

Low-fee (\$5/day/child) Regulated Childcare Policy and the Labor Supply of Mothers with Young Children: A Natural Experiment from Canada[#]

Pierre Lefebvre and Philip Merrigan

Department of Economics
Université du Québec à Montréal

March 2005

Abstract

On September 1st, 1997, a new childcare policy was initiated by the provincial government of Quebec, the second most populous province in Canada. Childcare services licensed by the Ministry of the Family (not-for-profit centres, family-based childcare, and for-profit centres under the agreement) began offering day care spaces at the reduced parental contribution of \$5 per day per child for children aged 4 years. In successive years, the government reduced the age requirement and engaged in a plan to create new childcare facilities and pay for the cost of additional \$5 per day childcare spaces. By September 2000, the low-fee policy applied to all children aged 0 to 59 months (not in kindergarten) and the number of partly subsidized spaces increased from 77,000 in 1998 to 163,000 spaces, totally subsidized by the end of year 2002, while the number of eligible children, zero to four years old, declined from 428,000 to 369,000 over the same period.

Using annual data (1993 to 2002), drawn from Statistics Canada's Survey of Labour and Income Dynamics (SLID), this study attempts to estimate the effect of the policy on the labor supply behavior of Quebec mothers with pre-school children, aged from 0 to 5 years old. The analysis examines the impact of the policy on the following outcomes: labor force participation, annual number of weeks and hours at work, annual earned income and whether the job was full-time for mothers who declared having a job during the reference year. A non-experimental evaluation framework based on multiple pre- and post-treatment periods is used to estimate the effect of the childcare regime.

The econometric results support the hypothesis that the childcare policy, together with the transformation of public kindergarten from a part-time to a full-time basis, had a large and statistically significant impact on the labor supply of Quebec's mothers with pre-school children. The estimates also suggest, though less convincingly, that the size of the impact increased concurrently with the positive growth in the number of low-fee spaces.

JEL Classification: H42, J21, J22;

Key words: mother's labor supply, preschool children, childcare subsidy, natural experiment

Address for correspondence: Pierre Lefebvre, Economics, UQAM; CP 8888, Succ. Centre-ville Montréal, QC; CANADA, H3C 3P8; Tel. (514)-987-3000 #8373, Fax: (514)-987-8494; E-mail : lefebvre.pierre@uqam.ca

[#] We thank Nour-Ed-Dine Barmaki for his excellent research assistance. The authors are grateful to Jean-Pierre Simard and Ugo Ceppi for their helpful comments/suggestions on earlier versions of this paper, and especially Gordon Cleveland for his very detailed review. This analysis is based on Statistics Canada's Survey of Labour and Income Dynamics (SLID) restricted-access annual (1993-2002) Microdata Files, which contain anonymized data collected in the SLID and are available at the Quebec Inter-university Centre for Social Statistics (QICSS), one of the Canadian Research Data Centres network. All computations on these microdata were prepared by Pierre Lefebvre and Philip Merrigan. The responsibility for the use and interpretation of these data is entirely that of the authors. This research was partly funded by CIRANO-Québec's Department of Finance research partnership, the Social Sciences and Humanities Research Council of Canada and the Fonds québécois de la recherche sur la société et la culture.

On September 1st 1997, the government of the province of Quebec¹ in Canada implemented a new policy of day care subsidies. From that day on, accredited day care facilities offered subsidized day care (the \$5 per child per full-day fee policy) for children who were 4 years of age on September 30th 1997. The government also promised to progressively decrease (every year) the age requirement for subsidies and increase the number of subsidized day care spaces, targeting a number of 200,000 for 2006 (compared to 79,000 available in late 1997).

This new policy was integrated within major changes in family policy including a new unified child tax benefit contingent on family income (replacing universal child allowances) harmonized with the federal child tax benefit of the government of Canada, full-time publicly-provided kindergarten in a school setting (in place of half-day kindergarten), and \$5 per day before- and after-school day care for kindergarten-age and grade school children.

The policy pursued three major objectives: to fight poverty, to increase mothers' participation in the labor market, and to enhance child development and equality of opportunity for children. These goals are not particular to Québec and have been observed in several countries since the eighties as early childhood education and day care public policies have spearheaded family policy.²

Despite the large amount of public funds dedicated to this program – direct public subsidies to childcare services increased from \$209 million in fiscal year 1995-96 to \$1.4 billion in year 2004-05 – there is not one study that examines whether the objectives pursued by this policy have been reasonably met.

Using annual data (1993 to 2002), drawn from Statistics Canada's Survey of Labour and Income Dynamics (SLID), this study contributes to filling this gap by analyzing the effect of the policy on the labor supply behavior of Quebec's mothers with pre-school children (zero to 5 years of age). The analysis examines the impact of the policy on the following labor supply outcomes: labor force participation for two different months in the same year (April and August), annual number of weeks and hours worked, annual earned income as well as full-time participation for mothers who declared having a job during the reference year. A non-experimental evaluation framework based on multiple pre- and post-treatment periods is used to estimate the policy effects. Québec's mothers, the treatment group, are compared with mothers having children of similar ages in the other provinces, the control group, over several years.

¹ Québec, which is mainly French speaking, represents approximately 25 percent of the Canadian population.

² The approach is similar to the ones adopted by several European countries. See OECD (2001) for a review of early childhood education and care policies, and Blau and Currie (2004) for a larger discussion and a presentation of American initiatives in that domain.

The econometric results support the hypothesis that the childcare policy together with the transformation of public kindergarten from a part-time to a full-time basis had a large and statistically significant impact on the labor supply of Quebec's mothers with pre-school children.

The rest of the paper proceeds as follows: Section 1 presents public policy pertaining to childcare across Canada and traces the unique evolution of Québec in this regard. Section 2 identifies the conceptual issues and lays the framework for the econometric analysis. Section 3 describes the data set used to perform the analysis and presents descriptive statistics. Section 4 contains the empirical results which are discussed in section 5 with their policy implications. Section 6 identifies extensions for future research on this topic.

1. Childcare policy in Québec and across Canada

There are a substantial number of studies showing that young children have a strong negative impact on their mother's labor supply. The pioneering work of James Heckman (1974) was the first to show that an increase in childcare costs reduces the mother's labor supply and the number of hours worked (conditional on employment).³ Several measures can be used to reduce the burden of childcare expenditures and encourage the labor market participation of mothers with young children. In Canada, two major policy instruments have been implemented over the last 15 years: (1) at the federal and provincial level, a tax deduction for day care expenses; (2) at the provincial level, childcare fee subsidies that depend on family income and are geared to low-income families. In some provinces, small subsidies are directed to licensed centres and regulated day care providers and are based on start-up costs, capital costs of providing childcare and operating costs that vary with the number of children. The last approach, directing subsidies to providers was favoured by the government in Québec for the implementation of its low-fee policy.

Since 1972 at the federal level and in all provinces, the tax deduction for childcare expenses has subsidized childcare expenses. Currently, up to \$7,000 of childcare expenditures per child less than 7 years of age and up to \$4,000 for other children less than 17 can be deducted from taxable income.⁴ Since 1983, the deduction can be claimed only by the spouse with the lowest income, and provides assistance only for individuals who would pay taxes without the deduction. In 1994, the

³ For a review of the empirical literature which is mostly American, see Blau and Currie (2004), and Blau (2003). For results in the Canadian context, see Cleveland, Gunderson and Hyatt (1996), Powell (1997, 2002), and Michalopoulos and Robins (2000, 2002). Choné *et al.* (2004) summarize the findings for France.

⁴ In 1992, the maximum deductions were respectively \$5,000 and \$3,000; in 1998 they were increased to \$7,000 and \$4,000. The provision is formulated in such a way that expenditures for day camp and summer camp may be considered childcare expenses.

government of Quebec, which had its own provincial deduction, converted it into a refundable tax credit for childcare expenses which is more generous as family income decreases, compensating families for 26 to 75 percent of childcare expenses.⁵

The 1966 cost-sharing arrangements between federal and provincial governments (to finance social assistance and the provision of welfare services) provided provincial governments with funds to finance day care for low-income families. Since childcare is an area of provincial jurisdiction in Canada, each province was free to set its own financial and social criteria for eligibility to subsidized care. Table A1, taken from Doherty *et al.* (2003), shows the fee-subsidy policy of each province for the year 2001. Policy in provinces other than Quebec remained largely unchanged during the nineties (although fee subsidy eligibility levels and rates have been raised modestly in some provinces⁶) and the number of children in subsidized day care remains very low.⁷ The constancy of subsidy policy in the rest of Canada is relevant, given our estimation methodology.

The “National Children’s Agenda” is another noteworthy policy initiative. In 1998, the federal government modified its child tax benefit (targeted to low income families) making it more generous (and increasing the benefit over the following years). Most provinces either reduced basic welfare benefit rates by the amount of the federal child tax benefits or achieved the same results by treating them as non-exempt income for the purposes of calculating welfare payments (welfare is a provincial responsibility). In return for their welfare savings, provinces agreed “to invest” more than the savings in new cash transfers or services directed to all low-income families with children (to provide incentives for families to move from social assistance to employment by assisting them with the cost of raising their children, making it easier for low-income parents to support their families through employment; and promoting attachment of families to the work force). This initiative gave birth to a host of provincial programs some seeking to increase day care subsidies and make work pay for parents with low earnings

⁵ The conversion rate used the highest marginal tax rate, so that no family incurred a financial loss after the change. The maximum amounts for the federal deduction and the Quebec tax credit are the same. However, the \$5/day parental contribution paid to licensed and regulated providers can not be claimed as an expense for Québec’s refundable tax credit but can be claimed at the federal level as childcare expenses for the deduction.

⁶ Friendly *et al.* (2003) present a tentative estimate of the number of children in these day care programs in 2001.

⁷ Cleveland and Hyatt (1998) present the fee-subsidy policy of each province for the year 1995.

potential.⁸ However, the amount of spending in licensed and regulated day care by provinces other than Québec, in the context of this initiative, has been very modest⁹.

The implementation of Québec's child care policy (1997-2002)

Table 1 presents an overview of public policy measures related to childcare and kindergarten for pre-school children in Québec and other provinces for the time period of this analysis. The first part of the Table shows how the \$5 per day childcare policy was implemented from year to year. Table 2 presents the evolution of the number of spaces partly or totally subsidized by the government from 1993-1994 to 2003-2004 by type of childcare setting as well as the total number of Québec's children in different age groups by year.

Before September 1997, in Québec, some subsidies partially covering fixed costs were directed to all licensed and regulated childcare arrangements, and low-income families received a fee subsidy according to eligibility criteria (see Table 11 for the amount of public funds dedicated to childcare). The fees charged by the providers were not regulated. It was on September 1st 1997 that the maximum fee of \$5 per day for children aged 4 was introduced for providers receiving public subsidies. Notice that it is only since September 2000 that all children under 5 have had access to publicly supported day care for the maximum fee of \$5 per day. The first phase concerned primarily children who were three or four years old. It is possible that most of the mothers of these children were already in the labor market when the policy was implemented and that they were the first to benefit from the subsidies. Hence, the labor supply effect should be weaker for the first years of the program. The rate of growth of subsidized spaces increased in the third year of the program (childcare facilities and spaces are created throughout the year).

Since the introduction of the policy, it is well known that the program has not been able to satisfy all of the increased demand for low-fee spaces.¹⁰ Table 2 shows that in 2000, at most 29% of

⁸ See Lefebvre and Merrigan (2003) for an analysis of this plan and the official presentation at the web site <http://socialunion.gc.ca>

⁹ Friendly *et al.* (2003) estimate (Table 15) that approximately 7% of the \$535 million spent by provinces (excluding Québec) in 2000-2001 for this initiative was dedicated to regulated childcare.

¹⁰ The web site of the Department in charge of family policy offers the following advice: "First of all, you must decide whether you want childcare in a facility (childcare centre or day care centre) or in a home environment. Then find out which childcare establishments are located near your home or place of work. In order to have a wide choice, it is best to start looking ahead of time, even as much as a year in advance. Otherwise, there may not be room in the childcare establishment that suits you best when you need it. If you put your child on a waiting list, it is more likely that she/he will be accepted when the time comes for you to use child care. Establishments regulated by the Ministère de l'Emploi, de la Solidarité sociale et de la Famille generally fill up quickly. This is explained by the establishment's good reputation and the possibility of obtaining places for a reduced monetary contribution or with other forms of financial assistance."

all children aged 0 to 4 years had access to a subsidized space or 35% of all children aged 1-4 years (according to number of spaces in March 2000). It is difficult to obtain data on the number of children on waiting lists with no access to a subsidized space. It is possible however that some mothers may have joined the labor market anticipating the opening of a space for their child. This hypothesis however will be more difficult to test given the data at hand.

Table 3 shows the distribution of the number of children for each age group in subsidized day care for the years 2000-2002.¹¹ The largest increases in spaces used are for children who are 1 or 2 years old. The share of children 3 or 4 years old, despite being the largest, has decreased since 2000. Only 17% of children less than one are in subsidized day care in 2002 compared to 45% for the 3 or 4 years. A recently enhanced federal maternity- and parental benefits program (available in all provinces) has tempered the need for day care during the child's first year of life.¹²

Additionally, the Québec program subsidizes parents who cannot afford the \$5 per day fee. Table 4 shows the number of children from very low-income families who see their fee waived and are in free subsidized spaces from 1999 to 2003. The share of children from disadvantaged families in subsidized day care is very small. This is a major failure of the policy given its objectives.¹³

We cannot trace a similarly elaborate picture of the evolution of childcare services for other provinces in Canada, but the number of children in subsidized-fee day care is very small relative to Québec.¹⁴

Childcare use in Canada: what are the arrangements and how much?

It is also difficult to obtain a larger picture of day care utilization, arrangements and reasons for the use of day care across Canada. The last national survey on childcare use was conducted in 1988. Other than licensed centres and family-based regulated day care, parents can choose

¹¹ Such detailed numbers are unavailable before 2000.

¹² Employment Insurance, a federal program, pays maternity benefits to biological mothers with insurable employment for work missed because of pregnancy and childbirth for a maximum of 15 weeks. Since year 2001, hours worked necessary to qualify for benefits were reduced from 700 to 600. Since December 1999, supplementary parental benefits payable to biological and adoptive parents who experience a separation from work to care for a newly born or adopted child increased from a maximum of 10 to 35 weeks. According to a Statistics Canada study (Corak, 1999) in 1998 approximately half of families with a newborn received benefits. The statistics of the Employment Insurance Commission (2004) show that 60 percent of families with a newborn received benefits in 2002. The Commission estimates that parents are using at least 85.2% of the full-year (the entire 50 weeks) available to them. Before 2001, approximately 70 percent of mothers with benefits returned to work seven or eight months after giving birth. In 2001 and 2002, more than 70 percent of mothers with benefits had a leave of absence for at least 11 months.

¹³ See Lefebvre (2004) for a more elaborate analysis.

¹⁴ For some partial and tentative estimates, see Friendly *et al.* (2003) and Doherty *et al.* (2003). The OECD (2004) study on Canadian childcare deplores the state of patchy day care statistics in Canada.

unregulated day care in their own home or in someone else's home by a relative or by a non-relative. Provincial and federal policies provide tax relief for childcare spending as long as receipts are presented to income tax authorities.

Table 5A shows the number of taxpayers who benefited in Québec from the refundable tax credit for childcare expenses (including expenses in summer day camp as well). Surprisingly, this amount increased from 192 million in 1996 to 213 million dollars in 2000 despite the fact that expenses for \$5 day care are excluded as eligible childcare spending for the tax credit. This could be explained by mothers who are entering the job market and are anticipating a subsidized space in day care but use unsubsidized care temporarily. However, the global amount of tax credits for 2004 is expected by the government to be 170 million, lower than in 1996, as more and more parents use low-fee day care.

Table 5B presents the number of taxpayers benefiting from the federal tax deduction for childcare expenses from 1996 to 2002, the average amount of the deduction per taxpayer, as well as the aggregate amount of these deductions at the federal level for Québec, Ontario, and Canada without Québec. Table 5C shows the tax expenditure for the federal government due to these deductions. For the last few years, since 2000, approximately 1 million taxpayers deducted 2.8 billion dollars from their taxable income representing 600 million dollars in tax savings. Notice the remarkable progression in the number of Québec taxpayers using the federal deduction because it is available (the 5\$ per day expenses) to users of Québec's subsidized day care. From 1998 to 2002, 80,000 more taxpayers used this provision in comparison to 16,000 for the rest of Canada. However, the average deduction in Québec is approximately 50% less than in the rest of Canada, reflecting the significant decrease in the price of day care.¹⁵

Two annual Statistics Canada surveys offer information on spending for childcare. The Survey on Household Spending asks all families (presumably not just those who are working or studying) how much they spend annually on childcare. Table 6A presents spending for childcare in Québec and the other provinces as well as the number of households that report such spending. Québec households have reduced their spending in this area. The average amount of spending is 49% lower than in other provinces. The Survey of Labour and Income Dynamics (SLID), since 1999, reports spending on childcare by parents for the purpose of work or schooling. The statistics in Table 6B presents a different picture of the level and evolution of spending patterns, although the number of families with such expenditures is broadly similar in the two surveys. The figures of the SLID may be

¹⁵ The same provisions apply at the provincial level of taxation (except in Québec as explained before) which gives further tax reduction for childcare expenses.

more accurate because of the larger sample of families with young children. However, both surveys show that the amount of spending was on average much smaller in Québec, while the SLID indicates that the number of families with such expenditures increased significantly in comparison to the other provinces.

