Centres de la petite enfance (Centers for young children – known by the acronym CPE) were created out of existing non-profit childcare centers to serve as organization nodes of the new system. In additional to providing childcare services, these centers oversaw networks of in home childcare providers. To be eligible to offer subsidized places, in home providers had to affiliate with a CPE, and be subject to the associated regulations.

The transition to the new system created frictions. Even though the introduction was staggered by age, demand has exceeded supply leading to some queues.[9] The response to this excess demand has been to create new subsidized childcare places. In Figure 1 we graph the total number of regulated places in the province as of March 31 in each year, and starting in 1998 the number of these places available at the subsidized rate.[10] The number of spaces more than doubles between 1997, the last year before the new policy comes into effect, and 2005. Note, however, that the growth does not begin in earnest until 1999 – the annual increase in 1998 was only about 4 percent.

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[7] A further subsidy is available to families who cannot afford the $5 per day fee, reducing the cost to $0. A very small number of children receiving this waiver has been very small: 5,000-9,000 (Lefevbre and Merrigan 2005).
[8] The reduction rate was 40 cents off the daily subsidy for each $500 of annual income.
[9] Excess demand is hard to gauge, as documented estimates of the queues are unavailable. Waiting lists may include children already in a subsidized spot but wanting to change centers, duplicate counts of children on multiple waiting lists, or children during the transition period who are not yet eligible. Media reports suggest the queue may be as high as 35,000 children (CBC News Online 2005)
[10] Prior to 1998 some places were available at a reduced rate through the programs in place before the CPE program.

The expansion was accomplished by quadrupling the number of places in family based childcare, and doubling the number in CPEs. The greater expansion of family based child care may reflect both the flexibility of expansion in this sector and parental preferences: a survey of parents in the province in 1999 revealed that they preferred family childcare for infants and center-based care at older ages.

In contrast to the growth in the CPEs, the for-profit sector has not expanded. The number of spaces in these centers was frozen, reflecting a government preference that early childhood education occur in a non-profit setting where parents have greater involvement. Although the original intention was for the subsidy to be available only in the non-profit centers, the reality is that many places in the for-profit sector have also been 'leased out' to the government and available to parents at the subsidized rate. This makes much more difficult the study of the impact of the program on children in not-for-profit versus non-profit centers, as subsidized children could be sitting beside unsubsidized children in the same private childcare.

In addition to increasing the quantity of places, there was some emphasis on increasing the quality of care. Part of this came through regulatory changes. Both for CPEs and for family providers the formal qualifications for caregivers was raised.[11] The government has also implemented new wage policies in the sector to make it a more attractive profession: phased in over a four year period starting in 1999, it resulted in an average wage increase of 38 to 40 percent (Tougas 2002). On the other hand, several operational parameters were relaxed which may have decreased the quality of care.[12]

[11] Two-thirds of staff must have a college diploma or university degree in early childhood education; previously the standard had been one-third. The government now provides financial support for childcare providers who are enrolled in college level courses in Early Childhood Education. Family child care providers registered with a CPE faced increased training (24 hours to 45 hours) and annual professional development (6 hours) requirements.

[12] Maximum facility size was raised from 60 to 80 places. Staff/child ratios remained unchanged with the exception of four and five year olds whose ratio was raised from 1:8 to 1:10. Parent involvement in the board of directors was

The new Family Policy also included measures for school age children. The main components are a) voluntary full day kindergarten for five year olds (starting September 1997), b) half day kindergarten and free care for four year olds from disadvantaged areas, and c) subsidized after school child care for children aged five through 12 (also at the $5 per day rate). Data from Quebec (2003) indicates that enrolment in all three of these programs has risen sharply.

Changes to Family Benefits

In addition to the introduction of the universal childcare plan, there were several other policy changes both in Quebec and in Canada through the late 1990s. These changes affected benefits paid to families both from provincial and federal governments, and are summarized in Appendix A, and a quantitative evaluation appears below. Because these programs are not central to our empirical strategy, we leave most of the details to be found by the interested reader in Lefebvre and Merrigan (2003).

The new Integrated Family Allowance was the other principal aspect of the 1997 Family Policy. The revised program paid maximum benefits of $975 for children in two-parent families, and $2,275 for lone-parent families. These benefits were reduced for family income greater than $21,825 for two-parent and $15,332 for lone-parent families. This allowance was not tied to employment income. This benefit replaced several non-income tested benefits, including an allowance for newborn children, an allowance for young children, and a general family allowance. These benefits were much smaller in scale than the post-1997 Integrated Family Allowance, totaling only $247 annually (plus a $500 one-time bonus) for a family with one

raised from 51% of members to two-thirds of members. The duration of center operating permits was lengthened from two to three years.

young child. Thus, by taking away benefits from medium and high income families, the reform targeted resources to benefits for low income families.

There were two federal benefits available over this time period. The Canada Child Tax Benefit was paid to families irrespective of labor market earnings, but reduced with family income. The National Child Benefit Supplement, in contrast, was subtracted from welfare payments in most provinces, meaning that it only added to family income if the parents entered the work force. It also was reduced with family income above a given threshold. This latter benefit was increased significantly starting in 1998. Many provinces also introduced small earned-income benefits through this time period as well. Quebec's APPORT program fits this description.

Finally, welfare (or social assistance as it is known in Canada) benefits are controlled by provincial governments. Rates changed through time across provinces, and in some cases were integrated with other benefits as described above.

The family benefits are summarized quantitatively in Table 1. We take a simulated family, consisting of a husband earning $40,000 and two children aged 3 and 8. This family is put through our tax and benefit calculator to ascertain what benefits the family would be eligible for in Quebec and neighboring Ontario through the years 1992 to 2002. We repeat the analysis for married women and for single women of 4 income levels from $0 up to $60,000.

Benefits for married women are in the top panel of Table 1. The main impact on women outside Quebec during this period is changes to federal benefits starting in 2000. As the full benefit entitlements became larger, families with higher income levels began to receive some benefits rather than having their benefits fully phased out. Because this variation is national, it can be seen affecting both the Ontario and Quebec simulated family in a similar way. The major

difference between the Ontario and Quebec simulated family is the universal family allowance and allowance for young children that was payable in Quebec until 1997. These benefits, however, were relatively small, amounting to only a few hundred dollars annually.

The single women, in the bottom panel of Table 1, show much more variation. In both Quebec and the rest of Canada, the federal benefit expansions of the Canada Child Tax Benefit and the introduction of the National Child Benefit in the late 1990s led to sharply increasing benefits for low income singles. However, in Quebec, the increase is much higher because of the new family allowance targeted at low income women. The impact on higher earning women is not as different between Quebec and the rest of Canada, as the new family allowance was phased out starting at an income level of $15,332.

This policy environment can be summarized as one in which benefits for low income families changed significantly across provinces and through time. In contrast, families of more than modest means saw much smaller changes in their benefits – with the very important exception of the introduction of the universal $5 per day childcare program in Quebec.

Effects on the Price of Childcare

In the early 1990s, the costs of childcare Quebec were subsidized by both the direct subsidies for low income families described above, and by deductions and credits in the income tax system. At the federal level a deduction was available for qualifying expenses. Provincially, a refundable tax credit was in place starting in 1994. A full description of the parameters for the tax subsidies is provided in Appendix B.

The effect of the new childcare policy varies with income. The $5 per day parental contribution is not eligible for the provincial tax credit for childcare expenses, although it remains eligible for a federal deduction. Government estimates at the time the new policy was

introduced indicate, for example, that single parents with one child would actually pay more for childcare up to annual incomes of about $20,000 (Quebec 1997). This increased burden would be offset by the larger child allowances now available at low incomes. At higher incomes, the decrease in the direct cost of childcare could be substantial, although attenuated by the fact that the costs are no longer eligible for the provincial tax credit.

In Figure 2 we provide an indication of the trend in the effective subsidy of childcare prices by province over the 1990s. We graph the married rate for all provinces, in addition to the singles rate for Quebec. The subsidies are calculated as the sum of the direct expenditure subsidy (the direct reduction in childcare price) and the tax subsidy (the tax deduction/credit for any remaining out of pocket costs). Subsidies in each province vary with family characteristics, so we use the same set of families across provinces so the variation captures the difference in legislation. A full description of the simulation methodology is reported in Appendix B.

At the beginning of the time period Ontario and Quebec have the highest subsidy rates to child care expenditures by married couples, and the variation among the remaining provinces is minimal. In 1994 the subsidy rate in Quebec jumps above those in other provinces and then remains steady until the start of the Family Policy, as the generous refundable tax credit was put in place. With introduction of the Policy in 1997 the subsidy in Quebec begins an upwards trajectory until it settles at almost three times the rate in other provinces by 2002. The jump is not immediate because the slow phase-in of the new program meant that only four year old children were initially eligible for the $5 subsidized program, while our simulation sample includes families with children age 0-4. By 2001, children of all ages 0-4 are eligible, and the Quebec line stabilizes.

For singles in Quebec, it is harder to see the impact of the Family Policy. Single women typically qualified for subsidies even before the $5 per day program was introduced. Therefore, in contrast to the case for married parents, singles in Quebec see a steady upward trend in their subsidy rate throughout the decade. This makes it harder to distinguish the effects of the Family Policy from secular trends for this group.

