



Dynamic labour supply effects of childcare subsidies: Evidence from a Canadian natural experiment on low-fee universal child care[☆]

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ABSTRACT

This paper shows that a temporary incentive to join the labor market or to work more can also produce substantial life-cycle labour supply effects. On September 1997, a new childcare policy was initiated by the provincial government of Québec, the second most populous province in Canada. Licensed and regulated providers of childcare services began offering day care spaces at the subsidized fee of \$5/day/child for children aged 4. In successive years, the government reduced the age requirement, created new childcare facilities and spaces, and paid for the additional costs entailed by this low-fee policy. No such important policy changes for preschool (including kindergarten) children were enacted in the nine other Canadian provinces over the years 1997–2004. Using annual data drawn from Statistics Canada's Survey on Labour and Income Dynamics and a difference-in-differences quasi-experimental methodology, the paper estimates the dynamic labour supply effects of the program. The results demonstrate that the policy had long-term labour supply effects on mothers who benefited from the program when their child was less than 6. A striking feature of the results is that they are driven by changes in the labour supply of less educated mothers.

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1. Introduction

On September 1, 1997, a new childcare policy was initiated by the provincial government of Québec, the second most populous province in Canada. Childcare service providers licensed by the Department of the Family began offering day care spaces at the reduced parental fee of \$5/day/child for children aged 4 (all monetary amounts are expressed in Canadian dollars). In successive years, the government reduced the age requirement and by September 2000, the low-fee policy applied to all children aged 0–59 months (not eligible for kindergarten). The government also promised to progressively increase the number of subsidized \$5/day spaces, targeting a number

of 200,000 for 2007. The number of subsidized spaces increased from 74,000 partially subsidized spaces (available in early 1997) to 201,166 spaces, totally subsidized, by March 2008. Families' childcare arrangements changed dramatically over time as the policy favored regulated subsidized center-based care (as well as family-based care under the supervision of subsidized not-for-profit centers). This new childcare regime was integrated with a policy of full-time instead of half-day publicly-provided kindergarten in a school setting and with \$5/day before- and after-school day care for kindergarten-age and grade-school children. Since January 1, 2004, the fee per day has been fixed at \$7 rather than \$5 for both types of childcare services (preschool and those offered within public schools).

Lefebvre and Merrigan (2008), with annual data from 1993 to 2002 drawn from Statistics Canada's Survey of Labour and Income Dynamics (SLID) and a difference-in-differences (DD) approach, estimate a substantial effect of the policy on a diversity of labour supply indicators (participation, annual weeks and hours worked, and earned income) for a sample of Canadian mothers with 1- to 5 year-old children. The estimated effect of the policy on the participation of mothers with preschool children in Québec for year 2002 is 8.1% points (the observed participation rate is 69% in 2002). In addition, Baker et al. (2005, 2008) using the first 2 cycles (1994 and 1996) and the last 2 cycles (2000 and 2002) from Statistics Canada's National Longitudinal Survey of Children and Youth (NLSCY), analyze the impact of Québec's childcare policy on childcare use, maternal work (mothers in two-parent families only), and

[☆] The analysis is based on Statistics Canada's Survey on Labour and Income Dynamics (SLID) restricted-access Micro Data Files, which contain anonymized data collected in the SLID and are available at the Québec Inter-university Centre for Social Statistics (QICSS), one of the Canadian Research Data Center network. All computations on these micro-data were prepared by the authors who assume the responsibility for the use and interpretation of these data. This research was funded by the Social Sciences and Humanities Research Council of Canada and the Fonds québécois de la recherche sur la société et la culture. We would like to thank participants at the Annual Symposium of the Population, Work and Family Research Collaboration (Gatineau, December 2006), ESPE conference (Chicago, June 2007), SCSE (Québec, June 2007), EALE conference (Oslo, September 2007); the co-editor Philip Oreopoulos and two anonymous referees for their constructive criticism and helpful suggestions.

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diverse behavioral outcomes measuring the “well-being” of both children (aged 0–4 years or sub-samples of those children) and parents. They also produce estimates showing substantial labour supply effects of the policy. This unexpected low-fee policy changed substantially the labour supply of mothers with preschool children.

The identification of dynamic or life-cycle mechanisms explaining labour supply choices are often plagued by simultaneity problems. In this paper, we use this Canadian “natural experiment” to overcome simultaneity issues and test the hypothesis that childcare subsidies can also cause changes in the labour supply of mothers when the policy is no longer contemporaneously effective, that is when all the mother’s children are in school.