The Canadian National Longitudinal Survey of Children and Youth (NLSCY) is produced every two years since the year 1994-1995 and four cycles are now available for analysis, the last covering years 2000-2001. This survey asks parents if they use childcare services for the purpose of studying or work (the question is not asked to households where parents do not work nor attend schooling). Table 7 presents for Québec and the other provinces the principal care arrangement used by parents for children younger than 6 years and for the 4 cycles.¹⁶ From the third wave of the survey, it appears that a larger percentage of children in Québec are in day care than in other provinces. Family-based day care outside of the child's own home is the most widely used mode of day care across Canada. Day care is growing rapidly in Québec relative to other provinces since 1998. Day care in the household by non-relatives is slightly higher outside of Québec. Centre-based care, including before- and after-school care increases strongly in Québec compared to the other provinces where this arrangement ranks third.¹⁷

Kindergarten as day care

Publicly provided kindergarten for five year old children implies an implicit subsidy for day care. Gelbach (2002) analyses the impact of such an in-kind subsidy to parents (which makes more expensive child care services unnecessary for that part of the day, which assists families who wish to work on a sample of single mothers with a youngest child of 5 years old taken from the 1980 census.¹⁸ He estimates that access to free publicly provided kindergarten increases the probability of being employed by 5% on the date of the interview as well as increasing other labor supply measures.

All provinces offer publicly provided free kindergarten for 5-year-old children in a school setting under the auspices of the Ministry of education.¹⁹ All programs are for a half-day (2 hours and 30 minutes) during the school year, except in Québec (which is for a full day, since the fall of 1997),

¹⁶ Unfortunately, the classification of arrangements has changed from cycles 1-2 to cycles 3-4.

¹⁷ Page: 8

Lack of inclusion of full-day kindergarten as a mode of care probably distorts the changes here. Most five year olds and eligible four year olds attend kindergarten and it is their main mode of care. If they are not in before and after school programs, they will be recorded as "no care arrangement used" in all likelihood, or perhaps care in own home by a relative (see the increase in this care by a relative shown in the table).

¹⁸ The study exploits the fact that the month-of-birth requirement for entry to kindergarten changes from one state to another.

¹⁹ See Friendly *et al.* (2003) for characteristics of kindergarten programs in each province.

New-Brunswick and Nova-Scotia. In most provinces parents are free to register their child in kindergarten, as it is not a legal requirement (a large majority of eligible children do attend kindergarten). In Ontario, most school boards offer a half-day of junior kindergarten for four-year old children. Again, most eligible children attend these kindergartens. Finally, several provinces, including Québec, offer a limited number of junior kindergarten spaces for handicapped and underprivileged children of age 4.²⁰

Table 8 shows the number of children of 4 or 5 attending kindergarten in Québec since 1998. For the 5 year olds, before September 1997, 88% of eligible children attended a public kindergarten. Since kindergarten has been available full-time, 98% attend kindergarten. In 1998, only 8,000 4 year old children attended kindergarten, with the number decreasing ever since. Also, since September of 1997, given the introduction of pre- and after-school \$5 day care, the number of parents using these services has considerably increased.

Table 9 presents the number and proportion of children in different schooling levels, for Québec, Ontario, and other provinces, by cycle of the NLSCY, and by the age of the child.²¹ At the age of 4, except for Ontario, the majority of children do not attend school. At the age of 5, for all provinces other than Québec, more than 80% of children are reported to attend kindergarten. In Québec, the proportion in kindergarten is smaller than for the other provinces (these figures differ from the administrative data shown in Table 8); however the proportion in either kindergarten or junior kindergarten is over 80%. Unfortunately, the data do not permit a distinction by part-time or full-time use. At six, all children are virtually in school, in the first or second grade.

Table 10 presents, by year, the number of 5-12 year old children in Québec benefiting from the \$5 per day before- and after-school day care if they are enrolled on a regular-basis (at least two and a half hours per day for a minimum of three days per week). The growth has been spectacular since 1997. We cannot produce the same numbers for other provinces where such benefits are not available to parents.

We conclude that the only major change in kindergarten policy for 5 year old children from 1993 to 2002 occurred in Québec and that the preceding numbers justify the inclusion of 5 year old children in the empirical analysis of the effect of the change in the childcare policy of 1997.

²⁰ The parents of these children are welfare recipients and engaged in a welfare-to-work or training program.

²¹ The age of a child determines the questions asked about him. Instead of using the real age of a child, the NLSCY constructs an “effective age” so that the child stays in the same age cohort that he was associated with, whenever the field survey is conducted, before or after his anniversary. For example, in cycle 4, the effective age is calculated in terms of year 2000: that is 2000 less the year the child was born; a child born in 1998 will be in the 2 years cohort even if the survey is realized in the winter of 2001. The actual age of a child at the interview may be different from the “effective age”. The survey is conducted in the autumn and in the winter, overlapping two civil years.

2. Analytical framework and econometric modeling

Conceptual issues

Before the introduction of the low-fee policy, the main policy instrument in Québec for childcare assistance was the refundable tax credit for child care expenses, more generous for low-income households,²² making the net price for families paying for childcare services (if they provided receipts for childcare expenses in their tax return) contingent on family income. Therefore, as a result of the \$5 per day policy, high income families experienced a larger reduction in net childcare prices than low-income families, all other things equal. Families with the lowest incomes that had used the refundable tax credit saw virtually no change in the net price of day care.

The simplest way to illustrate the incentive effects introduced by childcare subsidies is the model presented by Blau (2003). Suppose the mother is responsible for one child; day care services are of homogenous quality and cost p dollars per hour; there are no informal day care services; for each hour worked an hour of day care is required; there are no fixed costs to work, and w is the wage rate. The mother's budget constraint is given by: $c = I = y + (w-p)h$, where c is consumption, I is income net of day care expenses, y is non-labor income and h are hours worked. The normalized time constraint is: $h + l = 1$, where l is leisure and utility is $u(c, l)$. The hourly wage net of the hourly day care price ($w-p$) is the slope of the budget constraint in figure 1. The slope of this budget constraint is higher in absolute value when childcare services are free. The higher the childcare costs, then the higher will be the reservation wage and the probability of not working ($h=0$). A linear subsidy of s dollars per hour modifies the budget constraint such that: $c = y + (w-p+s)h$, increasing the net wage and the slope of the budget constraint (see Figure 1) and the probability of working. However, conditional on work the effect of the subsidy is ambiguous because of income and substitution effects.

In Québec, before September 1997, the subsidy for childcare expenses operated through a provincial refundable tax credit based on family income. The federal tax deduction for childcare expenses also lowered the price of childcare. In short, both levels of government subsidized and still subsidize day care with these policy instruments. However, this type of *subsidy is non-linear*. Figure 2 displays the non-linear budget constraint. The subsidy rate decreases from s_1 to s_2 at level of income I_1 , corresponding to h_1 hours worked and from s_2 to s_3 at I_2 . At I_3 , the subsidy is nil. This type of subsidy is an incentive for women not participating to participate, however the effects conditional on work are more complicated but the effect on hours of work remains ambiguous.

²² This tax provision can be used by families whose children are not cared in the subsidized spaces. Moreover, the federal deduction for childcare expenses applies as well.

The \$5 fee for day care can be considered as a fixed cost of work for a fixed number of hours of day care. Figure 3 adds to figure 2 a generic case with a fixed cost per day, f , for a maximum of h^* of day care per day. Therefore, rather than decreasing the mother's net salary, the new day care policy is implemented as a very low fixed cost f of going to work. Furthermore, her net wage (abstracting from income taxes) is not affected by day care use until she reaches h^* , an amount consumed by very few parents. We can compare the case of an hourly subsidy, in a non-linear case with the fixed costs model as shown in figure 3. The ordinate becomes $y-f$, and the slope is w up until h^* . The budget line crosses the budget constraint with an hourly subsidy at point $h^\#$. Because f is so small, it is expected that the new subsidy will have a positive impact on participation. Since the refundable tax credit is still available, mothers have the choice to be in either regime. Again f is so small that only mothers with very little day care needs would choose to remain with the refundable tax credit. In fact, the point where a mother would be indifferent between both regimes would not be at $h^\#$ but at a point lower than $h^\#$. In most other cases, the impact of the new subsidy on hours worked will depend on income and substitution effects.

Moreover, the price of day care for families who do benefit from a subsidized space that usually offers 11 to 12 hours of day care per day, 5 days per week is not only low but is also independent of the mother's labor status, hours of labor supply and family income.²³ For mothers working full-time, taking into account work time, commuting time between the home, the day care facility and workplace (let us say 9 hours), the hourly cost of day care is less than \$0.60 per hour.

As discussed earlier, the net price of day care varied with family income before the fixed-fee policy. In addition, several families did not receive the tax subsidies, as receipts were not supplied to tax authorities, the informal arrangement with their childcare provider being superior to an arrangement with receipts. Baril *et al.* (2000) estimated that in 1997 the net price of center-based regulated day care (with receipts provided and after federal and provincial personal taxation) before the \$5 per day fee policy, ranged from \$5/day for a very low-income family to \$15/day for a high-income family. However, low-income families could be liquidity-constrained and have problems accessing reliable day care, so that the policy could have important effects on this group as well. Also, parents using free day care provided by a relative could prefer a subsidized space because of the long hours that are available in these settings. Finally, the \$5 per day childcare providers could be

²³ In the low-fee childcare centers (including the school-based ones), services are usually provided from 7h30 to 18h; in family-based childcare the operating hours must be for a maximum of 10 hours. These services must be offered for a maximum of 20 days per four weeks and no more than 261 days per year. Since most of the spaces must be occupied full-time, a family must pay for the 261 days (\$1,305) on a yearly basis to maintain its access to a space, even if the child is absent from the childcare service (due to sickness or for family vacations).

seen as more reliable than a person at home as the service is available every day of the week, as well as being licensed and regulated.

Note that the impact of the policy could have appeared earlier on hours worked, weeks worked and earnings than on participation as the first to benefit from the program were mothers already using the registered and regulated day care services. However, the sign of the effect of the program on hours is ambiguous for these mothers.

Empirical model

Our econometric approach is based on a difference-in-differences (DD) procedure which is now well established in labor economics (Card, 1990; Angrist et Krueger, 1999; Meyer and Rosenbaum, 2001; Bertrand *et al.*, 2004). We observe mothers with young children in Québec, where the policy is implemented, before and after the policy change. Our control group will be mothers with children of the same age in the rest of Canada, where no important reform occurred during the same time period. The year 1999 will be considered as the first year of the program even though it was originally implemented in late 1997. The first year would simply accommodate mothers who were already in the labor market and barely any new spaces were available before 1999. Our model will, however, introduce what could be called an anticipation effect.

Suppose Y_1 is the value of the outcome of interest for an individual after the introduction of the program, Y_0 is the value before the program, and $\Delta = Y_1 - Y_0$. The standard DD estimator is written as:

$$DD \equiv E(\Delta | Q = 1) = \{E(Y_1 | Q = 1) - E(Y_0 | Q = 1)\} - \{E(Y_1 | Q = 0) - E(Y_0 | Q = 0)\} \quad (1).$$

Where E is the mathematical expectation operator and $Q=1$ if the mother lives in Québec, and 0 otherwise. The identification conditions for this estimator are spelled out in Heckman, Lalonde and Smith (1999). More generally, it can be written, as:

$$DD \equiv [E(Y_{s-1+k} | Q = 1) - E(Y_{s-1-k^*} | Q = 1)] - [E(Y_{s-1+k} | Q = 0) - E(Y_{s-1-k^*} | Q = 0)] \quad (1a).$$

Where s is the period of regime change while $s-1+k$ and $s-1-k^*$ (with $k>0$ and $k^*\geq 0$) represent respectively the periods after and before the regime change. The question is how to choose k and k^* in a context where the policy is implemented over several years.

The same estimate can be obtained with a regression analysis using the following model:

$$Y_{it} = \alpha + \theta Q_i + \gamma A_i + \beta A_i Q_i + \varepsilon_{it} \quad (2).$$

Where i represents mothers, Q_i is a dummy variable taking the value of 1 if the mother lives in Québec and 0 otherwise, A_i takes the value of 1 if the period is after the policy change and 0 otherwise, $A_i Q_i$ is an interaction term between A_i et Q_i , ε_{it} is an error term (with $E(\varepsilon_{it} | Q, t=0)$), and

$\beta, \gamma, \theta, \alpha$ are parameters to be estimated. The DD estimator is equivalent to the least squares estimator of β . We could not find any reason to believe this policy to be endogenous in the sense of being correlated with unobservable variables specific to Québec, leading to a spurious regression. In fact, the policy was totally unexpected when it was announced to the general population. A more important consideration is the possibility that differential pre-period trends could bias the results (Meyer 1995). If Québec mothers' labor supply was increasing at a faster rate than in the rest of Canada before the program, the DD estimator will be biased upwards and we will attribute to the policy effects that are due to other factors.

To handle this issue, we turn to a more general specification presented by Francesconi and Van der Klaauw (2004).²⁴ They make two major modifications to equation (1). First they introduce specific pre-policy trends for the treatment and control group, in our case for Québec and the rest of Canada. The model can be written as:

$$Y_{it} = \alpha + \theta Q_i + (\gamma_{11} + \gamma_{12} Q_i)t + \gamma_2 I(t \geq s) + \beta Q_i I(t \geq s) + \varepsilon_{it} \quad (3).$$

where t is a time trend, $I(w)$ is an indicator function specifying whether the period is a post- or pre-policy period. In our case, post-policy periods start in 1999 when a substantial number of new places are created. The parameter γ_{11} is the effect of the aggregate trend while γ_{12} is the effect of the specific trend in Québec, γ_2 is the aggregate post-policy effect, and β remains the policy effect. In a three period model, they show conditions such that the OLS estimator of β in specification 3 is identical to a difference-in-differences-in-differences estimator (DDD):

$$\begin{aligned} \text{DDD} \equiv \{ & [E(Y_{s-1+k} | Q = 1) - E(Y_{s-1} | Q = 1)] - [E(Y_{s-1} | Q = 1) - E(Y_{s-1-k^*} | Q = 1)] \} - \\ & \{ [E(Y_{s-1+k} | Q = 0) - E(Y_{s-1} | Q = 0)] - [E(Y_{s-1} | Q = 0) - E(Y_{s-1-k^*} | Q = 0)] \} \quad (4). \end{aligned}$$

If the true model is given by specification (4), DD estimates $(\beta + \gamma_{12}(k+k^*))$. If γ_{12} is not equal to 0, then the DD estimator is biased. Second, they also introduce a common change in trend after the policy is implemented. Therefore, the post-period trends remain specific to each region, but can change (not in a specific fashion) relative to their pre-policy values. Hence, a more general specification than (3) is given by:

$$Y_{it} = \alpha + \theta Q_i + (\gamma_{11} + \gamma_{12} Q_i)t + [\gamma_{21} + \gamma_{22}(t-s)]I(t \geq s) + \beta Q_i I(t \geq s) + \varepsilon_{it} \quad (5).$$

In addition to pre-policy specific trends, γ_{22} represents the effect of the post-policy aggregate (common to both regions) change in the specific trends. Equation (5) admits both common aggregate intercept and trend changes for the periods after the policy change. If the true model is (5), DD

²⁴ They evaluate the effect of the British Working Families' tax credit on lone mothers work behavior.

estimates $\beta + \gamma_{12}(k + k^*) + \gamma_{22}k - 1$, while DDD estimates $\beta + \gamma_{12}(k - k^*) + \gamma_{22}(k - 1)$,²⁵ and DDD correctly estimates β only if $k = 1$. The main identification condition for the estimation of the policy effect in this model is that, other than the introduction of the region specific childcare policy, there are no contemporaneous shocks that affect the *relative* outcomes of the treatment and control groups. Since the policy change was included within a more general reform in public policy our estimated effects could be corrupted by other aspects of the policy. However in previous work (Lefebvre and Merrigan, 2003) we show the other labor supply incentives incorporated in the policy were not very strong.

Specification (5) can be enriched in three ways. First, it is possible to add a number of controls to the regression analysis such as the age of the mother and her level of education as well as several other “exogenous” explanatory variables. Second, despite the fact that very young children were not covered in the first years of the program and that the first year of the program did not create new day care spaces and facilities, a specific effect for the year 1998 is added in the regression as an anticipation effect. Finally, the effect of the gradual increase in the number of places from 1999 to 2002 can be represented by a series of year-specific dummies from 1999 to 2002. These additions to (5) give:

$$Y_{it} = \alpha + \theta Q_i + (\gamma_{11} + \gamma_{12}Q_i)t + [\gamma_{21} + \gamma_{22}(t-s)]I(t \geq s) + \sum_{t=1998}^{2002} \beta_t Q_{it} + \Phi' X_{it} + \varepsilon_{it} \quad (6).$$

Where β_t represents a time-specific effect of the policy, X_{it} is a vector of socioeconomic control variables and Φ is a vector of parameters. Specification (6) is the final specification with Y_{it} representing different labor market outcomes.