Spending on Childcare and Families

Perhaps surprisingly, the new family policy did not result in a dramatic increase in total government expenditures on family assistance. Instead, its most dramatic effect was on the composition of this spending. Lefebvre (2004) reports that government spending on all programs – both the childcare and the income support programs – rose from $2.64 billion to $2.97 billion between 1995 and 2004, or about 12.5 percent. Over this same period the proportion of this spending flowing to childcare benefits rose from 14.6 percent to 50.4 percent; spending on direct childcare subsidies rose from 8 percent to 44.7 percent. The offsetting adjustments were primarily the elimination of the universal children's allowance and reductions in expenditures on targeted child benefits in response to the increase in federal benefits.

Part III: Data and Empirical Strategy

Data

Our primary data set for this analysis is the National Longitudinal Study of Children and Youth (NLSCY), a nationally representative panel survey that follows cohorts of Canadian children, some from as early as birth. The survey is conducted bi-annually and currently the 1994-95, 1996-97, 1998-99, 2000-01 and 2002-03 waves are available. The sampling frame is the same as the Canadian Labour Force Survey, which excludes only residents of the three

northern territories, institutions, the military, and Indian Reserves. The initial target population for the NLSCY survey was 0-11 year olds in 1994. This initial cohort is followed longitudinally across all five waves. Additionally, younger children have been added to each wave providing an increasingly wider cross-section snapshot of the child and youth population. For the first four waves, the dataset provides cross-sectional coverage of children from age 0 up to the oldest of the original cohort. In the 5th wave, the sample includes children age 0-5 in the cross-sectional component and the original longitudinal cohort who are ages 8 to 19. Missing from the 5th wave is coverage of 6 and 7 years olds.

The content of the NLSCY is deep. The dataset provides information on a rich set of childcare choices as well as tracking children's development, parental and teacher evaluations, test scores, and class rankings. The sample averages around 2,000 children at each age per year, although some provinces and age groups were oversampled in some waves. For this reason, we use the provided weights in all of the results presented here.

Our primary sample consists of children age 0 to 4, although for some robustness checks we also make use of children age 6 to 11. The main sample restriction is to include only children from dual-parent families, for the reasons described earlier. We also exclude observations not resident in one of the ten provinces and those with missing data for the control variables described below. These latter exclusions amount to very few observations.

The NLSCY questions on childcare use are extensive. The initial question about childcare use is asked to parents of children age 0 to 11.[13] This question acts as a 'gateway', as

[13] The wording of the question is "Do you currently use child care such as daycare, babysitting, care by a relative or other caregiver, or a nursery school while you (and your spouse/partner) are at work or studying?"

no further childcare questions are asked for those who respond in the negative.[14] Those who answer in the positive are asked a series of questions about the modes of childcare used and for how many hours each is used. Information on the number of children and number of caregivers is only asked starting in the third wave of the survey, so we cannot use it to compare quality before and after the introduction of the $5 program.

We classify the modes into (a) institutional care, (b) care in the home, and (c) care outside the home. Institutional care includes daycare centers, before and after school programs, or nursery schools. The vast majority of children age 0-4 in this category are in a daycare centers. For the care in the child's own or another's home, we observe whether it is provided by a relative and whether the caregiver is licensed. Because the care subsidized by the Family Policy can be provided both through CPEs and through licensed family-based providers, our focus is on institutional care and the licensed care outside the home. Finally, we can also observe hours of childcare use per week.

To measure maternal labor supply, there are several variables available. We focus on three: weeks of maternal work per year, full-time maternal work (defined as working 20 hours per week or more), and maternal enrollment in school.

The third set of variables describes the child's development. We primarily rely on aggregate scores provided in the NLSCY. Each of the scores represents an aggregation of the responses to individual questions. Only certain aged children were asked the underlying questions for some of the scores, so not all ages 0-4 are covered by each score. We provide detail on the formation of the scores in Appendix C. The scores we use are for hyperactivity, general anxiety, aggressiveness, and motor and social development.

[14] This is important for understanding how an informal care arrangement might go unreported – the respondent might have answered affirmatively if asked directly if a family member cares for the child, but the respondent is not

The fourth set of measures attempts to capture the tone of the parent-child relationship. Again, we use aggregate scores that are described more completely in the Appendix. The scores for parenting are for positive interactions, consistency, hostile/ineffective parenting, and aversive interactions.

Finally, there are several measures of health that we can construct from the data. Specifically, we form variables for the self-reported health status of the mother, father, and child. We also have a depression score for one of the parents. Finally, we have an indicator of whether the child has suffered an accident in the last twelve months.

Empirical Strategy

Armed with these NLSCY data, we estimate difference-in-differences models comparing the outcomes in Quebec and the rest of Canada around the time of this reform. We denote the "pre-reform" period as waves 1 and 2 of the NLSCY, covering the period 1994-1995 to 1996-1997. The "post-reform" period is waves 4 and 5 of the NLSCY, from 2000-2001 and 2002-2003. For outcome variables such as child care use, labor supply, or parent and child outcomes, the generic estimating equation is:

$$Outcome_{ipt} = Policy_{pt} + PROV_p + YEAR_t + X_{ipt} + \varepsilon_{ipt} .$$

In the model, i indexes individuals, p indexes provinces, and t indexes years. We include year and province dummies, along with a set of control variables X_{ipt} for the parents' characteristics (education level, age group, and immigrant status), size of urban area, number of siblings, and the age and sex of the child.[15] For the policy variable, we investigate three

asked this question if he or she initially answers negatively to the 'gateway' question.

[15] The parental education groups we define are high school dropout, high school graduate, some post-high school, university degree. The age groups are in five-year sets, starting with 16-20 and ending with 46-99. The urban area dummies are for five levels: rural, under 30,000, 30,000 to 99,999, 100,000 to 499,999, and 500,000 plus. Siblings are controlled for with dummies for the number of younger siblings (0, 1, 2 or more) and another set for the number of same age or older siblings (0, 1, 2 or more).

alternatives. The first is a dummy for being eligible for the $5 per day program – meaning that the child is resident in Quebec in a time period when his or her age is eligible for the subsidized space. The second is the child's number of years of 'exposure' to the $5 per day program. We form this variable in an attempt to capture the impact of time spent away from the mother before age 5, which was found to be predictive for aggressive and disobedient behaviour by NICHD-ECCRN (2003a). These two variables can be understood more clearly by looking at Table 2, which presents the number of years of exposure to eligibility for all ages and waves in Quebec. In wave 5 there is substantial variation in exposure across ages, while in wave 4 the three and four year olds have 2 years of exposure each.

The third policy variable measures the average subsidy rate for childcare expenses in a given province-year combination, as described in Appendix B. This measure is useful to more precisely quantify the impact of the policy on behavior. We can use the estimates from this specification to calculate elasticities to compare with the results of previous studies.

Since we control for fixed effects for each province and each year, the effect of the child care policy in Quebec is identified by the change in Quebec, relative to other provinces, in 2000 or later relative to 1997 or earlier. In addition, for the models with the province-year subsidy rate, we incorporate variation across all provinces and years. Most of the variation in the subsidy rate models, however, still comes from Rest of Canada-Quebec comparisons, however, as is clear in Figure 2. In all regression models, standard errors are clustered by province, to account for both cross-sectional correlation and auto-correlation over time within provinces (Bertrand et al., 2004).

It is notable that we exclude the 1998-1999 wave of the data from this analysis. In principle, these data could be included, which would not only increase sample size, but would

also allow us to exploit the "phase-in" of the policy across different age groups. The policy was sufficiently "immature" when these data were collected November 1998-May 1999), however, that it is difficult to tease out any effect using this wave. As shown in figure 1 the increase in supply of subsidized child care spaces lags the start of the program in September 1997. Our decision to exclude these data and the difficulties we experienced identifying the policy effects when the 1998-99 wave is included, are consistent with the decisions and experience of Lefevbre and Merrigan (2005) who analyse the policy using data from the Survey of Labour and Income Dynamics.[16]

A disadvantage of our identification strategy is that any Quebec specific shocks coincident with the Family Policy will bias our estimates. This is clearly an issue for single mothers, due to differential welfare reforms across the provinces, and province-specific reactions to changes in federal benefits. As a result we exclude this group from the analysis. Because the family incomes of married women typically make them ineligible for active labor market programs, this group is affected very little by the policy changes of the 1990s; the exception is Quebec's universal childcare program, the focus of our analysis.

Still, other province-specific shocks and trends may confound our analysis. We attempt to address this concern in a number of ways. First, we enhance our regression results with compelling graphical evidence of how maternal labor supply, child care utilization and child outcomes deviate in Quebec and the rest of Canada with the advent of the new policy. These figures help allay fears that our estimates are spurious or picking up some other event in the treatment period. In particular, the availability of data for two years before the policy change for

[16] Lefevbre and Merrigan (2005) enter a separate dummy variable for the 1998 data and consistently find the estimate is statistically insignificant. Therefore, their results are based on coding the policy in effect starting with the data from April 1999.

most of our variables allows us to demonstrate that we are not just picking up long-running trends in differences between Quebec and the rest of Canada.

Second, where possible, we use 6-11 year old children as a control group. More precisely, we use only the 6-11 year olds who at no time were eligible for subsidized childcare under the new Family Policy at younger ages, so that there is no potential 'contamination' of the control group from previous exposure. These children are still not an ideal control group, however, because as described above the Family Policy included subsidized after school care for children in this age group. This biases the results for the control group in the same direction as the treatment group, however, so that comparisons will only understate policy effects.

Part IV: Results for Child Care Use and Labor Supply

Child Care Use

Table 3 presents the results of our estimations for child care use. Each cell shows the coefficient of interest from a separate regression. The first column of results from the table shows the basic difference-in-difference estimates, while the second shows the results from the model that includes the province/year subsidy rate.

The first row shows that the odds that a child was in child care rose by 14.6% in Quebec, relative to the remainder of Canada, after this policy change. This is a very sizeable increase which amounts to more than a third of the baseline rate of child care utilization. The second column in the first row shows that that each 10% increase in the subsidy rate to child care raises utilization by 4.4%. The 1996 pre-reform mean subsidy rate in Quebec is 0.472 (making the price paid out of pocket 0.528) and the mean for 'in any care' is 0.407. Combining these with

our estimate implies an elasticity of child care use with respect to its price of 0.57, which is at the lower end of the range of estimated elasticities from previous work.

This change is illustrated in Figure 3, where we graph the rate of child care utilization in Quebec and the rest of Canada across the NLSCY waves. Use of child care falls modestly in Quebec relative to ROC between wave 1 and 2, and then rises in wave 3, although only marginally faster than in the ROC. In wave 4 and wave 5, however, care rises substantially in Quebec while remaining flat in the ROC. This figure clearly illustrates a trend break in the use of child care in Quebec around the time of this policy.

The next two rows show the effect of the policy on the hours of childcare used. The number of hours per week, among those with positive hours, increases by 6.4 hours, which is approximately 47 percent of the mean. The third row contains estimates for a binary variable indicating whether care was used at least 20 hours a week, in an attempt to measure full time use. Interestingly, the coefficient on this variable is very similar to the coefficient for using any childcare at all, suggesting that the impact of the program was a shift to full-time use.[17]

The next set of rows in Table 3 shows estimates of changes in the various types of child care arrangements. There is a very large rise in institutional care that is essentially equal to the overall rise in child care, with little care in own or others homes. This is striking given the rise in home-based care that was part of the $5 per day program. The next three rows resolve this mystery. Care in others homes didn't change, but there was a shift from care provided by relatives and non-licensed non-relatives to care provided by licensed non-relatives. So in addition to an increase in use of institutional care, there was a shift in home care to licensed non-relatives. Licensed non-relatives would include the family-based care associated with CPEs

[17] Anecdotal evidence suggests that providers offer subsidized places primarily on a full time basis. This has led to criticism that the new policy does not serve part-time users well (e.g., Lefebvre 2004).

through the $5 per day program. Clearly, this policy change had major effects on the use of child care.

Labor Supply

Table 4 reports the effects of this policy on the labor supply of married women.[18] There is a rise in the employment of married women in Quebec, relative to the rest of Canada, of 7.7 percentage points, or 12% of baseline participation. In subsidy terms, we find that each 10% subsidy raises maternal work by 2.3%. Given the 1996 Quebec price mean of 0.528 and employment mean of 0.570, this implies an elasticity of maternal work with respect to child care costs of 0.23, which is towards the low end of the previous literature on labor supply effects of child care costs. As Figure 4 shows, this change in labor force participation once again represents a trend break for Quebec relative to the rest of Canada.

There is also a large rise in other measures of labor supply for married women as well. Average weeks of work rose by 3.5, or more than 10% of baseline, for an elasticity of weeks of work with respect to child care prices of 0.22. Similarly, the odds of full-time work rose by more than 10%, with an elasticity of 0.18. Together, these estimates imply that most of the response is on the extensive margin, as weeks worked moves up at the same rate as employment. Finally, there is no significant effect on the odds that a mother is enrolled in school.

It is notable that the impact of the program on labor supply is only about half as large as the impact of the program on child care utilization in absolute terms. There are two possible explanations for this finding. First, many women may be using child care without working. The

[18] Since our sample for all of the other analyses in this paper is at the child-level, we use a comparable sample here, whereby each observation is the labor supply of a child's mother. This means that if a woman has more than one child aged 0-4, she will be included in the data set multiple times. We have also estimated models that only use one

question in the survey asks specifically about care only while working or at school. The other possibility is a change in reporting: some women may have been using informal child care that was not reported, but as they switched to the formal sector they report their care..

The next set of rows of Table 4 investigates these two hypotheses by dividing the sample of mothers into four groups: working and using child care; working and using no child care (presumably a mismeasurement that is proxying for informal care of these 0-4 year old children); not working and using child care; and not working and using no child care. The first two rows show that, in fact, there is significant use of informal child care that is not reported in the survey: there is a reduction of 4.8% in the share of women who report working with no child care for their small children, and the share who report working with child care rises by 12.5% (the sum of these is the 7.7% overall increase in work). Thus, roughly one-third of the 14.6% rise in child care use reported in the first row appears to reflect not a net increase in child care use, but a shift from unreported informal care to more formal care ("crowding out" of informal care). In addition, the third row shows that there is a small increase in the share of women who use child care but do not work of 2.3 percentage points.

This set of findings has important implications for interpreting our investigation of child outcomes below. This policy change is not purely an instrument for increased child care use and labor supply. Rather, the effects of the policy change reflect a mix of increased labor supply, leading to more child care use, a shift in the mode of child care (from informal to formal care), and a small rise in child care use without increased labor supply. That is, the outcome results below are really only interpretable as a reduced form response to this policy, and not a structural effect of either increased labor supply or increased child care use per se.

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observation for each woman, and the results are similar. For example, the coefficient on 'mother works' is 0.070 (0.007).

Specification Check

For the labor supply results reported in Table 4, we have a specification check: the labor supply of mothers of older children. In the remaining columns of Table 4, we present corresponding results for the labor supply of mothers of children ages 6-11 (excluding 5 year olds due to the introduction of all day kindergarten). As noted above this is not the ideal control group because the Family Plan provided subsidized after-school care at these ages, which may also raise the labor supply of mothers. This bias, however, works towards finding an impact of the policy on the mothers of older children (and thus towards rejecting the specification check).

In fact, we find no significant labor supply effects, in any specification, for the control group, except for a significant *negative* effect on the odds that a mother is enrolled in school. This suggests that the findings for labor supply causally reflect the increase in child care access for 0-4 year olds.

Cost Calculation

A complete cost benefit calculation is beyond the scope of this paper. For such a calculation we would have to value and compare the consumption and investment return to staying home with one's child to the consumption and investment return to returning to work. Instead, we offer an estimate of the change to the government's budget from the introduction of this program.

The example we study is set in 2002. We consider a representative married working woman with a husband who also works. We assume the daily cost of childcare is $35, of which $5 is paid by the parents and $30 by the government, for a subsidy rate of 0.857. Our estimated coefficient of 0.228 in Table 4 implies that the introduction of this subsidy led to 0.857*0.228 = 0.195 more workers per child.

To estimate the tax revenues from these additional workers, we create a simulation using the income microdata and our tax and benefit calculator.[19] From a representative sample of Quebec married families, we estimate that the per person income tax (combined federal and provincial) and payroll tax gained would be $8,010 and the reduction in child benefits paid given the family's higher income would amount to $1,221.00, totalling $9,231. Multiplied by 0.195 more workers, this works out to an increase in government revenues of $1,804 per child.

The cost of this program is the $30 dollars per day the government is now paying per child. The average number of women in Quebec working in wave 5 of the NLSCY is 0.63. So, this amounts to ($30*50 weeks * 5 days*0.63) $4,725 effective cost per married woman. When compared to the change in taxes, we can now calculate that ($1,804/$4,725) 38 percent of the costs of the childcare subsidy are covered by the income and payroll taxes on the extra labor the subsidy encourages. While certainly a rough calculation that ignores much, this result provides more context for the magnitude of our estimated elasticity as well as an estimate of how close such a program can come to paying for itself.

Part V: Results for Child Outcomes

As discussed in Part I, there is considerable controversy over the effects of maternal work and child care use on child outcomes. The policy change in Quebec, along with the rich data on child outcomes available in the NLSCY, offers an opportunity to more completely address this important question than has been possible in past research.

[19] Using the Survey of Labour and Income Dynamics for 2002, we select all couples in Quebec with a child under age 5 and both parents working at least 50 weeks. This sample comprises 228 families. The average male earnings in this sample is $50,521 and the average female earnings is $30,049. We process these observations through the calculator and arrive at the total for taxes paid and benefits received. We take the mean of these totals using the sample weights to arrive at the tax payments used for the calculations in the text.

For studying child outcomes, what matters may not be simply whether subsidized day care was available, but for how many years it was available (NICHD-ECCRN 2003a). Thus, for this analysis, in addition to our simple difference-in-difference specification, we also use the specification where we include the number of years that a child was "exposed" to $5/day child care.