3. Data set

The data used for our empirical analysis are provided by Statistics Canada Longitudinal Survey of Labour and Income Dynamics (SLID), a nationwide survey on household and personal income as well as labor force participation. The individuals for this survey are sampled through the Labour Force Survey (LFS) which covers all provinces with the exception of the three Territories, native reserves, the military and individuals residing in institutions. Conceived originally as a rotating panel survey, the first panel was produced in 1993. The same individuals were interviewed every year from 1993 to 1998. In 1996, a second panel was introduced covering the years 1996 to 2001. In 1999,

²⁵ If the length of the time-periods is the same for the pre- and post-difference terms, then $k = k^*$ and differences in the time evolution of the outcome variable between treatment and control groups do not contribute to the bias.

a third panel was started to replace the first cohorts of respondents. The last panel started in 2002. Since 1996, the SLID is composed of two cohorts representative of the total population of individuals aged 15 or more. Table A illustrates the structure of the panel as well as the total number of individuals and households in the survey and the population-weighted number of individuals.

Table A: Structure and size of samples¹ in the Survey of Labour and Income Dynamics

Panel 1	1993	1994	1995	1996	1997	1998					
Panel 2				1996	1997	1998	1999	2000	2001		
Panel 3						1999	2000	2001	2002	2003-4	
Panel 4									2002	2003-7	
Persons	29,650	29,632	29,819	61,108	61,497	62,211	58,096	57,441	58,398	59,850	N.A.
Families	15,000	15,000	15,351	31,973	32,240	32,721	30,410	33,212	32,406	33,450	N.A.
Units	22,1	22,5	22,9	23,1	23,4	23,7	23,7	24,1	24,2	24,3	N.A.

1. Unweighed numbers of persons aged 15 years or more, of economic families, and number of units (weighted number of persons aged 15 years or more) in million. N.A: not available.

First, from the years 1993 to 2002, we sampled mothers in single-mother or two-parent census families, with at least one child less than 18, who were aged between 18 and 56 years.²⁶ Second, we kept only mothers with a least one child aged 5 years or less for the regression analysis. Finally, we separated our sample by the level of education of the mothers: mothers with a high school education or less and mothers with more than high school education. Five labor market variables were chosen to analyze labor market behavior:²⁷

1. Labor market participation for two of the 12 months of the year (the information is available for any of the twelve months): April and August (coded ml04v2 and ml08v2 respectively).
2. Employment during the year of reference: full-time (coded fl1prt1); this indicator applies to individuals having worked during the year of reference.
3. Number of weeks worked during the year (coded wksem28).
4. Number of hours worked during the year (coded alhrwk28).
5. Earnings for the year of reference in all jobs (coded earnng42), in real 1992 dollars.

A descriptive analysis

Figures 4 to 6 contain graphs tracing the time series evolution of the five labor market variables for the years 1993 to 2002 for mothers in Québec and the rest of Canada. Figures 4(a) to 4(f) present the percentage of mothers working in the month of April and the month of August by the age of children present in the census household, marital status and level of education in Québec (Q) and the other provinces of Canada (C). Figures 4(a) and 4(c) for both months show the same pattern for mothers with at least one child who is 1 to 5, and mothers with at least a child from 0 to 5 years.

²⁶ Only by using census families can a unique link be established between a mother or the spouse of a man and the children living in the family.

²⁷ For the exact definitions, see the electronic dictionary of SLID variables on Statistics Canada's WEB site.

The graphs clearly show, except for the aberration in 1995, that from 1998, the participation rates for these groups in Québec increase rapidly relative to the rest of Canada, eventually being higher for 2001 and 2002. This increase is notable in 1999, the first year with a substantial increase in low-fee day care spaces.

Figures 4 (b) and (d) presents the same rates for mothers with at least a child from 0 to 5 years and, mothers with at least one child who is 6 to 11 years and no child less than 6 years. We observe that for the latter, the rate in Québec increases relatively to the rest of Canada in 1994, 4 years before the change in regime, and then grows at the same rate until 2002, when there is fall in the rate in the rest of Canada relative to Québec. Therefore, the pattern for the mothers with very young children is very different from mothers with older children and no young children. If the growth rate in Québec for mothers with a child that is 6 to 11 years had been much higher than in the rest of Canada for the post-1998 period, it would have been difficult to attribute the differences in the case of the mothers with very young children to the day care policy. Figures 4(e) and 4(f) concern only the month of April as the results for August are similar. Figure 4(e) repeats Figure 4(b) with the 0-5 age group for mothers living with a spouse and with at least one child less than 6 years. The figure shows the same pattern as with the full sample, participation rates being higher for mothers in a couple. The sample of single mothers was too small to perform the analysis. Finally, Figure 4(f) presents participation rates by education level. The effect of the policy is striking for the highly educated group. For the less educated, the gap that existed before 1998 seems to be receding.

Figures 5 present the same time series but for annual average weeks worked ((a) to (c)) and average hours worked ((d) to (e)). Figure 5(a) compares mothers with at least a child from 0 to 5 and, mothers with at least one child who is 6 to 11 years and no child less than 6. Again the same pattern emerges with very strong growth in Québec for mothers with very young children relative to the rest of Canada after 1998. The relative increase for the other mothers occurs in 1994 followed by similar growth in both regions. Figure 5(b) shows that the time series pattern for couples is similar to that of the full sample. Figure 5(c) compares the patterns by education level. The graph displays evidence of a positive effect of the policy for both groups. The patterns for hours, figures 5(d) to 5(f) not surprisingly, closely mimic the patterns for weeks.

Figures 6(a) to 6(d) present the time series for annual average earnings. Figure 6(a) shows that for both age groups in early childhood, there is a stagnation of mean earnings from 1999 in the rest of Canada while they are growing steadily in Québec. Figure 6(b) compares mothers with children under 5, with those who have none, but have at least one child 6 to 11 years. Again, we observe for the latter strong growth in Québec relative to the rest of Canada, from 1994 to 1996, after

which growth is similar, except for 2002 when there is an unexpected dip for the rest of Canada. It is possible that by then, some dynamic positive effects on labor supply of the program are affecting mothers with older children, as children who were under six at the beginning of the program are now older than six. Figure 6(c) shows how the program had impacts on both classes of education. Figures 6(d) to 6(f) trace the percentage of participants in the labor market working full-time. Again, the results point to a positive effect of the program.

4. Econometric results

Table 12 shows the mean values by year of mothers' characteristics for the main sample of mothers with at least one child younger than 6 years. Mothers are quite similar in both regions. We note the following differences: mothers in Québec are slightly less educated in the earlier years of the sample; compared to the other provinces, the prevalence of single-mother families in Québec is lower in the early years and higher in the later years; the proportion of mothers born outside Canada is smaller and family levels of earned income from sources other than the mother are lower in Québec than in the rest of Canada.

The econometric results are found in Tables 13 to 17. Three specifications were estimated for each of the samples, one with a dummy variable for the year 1998 and one without it. Samples were created on the basis of the children's ages and the mother's education. Because a large proportion of mothers stay at home in the first year of a child's life and fewer subsidized day care spaces are available when the child is less than one, we also estimate models in families where there is at least one child aged 1 to 5. We also split the sample in mothers with a high school education or less and mothers with more than a high school education. The former would be in lower-income families and are more likely liquidity-constrained.

Each table corresponds to a particular dependent variable. Table 13 presents the results for participation in the months of April. Regressions were done with the month of August and the results were very similar. Tables 14 to 17 concern respectively annual hours worked, weeks worked, yearly earnings, and participation in full-time work. The Tables present only the parameters estimates relevant to the policy change. Complete results are available from the authors.

The control variables used in the estimations are: mother's age, mother's age squared, years of education, years of education squared, a dummy variable for mother being born in a foreign country, a dummy variable for single-mother households, the number of children greater than 5 years of age in the household, the number of children less than 6 years, a dummy variable for the presence of a child less than 3, and earned income from a source other than the mother. Three specifications

were estimated for each sample: (i) assumes a constant treatment effect for the years 1999 to 2002 ($\beta_{1998}=\beta_{2000}=\beta_{2001}=\beta_{2002}$) and no pre-program trends ($\alpha_{31}=\alpha_{32}=0$); (ii) assumes pre-program regional specific trends but keeps constant yearly program effects; (iii) assumes pre-program regional specific trends as well as non constant program effects. The p-values presented below the coefficients for each specification are computed for the following nulls: (i) ($\alpha_{31}=\alpha_{32}=0$); (ii) ($\beta_{1998}=\beta_{2000}=\beta_{2001}=\beta_{2002}$). Given that smaller provinces are over sampled, all the regressions were done with Statistics Canada's sampling weights.

Participation

The results for participation are presented in Table 13. In general, the dummy variable for 1998 is never statistically significant, showing that the first year of the program mostly subsidized mothers already working. Second, we do not reject the model with no pre-program trends and do not reject the null of equal effects when pre-program trends are present. Samples without children aged less than 1 year produce slightly larger effects for the program. Program effects are estimated to be positive and statistically significant. The program effects are larger for mothers with a high school education or less. Finally, specification (iii) shows an increasing effect of the program that is consistent with the gradual increase in subsidized places. For all mothers, the effects, when constant, range between .0747 and .0917 and the largest effects are for the year 2001 and 2002 ranging between .11 and .13, which are very large considering the participation rate was around 0.57 in Québec in 1993. Therefore, there is evidence that the program had a strong and increasing impact on participation.

Hours worked

Results for annual hours worked are presented in Table 14. The program effect is systematically positive. The effect for 1998 is everywhere positive except for one case, but it is never statistically significant. The p-values for the null of no pre-policy trends are lower however and the same is true for the null of equality of effects. For specification (ii), no policy effects are statistically significant, and the estimated effects are smaller than for specification (i) but remain relatively large as the average number of hours worked before the program was around 980 hours. Effects in the first two specifications range between 138 and 148 hours when the sample is not split by education. Very large effects are found for mothers with a high school diploma or less with the sample of children from 1 to 5. This could be explained by the fact that higher educated women already work longer hours so that the income effect of the price change could be more important in their case. We observe the same pattern of increasing policy effects from 1999 to 2002, with coefficients for 2001 and 2002 being statistically significant and large (between 182 and 321 hours for the complete samples).

Weeks worked

Table 15 presents results for annual weeks worked. For all tests the p-values are low. Specification (ii) yields generally smaller effects than (i), but the coefficients are mostly significant. For (i) and (ii), when the sample is not split by education, effects range between 3.28 and 4.56, quite large effects as the mean number of weeks worked was 30 in 1993. The strongest effects are for less educated mothers. This is consistent with the results on annual hours worked. Once again, the strength of the effects increases with time, reaching up to 9.18 weeks (but with a large standard error) for uneducated mothers. For mothers with children from 1 to 5, the effect for 2002 is 6.09 and statistically significant. The general pattern of the results is consistent with participation and hours worked.

Earnings

For earnings, Table 16, the p-values show that the null of no pre-policy trends is rejected or close to being rejected in all cases in (i). The constant effect null is not rejected in (ii). Therefore, there is reason to prefer on these grounds specification (ii), where the effects on earnings are not statistically significant, despite being close in size to the effects in (i) (around \$2,300 per year), which are significant. The larger standard errors could be the result of larger measurement errors in the case of earnings. Specification (iii) displays the same pattern of increasing effects seen for the previous dependent variables. The most difficult results to reconcile are the large labor supply effects for the less educated with the smallest effect for earnings. This can be explained by the much lower hourly wages for the less educated.

Full-time jobs

Table 17 presents results for full-time work and shows that the increase in participation concerns mainly full-time work.

5. Discussion and policy implications

Discussion

The results support the hypothesis that the low-fee day care policy implemented by the province of Québec at the end of 1997 has had substantial labor supply effects on the mothers of pre-school children in this province. The strong statistical evidence is provided with data that spans the years 1993 to 2002 and an econometric model that is general enough to dismiss competing hypotheses that could explain the large increase in labor supply particular to Québec after the start of the policy and that is more general than standard DD or DDD evaluations. The evidence shows that the policy had effects on both educated and less educated mothers despite the fact the decrease in

price was larger (considering Québec's tax policy on childcare expenses before the program started) for higher income families. This can be explained by the fact that lower income families are liquidity-constrained and that the policy made childcare facilities more easily available. The results also provide some evidence, however more tenuous because the null of the equality of the effects cannot be rejected, that the effect on labor supply became stronger as more and more subsidized spaces were created across the province for different age groups.

It is also possible that the creation of low-fee spaces contributed in reducing the price of other forms of day care services by way of increased competition in the industry, amplifying the effects of the policy. Since we do not observe the same differences in the progress of labor supply variables between Quebec and the rest of Canada for mothers with children aged 6 to 11 with no child less than 6 years, we can be more certain that the estimated effects are due to the policy.

If all the new child care spaces created were provided to women who would have worked without the policy, then the policy would have no effect, but this is difficult to imagine, since 69,000 new \$5 per day spaces were created over the years from 1999 to 2002. Finally, we could not identify any other distinctive tax-transfer policy in Quebec that could have explained the estimated effects found with the SLID.

Are the results consistent with the estimated effects of child care prices on labor supply found in the economic literature? Blau and Currie (2004) and Blau (2003) conclude, that the link between child care prices and labor supply is weak. In France, Chroné *et al.* (2004), with a sample of mothers with children less than 3 years also find a small effect of prices on labor supply. Cleveland, Gunderson and Hyatt (1996) and Powell (1997, 2002), using the 1988 Statistics Canada's Survey on child care utilisation, find a substantial negative effect of child care prices on labor supply. For example, Cleveland, Gunderson and Hyatt (1996), who do not distinguish between full-time and part-time work, estimate that a 10% decrease in prices would increase employment of mothers with young children living in a couple by 3.9%. Powell (1997) computes an almost identical price elasticity of -0.38 for participation and -0.32 for hours worked. Powell (2002), in a multinomial model with three different modes of paid day care and participation in the labor market finds very high labor supply elasticities with respect to child care prices: -1.40 for day care centers, -3.60 for day care at home with a non-relative, and -0.80 for day care at home with a relative. A decline of 10% in day care center prices is estimated to result in a 5.2 percentage points decrease in participation. If the price of all modes of day care is increased by 10%, she finds a decrease of 5.6 percentage points of participation.

Michalopoulos and Robins (2000), who also use the same 1988 survey and a more complex methodology (multinomial estimation, full- and part-time participation, three types of paid child care,

and estimated tax subsidies for these six choices), find for mothers living in a couple a price elasticity of -0.203 when all types of labor force participation are considered. However, an increase of \$1 per hour in price (given an initial price of \$2.21 per hour) results in a 6 percentage points decrease in full time participation for an elasticity of -0.464, while the elasticity for part-time participation is -0.203. They compute the effects of a \$1,000 subsidy on work and use of a day care center to be of 4 percentage points, an elasticity of 0.094. For the same subsidy, applied to all day care modes and all types of participation, they compute an elasticity of 0.118 and a 10 percentage points increase in participation.

Baril *et al* (2000), on the basis of an average price of \$25 per day in registered center-based day care in the metropolitan area of Montréal for year 1997, estimated the net price of day care (after tax benefits), at \$5 per day for the lowest income families, \$10 per day for middle income families, and \$15 per day for families paying the highest marginal tax rate. The minister responsible for the family policy (Théberge, 2003) estimates that before the low-fee policy, families paid on average \$18 per day before tax credits. On the basis of this information we can summarize that prices fell on average by approximately 50 percent. We find the effect of the policy to be 7.6 percentage points for labor force participation. Since the participation rate in Québec for 2002 is 69%, we estimate that it would have been 61.4% without the policy. Hence, the policy increased participation by 12.3% for a price elasticity of 0.25, close to the results of Michalopoulos and Robins (2000). Using the same reasoning we find for annual hours worked, weeks worked and earnings, price elasticities respectively of 0.26, 0.28, and 0.34, all quite credible.

Policy implications

What are the implications for public policy concerning only labor supply? To answer this we must consider the costs of the program. Table 11 indicates that the average yearly subsidy to registered day care providers increased on average from \$3,788 for 1996-1997 to \$8,015 per year in 2003-2004. This average masks important differences across modes of day care. For year 2003, according to the Quebec's Department of the Family (Théberge, 2003), without taking into account the age of children which affects the amount paid to providers, the public subsidy per day is \$40 in a not-for-profit center, is \$30 in a for-profit-center (under-agreement), is \$22 in the family-based regulated setting, which on a yearly basis translates to respective amounts of \$10,500, \$7,900, and \$5,800\$.²⁸ The Department of the Family estimates that before the policy the daily subsidy per child

²⁸ The subsidy per day differs mainly according to the setting and the age group of the child, and the amount paid to a child care service is calculated per space, per day (on the basis of 261 days per year) and takes into account the cost of the premises, general expenses, optimization (all subsidized spaces must be occupied but children can be absent

was respectively \$11 per day (not-for-profit centre), \$1 per day (for-profit centre), and \$4 per day (family-based).