Table 5 presents the results for child outcomes. We consider several summary scores of the individual behavioural measures: hyperactivity-inattention; general anxiety; separation anxiety; physical aggressiveness/opposition; and motor and social development. Appendix C shows how these indices are constructed from the underlying survey questions, and also provides estimates on the individual components using the same specifications as we use for the scores. We also consider two measures of health: an indicator for excellent health, and an indicator for injury. For each we show results for both the DD specification and the exposure specification.

Many scores in the NLSCY are calculated separately for different age groups. Because we would like to use our age 6-11 control group, we constructed our own 'pooled' scores by taking the questions that were common between scores for two different age groups. For example, the hyperactivity-inattention score for 2-3 year olds differed from the score for 4-11 year olds by only one variable. The 'pooled' hyperactivity score was formed by dropping the non-overlapping variable from the score calculation. Not only do the pooled scores allow comparisons to age 6-11 children, but also they allow us to include age 4 children in the primary sample. On the downside, the pooled scores we construct are *ad hoc* and have not been through the rigorous testing that the NLSCY-provided scores have. Details on our constructions are provided in Appendix C.

The first results in Table 5 are for hyperactivity. Using the age 2-3 score, we find that children eligible for the subsidized place had a hyperactivity score 0.103 points higher than ineligible children. A similar result holds in the 'age 4 and under' sample using the pooled score. The next five rows uncover a similar pattern of increased anxiety, separation anxiety (available only for the younger sample) and aggressiveness. For the motor and social development score, there is a *negative* impact of being eligible for the program. However, this result should be interpreted with more caution because we have only one 'pre' observation for this score. There is also a negative effect on the probability of being in excellent health and a positive effect on the odds of injury, although the latter is not significant in the exposure specification.

These effects are large. For example, for motor/social skills, the regressions suggest that eligibility for the subsidized child care plan leads to a 1.6% decline in skills relative to the mean. Table 3 showed that eligibility led to a 14.6% rise in the odds of (formal) child care use, and a 7.8% rise in the odds of maternal work. This estimate therefore implies that work/child care use leads to a 11 to 21% decline in motor-social skills relative to the mean. The effects are much larger for other behavioural measures. For example, for anxiety, the results imply a 10% rise relative to the mean score of 1.2. This implies that work/child care use led to a 68% to 128% rise in anxiety, as measured by this score.

As with the childcare and labor supply results, we wish to check that the inferences from our difference-in-differences estimation are not spurious. In Figure 5, we present graphs of four of the scores for Quebec and the rest of Canada over the waves of the survey. For both the pooled hyperactivity and anxiety scores, Quebec appears to close the gap between waves 2 and 4, and then surpasses the rest of Canada in wave 5. If exposure to more years of care is driving

the results, this pattern of an increasing gap between Quebec and the rest of Canada should be expected during a transition period until all children have four years of exposure to the program. For aggression, the gap closes in periods 4 and 5 relative to earlier periods, but there is no acceleration of the difference as exposure grows in wave 5. Finally, the limited data available for the motor and social development scores are consistent with the policy having an effect, but are less conclusive because of only having one 'pre' period of data.

To be clear, these measures are not objective. It is possible that higher exposure to child care could lead to increased reports of bad outcomes, but there is no real underlying deterioration in child behaviour. For example, child care providers may identify negative behaviours not noticed by parents. The consistency across these different types of measures, however, is striking. Also, the finding for motor/social skills, which is based on performance of tasks such as washing hands, counting objects, and speaking in sentences, is unlikely to be strongly influenced by child care provider opinions. Similarly, child health and injury might be viewed as more objective measures. Finally, the consistency of the findings across virtually all of the individual components of the scores (reported in Appendix C) also suggests that the findings are not spurious.

Comparison to Older Children

Another way of confirming the causal nature of our findings is comparisons to older children who were less affected by this policy change (but not unaffected due to the subsidization of after-school care). The results for 6-11 year olds, in the final column of table 5, are largely consistent with a causal interpretation of the estimates. For three of the five measures (hyperactivity, aggressiveness and injury) the estimates are wrong-signed, and two of these three estimates are statistically insignificant. For excellent health, there is also a negative effect on 6-

11 year olds, but it is much smaller than the effect on 0-4 year olds. For anxiety, however, there is a significant and large effect on 6-11 year olds which is of similar magnitude as the result for 0-4 year olds. Finally, motor/social skills information is not collected for these older children.

Part VI: Effects on Parents and Parenting

The NLSCY not only gathers data on child outcomes, but on two other important indicators as well. The first is measures of parental interactions with children. The scales in the NLSCY are intended to capture the positive interaction, ineffectiveness and consistency of parenting as well as parental practices that are aversive. The second is measures of parental health. Both of these might plausibly be affected by increased use of child care and labor supply induced by the $5 per day program.

We use four measures of parental interactions provided by the NLSCY: "positive parenting", "hostile and ineffective parenting"; "parental consistency"; and "aversive parenting." The construction of these scales is discussed in Appendix C. The estimation results are presented in the first four rows of table 6. For each of these scales, there is strong evidence of "worse" parenting after the new policy was put in place. There is a highly significant rise in the hostile/ineffective parenting index of almost 10% of its baseline value, a highly significant decline in the consistent parenting index of about 3.3% of its baseline value, and a highly significant rise in aversive parenting of about 2.3% of baseline. We plot the time trends for the four parenting measures in Figure 6. While aversive parenting shows little closing of the Quebec – rest of Canada gap, the other there measures show remarkable changes consistent with the parent-child relationship getting worse in Quebec in waves 4 and 5.

Once again, for these measures we can examine the impact on parenting of older children to assess whether there are omitted factors specific to Quebec or the rest of Canada affecting our results. For hostile/ineffective parenting, there is a positive effect on older children, but it is much smaller than for younger children. For the other two indicators, the effect is opposite signed, indicating a possible trend in the opposite direction. For positive interactions, however, the effect for 6-11 year olds is estimated to be even larger than for 2-4 year olds.

In the final three rows of Table 6 we examine measures of parental well-being. The self-assessed health status of the mother and father is available in the NLSCY, along with a depression score for one of the parents. (We present the depression results only for mothers, since the mother was the primary respondent in the vast majority of families.) The estimated coefficients provide some indication that the father is worse off, losing 0.029 from his probability of feeling excellent when his child is eligible for the program. For the mothers, the estimated effect is smaller at -0.011, and only marginally significant. Sharper is the result for depression. Mother's depression score is estimated to increase by 0.422, or 10.1% of the mean. All three of these results look similar in the 'exposure' specification. When using older children as a control, however, the results are more mixed. The negative coefficient for mother's excellent health is larger for the older children than the younger children, while the father's is more than half the size of the younger children's coefficient. In contrast, the depression score is negative and insignificant when using the older children as a counterfactual. Overall, these estimates provide some evidence of a detrimental impact of the program on parental health, most convincingly for mothers' mental health.

Part VII: Conclusion

In this paper we provide what is to our knowledge the first comprehensive analysis of a universal subsidized childcare program, following its impact from childcare use through employment and finally into children's and parent's outcomes. We uncover strong evidence of a shift into new childcare use, although approximately one third of the newly reported use appears to come from women who previously worked and had informal arrangements. The labor supply impact is strongly significant, and our measured elasticity of 0.22 is slightly smaller than previous credible estimates. Finally, we produce striking indications that children's outcomes have worsened since the program was introduced. We also find suggestive evidence that families became more strained with the introduction of the program, manifested through increased aggressiveness and anxiety for the children, and more hostile, less consistent parenting for the adults.

There are many avenues for future research on this policy innovation. An investigation into the labor market impact of the shift in demand for childcare workers could yield important findings on career choice and other labor market phenomena. As future NLSCY waves become available, the children exposed to the childcare program will be observed as they enter and begin school, making possible the testing of several fundamental predictions of the effect of early interventions on future educational success.

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Appendix A: Family tax credits in Quebec and Canada

Program Name	Particulars
Quebec Family Allowance	Changed in 1997, moved from universal allowances to income-tested and targeted allowances. Family Allowance paid $975 for children in two-parent families and $2,275 for children in lone-parent families. Reduced for family income higher than $21,825 for two -parent families and $15,332 for lone-parent families.
Canada Child Tax Benefit	National refundable credit, worth $1,020 annually until 1999 (slightly more since 2000). Reduced for family incomes greater than a threshold ($25,921 until 1999).
National Child Benefit Supplement	National refundable credit, introduced in 1998, intially $605 annually for one child. Reduced for family incomes higher than threshold ($15,921 initially). Some provinces subtracted benefit from Social Assistance payments.
National Child Benefit Provincial Programs	Some provinces introduced small earned income supplements or family supplements as part of the National Child Benefit program. Structure varied by province, but all income-tested. Timing varied by province.
Social Assistance	Social Assistance payments determined by provincial governments. Rates varied by province and time. In some provinces, was partially integrated with National Child Benefit program.

Appendix B: Calculation of the subsidy variable

We form our effective subsidy variable through simulations with a tax and benefit calculator. In this appendix we describe the calculator, the simulated individuals used for the calculations, and the formation of the final variable we use for our analysis.

Fiscal assistance with childcare expenses

The calculator incorporates all aspects of fiscal involvement with childcare expenses by families. Specifically, we consider:

- Federal Child Care Expense Deduction.
- Provincial subsidies for low income families.
- Quebec childcare credits.

We do not provide the complete detail necessary to recreate our result in this appendix because of space constraints. However, the full program parameters are available from the authors upon request. Below, we describe each component briefly and give a sense of the sources of variation.

The federal Child Care Expense Deduction allows qualifying childcare expenses to be

deducted from the taxable income of the lower-earning spouse. This deduction affects the tax base for both provincial and federal income tax liabilities. The maximum deduction for children under age 8 was $4,000 in 1992, $5,000 from 1993 to 1997, and $7,000 from 1998 to 2004.

The provincial subsidies are income-tested, and vary across province and through time. For brevity, we do not include the full parameters for the calculations in this appendix, but they are available from the authors upon request. The typical program gives a subsidy of a certain amount per child. The subsidy is then reduced for each dollar of family income over some threshold until the subsidy reaches zero. For example, a typical case is Alberta in 2000. A family with two parents and one toddler would receive an annual subsidy of $4,560. The subsidy is reduced by 50 cents for each dollar of family income over $22,920.

In Quebec, childcare expenses were treated as a deduction similar to the federal deduction up to 1993. In 1994, the deduction was replaced with a refundable tax credit. The credit refunded from 26% to 75% of qualifying expenses, with the rate depending on family income. The minimum 26% rate applied to incomes of $48,000 and higher. The refundable credit system changed again in 2000, although the credit was only payable to families not enrolled in the CPE $5 per day program.

Simulations to generate percent subsidy

The various different ways of subsidizing childcare expenses interact in complicated ways. In order to capture this variation, we calculate for each province and year the average percentage of a family's childcare expenses that is paid by some level of government; that does not come out of the family's pocket. Because we want the presumably exogenous legislative variation across provinces and years to generate the variation in our subsidy measure, our strategy is to hold everything else constant across provinces and years. This strategy effectively discards some of the variation in childcare subsidies, but allows us to focus on variation that we consider exogenous.

The base for our simulations is a set of families drawn from the annual Survey of Consumer Finances (1992 to 1995) and its successor the Survey of Labour and Income Dynamics (1996 to 2002). We select all families with at least one child under age 4 in which both parents are working, converting their incomes to constant year 2000 dollars. In order to keep the data set reasonably sized, we take a 10% sample of these families and proceed to reproduce each of the observations for every province-year combination. Through this procedure, the only difference between observations in different province-year combinations is the fiscal environment they face.

We assign each family a set level of childcare expenses and then proceed to calculate the percent of these expenses subsidized by governments through direct subsidies and tax subsidies. The annual amount of childcare expenses is assumed to be the same across all province-year combinations, at $6,000 in year 2000 dollars. While childcare expenses do vary across the country and through time, we want the simulations to embody purely legislative variation and so we discard the variation in subsidy levels induced by differing childcare prices. The direct subsidy assignment accounts for the provincial low-income subsidies and the Quebec Family Plan $5 per day program. From these subsidy calculations, we arrive at a measure of out-of-pocket costs. The out-of-pocket costs are then used in an income tax calculation. The calculation is repeated for a family with and without childcare expenses to obtain the tax subsidy derived from the federal deduction and Quebec refundable childcare credit. When the direct

subsidy is combined with the tax subsidy, we can calculate the percentage of childcare costs not paid by the family.

$$Percent\ Subsidy = \frac{(Direct\ subsidy + Tax\ subsidy)}{Total\ Expense}$$

The final step in the calculation is to take the average of the percent subsidy variable over all the families in our simulation sample for each province-year combination. We do this separately for married and single families as well. The resulting set of variables embody only the legislative differences across provinces and years; differences that we contend can be treated as exogenous to individual decisions.

Appendix C: Components of the Aggregated Scores

In the main body of the paper, we present results based on several aggregated indices for child and parental outcomes. In this appendix we describe the construction of these indices and present results for the individual components. More detail can be found in the user's guide for the NLSCY; this discussion draws from that source.

Construction

The indices are constructed for the NLSCY from qualitative responses to individual questions. For example, the Positive Interaction score is constructed from the responses to five individual questions. One of the individual questions is, "How often do you and [child's name] talk with each other, focusing attention on each other for five minutes or more, just for fun?" The responses range from 'never' to 'many times each day.' These qualitative responses are transformed to scores by assigning numerical values to each type of response. In this case, 'never' receives a 0 and 'many times each day' receives a 4, with intermediate responses receiving the values 1, 2, and 3. The numerical values for the five questions are summed to arrive at the Positive Interaction score. The user's guide for the NLSCY describes in detail the validation of the scales that are provided in the dataset.

In addition to the scores that are provided in the data set, we construct several scores of our own. This allows us to pool together children across age groups in order to facilitate comparisons across the age groups. The scores we create are pooled scores for aggressiveness, hyperactivity, and anxiety. We formed the scores as described above by summing numerical values across different questions in the survey. The survey questions we used in forming our scores are reported in the tables below. These scales have not been subject to the rigorous validation the NLSCY-provided scales were, so results should be interpreted with caution.

Individual Results

Because the nature of the aggregation is somewhat arbitrary, and as a check that our results are not unduly driven by particular responses, we present the results for the individual questions that underlie the indices that we use. For these results, we coded binary dependent variables for each of the survey responses of interest. In order to make the results easier to interpret, we coded the 'good' response as 1 and the 'bad' response as '0', to the extent possible. This means that negative signs in the results indicate that exposure to the CPE program worsened

outcomes, while positive signs indicate that outcomes improved.

In each of the three tables that follow, we report regression results from a difference-in-differences specification identical to those in the rest of the paper, using a binary eligibility indicator as the policy variable. All standard errors are clustered by province. We also report the results from our counterfactual sample, using age 6 to 11 children, for questions asked of children age 6-11. The tables also indicate in which index each survey question was used.

The results generally show that the individual variables underlying the scores we use move in the same direction as the score itself in response to the CPE policy. For the child outcomes in Appendix Table I, 14 components are significantly negative at the 5 percent level, 4 are insignificant, and 2 are significantly positive. For the parent variables in Appendix Table II, 17 are statistically significant and negative, while 4 are insignificant. Finally, for the motor-social development indicators in Appendix Table III, 12 of the variables are statistically significant and negative, 2 are insignificant, and just one is positive and significant.

Appendix Table I: Child outcome index component results

	ELIG DD	Age 6-11 DD	Indexes (1)	(2)	(3)	(4)	(4)	(5)	(6)
Never has problems sitting still, being	-0.081	0.023			●	●	●		
restless or hyperactive	(0.009)	(0.006)							
Never defiant	-0.113	not availabl	●						
	(0.013)								
Never unhappy, sad, or depressed	-0.008	0.028						●	●
	(0.010)	(0.008)							
Never gets into fights	-0.057	-0.021	●	●					
	(0.010)	(0.015)							
Never is distractible; has problems	0.065	0.088			●	●	●		
sticking to an activity	(0.007)	(0.006)							
Never as unhappy as others	0.006	-0.010						●	●
	(0.004)	(0.015)							
Never cannot concentrate; cannot pay	-0.067	0.020			●	●	●		
attention for long	(0.012)	(0.009)							
Never Is too fearful or nervous	-0.121	-0.183						●	●
	(0.006)	(0.016)							
Punishment doesn't change behavior:	-0.042	not available							
never true	(0.010)								
Never is impulsive, acts without thinking	-0.070	-0.051			●	●	●		
	(0.016)	(0.013)							
Never has temper tantrums or hot temper	-0.018	not availabl	●						
	(0.008)								
Never is worried	-0.080	-0.054						●	●
	(0.007)	(0.011)							
Never has difficulty awaiting turn in games	-0.063	-0.015	●			●			
	(0.010)	(0.015)							
When another child accidently hurts	-0.040	0.079	●	●					
him/her,never reacts in anger	(0.006)	(0.032)							
Never has angry moods	0.006	not availabl	●						
	(0.008)								
cannot settle to anything for more than	-0.010	0.075				●			
Never is nervous, highstrung, tense	0.007	-0.076						●	●
	(0.007)	(0.010)							
Never kicks, bites, hits other children	-0.071	-0.049	●	●					
	(0.005)	(0.016)							
Never is inattentive	-0.059	-0.015				●			
	(0.014)	(0.017)							
Never has trouble enjoying himself	0.014	0.006						●	●
	(0.007)	(0.008)							

Notes: Columns (1) through (6) indicate whether the response is included in a particular index. The indexes are (1) Physical Aggression and Opposition, age 2-3 (2) Pooled aggression, age 2-11 (3) Hyperactivity and inattention score, age 2-3 (4) Pooled hyperactivity, age 2-11 (5) Emotional disorder / anxiety, age 203 (6) Pooled Anxiety.