The monetary allotments used to support this policy appear therefore to be relatively high if their only advantage is to increase labor supply. A large wedge has been created between what is actually paid for by the parents (since January 2004, \$7 per day) and the actual cost of day care (closer to \$40 per day). This pricing policy coupled with the necessity of utilizing these services five days per week creates strong distortions related to the optimal choice of day care services. The dynamics of the regime imposed by the government²⁹ have basically negated other types of policy interventions to support families with young children. For example, if families had a choice between a day care subsidy and a lump-sum amount of the same value (a policy pursued in Norway and Denmark for children aged less than 3 years), several families with children under three years of age would probably choose the lump sum.³⁰ However, given that this would generate job losses in the publicly funded system, unions could react strongly to such a policy and disrupt services. In other words, major policy changes surrounding child care policy become impossible to implement, and it becomes an irreversible policy. The \$2 per day rise in 2004 was badly received by public opinion and the government decided that the fee would not increase in 2005.

15 percent of the time on an annual basis), childcare and educational expenses. For 2002-2003, a not-for-profit centre with 60 spaces (a typical organization), received around \$60 per day for each child aged less than 18 months and \$40 per day for a child aged 18 to 59 months. On an annual basis, the value of the subsidy thus ranges from \$11,500 to \$15,700, depending on the age of the child. The other types of childcare services receive lower subsidies: about \$30-\$45 per day per child in a for-profit centre and a little less than \$23 per day per child in a family-based setting (one adult cannot care for more than 6 children including his child; of these children no more than two may be under the age of 18 months).

²⁹ In parallel with the creation of new places, the wages provided to educators and all types of employees in childcare centres were steeply increased and regulated after negotiations with the main unions representing the employees. According to wage schedules published by the ministère de l'Emploi, de la Solidarité sociale et de la Famille, in 2004, educators with recognized training in childcare are paid between \$13,86 and \$18,36 an hour according to their experience (from one to ten years, defined as job-based in the education or social sectors). For educators with no specific training, more years of experience compensate for training. For a person in a management job in a centre, the wage schedule starts at \$37,000 and goes up to \$49,000 for 13 years of experience. The usual social benefits are attached to childcare jobs. The government has also agreed to pay a special 50 million \$ contribution over four years toward a retirement fund. The increase in the number of spaces and the improvements brought to the working conditions of childcare providers explain the rapid increases in the public subsidy (from \$209 million in 1995 to \$1.3 billion for fiscal year 2003-04). Moreover, these numbers could well go up. Indeed, most of the employees in centres are unionized with either one of the two main federations representing workers in the education sector. Union leaders maintain that educators are underpaid and that their wages do not respect gender equity (since almost all educators are women). They also consider that family-based childcare providers affiliated and supervised by a not-for-profit centre (currently considered self-employed persons) should be considered employees of the centres. The current government has re-enacted and passed a labor-law initiated by the preceding government stating that family-based childcare providers are not employees but self-employed workers.

³⁰ See Schone (2004) for an analysis of the effect of the Norwegian cash-for-care policy on mother's labor supply.

Taking into account the high level of labor force participation of Québec’s mothers with young children (69% in 2002), it is not clear that if the government would have maintain the actual fee for child care services (it was increased to \$7/day in 2004 and remains at that level in 2005) it would have driven more mothers to work. The creation of more low-fee spaces (the objective is 25,000 more by the end of year 2006) raises the question of the “efficiency” of the policy to induce more mothers to join the labor force and work full-time who otherwise would choose other modes of work (e.g. part-time) and child care for their young children.

Table B presents the distribution of gross daily prices³¹ (before tax credits and tax deductions) for childcare in 1998 and 2000-2001. Of course, the dominant category is the \$5 per day services is. However, a rather large proportion of families (36%) pay more than \$5/day either because they cannot find a space (in the subsidized network) or by choice, and 8% use “free” day care (by relatives or subsidized childcare with a fee waiver). In both cases, government subsidies are much larger for parents using the \$5 per day services generating some inequities across families. Furthermore, families with young children who choose to care for their children themselves or do not use non-parental child care, even though they are employed part-time or full-time (parents who coordinate their shifts to provide exclusively parental care), are not treated equally in terms of public family support. The value of the subsidies attached to in-kind child care is not matched by the other forms of family support for families caring for and educating their children or using other types of childcare, such as part time or full-time home-based care. Even though there is a generous provincial refundable tax credit based on family income for childcare expenses, it is not sufficient to match the in-kind subsidies offered to families using the \$5/\$7 per day child care services.

Table B: Gross price per day per child for childcare services paid by families with children aged 0 to 4 years in day care, Québec, 1998 and 2000-2001

Prices in 1998 Survey	<\$5	\$5	\$6-14	\$15-20	>\$20	\$0
Prices in 2000-01 Survey	<\$5	\$5	\$6-14	\$15-25	>\$25	\$0
August-September 1998	1.5%	11.5%	31.3%	25.4%	21.3%	9.7%
December-February 2000-01	<1.0%	56.0%	15.0%	18.0%	3.0%	8.0%

Source: Survey on childcare services, 1998 and 2000 (Tables 3.1.11 and B.13), Institut de la statistique du Québec (1998, 2001). For 1998, among the 4,345 respondent families with children aged 0-4 years, 3,799 indicate the price they paid for childcare services. For 2000-2001, among the 6,783 respondent families, 71% (4,810) were using day care (for at least one child age 0-4 years) regularly to work or study.

There is also a “one size fits all issue”. The Québec model of childcare services implemented during the last seven years is “one-dimensional,” in the sense that it serves well the needs of parents

³¹ The use of gross prices overstates the inequity between the two groups of families (the \$5 per day group and the one who receives tax subsidies).

working full-time, five days a week with a rather standard – 8a.m. /9a.m. to 4p.m./5p.m. – working schedule. Parents working part-time or with non-standard hours and those with intermittent employment are excluded from the system. Political pressures to make the labor market less flexible and more in line with child care schedules can be costly to firms and produce layoffs. There are the long run aspects of the program. First, the government, with this policy has moved the child care industry towards a more monopolistic type of market. Unions reacted to this policy by organizing labor particularly in day care centers. The bargaining power of the day care workers is very strong as strikes can be very costly to parents and therefore for the governments in power who can see their popularity erode quite quickly if the strike is prolonged. On the other hand, they can also see their popularity fade if they give in to unions and finance the higher wages to day care workers with higher fees for daily services. This new bargaining power is partly responsible for the large increase (100%) in daily subsidies per space since 1998 onwards. Subsidies now cover costs for unemployment insurance, pension funds and other non pecuniary benefits. Second, the government is now closely scrutinized with respect to the quality of day care. One major study (ISQ, 2004) has shown that on average the quality in all types of subsidized childcare is “fair” (of satisfactory quality, but not good or very good). This is putting more pressure on the government to increase the quality of care by hiring better trained personnel which also is much more costly to attract. Finally, once the final tally is in, by 2006, more than 200,000 children will be in subsidized day care involving more than 150,000 parents pressuring the government to yield even more to union demands.

6. Concluding remarks and directions for further research

To summarize, this paper shows that the substantial decrease in the price of day care in the province of Québec caused by a policy of generous subsidisation of day care providers had a substantial positive effect on labor supply and earnings. A modified DDD approach proposed by Francesconi and Van der Klaauw (2004) was used to estimate the effects controlling for pre and post policy trends as well as a host of socioeconomic controls. The size of the effects which is found to increase over time closely follows the creation of new subsidised day care places from 1999 to 2004.

Several avenues of research are promising given the results found in this paper. A first type of analysis consists of using the same type of approach but with other data sets, to measure the robustness of the results. For example, the National Longitudinal Survey of Children and Youth (NLSCY), produced every two years since 1994-1995 (the most recent cycle available is for 2000-2001), is a representative sample of Canadian children with information on the labor supply of parents (e.g. participation and weeks worked). Using the same methodology as in this paper, we find

similar results (Lefebvre and Merrigan, 2005a), however the external validity of the study is more tenuous as the sample units are representative of children of different ages in the Canadian population and not mothers with children.

Another type of analysis is a more structural type of modeling of the labor supply and child care decisions (Ribar 1995). Only the NLSCY provides information on both types of decisions. The data on wages necessary for structural modeling are much less reliable than in the SLID and data on the price of childcare is unavailable. The SLID data sets offer a large diversity of labor market information on the families (mothers and their spouse if present) and childcare annual expenses (since 1999 only), but without any detail on childcare modes or types. Therefore, the hurdles to realise such a project are difficult to overcome.

A third type of analysis concerns the developmental outcomes of children and the disparities in attainment of children from different socioeconomic backgrounds. There are a large number of studies that study the impact of early experiences, particularly in day care, on the development of children.³² In most cases, instrumental variables methods or panel data are used to identify the effects of the type of day care on child development. The Québec experiment provides some exogenous variation in childcare settings that could be used to identify the effect of different types of childcare on development. The NLSCY would be the proper data set to perform this analysis. Since there is a panel dimension to the NLSCY, it would also be possible to estimate the effects of childcare settings on schooling achievements (which is tracked in the survey). Questions surrounding the issue of the intensity of childcare use on development, particularly for children at an early age, can also be addressed with the NLSCY since parents are asked the normal weekly hours in childcare for all settings.^{33,34}

Another important aspect of the regime concerns distributional issues. Given that mothers bear a larger cost of raising children than men, notably by temporarily leaving the labor market, the policy seeks to lessen this particular burden. We must then ask how benefits are distributed across mothers on the basis of attachment to the labor market, labor force participation, and conjugal status. Discussions surrounding issues of horizontal and vertical equity should be considered for a thorough

³² For example, see the survey of Waldfogel (2002).

³³ Lefebvre and Merrigan (2005b) show, using the same methodology and the NLSCY data-sets that the number of hours young Québec's children spend in childcare increased largely compared to childcare hours in the other provinces.

³⁴ Studies using panel data show that non-parental care during a child first year of life, if substantial has negative effects for the child and the parent (see, for example, Waldfogel *et al.*, 2002).

analysis of the policy. Finally, given the important impact of the program on mothers' labor supply, the labor supply of fathers should also be considered empirically.

References

- Angrist, Joshua and Alan Krueger (1999), "Empirical Strategies in Labor Economics," Orley Ashenfelter and David Card (eds.), *Handbook of Labor Economics*, Volume 3A. Amsterdam: Elsevier, p. 1277-1366.
- Baril, Robert, Pierre Lefebvre and Philip Merrigan (2000), "Québec Family Policy: Impact and Options," *Choices Family Policy*, Montréal: Institute for Research on Public Policy, 6(1), p. 1-52. (<http://www.irpp.org/>).
- Bertrand, Marianne, Esther Duflo and Sendhil Mullainathan (2004), "How Much Should We Trust Differences-in-Differences Estimates?," *Quarterly Journal of Economics*, 119(1), p. 249-75.
- Blau, David and Janet Currie (2004), "Preschool, Day care, and Afterschool Care: Who's Minding the Kids," National Bureau of Economic Research: Working Paper 10670 (<http://www.nber.org/papers/w10670>)
- Blau, David (2003), "Childcare Subsidy Programs," in *Means-Tested Transfer Programs in the U.S.*, Robert Moffitt (ed.), University of Chicago Press for the National Bureau of Economic Research, chap. 7 (National Bureau of Economic Research Working Paper No. 7806). (<http://www.nber.org/papers/>).
- Card, David (1990), "The Impact of the Mariel Boatlift on the Miami Labor Market," *Industrial and Labor Relations Review*, 43(2), p. 245-57.
- Choné, Philippe, David Le Blanc and Isabelle Robert-Bobée (2004), "Female Labour Supply and Child Care," *Économie & Prévision*, Numéro 162, p. 23-50.
- Cleveland, Gordon and Douglas Hyatt (1998), "Subsidizing Childcare for Low-income Families: A Good Bargain for Canadian Governments?" *Choices Family Policy*, Montreal: Institute for Research on Public Policy, 4(2), p. 1-35.
- Cleveland, Gordon, Morley Gunderson and D. Hyatt (1996), "Child Care Costs and the Employment Decision of Women: Canadian Evidence," *Canadian Journal of Economics*, 29(1), p. 132-151.
- Canada Employment Insurance Commission, (2004), "Employment Insurance (EI) Monitoring and Assessment Report 2003," Human Resources and Skills Development Canada.
- Corak, Miles (1999), "Employment Insurance Support to Families with Newborns," *The Daily*, Statistics Canada, Monday October 25.
- Doherty, Gillian, Martha Friendly and Jane Beach (2003), "OECD Thematic Review of Early Childhood Education and Care: Canadian Background Report", Report commissioned by the Government of Canada as part of Canada's participation in the OECD's Thematic Review of Early Childhood Education and Care.
- Francesconi, Marco and Wilbert Van der Klaauw (2004), "The Consequences of 'In-Work' Benefit Reform in Britain: New Evidence from Panel Data," Working paper, University of Essex and University of North Carolina at Chapel Hill, May.
- Friendly, Martha, Jane Beach and Michelle Turiano (2003), "Early Childhood Education and Care in Canada 2001," Childcare Resource and Research Unit, University of Toronto.
- Gelbach, Jonah-B (2002), "Public Schooling for Young Children and Maternal Labor Supply," *American Economic Review*, 92(1), p. 307-22.
- Heckman, James, Robert LaLonde, and Jeffrey Smith (1999), "The Economics and Econometrics of Active Labor Market Programs," in Orley Ashenfelter and David Card (eds.), *Handbook of Labor Economics*, Volume 3A. Amsterdam: North-Holland, 1865-2097.
- Heckman, James (1974), "Effects of Child-Care Programs on Women's Work Effort," *Journal of Political Economy*, 82(1), p. 153-161.
- Institut de la statistique du Québec (2004), Québec Survey on the Quality of Educational Day Care (Enquête québécoise sur la qualité des services de garde éducatifs, 2003). (http://www.grandirenqualite.gouv.qc.ca/grandir_qualite_an.htm)
- Institut de la statistique du Québec, (2001), Québec Survey on Childcare Needs (Enquête sur les besoins des familles en matière de services de garde). (<http://www.stat.gouv.qc.ca/publications/liste>).

- Institut de la statistique du Québec, (1998), Québec Survey on Childcare Needs (Enquête sur les besoins des familles en matière de services de garde). (<http://www.stat.gouv.qc.ca/publications/liste>).
- Lefebvre, Pierre and Philip Merrigan (2005a), "The Québec's Experiment of \$5 per day per Child Childcare Policy and Mother's Labor Supply: Evidence Based on the Four Cycles of the NLSCY," Working paper, UQAM, March 2005.
- Lefebvre, Pierre and Philip Merrigan (2005b), "The \$5 per day Childcare Policy: Effects on Childcare Hours, and Cognitive Scores," Paper presented to the annual meeting, Société québécoise pour la recherche en psychologie, March 18-20, 2005, Mont-Sainte-Anne.
- Lefebvre, Pierre (2004), "Québec's Innovative Early Childhood Education and Care Policy and its Weaknesses," *Policy Options/Politiques*, 25(3), p. 52-57 (www.irpp.org).
- Lefebvre, Pierre and Philip Merrigan (2003), "Assessing Family Policy in Canada: A New Deal for Families and Children," *Choices Family Policy*, Montréal: Institute for Research on Public Policy, Montréal, p. 1-99 (www.irpp.org).
- Meyer, Bruce (1995), "Natural and Quasi-Experiments in Economics," *Journal of Business and Economic Statistics*, 13(2), p. 151-62.
- Meyer, Bruce and Dan Rosenbaum (2001), "Welfare, the Earned Income Tax Credit, and the Labor Supply of Single Mothers," *Quarterly Journal of Economics*, 117(3), p. 1063-1114.
- Michalopoulos, Charles and Philip Robins (2002), "Employment and Childcare Choices of Single-parent Families in Canada and the United States," *Journal of Population Economics*, 15(3), 465-493.
- Michalopoulos, Charles and Philip Robins (2000), "Employment and Child-care Choices in Canada and the United States," *Canadian Journal of Economics*, 33(2), 435-470.
- OECD (2004), "Early Childhood Education and Care Policy: Canada Country Note", Organisation for Economic Co-operation and Development, Directorate for Education, Paris: OECD.
- OECD (2001), *Starting Strong: Early Childhood Education and Care*, Organisation for Economic Co-operation and Development Paris: OECD.
- Powell, Lisa (2002), "Joint Labor Supply and Childcare Choice Decisions of Married Mothers," *Journal of Human Resources*, 37(1), p. 106-128.
- Powell, Lisa (1997), "The Impact of Child-care Costs on the Labor Supply of Married Mothers: Evidence from Canada," *Canadian Journal of Economics*, 30(3), 577-594.
- Ribar, David (1995), "A Structural Model of Child Care and the Labor Supply of Married Women," *Journal of Labor Economics*, 13(3), p. 558-597.
- Schone, Pal (2004), "Labor Supply Effects of a Cash-for-care Subsidy," *Journal of Population Economics*, 17(4), p. 703-727.
- Théberge, Carole (2003), "Services de garde," Document de présentation faite par la Ministre déléguée à la Famille, Plénière sur la Famille, Conseil général du Parti libéral du Québec, 12-14 septembre 2003, Laval.
- Waldfogel, Jane (2002), "Child Care, Women Employment, and Child Outcomes," *Journal of Population Economics*, 15(3), p. 527-48.
- Waldfogel, Jane, Wen-Jui Han and Jeanne Brooks-Gunn (2002), "The Effects of Early Maternal Employment on Child Cognitive Development," *Demography*, 39(2), p. 369-392.