Appendix Table II: Parent outcome index component results

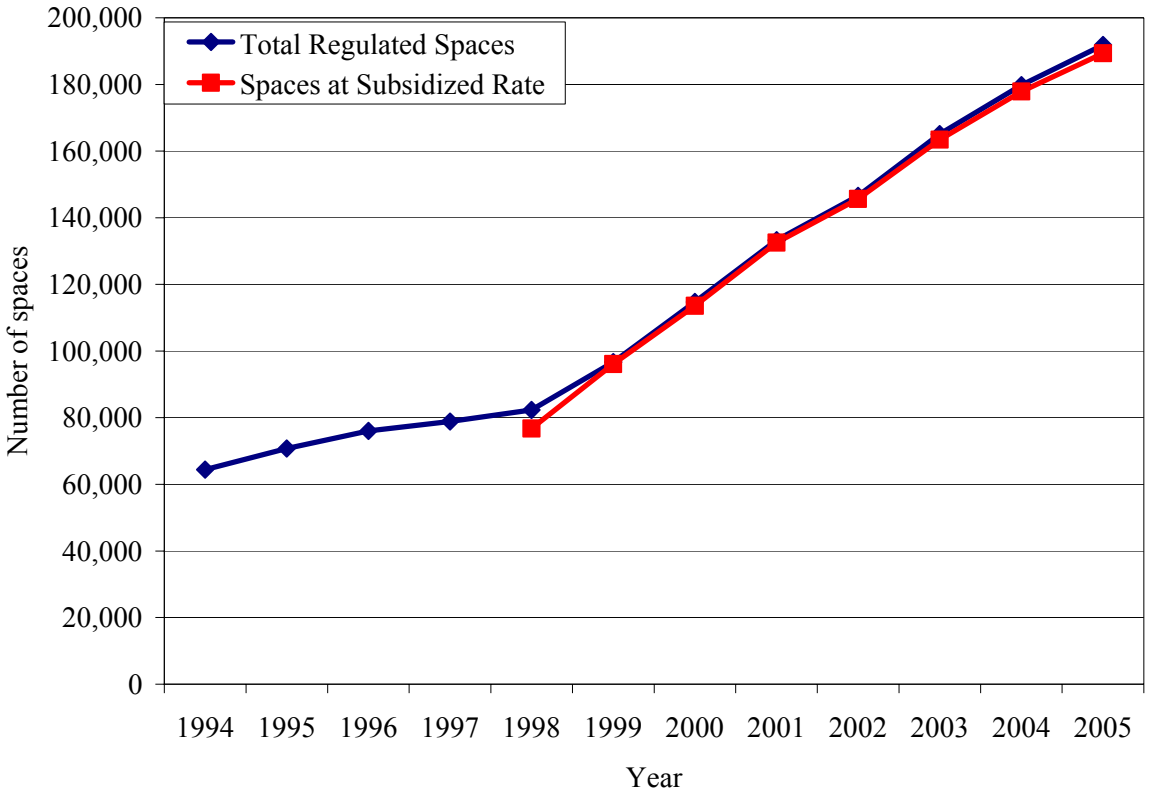
	ELIG DD	Age 6-11 DD	(1)	(2)	(3)	(4)
Praises child many times each day	-0.065	-0.070	●			
	(0.004)	(0.014)		●		
Talks or plays with child many times each day	-0.086	-0.020	●			
	(0.007)	(0.010)				
Laughs with child many times each day	-0.092	-0.149	●			
	(0.004)	(0.007)				
Gets annoyed with child once a week or less	-0.044	0.027		●		
	(0.012)	(0.011)				
Does something special with child at least	-0.089	-0.031	●			
once a day	(0.013)	(0.014)				
Play sports, hobbies, or games with child	-0.007	-0.004	●			
at least once a day	(0.005)	(0.004)				
Praise proportion when talking about	-0.013	-0.009		●		
behavior is greater than half	(0.010)	(0.009)				
Disapproval proportion when talking about	-0.044	0.004		●		
behavior is less than half	(0.012)	(0.018)				
Makes sure child follows order or command	-0.078	0.012			●	
all the time	(0.016)	(0.010)				
When child doesn't stop doing something,	-0.042	0.027			●	
child is punished all the time	(0.008)	(0.012)				
Never gets away with something when	-0.006	-0.001			●	
should have been punished	(0.005)	(0.003)				
Never get angry when punishing child	-0.047	-0.084		●		
	(0.009)	(0.010)				
Never does the punishment depend on my	-0.116	-0.042		●		
mood	(0.010)	(0.010)				
Never have problems managing child in	-0.076	-0.067		●		
general	(0.012)	(0.011)				
Child never gets out of punishment when	-0.089	-0.025			●	
child sets his/her mind to it	(0.006)	(0.011)				
Never ignores punishment	-0.028	-0.007			●	
	(0.010)	(0.010)				
Never must the punishment be repeated	-0.052	-0.032		●		
	(0.007)	(0.006)				
Rarely or never raise voice, yell, or scold	-0.074	0.051				●
when rules are broken	(0.005)	(0.009)				
Always or often calmly discuss problem	-0.074	-0.004				●
when rules are broken	(0.008)	(0.009)				
Never uses physical punishment when	-0.106	-0.076				●
rules are broken	(0.014)	(0.013)				
Always describe alternative behaviors	0.013	0.058				●
when rules are broken	(0.012)	(0.011)				

Notes: Columns (1) through (4) indicate whether the response is included in a particular index. The indexes are (1) Positive interactions, age 2-11 (2) Hostile / ineffective parenting, age 2-11 (3) Consistency, age 2-11 (4) Aversive parenting, age 2-11.

Appendix Table III: Motor Social Development

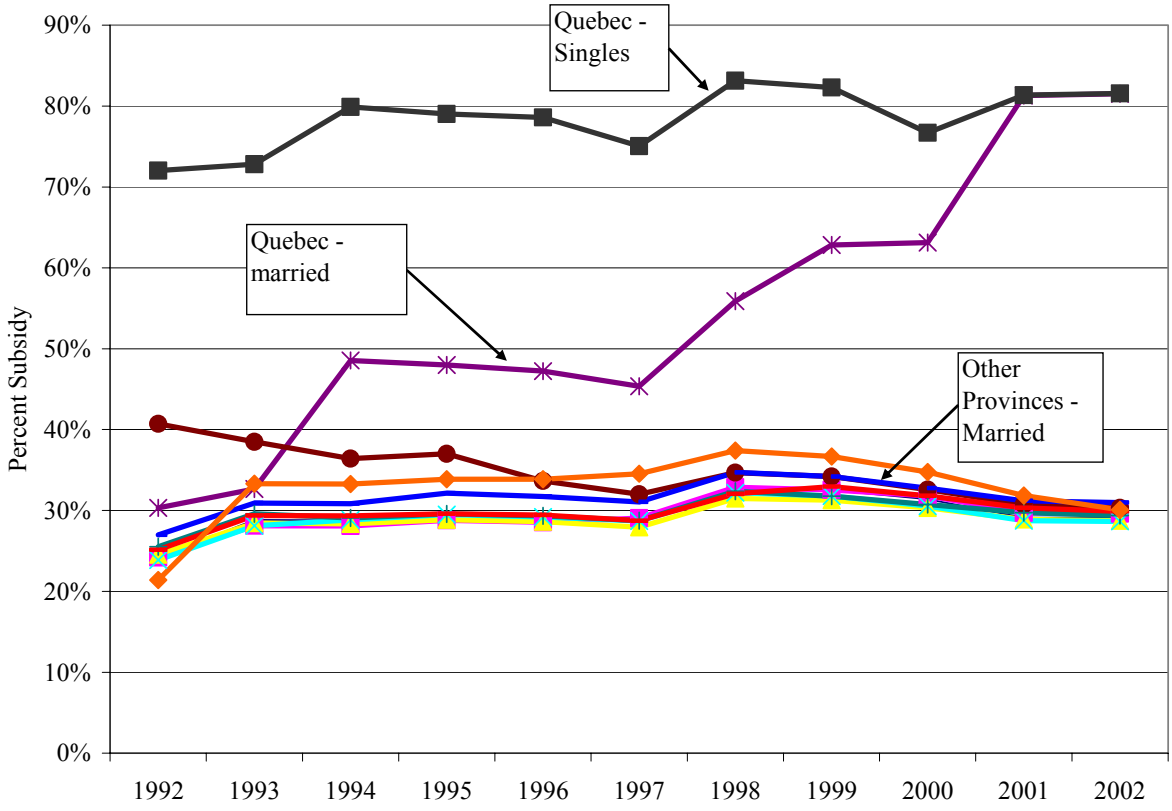
	ELIG DD
tells when soiiled pants - no crying	-0.029
	(0.014)
spoken a sentence of 3 words or more	-0.019
	(0.006)
has walked up stairs without holding rail	-0.018
	(0.003)
wash hands without help	-0.038
	(0.004)
has counted 3 objects correctly.	-0.023
	(0.010)
has gone to the toilet alone	-0.022
	(0.010)
walked upstairs without help, one foot one step	-0.053
	(0.006)
know own age and sex	-0.031
	(0.014)
has said name of at least 4 colors	-0.038
	(0.015)
can pedal tricycle at least 10 feet	-0.092
	(0.011)
somersault without help	-0.016
	(0.012)
can dress himself without help	-0.067
	(0.011)
can say first and last name without help	-0.016
	(0.005)
can count out loud to 10	0.032
	(0.007)
can draw picture of person with 2 body parts	0.010
	(0.008)

Figure 1: Regulated and Subsidized Spaces in Quebec



Notes: The number of spaces is for March 31 in the indicated year. This figure is adapted from Table 2 in Lefebvre and Merrigan (2005) and Quebec government statistics.