Table 1: Main policy measures related to childcare services and pre-school education in Canada

Québec
Childcare services
<ul style="list-style-type: none"> • On September 1st 1997, licensed and regulated childcare facilities under agreement with Quebec's Department of the Family (not-for-profit centres, family-based day care and for-profit day care centres) were offering spaces at the reduced contribution of \$5 per day per child, for children aged 4 on September 30th. • On September 1st 1998, the 3 year-olds (on September 30th) were eligible for the low-fee spaces. • On September 1st 1999, the 2 year-olds (on September 30th) were eligible for the low-fee spaces. • On September 1st 2000, all children aged 5 years or less (and the 5 year-olds not having the month-of-birth requirement to be admitted in kindergarten) were eligible for the low-fee spaces.
Kindergarten
<ul style="list-style-type: none"> ▶ For children aged 5 on September 30th 1997, full-day instead of part-day kindergarten was offered by all School Boards (some private schools already offered this option). Kindergarten is not compulsory but if a child is enrolled in a public school, he or she must attend class for the full school-day and school-week. ▶ In urban centres, School boards may offer junior kindergarten spaces for 4 year-olds on a part-day part-week basis for handicapped children and children whose parent(s) is (are) welfare recipient(s) and is (are) engaged in schooling or training activities.
Before- and after-school childcare
<ul style="list-style-type: none"> ▶ On September 1998, the Department of Education began subsidizing before- and after-school day care. The School boards must offer these services on the school premises at the reduced contribution of \$5 per day per child for the children at (pre)kindergarten and grade school ages. For a family to benefit from this low-fee day care service, a child must attend the school day care centre for at least 2½ hours per day and for a minimum of three days per week.
Other Provinces
Childcare services
<ul style="list-style-type: none"> • All provinces have a childcare fee subsidy program. Amount of subsidy depends on family income and is geared to low-income families. • Some provinces (BC, AB, MN, ON, NB, PE, NF) have supplementary programs (e.g. «Enhanced Childcare Subsidy» or «Employment Support») to lower the cost of childcare for families who have low earned incomes to « make work pay».
Kindergarten
<ul style="list-style-type: none"> ▶ In Ontario, most School boards offer a part-day junior kindergarten (2 1/2 hours per day) for children aged 4 and a large majority of the children of this age are enrolled. ▶ All provinces have part-day (2 1/2 hours per day) free kindergarten in the public school system, except New-Brunswick and Nova-Scotia where kindergarten is full-day (in Ontario, the French School boards offer kindergarten for the full-day). Enrolment in kindergarten is compulsory in British Columbia, New Brunswick and Nova Scotia. In general the age eligibility for kindergarten is 5 years of age (the month-of-birth requirement for entry in kindergarten varies from one province to another).
Before- and after-school childcare
<ul style="list-style-type: none"> ▶ Some School boards in some provinces have supported the development of childcare services in a school setting for children attending kindergarten or primary school. But, to our knowledge, there is no general initiative from the provincial Departments of Education (like in Québec) to insure that all schools offer before- and after-school childcare services.

Table 2: Number of childcare spaces and subsidized¹ spaces for preschool children on March 31st by setting and number of children aged less than one year, 0 to 4 years and 5 years on July 1st, Québec, 1994-2004

Year	Spaces in not-for-profit network ¹		Spaces in for-profit centre ² under agreement (without an agreement and not subsidized) ³	Total number of spaces at a reduced fee ⁴	Total number of children [less than 1 year], ⁵ 0-4 years and (5) years
	Centre	Family-based			
1994	33,452	15,253	(15,665)	64,370	[90,417] 480,098 (90,603)
1995	34,545	17,871	(18,366)	70,782	[87,258] 473,113 (96,973)
1996	36,708	19,479	(19,842)	76,029	[85,130] 460,657 (99,415)
1997	36,101	20,328	17,629 (4,806)	74,058	[79,724] 445,143 (98,853)
1998	36,977	21,761	17,979 (5,587)	76,715 ⁶	[75,674] 428,297 (94,674)
1999	39,436	32,816	23,861 (585)	96,113 ⁶	[73,599] 412,161 (91,453)
2000	45,793	44,882	23,270 (1,208)	113,545 ⁶	[72,070] 397,971 (89,358)
2001	51,988	55,979	24,578 (705)	132,545	[73,699] 381,522 (87,111)
2002	58,525	62,193	24,629 (976)	145,624	[72,200] 373,264 (83,582)
2003	63,339	75,355	24,740 (1,620)	163,434	[73,600] 368,920 (79,015)
2004	68,274	82,044	27,530 (1,907)	177,848	[74,370] 371,028 (76,105)

Sources: Ministère de l'Emploi, de la Solidarité sociale et de la Famille (2003) for number of spaces; Institut de la statistique du Québec for number of children by age.

1. This designation applies more strictly from September 1997.

2. From 1999 to 2003, the government froze the number of for-profit childcare centres under agreement which also offer spaces at the \$5 per day fee; few new spaces were added for this arrangement during this period.

3. The figures in parenthesis represent spaces in daycare centres without an "agreement," that are not subsidized but are licensed and regulated. These centres fix themselves their day fee.

4. The reduced parental contribution program (\$5 per day fee) began on September 1997 for the children aged 4 years by September. Before September 1997, licensed centres received some subsidies for their operating costs and families received a fee-subsidy according to eligibility and family income (see Table 11).

5. The figure is number of newborns (preliminary estimation for 2003 and 2004).

6. The \$5 per day fee policy began with the 4 year-olds and was extended to the 3 year-olds on September 1998, the 2 year-olds on September 1999 and to children of all ages not in kindergarten on September 2000.

Table 3: Breakdown of children attending day care by age and setting on September 30th, 2000, 2001 and 2002

Age of children		Non-profit Centre	Family-based	For-profit Day care centre	Total
		Number (%)	Number (%)	Number (%)	Number (%)
<1	2000	3,698 (30)	7,303 (60)	1,227 (10)	12,228 (9)
	2001	3,937 (31)	7,621 (60)	1,173 (9)	12,731 (9)
	2002	4,229 (30)	8,993 (63)	1,040 (7)	14,262 (9)
1	2000	7,029 (36)	9,927 (51)	2,423 (13)	19,379 (14)
	2001	8,068 (35)	12,121 (53)	2,610 (11)	22,799 (15)
	2002	9,046 (34)	14,552 (55)	2,762 (11)	26,360 (17)
2	2000	11,059 (39)	12,121 (43)	5,249 (18)	28,519 (21)
	2001	12,549 (42)	13,956 (43)	5,844 (18)	32,349 (22)
	2002	13,909 (39)	16,217 (45)	5,840 (16)	35,966 (23)
3	2000	14,895 (41)	14,159 (39)	7,378 (20)	36,432 (26)
	2001	15,698 (42)	14,206 (38)	7,339 (20)	37,243 (25)
	2002	17,264 (43)	15,308 (38)	7,479 (19)	40,051 (25)
4	2000	17,681 (48)	12,111 (32)	7,496 (20)	37,790 (27)
	2001	18,791 (46)	12,751 (31)	7,931 (19)	41,283 (28)
	2002	19,456 (48)	12,774 (32)	7,962 (20)	40,192 (25)
5	2000	466 (29)	986 (61)	160 (10)	1,612 (1)
	2001	792 (46)	693 (40)	275 (15)	1,725 (1)
	2002	914 (48)	731 (39)	247 (13)	1,892 (1)
6	2000	190 (11)	1,518 (89)	3 (0)	1,711 (1)
	2001	99 (9)	1,037 (91)	4 (0)	1,140 (1)
	2002	64 (8)	711 (92)	0 (0)	775 (0)
Total	2000	54,918 (40)	58,215 (42)	24,528 (18)	137,661 (100)
	2001	59,934 (41)	62,385 (42)	25,176 (17)	147,495 (100)
	2002	64,882 (41)	69,286 (43)	25,330 (16)	159,498 (100)

Source: "Situation des centre de la petite enfance et des garderies au Québec en 2001, 2002 et 2003," Ministère de l'Emploi, de la Solidarité sociale et de la Famille, different years.

Table 4: Number of children from low-income families in subsidized childcare and with a fee waiver, 1999-2003¹

Year	1999-2000	2000-2001	2001-2002	2002-2003
Number of children	5,420	6,598	7,796	8,313

1. The families of these children do not pay the \$5 per day contribution.

Source: Rapport annuel de gestion 2002-2003, Ministère de l'Emploi, de la Solidarité sociale et de la Famille.

Table 5A: Number of taxpayers with a Québec refundable tax credit for childcare expenses and credits¹ in millions of dollars, Québec, 1996-2004

Year	1996	1997	1998	1999	2000	2001	2002	2004
Number	258,085	290,663	318,831	342,340	358,174	361,191	n.a.	n.a.
Credits	192	199	218	206	213	191	188	170

Sources: Taxation statistics on personal tax returns, Québec's Department of Finance, annual report; and, Fiscal expenditures – 2003 edition, Québec's Department of Finance for years 2002 and 2004.

1. For children of all ages. Credits are the amount refunded as opposed to the amount claimed as expenses.

Table 5B: Number of taxpayers with a federal tax deduction for childcare expenses¹, total deduction in millions of dollars and average deduction per taxpayer in dollars, Québec, Ontario and Canada without Québec, 1996-2002

Year	1996	1997	1998	1999	2000	2001	2002
Québec							
Number	254,190	276,910	304,710	328,096	351,180	373,860	382,740
Deduction	570	564	575	585	588	588	593
Average	2,242	2,037	1,887	1,783	1,674	1,573	1,549
Ontario							
Number	308,740	334,550	354,520	361,500	368,910	389,660	373,090
Deduction	929	1,014	1,194	1,260	1,329	1,478	1,377
Average	3,009	3,031	3,368	3,485	3,603	3,793	3,691
Canada total without Québec							
Number	614,270	640,000	668,600	708,174	685,280	707,050	684,270
Deduction	1,680	1,777	2,024	2,104	2,198	2,383	2,245
Average	2,735	2,778	3,027	2,971	3,207	3,370	3,281

Source: Taxation statistics, annual report, Canada Revenue Agency.

1. For children of all ages.

Table 5C: Federal tax expenditure for the childcare expense deduction in million \$, 1996-2004

Year	1996	1997	1998	1999	2000	2001 ¹	2002 ¹	2003 ¹	2004 ¹
Amount	420	480	510	550	595	555	560	560	560

Source: Fiscal expenditures – 2003 edition, Department of Finance Canada.

1. Estimate.

2. This is the amount of lost government revenue as opposed to the amount of expenses claimed.

Table 6A: Number of all households with children and childcare expenditures in millions of dollars and average expenditure per household in dollars, Québec and other Provinces, 1996-2002

Year	Québec			Other Provinces		
	Number	Expenditures	Average	Number	Expenditures	Average
1996	431,106	956	2,218	1,138,508	2,413	2,119
1997	378,837	810	2,138	1,114,651	2,540	2,279
1998	403,448	837	2,075	1,072,804	2,663	2,482
1999	437,838	834	1,904	1,027,266	2,726	2,654
2000	419,449	675	1,609	1,028,949	2,655	2,580
2001	387,442	690	1,781	994,209	2,720	2,736
2002	396,881	552	1,391	1,035,340	2,780	2,685

Source: Authors' calculation from the weighted micro-data of Statistics Canada's Survey of Family Expenditures.

Table 6B: Number of all economic families with children and childcare expenses incurred in order to hold a paid job, expenses in millions of dollars, and average expenses per family, Québec and other provinces, 1999-2002¹

Year	Québec			Other Provinces		
	Number	Expenditures	Average	Number	Expenditures	Average
1999	358,596	895	2,496	980,105	3,640	3,714
2000	398,729	921	2,310	1,054,040	4,070	3,861
2001	427,891	935	2,185	1,038,025	4,470	4,306
2002	461,648	1,100	2,383	1,012,337	4,230	4,178

Source: Author's calculation from the annual SLID data set.

1. Not available before 1999.

Table 7: Primary care arrangement used for the 1 to 5 years to allow parent(s) to work or study, number (percentage) of children, Québec and other Provinces, 1994-1995 to 2000-2001¹

Arrangement	1994-1995	1996-1997	1998-1999	2000-2001
Québec				
1 Someone else's home by non-relative, regulated	21,412 (4)	23,352 (4)		
2 Someone else's home by non-relative, not-reg.	74,111 (13)	60,664 (11)		
3 Someone else's home by a relative	34,212 (6)	25,250 (5)		
1A Someone else's home by a non-relative			83,681 (16)	85,024 (18)
3A Someone else's home by a relative			36,490 (7)	30,470 (6)
4 Own home by brother or sister	0 (0)	7,149 (1)	1,563 (0)	1,983 (0)
5 Own home by other relative	9,660 (2)	11,258 (2)	18,166 (4)	17,528 (4)
6 Own home non-relative	29,537 (5)	22,178 (4)	31,917 (6)	17,227 (4)
7 Day care centre	56,453 (10)	63,176 (11)	74,324 (15)	100,604 (21)
8 Before or after school program	3,496 (1)	3,769 (1)	11,671 (2)	20,409 (4)
9 Own care	0 (0)	0 (0)	141 (0)	0 (0)
10 Other arrangement	1,639 (0)	1,332 (0)	1,244 (0)	246 (0)
11 No care arrangement used ²	253,333 (45)	264,720 (48)	246,876 (48)	204,111 (43)
12 Neither mother nor spouse work or study ³	77,255 (14)	64,154 (12)		
13 Don't know/refusal/not stated	6,248 (1)	3,159 (1)	4,158 (1)	235 (0)
All children	567,356	550,161	510,231	477,947
Other Provinces				
1 Someone else's home by non-relative, regulated	59,701 (3)	74,643 (4)		
2 Someone else's home by non-relative, not-reg.	237,464 (13)	232,945 (13)		
3 Someone else's home by a relative	95,657 (5)	115,314 (6)		
1A Someone else's home by a non-relative			281,252 (16)	267,801 (16)
3A Someone else's home by a relative			141,939 (8)	146,682 (9)
4 Own home by brother or sister	3,248 (0)	18,618 (1)	11,511 (1)	10,121 (1)
5 Own home by other relative	62,697 (3)	86,125 (5)	123,293 (7)	122,242 (7)
6 Own home non-relative	99,305 (5)	99,082 (6)	88,079 (5)	83,436 (5)
7 Day care centre	122,758 (7)	110,541 (6)	143,826 (8)	159,937 (10)
8 Before or after school program	5,545 (0)	6,742 (0)	9,192 (0)	10,592 (1)
9 Own care	0 (0)	0 (0)	1,570 (0)	0 (0)
10 Other arrangement	6,081 (0)	8,594 (0)	1,398 (0)	1,560 (0)
11 No care arrangement used ²	884,967 (49)	855,750 (48)	885,789 (52)	849,288 (51)
12 Neither mother nor spouse work or study ³	203,330 (11)	157,752 (9)		
13 Don't know/refusal/not stated	36,821 (2)	22,992 (1)	26,395 (2)	4,500 (0)
All children	1,817,574	1,789,098	1,714,264	1,656,158

Source: Authors' compilation (with cross-sectional weights) from NLSCY Micro Data Files, cycles 1-4.

1. The survey is conducted in the autumn and the winter.

2. One or both parents may work or study.

3. For a two-parent family both parents do not work or study. For a single-parent family the parent does not work or study.

Table 8: Number of 4 and 5 year-old children in kindergarten by school year, Québec, 1998-1999-2003-2004

School Year	Public school		Public and private school	Proportion of children enrolled ¹
	4 years ²	5 years ³	5 years	5 years
1997-1998	n.a.	n.a.	n.a.	98.4
1998-1999	8,029	87,441	n.a.	98.4
1999-2000	8,156	85,053	89,223	n.a.
2000-2001	7,958	83,053	87,297	98.0
2001-2002	6,656	80,006	84,624	96.7
2002-2003	6,355	76,383	80,967	n.a.
2003-2004	6,225	72,405	76,727	n.a.

Source: Statistics on enrolment in kindergarten and primary grades, Québec's Department of Education WEB site.

1. Number of children enrolled in kindergarten relatively to total number of children aged 5 years.

2. These children are handicapped or from welfare families. The school regime may be part-day (one to four part-days per week) or full-day (five half-days per week).

3. Since the school year 1997-1998, all children enrolled in kindergarten are in school for the full-day (five days per week). Before 1997-1998, 88 percent of all children were enrolled half-day (five days per week).

Table 9: School grade for the 4, 5 and 6 year-olds (in percentage), Québec, Ontario and all provinces except Québec, 1994-1995 to 2000-2001¹

School grade	1994-1995	1996-1997	1998-1999	2000-2001
4 years – Québec				
Not in school	66,146 (68)	66,345 (69)	66,147 (74)	60,502 (71)
Junior kindergarten	31,170 (32)	25,644 (27)	21,559 (24)	24,098 (28)
Kindergarten	591 (<1)	1,208 (1)	179 (0)	438 (<1)
Ungraded, don't know	-	2,864 (3)	1,131 (1)	879 (<1)
Total	97,907 (100)	96,001 (100)	89,016 (100)	85,917 (100)
4 years – Other Provinces				
Not in school	196,015 (63)	177,664 (58)	163,223 (54)	124,277 (43)
Junior kindergarten	97,630 (32)	93,000 (30)	101,093 (33)	154,979 (53)
Kindergarten	16,659 (5)	19,720 (6)	33,905 (11)	2,713 (1)
Ungraded, don't know	1,070 (<1)	15,885 (5)	8,038 (3)	6,342 (3)
Total	311,374 (100)	306,325 (100)	305,314 (100)	291,186 (100)
4 years – Ontario				
Not in school	48,302 (31)	54,070 (35)	39,222 (25)	16,472 (11)
Junior kindergarten	97,630 (63)	86,266 (56)	99,414 (65)	128,065 (86)
Kindergarten	7,984 (5)	4,266 (3)	15,048 (10)	475 (≈0)
Ungraded, don't know	528 (0)	9,829 (6)	688 (0)	3 638 (2)
Total	154,444 (100)	154,431 (100)	154,372 (100)	148,650 (100)
5 years – Québec				
Not in school	18,889 (20)	15,797 (16)	20,543 (23)	14,418 (16)
Junior kindergarten	11,298 (12)	9,837 (10)	9,114 (10)	11,095 (13)
Kindergarten	63,384 (68)	68,251 (69)	59,785 (65)	61,174 (69)
Grade 1	-	1,633 (2)	1,525 (2)	312 (≈0)
Ungraded, don't know	-	2,879 (3)	400 (0)	1,634 (2)
Total	93,571 (100)	98,397 (100)	91,368 (100)	88,633 (100)
5 years – Other Provinces				
Not in school	26,397 (9)	27,309 (9)	25,519 (9)	9,717 (3)
Junior kindergarten	14,455 (5)	8,903 (3)	11,624 (4)	18,831 (6)
Kindergarten	255,663 (83)	245,758 (79)	255,461 (86)	262,863 (87)
Grade 1	12,008 (4)	14,469 (5)	3,945 (1)	3,844 (1)
Ungraded, don't know	338 (0)	15,304 (4)	1,097 (0)	7,521 (3)
Total	308,861 (100)	311,743 (100)	297,646 (100)	302,776 (100)
6 years – Québec				
Kindergarten	24,322 (27)	35,232 (36)	11,727 (12)	16,227 (18)
Grade 1	63,683 (72)	62,696 (64)	83,851 (88)	68,711 (76)
Ungraded, don't know	729 (1)	-	339 (0)	5,224 (6)
Total	88,634 (100)	97,928 (100)	95,917 (100)	90,162 (100)
6 years – Other Provinces				
Not in school	1,138 (0)	1,617 (<1)	3,082 (1)	2,704 (1)
Kindergarten	31,486 (11)	30,901 (10)	13,285 (4)	9,591 (3)
Grade 1	252,036 (83)	267,584 (85)	272,806 (86)	278,435 (91)
Grade 2	15,905 (5)	15,642 (5)	26,899 (9)	4,426 (1)
Ungraded, don't know	1,299 (<1)	-	-	11,016 (4)
Total	301,064 (100)	315,744 (100)	316,072 (100)	306,997 (100)

Source: Authors' compilation (with cross-sectional weights) from NLSCY Micro Data File, cycles 1-4.

1. The NLSCY survey is administered during the autumn and in the winter until late spring.

Table 10: Number of children in public school day care, 1997-2003¹

Day care enrolment	School year					
	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
Sporadic²	36,502	37,680	42,134	45,859	49,357	53,668
Regular³	56,162	82,888	110,030	136,556	155,119	168,204
Total	92,664	120,568	152,164	182,415	204,476	220,544
Nb. of services	923 ⁴	1,090	1,249	1,348	1,433	1,534

Source: Céline Michaud, "Childcare Services in Québec's School," Department of Education, (2003).

1. Children aged 5 to 12 enrolled in public school day care. School boards and schools themselves are responsible for organizing and running childcare services in schools. Opening hours usually cover the period before classes start in the morning, the lunch period and the period after classes end. The same service is often provided during spring break. Childcare in a school day care environment is offered at the minimum fee of \$5 per day for children aged 5-12 years.

2. A child that is in day care for less than the minimum required to be eligible for the low-fee (\$5/day) space.

3. To be considered as a regular day care user, outside the Montréal region, a child at the junior kindergarten level must be cared for outside class hours at least 5 hours per day and at least 3 days a week. In the Montréal region, a child aged 4 years old or more must be cared for outside class hours at least 2 1/2 hours per day and for a minimum of 3 days a week.

4. In 1997-1998, before- and after-school day care was offered by a little less than half the primary public schools.

Table 11: Québec's budgetary credits for the childcare program in million of dollars, 1996-1997 to 2004-2005

Fiscal year	Not-for-profit network	For-profit centre	Parent fee-subsidy for day care and special grants in millions of \$	Total subsidy ¹	Subsidy per space in \$
	Centre and family child care				
1996-1997	160	6	122	288	3,788
1997-1998	150	5	129	294	3,970
1998-1999	334	56	80	470	6,127
1999-2000	505	110	27	642	6,680
2000-2001	695	138	11	844	7,432
2001-2002	872	148	1	1,020	7,695
2002-2003	1,019	187	≈ 0	1,206	8,282
2003-2004²	1,099	211	≈ 0	1,310	8,015
2004-2005²	1,162	224	≈ 0	1,386	n.a.

Source: For total subsidy, Expenditure Budget, annual, Québec's Treasury Board; for number of spaces, Table 1.

1. The funding includes one-time grants (e.g. start-up), recurring operating grants to centres (and regulated family childcare and agency administration fee), special needs funding, and other grants.

2. Including interest and capital charges for not-for-profit centres and government contributions to retirement plan of employees in all centres.

Table 12: Characteristics (standard deviation) of mothers with at least one child aged 0-5 years, Québec et other provinces, 1993-2002

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Characteristics	Québec									
Number of mothers	343,298	355,544	333,432	347,315	323,948	316,682	305,533	293,272	247,808	265,770
Mean age	31.5 (4.4)	31.7 (4.7)	32.1 (4.7)	31.9 (4.9)	31.9 (4.9)	32.0 (5.2)	32.2 (5.4)	32.4 (5.5)	32.7 (5.5)	32.5 (5.4)
Years of education	13.0 (3.1)	13.4 (3.3)	13.6 (3.3)	13.5 (4.1)	13.4 (4.1)	13.9 (3.9)	13.9 (4.1)	14.1 (4.1)	14.2 (4.1)	14.3 (3.7)
Secondary diploma or less	38.7	36.9	34.8	36.9	36.8	31.7	32.6	31.0	26.5	23.3
Not born in Canada	10.8	8,8	8.0	12.2	9.8	7.9	8.7	14.0	8.9	7.3
Single-parent	11.1	8,8	10.2	12.7	13.0	12.8	15.1	18.6	14.8	15.1
Number of children 0-4	1.14 (0.6)	1.17 (0.6)	1.19 (0.7)	1.15 (0.7)	1.10 (0.7)	1.08 (0.7)	1.08 (0.7)	1.02 (0.7)	1.08 (0.6)	1.11 (0.6)
N. of children 0-5 years	1.43 (0.6)	1.39 (0.5)	1.46 (0.6)	1.42 (0.6)	1.39 (0.6)	1.39 (0.6)	1.35 (0.5)	1.35 (0.6)	1.34 (0.5)	1.36 (0.6)
N. of children 1-5 years	1.34 (0.5)	1.28 (0.5)	1.31 (0.5)	1.33 (0.5)	1.30 (0.5)	1.31 (0.5)	1.25 (0.5)	1.26 (0.5)	1.23 (0.5)	1.24 (0.5)
N. of children 6 years &+	0.91 (1.0)	0.84 (1.0)	0.89 (1.0)	0.94 (1.0)	0.96 (1.0)	0.94 (1.0)	0.92 (1.0)	0.95 (1.0)	0.89 (1.0)	0.94 (1.1)
Child 0-2 years present	56.6	55.5	50.3	52.5	51.7	47.7	44.5	47.7	51.0	47.5
Other earned income \$	21,593	23,402	26,960	25,543	28,570	31,162	31,214	31,046	35,138	39,005
Characteristics	Other Provinces									
Number of mothers	1,553,398	1,527,925	1,524,826	1,470,188	1,415,141	1,380,229	1,313,728	1,213,189	1,117,026	1,190,631
Mean age	31.4 (5.0)	31.8 (5.0)	32.0 (5.1)	32.0 (5.3)	32.3 (5.3)	32.4 (5.4)	32.7 (5.5)	32.8 (5.6)	32.9 (5.6)	33.0 (5.5)
Years of education	13.2 (2.8)	13.5 (2.8)	13.6 (2.9)	13.5 (3.2)	13.6 (3.2)	13.8 (3.2)	13.9 (3.2)	14.0 (3.2)	14.2 (3.2)	14.2 (3.0)
Secondary diploma or less	35.2	33.4	31.6	35.2	33.0	30.1	31.3	28.4	26.8	24.4
Not born in Canada	16.8	16.9	15.9	19.9	19.5	18.1	19.4	19.1	18.8	17.9
Single-parent	14.1	14.0	15.3	14.0	13.4	13.2	14.5	13.9	12.8	14.2
Number of children 0-4	1.16 (0.7)	1.13 (0.7)	1.14 (0.7)	1.13 (0.7)	1.11 (0.7)	1.13 (0.7)	1.09 (0.7)	1.04 (0.7)	1.10 (0.7)	1.08 (0.7)
N. of children 0-5 years	1.40 (0.6)	1.42 (0.6)	1.41 (0.6)	1.40 (0.6)	1.38 (0.6)	1.40 (0.6)	1.39 (0.6)	1.37 (0.6)	1.36 (0.6)	1.36 (0.6)
N. of children 1-5 years	1.29 (0.5)	1.30 (0.5)	1.29 (0.5)	1.30 (0.5)	1.28 (0.5)	1.30 (0.5)	1.28 (0.5)	1.28 (0.5)	1.25 (0.5)	1.26 (0.5)
N. of children 6 years &+	0.83 (1.0)	0.89 (1.0)	0.89 (1.1)	0.92 (1.0)	0.91 (1.0)	0.91 (1.0)	1.01 (1.0)	1.04 (1.1)	0.97 (1.0)	0.98 (1.1)
Child 0-2 years present	55.7	51.8	51.8	53.8	52.7	49.7	47.9	49.0	51.2	47.8
Other earned income \$	26,141	27,886	28,501	28,318	30,998	34,783	35,620	40,119	43,064	45,203

Source: Authors' calculations from the SLID Micro Data Files, 1993-2002.

Table 13: Effects of childcare regime on Québec's mothers' monthly labor force status (employed in April)¹

Specifications and samples ²	(i)		(ii)		(iii)				
	[$\alpha_{31}=\alpha_{32}=0$; $\beta_{1999}=\beta_{2000}=\beta_{2001}=\beta_{2002}=\beta$]		[$\beta_{1999}=\beta_{2000}=\beta_{2001}=\beta_{2002}=\beta$]						
All mothers with:	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	-.0088	.0747***	-.0245	.0741*	-.0154	.0804*	.0720	.1160*	.1094
Standard error	.0296	.0207	.0359	.0450	.0384	.0468	.0553	.0633	.0734
Hypothesis test (p-value)	0.5566		0.7061		0.4249				
b. Child(ren) aged 0-5	.0010	.0761***	-.0203	.0639	-.0109	.0676	.0690	.1015*	.1010
Standard error	.0284	.0197	.0344	.0429	.0368	.0448	.0526	.0604	.0703
Hypothesis test (p-value)	0.5388		0.7857		0.5563				
a. Child(ren) aged 1-5		.0761***		.0917**		.0905**	.0843*	.1303***	.1259**
Standard error		.0198		.0370		.0389	.0451	.0508	.0590
Hypothesis test (p-value)	0.5645		0.6257		0.1115				
b. Child(ren) aged 0-5		.0760***		.0782**		.0746**	.0775*	.1115**	.1126**
Standard error		.0189		.0353		.0372	.0429	.0484	.0565
Hypothesis test (p-value)	0.5489		0.7128		0.2089				
Education <= secondary	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	.0301	.0802**	.0390	.1314*	.0416	.1532*	.0947	.1488	.1579
Standard error	.0521	.0381	.0619	.0758	.0642	.0790	.0928	.1090	.1240
Hypothesis test (p-value)	0.8159		0.8205		0.4054				
a. Child(ren) aged 1-5		.0761**		.1054		.1282*	.0644	.1132	.1171
Standard error		.0373		.0653		.0699	.0810	.0951	.1076
Hypothesis test (p-value)	0.8247		0.8245		0.4608				
Education > secondary	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	-.0337	.0626**	-.0575	.0461	-.0482	.0442	.0572	.0898	.0733
Standard error	.0359	.0248	.0437	.0551	.0476	.0576	.0685	.0784	.0919
Hypothesis test (p-value)	0.6878		0.7994		0.8210				
a. Child(ren) aged 1-5		.0683***		.0888**		.0770*	.0970*	.1367**	.1272*
Standard error		.0236		.0446		.0463	.0540	.0603	.0714
Hypothesis test (p-value)	0.7034		0.6117		0.2653				

1. See text for specifications and hypothesis tests. Statistical significance: ***=1%; **=5%; *=10%. 2. Number of observations for the four samples is respectively: 28,351; 31,459; 8,877 and 19,425.

Table 14: Effects of childcare regime on Québec's mothers' annual hours of paid work¹

Specifications and samples ²	(i)		(ii)		(iii)				
	[$\alpha_{31}=\alpha_{32}=0$; $\beta_{1999}=\beta_{2000}=\beta_{2001}=\beta_{2002}=\beta$]		$\beta_{1999}=\beta_{2000}=\beta_{2001}=\beta_{2002}=\beta$						
All mothers with:	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	58	146***	9	114	55	139	138	264**	321**
Standard error	55	40	67	84	70	88	103	120	139
Hypothesis test (p-value)	0.1315		0.1533		0.1561				
b. Child(ren) aged 0-5	70	148***	14	98	54	114	131	229**	275**
Standard error	53	38	64	81	68	84	98	115	133
Hypothesis test (p-value)	0.1798		0.2587		0.2743				
a. Child(ren) aged 1-5		138***		108		104	95	214**	265**
Standard error		39		70		74	85	99	114
Hypothesis test (p-value)	0.1304		0.1123		0.1912				
b. Child(ren) aged 0-5		137***		89		79	89	182**	220**
Standard error		37		67		71	81	94	109
Hypothesis test (p-value)			0.1302		0.3203				
Education <= secondary	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	40	145**	57	236*	96	285*	205	343*	498**
Standard error	92	73	112	141	115	147	172	205	245
Hypothesis test (p-value)	0.5925		0.4568		0.2436				
a. Child(ren) aged 1-5		141***		108		227*	133	263**	402*
Standard error		71		70		129	149	178	215
Hypothesis test (p-value)	0.6596		0.1123		0.1912				
Education > secondary	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	53	127***	-21	55	24	64	103	207	223
Standard error	68	49	83	104	89	109	128	150	173
Hypothesis test (p-value)	0.2815		0.4342		0.5873				
a. Child(ren) aged 1-5		118**		70		48	84	184	197
Standard error		47		86		89	103	120	138
Hypothesis test (p-value)	,2450		0.4247		0.5331				

1. See text for specifications and hypothesis tests. Statistical significance: ***=1%; **=5%; *=10%. 2. Number of observations for the four samples is respectively: 27,311; 30,323; 8,638 and 18,826.

Table 15: Effects of childcare regime on Québec's mothers' on number of annual weeks worked¹

Specifications and samples ²	(i)		(ii)		(iii)				
	[$\alpha_{31}=\alpha_{32}=0$; $\beta_{1999}=\beta_{2000}=\beta_{2001}=\beta_{2002}=\beta$]		$\beta_{1999}=\beta_{2000}=\beta_{2001}=\beta_{2002}=\beta$						
All mothers with:	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	.61	4.53***	-.70	3.78*	-.09	3.99*	4.04	6.42**	6.09*
Standard error	1.46	1.05	1.78	2.27	1.91	2.36	2.83	3.19	3.67
Hypothesis test (p-value)	0.3212		0.6252		0.3736				
b. Child(ren) aged 0-5	.99	4.56***	-.51	3.28	.00	3.29	3.90	5.29*	5.23
Standard error	1.40	.99	1.71	2.16	1.83	2.25	2.67	3.03	3.50
Hypothesis test (p-value)	0.3735		0.7846		0.5392				
a. Child(ren) aged 1-5		4.44***		4.28**		4.06**	4.11*	6.51**	6.19**
Standard error		1.01		1.85		1.95	2.32	2.55	2.93
Hypothesis test (p-value)	0.3075		0.5829		0.1367				
b. Child(ren) aged 0-5		4.40***		3.64**		3.29*	3.89*	5.29**	5.23*
Standard error		.96		1.77		1.87	2.18	2.43	2.80
Hypothesis test (p-value)	0.3304		0.7550		0.2726				
Education <= secondary	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	1.91	5.26***	1.17	5.75	1.80	6.41	5.11	8.61	9.18
Standard error	2.56	1.96	3.12	3.93	3.25	4.09	4.84	5.70	6.38
Hypothesis test (p-value)	0.8306		0.8085		0.5376				
a. Child(ren) aged 1-5		5.00***		4.97		5.33	3.80	7.07	7.42
Standard error		1.92		3.32		3.56	4.18	4.93	5.45
Hypothesis test (p-value)	0.7994		0.8449		0.5444				
Education > secondary	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	-.40	3.65***	-1.81	2.78	-1.33	2.72	3.32	5.00	4.24
Standard error	1.76	1.25	2.15	2.74	2.33	2.85	3.46	3.86	4.52
Hypothesis test (p-value)	0.5429		0.8047		0.7644				
a. Child(ren) aged 1-5		3.72***		4.12*		3.62	4.41	6.29**	5.72
Standard error		1.19		2.21		2.30	2.77	2.98	3.51
Hypothesis test (p-value)	0.5736		0.6978		0.3345				

1. See text for specifications and hypothesis tests. Statistical significance: ***=1%; **=5%; *=10%. 2. Number of observations for the four samples is respectively: 28,504; 31,633; 8,929 and 19,526.