Figure 2: Percent Subsidy by Province



Notes: each data point represents a province-year mean of the percent subsidy variable over the families in the simulation sample.

Figure 3: In any Care, Ages 0-4

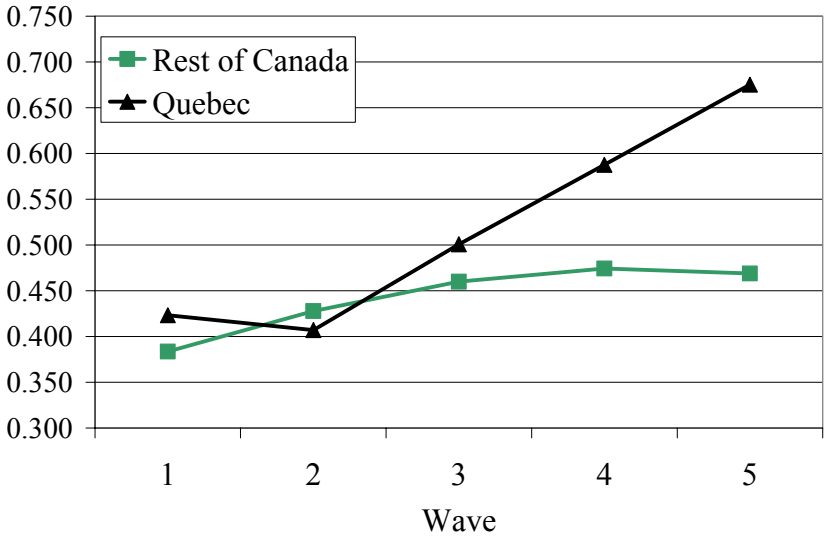


Figure 4: Mother Works, Ages 0-4

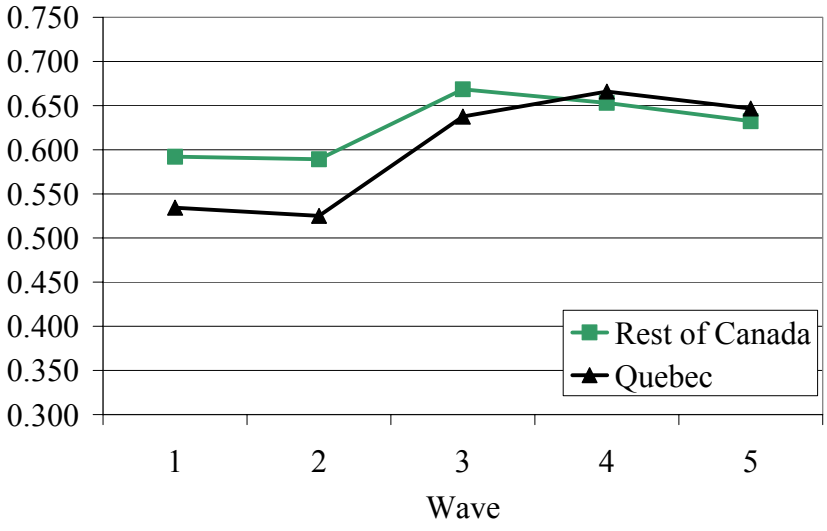
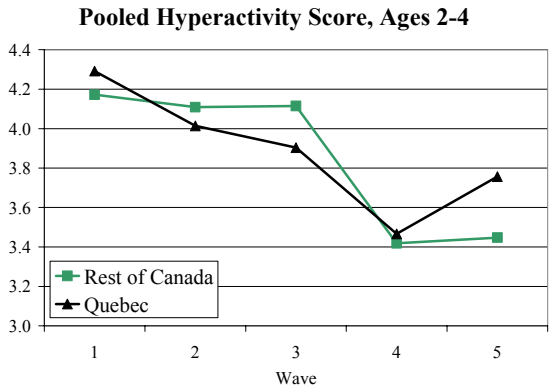
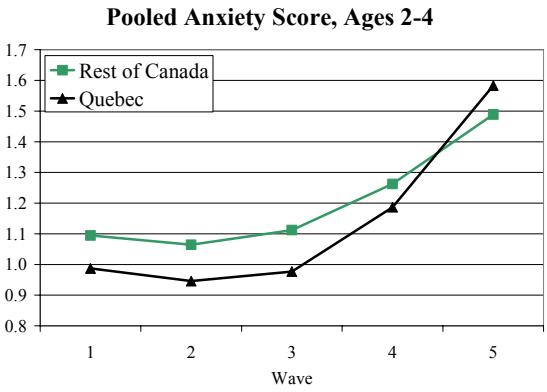
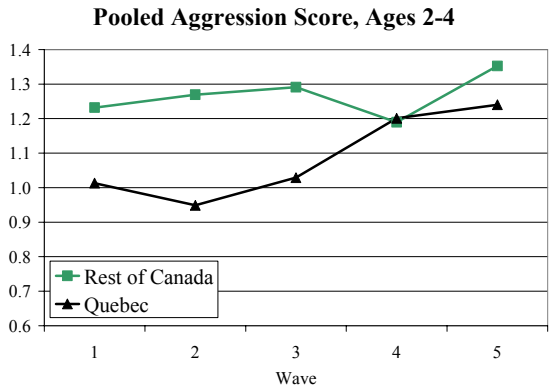