Table 16: Effects of childcare regime on Québec's mothers' annual labor income¹

Specifications and samples ²	(i)		(ii)		(iii)				
	[$\alpha_{31}=\alpha_{32}=0$; $\beta_{1999}=\beta_{2000}=\beta_{2001}=\beta_{2002}=\beta$]		[$\beta_{1999}=\beta_{2000}=\beta_{2001}=\beta_{2002}=\beta$]						
All mothers with:	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	919	2527***	-604	2027	388	2628	2635	4956**	6558**
Standard error	1112	844	1348	1685.49	1351	1758	2083	2327	2753
Hypothesis test (p-value)	0.0536		0.2411		0.1632				
b. Child(ren) aged 0-5	1146	2430***	-362	1865	709	2375	2949	4650**	6845***
Standard error	1052	784	1270	1574	1275	1640	1946	2167	2593
Hypothesis test (p-value)	0.0350		0.1665		0.1164				
a. Child(ren) aged 1-5		2382***		2459		2375	2328	4595**	6143**
Standard error		842		1525		1641	1936	2149	2554
Hypothesis test (p-value)	0.0402		0.2583		0.1503				
b. Child(ren) aged 0-5		2254***		2119		1919	2397	4000**	6097**
Standard error		782		1424		1528	1805	1996	2403
Hypothesis test (p-value)	0.0223		0.2024		0.1421				
Education <= secondary	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	-457	157	-627	1421	389	1889	1933	4507**	7324**
Standard error	958	898.96	1164	1532	1159	1585.70	1775	2253	3013
Hypothesis test (p-value)	0.0671		0.1076		0.1204				
a. Child(ren) aged 1-5		220		1836		1656	1652	4177**	6944**
Standard error		880		1335		1433	1566	2027	2787
Hypothesis test (p-value)	0.0677		0.1122		0.1038				
Education > secondary	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	1609	3385***	-469	2327	406	2879	3000	4816	5994
Standard error	1549	1126	1905	2423	1927	2531	2979	3258	3793
Hypothesis test (p-value)	0.1883		0.6916		0.5926				
a. Child(ren) aged 1-5		3113***		2674		2604	2665	4422	5541
Standard error		1125		2153		2328	2726	2942	3435
Hypothesis test (p-value)	0.1275		0.7107		0.5592				

1. See text for specifications and hypothesis tests. Statistical significance: ***=1%; **=5%; *=10%. 2. Number of observations for the four samples is respectively: 28,504; 31,633; 8,929 and 19,526.

Table 17: Effects of childcare regime on Québec's mothers' for full-time last work schedule in reference year (if had a job during the year)¹

Specifications and samples ²	(i)		(ii)		(iii)				
	[$\alpha_{31}=\alpha_{32}=0$; $\beta_{1999}=\beta_{2000}=\beta_{2001}=\beta_{2002}=\beta$]		[$\beta_{1999}=\beta_{2000}=\beta_{2001}=\beta_{2002}=\beta$]						
All mothers with:	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	.0703**	.0606***	.0489	.0598	.0691*	.0591	.0847	.1343*	.1389*
Standard error	.0313	.0227	.0381	.0485	.0406	.0506	.0593	.0688	.0788
Hypothesis test (p-value)	0.2164		0.3936		0.3914				
b. Child(ren) aged 0-5	.0728**	.0639***	.0513	.0589	.0667*	.0486	.0914	.1219*	.1098
Standard error	.0300	.0216	.0364	.0463	.0388	.0484	.0564	.0655	.0756
Hypothesis test (p-value)	0.2709		0.4475		0.4137				
a. Child(ren) aged 1-5		.0495**		.0247		.0141	.0302	.0702	.0651
Standard error		.0218		.0399		.0424	.0487	.0559	.0638
Hypothesis test (p-value)	0.1173		0.6359		0.7430				
b. Child(ren) aged 0-5		.0527**		.0227		.0058	.0394	.0607	.0395
Standard error		.0207		.0381		.0406	.0462	.0531	.0612
Hypothesis test (p-value)	0.1224		0.6496		0.7516				
Education <= secondary	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	.0842	.0552	.0961	.1153	.1028	.1308	.0946	.1459	.1602
Standard error	.0538	.0379	.0639	.0774	.0664	.0808	.0937	.1100	.1243
Hypothesis test (p-value)	0.8112		0.8685		0.5748				
a. Child(ren) aged 1-5		.0436		.0515		.0692	.0201	.0584	.0596
Standard error		.0371		.0672		.0718	.0819	.0960	.1077
Hypothesis test (p-value)	0.7846		0.9074		0.8838				
Education > secondary	β_{1998}	β	β_{1998}	β	β_{1998}	β_{1999}	β_{2000}	β_{2001}	β_{2002}
a. Child(ren) aged 1-5	.0562	.0520*	.0230	.0303	.0479	.0209	.0785	.1196	.1150
Standard error	.0389	.0285	.0476	.0618	.0515	.0647	.0763	.0882	.1015
Hypothesis test (p-value)	0.2608		0.3952		0.5489				
a. Child(ren) aged 1-5		.0425		.0132		-.0116	.0390	.0731	.0615
Standard error		.0271		.0497		.0526	.0607	.0690	.0793
Hypothesis test (p-value)	0.1908		0.4969		0.6636				

1. See text for specifications and hypothesis tests. Statistical significance: ***=1%; **=5%; *=10%. 2. Number of observations for the four samples is respectively: 27,965; 31,039; 8,801 and 19,117.

Figure 1: Linear subsidy to child care services

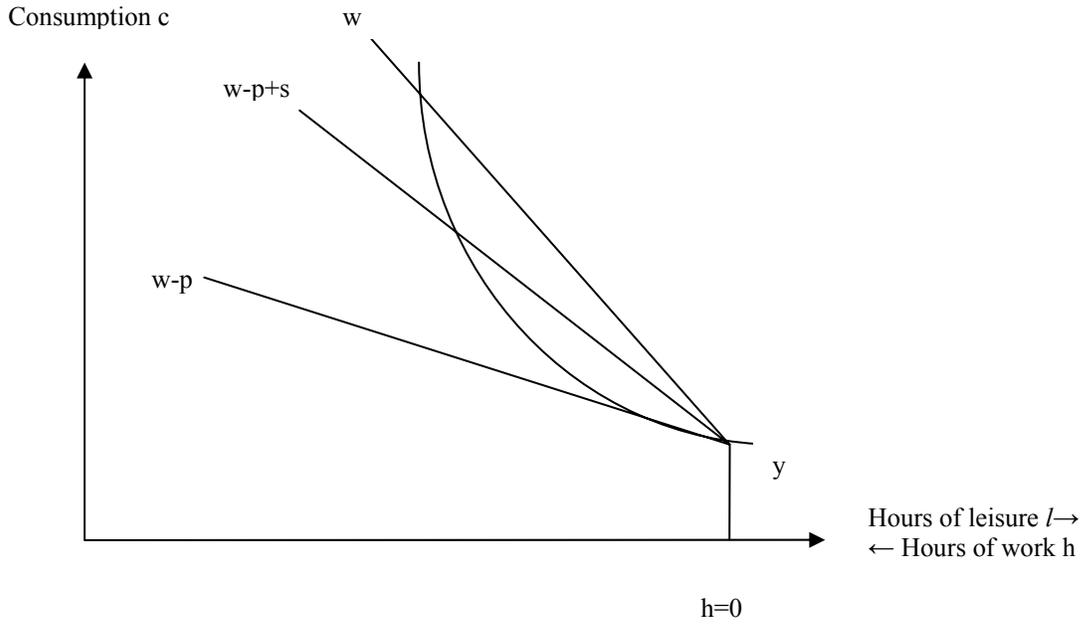


Figure 2: Non-linear subsidy to child care services

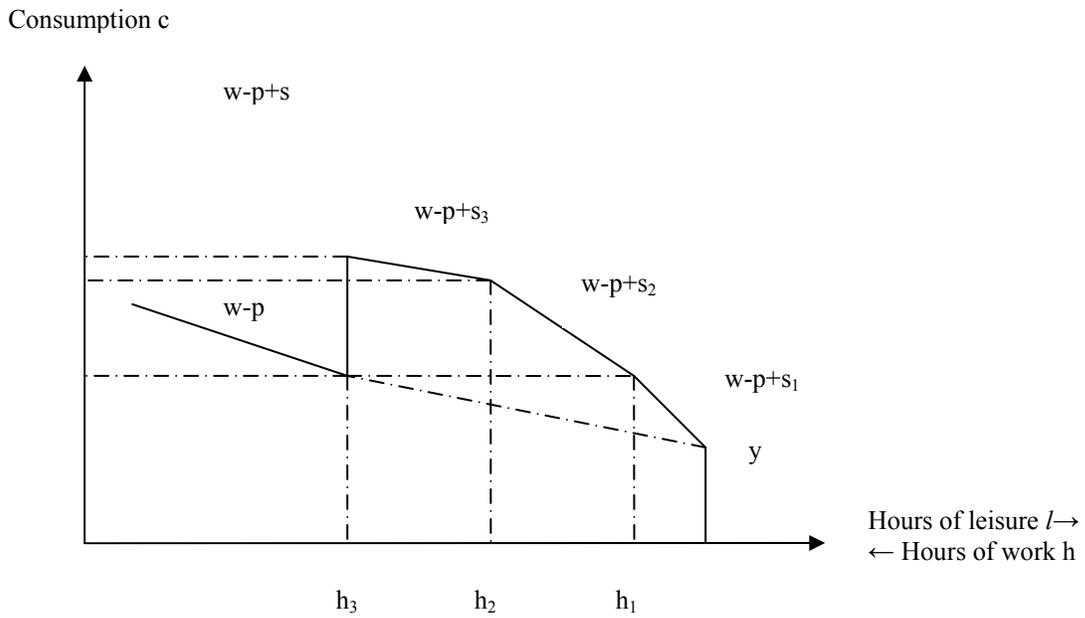


Figure 3: Fixed hours subsidy of day care

C= consumption

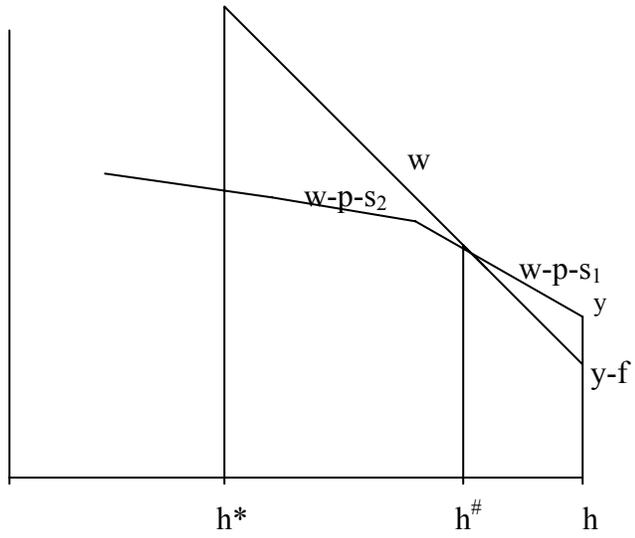
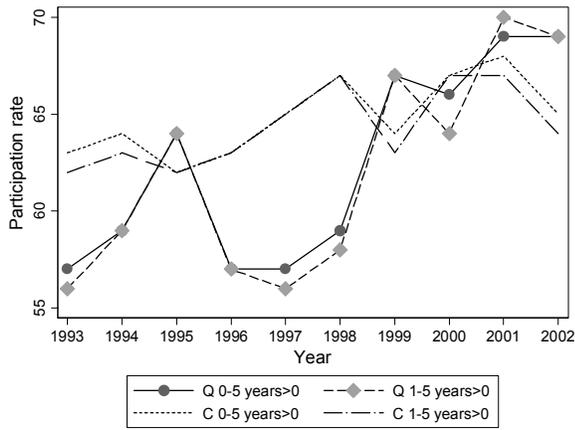
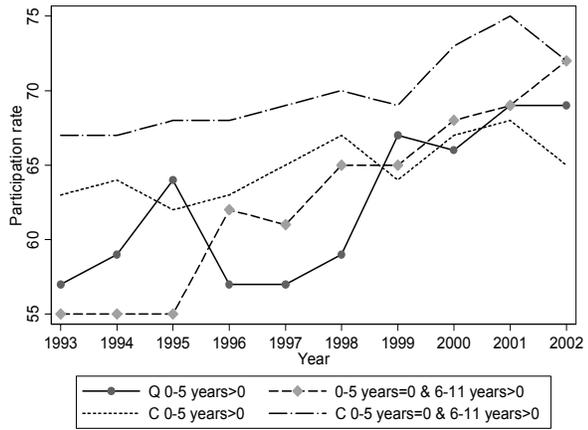


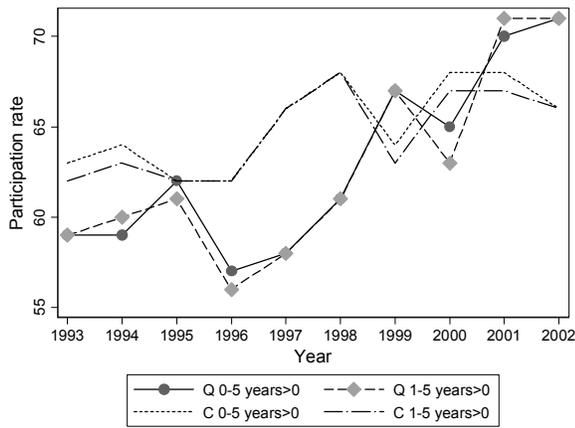
Figure 4: Mothers' labor force participation rate in April or August by age of children, family status, and level of education, Québec (Q) and other provinces (C)



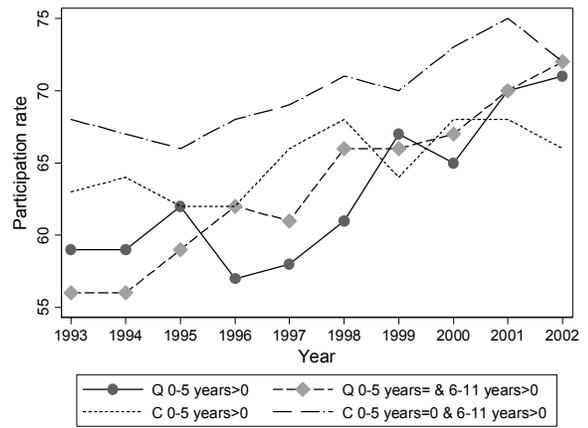
April (a)



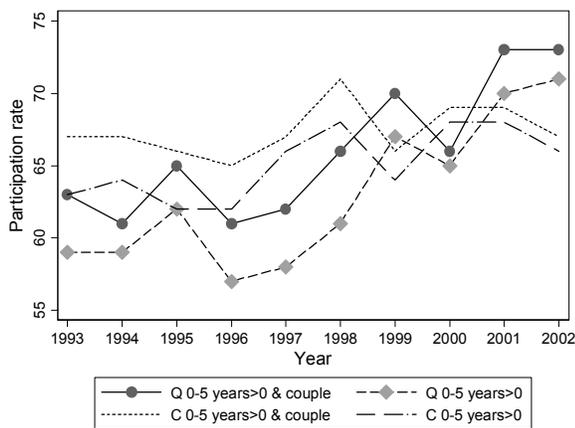
April (b)



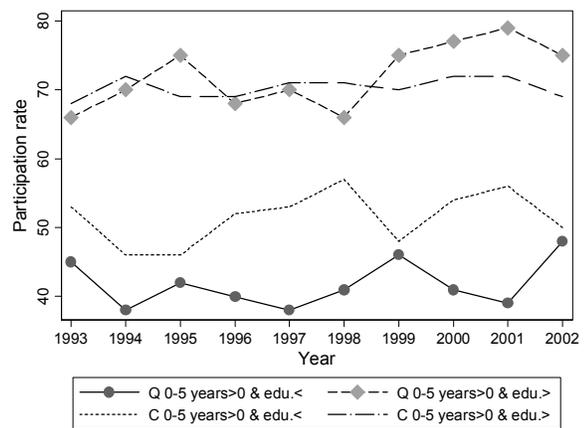
August (c)