Figure 5: Children's Outcomes







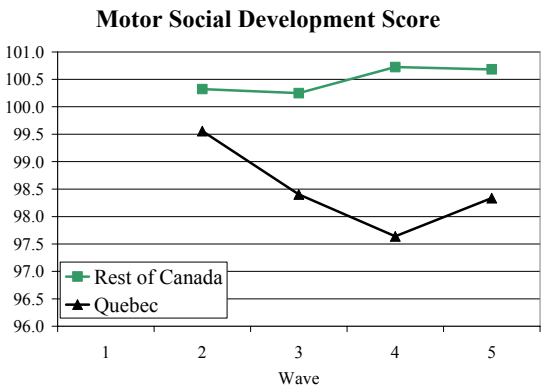


Figure 6: Parents' Outcomes

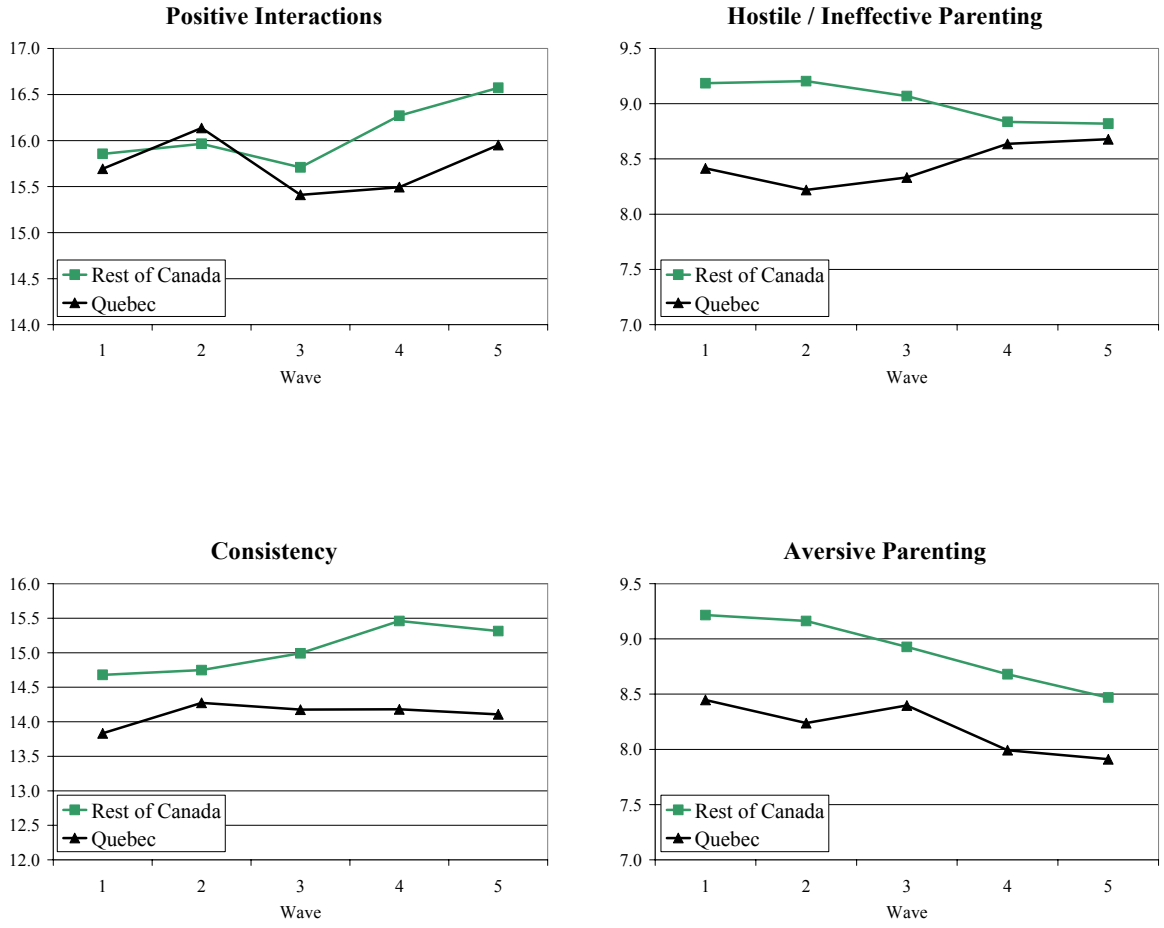


Table 1: Family Benefits in Canada and Quebec 1992 to 2002

Year	$0 Earnings		$20,000 Earnings		$40,000 Earnings		$60,000 Earnings	
	Ontario	Quebec	Ontario	Quebec	Ontario	Quebec	Ontario	Quebec
	Married Women							
1992	294	810	0	495	0	495	0	495
1993	1,416	1,708	49	492	0	492	0	492
1994	1,418	1,710	57	491	0	491	0	491
1995	1,445	1,730	140	481	0	481	0	481
1996	1,463	1,743	200	481	0	473	0	473
1997	1,479	1,600	256	377	0	311	0	311
1998	1,488	1,663	287	287	0	0	0	0
1999	1,503	1,675	343	343	0	0	0	0
2000	1,913	2,080	813	813	0	0	0	0
2001	1,989	2,152	944	944	0	0	0	0
2002	2,215	2,375	1,178	1,178	178	178	0	0
	Single Women							
1992	2,156	2,651	2,262	2,773	294	810	0	495
1993	3,112	3,404	3,532	3,824	1,416	1,708	49	492
1994	3,106	3,397	3,530	3,822	1,418	1,710	57	491
1995	3,040	3,325	3,512	3,797	1,445	1,730	140	481
1996	2,991	3,272	3,497	3,777	1,463	1,743	200	481
1997	2,944	3,066	3,060	3,182	1,479	1,600	256	377
1998	4,024	8,242	4,069	4,803	1,488	1,663	287	287
1999	3,954	8,101	4,032	4,822	1,503	1,675	343	343
2000	4,805	8,842	5,988	6,884	1,913	2,080	813	813
2001	5,288	9,224	6,486	7,504	1,989	2,152	944	944
2002	5,347	9,197	6,559	7,675	2,178	2,338	1,178	1,178

Reported is the total federal and provincial refundable tax credits payable to families of each type. All dollar values are in 2002 Canadian dollars. The family is assumed to have two children, ages 3 and 8. The husband is assumed to have earnings of $40,000.

Table 2: Exposure to Subsidized Care in Quebec

Age	Wave 1 1994-95	Wave 2 1996-97	Wave 3 1998-99	Wave 4 2000-01	Wave 5 2002-03
0	0	0	0	1	1
1	0	0	0	1	2
2	0	0	0	1	3
3	0	0	1	2	4
4	0	0	2	2	3
5	0	0	1+K	2+K	3+K
6	0	0	K	1+K	3+K
7	0	0	0	1+K	2+K
8	0	0	0	K	1+K
9	0	0	0	0	1+K
10	0	0	0	0	K
11	0	0	0	0	0

Each cell shows the number of years of exposure to eligibility for the subsidized childcare program in Quebec. The letter 'K' indicates exposure to full-day kindergarten. The shaded cells represent ages that are not available in the NLSCY sample.

Table 3: Program Impact on Childcare Use

Dependent Variables	Obs.	Means	ELIG Dummy	Percent Subsidy
In any care	33,864	0.452	0.146	0.439
			(0.008)	(0.011)
Hours per week	33,864	13.6	6.4	19.0
			(0.2)	(0.7)
At least 20 hours per week	33,864	0.295	0.140	0.416
			(0.005)	(0.026)
Institutional care	33,864	0.103	0.152	0.448
			(0.003)	(0.015)
Care in own home	33,864	0.104	-0.009	-0.018
			(0.003)	(0.009)
Care in other's home	33,864	0.242	0.002	0.005
			(0.006)	(0.012)
Breakdown of care in other's home:				
Licenced nonrelative	33,864	0.048	0.048	0.133
			(0.002)	(0.014)
Non-licenced nonrelative	33,864	0.123	-0.025	-0.064
			(0.007)	(0.024)
Care in relative's home	33,864	0.072	-0.021	-0.063
			(0.003)	(0.006)

Reported are regression coefficients from separate regressions on data from the NLSCY. Standard errors clustered on province are reported in parentheses.

Table 4: Program Impact on Mother's Labor Supply

			Age 0-4		Age 6-11	
Dependent Variables	Obs.	Means	ELIG Dummy	Percent Subsidy	ELIG Dummy	Percent Subsidy
Mother works	33,788	0.607	0.077	0.228	0.001	0.025
			(0.008)	(0.019)	(0.014)	(0.034)
Mother's weeks of work	33,833	29.6	3.502	10.806	0.396	1.338
			(0.304)	(0.675)	(1.049)	(4.680)
Mother works at least 20 hours / week	34,042	0.551	0.064	0.196	0.032	0.196
			(0.007)	(0.012)	(0.011)	(0.066)
Mother is in school	33,612	0.128	0.001	0.000	-0.037	-0.174
			(0.004)	(0.011)	(0.008)	(0.045)
Mother works or is in school.	30,303	0.620	0.076	0.227	0.016	0.110
			(0.009)	(0.019)	(0.011)	(0.034)
Mother works / child in care	33,634	0.406	0.125	0.370		
			(0.007)	(0.011)		
Mother works / no care	33,634	0.202	-0.048	-0.141		
			(0.006)	(0.016)		
Mother not work / child in care	33,634	0.047	0.023	0.073		
			(0.003)	(0.005)		
Mother not work / no care	33,634	0.346	-0.100	-0.302		
			(0.007)	(0.016)		

Reported are regression coefficients from separate regressions on data from the NLSCY. Standard errors clustered on province are reported in parentheses. Details on the specifications are provided in the main text. Means and observations counts are for the age 0 to 4 sample.

Table 5: Program Impact on Child's Behavior and Health

		Age 4 and under sample			Age 6-11
Dependent Variables	Obs.	Means	Eligible Dummy	Exposure	Eligible Dummy
Hyper activity - inattention ages 2-3	14,494	3.900	0.103 (0.035)	0.061 (0.016)	--
Pooled hyperactivity score ages 2-4 & ages 6-11	20,139	3.839	0.153 (0.037)	0.070 (0.011)	-0.098 (0.108)
Emotional Disorder - Anxiety Score, ages 2-3	14,555	1.198	0.120 (0.026)	0.040 (0.010)	--
Pooled anxiety score ages 2-4 & ages 6-11	20,209	1.264	0.240 (0.030)	0.084 (0.010)	0.317 (0.079)
Separation anxiety score Ages 2-3	14,580	2.673	0.099 (0.052)	0.038 (0.016)	--
Physical aggression/opposition age 2-3	14,435	4.898	0.380 (0.061)	0.114 (0.020)	--
Pooled aggressiveness score ages 2-4 & ages 6-11	20,213	1.217	0.192 (0.019)	0.046 (0.007)	-0.014 (0.066)
Standardized motor and social development score ages 0-3	26,140	100.117	-1.646 (0.192)	-0.457 (0.079)	--
In general, child is in excellent health. Ages 0-4 & 6-11.	33,891	0.654	-0.055 (0.006)	-0.019 (0.002)	-0.025 (0.010)
Child has been injured in past 12 months. Ages 0-4 & 6-11.	33,878	0.085	0.006 (0.003)	0.001 (0.001)	-0.027 (0.008)

Reported are regression coefficients from separate regressions. Standard errors clustered on province are reported in parentheses. Means and observations reported are from the age 4 and under sample.

Table 6: Program Impact on Parents' Behavior and Health

			Under age 5		Age 6-11
Dependent Variables	Obs.	Means	ELIG Dummy	Exposure	ELIG Dummy
Positive interaction	20,221	16.068	-0.691	-0.227	-0.714
Ages 2-4 & ages 6-11.			(0.050)	(0.018)	(0.035)
Hostile, ineffective parenting	20,017	8.891	0.728	0.238	0.232
Ages 2-4 & ages 6-11.			(0.108)	(0.033)	(0.098)
Consistency	19,809	14.798	-0.504	-0.175	0.145
Ages 2-4 & ages 6-11.			(0.083)	(0.029)	(0.053)
Aversive parenting	20,116	8.733	0.198	0.097	-0.174
			(0.030)	(0.012)	(0.042)
Mother health status	33,708	0.389	-0.011	-0.006	-0.038
is excellent. Ages 0-4 & 6-11.			(0.006)	(0.002)	(0.006)
Father health status	33,586	0.415	-0.029	-0.008	-0.019
is excellent. Ages 0-4 & 6-11.			(0.006)	(0.002)	(0.009)
Mother depression score	29,595	4.177	0.422	0.163	-0.274
Ages 0-4 & 6-11			(0.065)	(0.034)	(0.224)

Reported are regression coefficients from separate regressions on data from the NLSCY. Standard errors clustered on province are reported in parentheses. Means and observations are from the Under age 5 sample.