August (d)

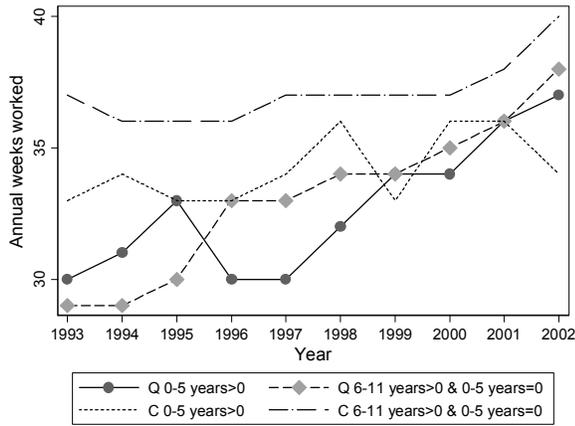


April (e)

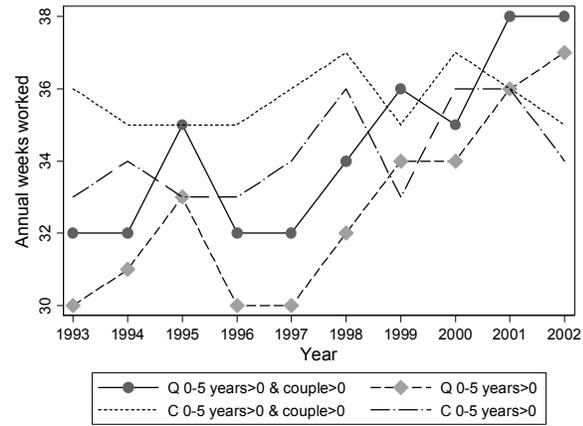


April (f)

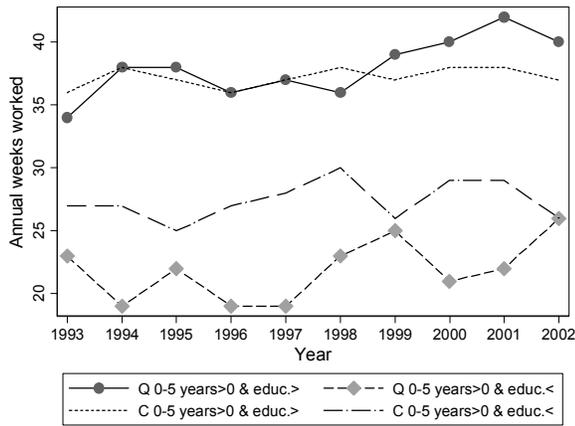
Figure 5: Mothers' annual weeks and hours worked by age of children, family status, and level of education, Québec (Q) and other provinces (C)



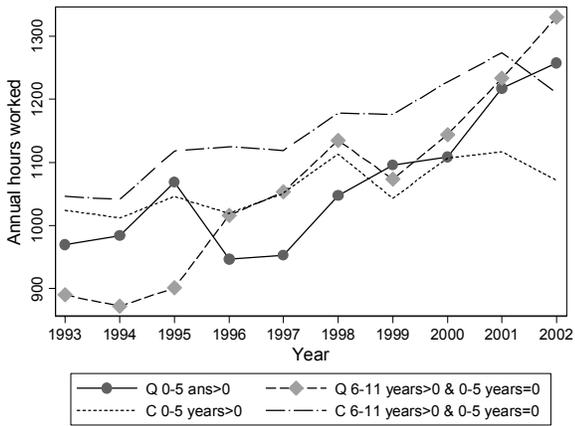
Average annual weeks worked (a)



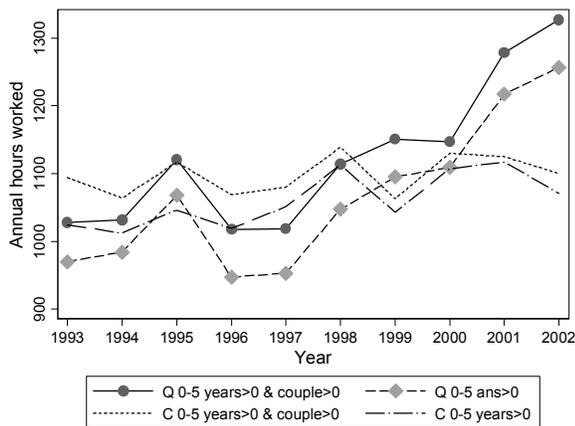
Average annual weeks worked (b)



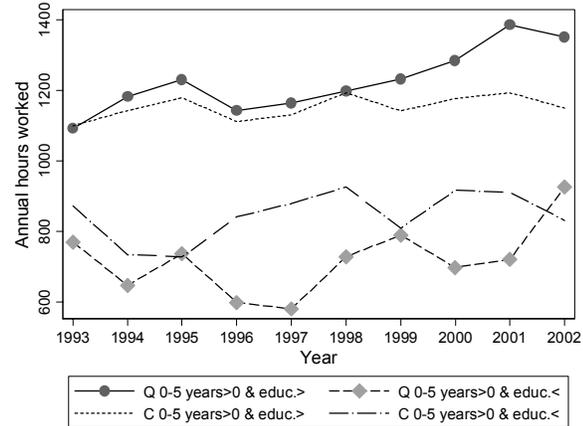
Average annual weeks worked (c)



Average annual hours worked (d)

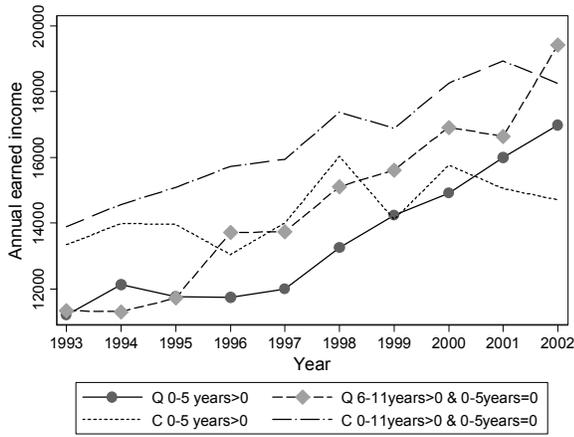


Average annual hours worked (e)

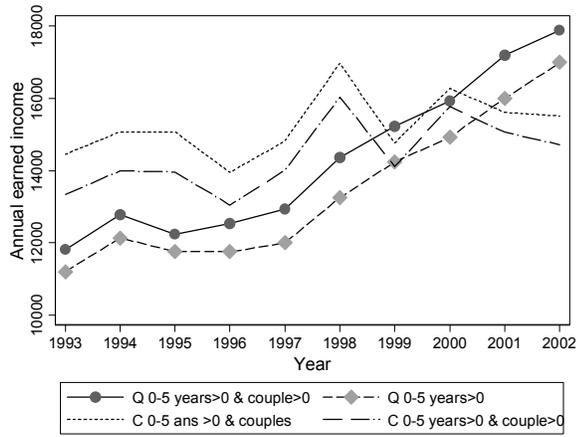


Average annual hours worked (f)

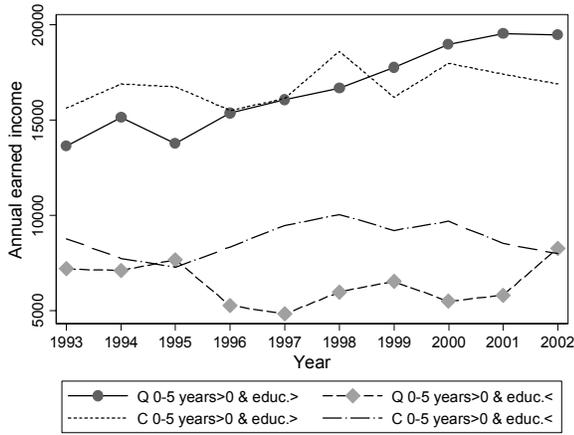
Figure 6: Mothers' annual average earned income in 1992\$ and percentage of mothers in full-time employment if worked in reference year by age of children, family status, and level of education, Québec (Q) and other provinces (C)



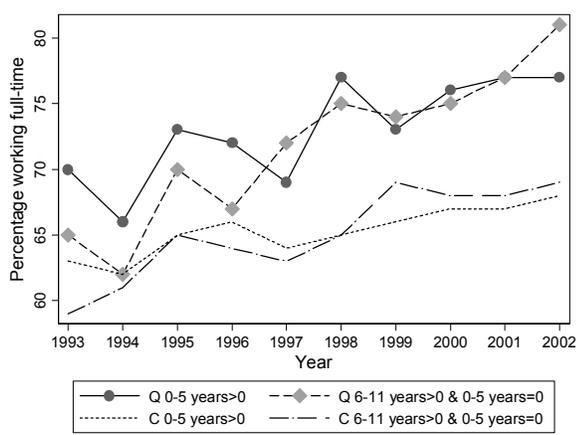
Average annual earned income (a)



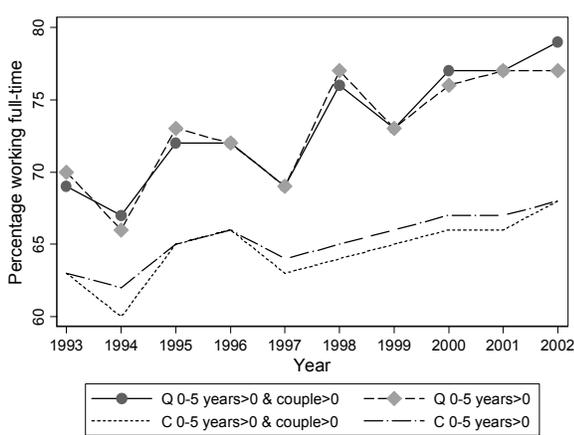
Average annual earned income (b)



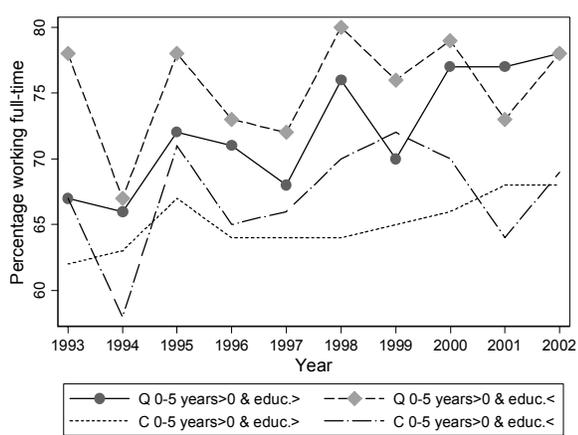
Average annual earned income (c)



Full-time employment (d)



Full-time employment (e)



Full-time employment (f)

Table A1: Childcare fee subsidy eligibility levels, rates and average fees in regulated centres, 2001

Jurisdiction	Family size	Full subsidy to (\$)	Partial subsidy to (\$)	Maximum subsidy child care in centres	Average monthly fees in child care centres
Newfoundland & Labrador	1 parent, 1 child	14,160	20,280	0-24 mo \$30/day	18 mo-3yrs \$380
	2 parents, 2 children	15,240	25,560	2-12yr \$21.25/day	3 yr-5.11 yr \$360
Prince Edward Island	1 parent, 1 child	13,440	25,440	0-2yrs \$24/day	0-2yrs \$520
	2 parents, 2 children	19,200	51,040	2-3yrs \$20/day 3+ yrs \$19/day	2-3yrs \$432 3+ yrs \$412
Nova Scotia	1 parent, 1 child	16,812	24,540	\$14.95/day all ages minimum parent fee of \$2.25/day	0-17 months \$565; 18 mo-36 mo \$490; 3-5 yrs \$488
	2 parents, 2 children	17,712	34,092		
New Brunswick	All family sizes	15,000	—	0-2 yrs \$18.50/day	0-17 months \$482
	1 child, 2 years or older	15,000	23,100	2-6 yrs \$16.50/day	1.5-5.11 yrs \$418
	1 child, under age 2	15,000	24,180	6-12 \$9.25/day	school age \$226
Québec	Not applicable	—	—	—	\$5/day for all ages
Ontario	n/a 3	n/a	n/a	n/a	n/a
Manitoba	1 parent, 1 child	13,787	24,577	\$4,756/child/year for full-day pre-school aged children. Programs may surcharge parents \$2.40/day/child	Infants \$560 5 Preschool: \$376 School age \$238
	2 parents, 2 children	18,895	40,475		
Saskatchewan	1 parent, 1 child	(gross)19,668	(gross) 31,920	Infant \$325/month Toddlers \$285/month Preschool \$235/month School age 200/month Parents pay minimum of 10% of the cost	Infant \$ 481 Toddlers \$420 Preschool \$384 School age \$277
	1 parent, 2 children	(gross)20,868	(gross) 45,720		
Alberta	1 parent, 1 child	20,520	31,680	Infants \$475/month All other ages \$380/month	\$522.84 all ages
	2 parents, 2 children	24,120	44,520		
British Columbia	1 parent, 1 child	18,984	27,816	Infants \$585/month Toddlers \$528/month 3-5 yrs \$368/month	Infants \$705 Toddlers \$662 3-5 yrs \$494
	2 parents, 2 children	23,016	31,846		

Source: Doherty *et al.* 2003, Table 8.

1. Québec: Provides publicly funded programs for all and additionally subsidizes parents who cannot afford the \$5 a day fee.
2. Ontario: Eligibility for subsidy is fixed by provincially determined needs tests with income being only one of a number of items considered. Each municipality can determine the rates within a range, a situation that creates considerable variation across the province. There are no province-wide maximum income levels for full or partial fee subsidies.
3. Manitoba: Sets maximum fees for all children in funded centres.
4. British Columbia: Effective April 2002, several changes were made to subsidy program. Eligibility levels were reduced.

Table A2: Canada Health and Social Transfers (CHST) for early childhood development (for early learning and childcare) from the federal government to provinces/territories in millions of dollars¹

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-08	Total
Newfoundland & Labrador	5.1	6.6	8.2 (0.4)	8.1 (2.4)	8.1 (3.6)	(10.3)	52.9
Prince Edward Island	1.3	1.7	2.2 (0.1)	2.2 (0.6)	2.2 (0.9)	(2.8)	14.1
Nova Scotia	9.0	11.9	14.8 (0.7)	14.7 (4.4)	14.6 (6.6)	(18.9)	95.6
New Brunswick	7.3	9.6	11.9 (0.6)	11.8 (3.5)	11.7 (5.3)	(14.9)	76.6
Québec	71.6	95.0	118.4 (5.9)	118.0 (35.4)	117.7 (52.9)	(153.3)	767.2
Ontario	115.0	154.2	193.4 (9.7)	194.1 (58.2)	194.8 (87.6)	(254.6)	1,261.5
Manitoba	11.1	14.7	18.4 (9.9)	18.3 (5.5)	18.3 (8.2)	(23.6)	119.2
Saskatchewan	9.7	12.7	15.7 (0.8)	15.6 (4.7)	15.4 (6.9)	(19.8)	101.4
Alberta	29.6	39.7	49.8 (2.5)	50.0 (15.0)	50.2 (22.6)	(65.8)	221.0
British Columbia	39.4	52.5	65.6 (3.3)	65.5 (19.6)	65.4 (29.4)	(84.9)	425.6
Yukon	0.3	0.4	0.5 (0.02)	0.5 (0.1)	0.5 (0.2)	(0.7)	3.2
Northwest Territories	0.4	0.5	0.7 (0.03)	0.7 (0.2)	0.7 (0.3)	(0.9)	4.3
Nunavut	0.3	0.4	0.5 (0.02)	0.5 (0.1)	0.5 (0.2)	(0.6)	3.2
TOTAL	300	400	500 (25)	500 (150)	500 (225)	(650)	3,250

Source: OECD (2004).

1. Figures are based on Statistics Canada population estimates for 2003-04 and Finance Canada population projections for 2004-05 to 2007-08. As the Canada Health and Social Transfer (CHST) is allocated on a per capita basis, all figures are subject to revision through the regular CHST estimation process as new population figures become available.

Table A3: Total provincial allocation and allocation for each regulated childcare space by province/territory – 2001

Province/Territory	Allocation for each space in \$ ¹	Total provincial allocation in millions of \$
Newfoundland & Labrador	1,835	8
Prince Edward Island	1,334	4
Nova Scotia	1,125	13
New Brunswick	1,066	12
Québec	6,365	844
Ontario	2,608	452
Manitoba	2,731	63
Saskatchewan	2,279	16
Alberta	1,206	58
British Columbia	2,256	165
Northwest Territories	1,298	2
Nunavut	2,001	2
Yukon Territory	3,294	4
Canada	\$3,345	\$1,643

Source: Adapted from Friendly *et al.* (2003), Table 12. 1. Estimates based on total provincial allocation for regulated childcare and total regulated spaces. The figure for Québec excludes school-based childcare.