There are several dynamic mechanisms that can explain why childcare subsidies can have lasting effects on labour supply. For example, the subsidy changes positively the net wage life-cycle profile of mothers with pre-school children for all the years the child is of pre-school age. Also, by increasing labour force experience when the child is young, the policy may have positive effects on wages later in the life-cycle which can further increase labour supply. Therefore, mothers, under the new regime, are looking at a considerably more advantageous life-cycle wage profile for all periods with children in the household. The effects of the policy will mostly depend on whether mothers participate or not in a counterfactual world without the new child care policy. A more precise description of these life-cycle mechanisms will be made in [Section 4](#).

The identification strategy is based on the fact that several cohorts of mothers (based on the year of birth of the child) affected by the program no longer have children aged from 0 to 5 in their household and no longer benefit from the childcare subsidies directed to preschool children. Once all children are in school there is no longer any major relative advantage for Québec mothers over those in the nine other provinces, hereafter the Rest of Canada (RofC) in terms of full time fixed costs of labour force participation. A static model predicts that childcare policies targeted towards mothers with no preschool child will have no effect on mothers with all children in school.

In order to evaluate the potential long-term or life-cycle effects of Québec’s universal childcare policy, both DD and difference-in-differences (DDD) estimators are computed with annual data from the SLID (1996–2004) for two groups of Québec mothers: those with at least a child aged 6–11 and no children less than 6, a group that potentially benefited from the policy when their child was less than 6 and those with at least a child aged 12–17 and no children less than 12, who have never benefited from the policy; and comparative groups of mothers from the RofC and Ontario. We will provide estimates with Ontario as a single comparison group for Québec. It is the most populous province and has an economy very similar to Québec being a very important exporter of manufactured goods to the United States. It is also its western neighbor and is affected very similarly by business cycle shocks, so that policy effects cannot be confounded with effects due to regional differences in economic activity.

We find the program had substantial dynamic labour supply effects on mothers in Québec, in particular for cohorts of mothers who had a high probability of receiving subsidies from the child’s birth to his/her fifth birthday. For example, we find that the policy increased annual hours worked in 2004 for mothers with at least one child aged 6 to 11 years and no children less than 6 in Québec by 160 hours.

The paper is structured as follows. [Section 2](#) briefly describes Québec’s childcare regime (preschool low-fee program and kindergarten policy changes started in 1997) and changes in the utilization of these services by families with preschool children. [Section 3](#) reviews some of the relevant studies on the effects of day care subsidies on mothers’ labour supply. [Section 4](#) presents and explains the econometric strategy to estimate the dynamic effects of the policy. In [Section 5](#), the data set is presented and descriptive statistics are shown as an introduction to [Section 6](#) where the estimates of the long-term effects of the program appear. The paper concludes with a discussion of the results and final remarks.

2. Childcare policy in Québec and across Canada

Several measures can be used to reduce the burden of childcare expenditures and encourage the labour market participation of mothers with young children. In Canada, two major policy instruments have been implemented over the last 20 years: (1) at the federal and provincial level, a fiscal deduction or tax credits for day care expenses; and (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 centers and regulated day care providers and are based on start-up costs, fixed costs of providing childcare and costs that vary per number of children. As described lower, attributing subsidies directly to childcare providers was the favored approach in Québec for the implementation of its low-fee policy and as this policy became a universal childcare policy over the years, very large subsidies were made available to regulated day care providers.

2.1. Québec’s universal childcare policy for preschool children

On September 1, 1997 licensed and regulated childcare facilities (not-for-profit centers, family-based day care and for-profit day care centers), under agreement with Québec’s Department of the Family, started offering spaces at the reduced fee of \$5/day/child for children aged 4 on September 30. On September 1, 1998 and on September 1, 1999 respectively, the 3-year-olds and 2-year-olds (on September 30) became eligible for the low-fee spaces. On September 1, 2000, all children aged less than 59 months (not entitled to kindergarten because their fifth birthday is after September 30) became eligible for reduced price childcare spaces.

For the period analyzed, roughly 85% of total costs were covered by the government subsidy. [Table 1](#) presents the evolution of the number of spaces partly or totally subsidized by the government from 1993–1994 to 2007–2008 by type of childcare setting as well as the total number of children in Québec for different age groups by year (see [Table A1](#) for the budgetary credits of the program and by setting from 1996 to 2009). The yearly increases in subsidized spaces from 1998 and onwards are all quite substantial. The table shows that in 2004–2005, 51% of all children aged 0–4 had access to a subsidized space or 64% of all children aged 1–4 (according to the number of spaces in March 2005). In 2000, 35% of all children aged 1 to 4 had access to low-fee childcare services and 65% in 2008. We cannot trace any such elaborate picture relative to the evolution of childcare services for other provinces in Canada. [Table A2](#) presents the number of regulated spaces by province for years 2001 and 2006 as well as the number of children receiving subsidies. In 2006, 38% of regulated day care spaces across Canada are in Québec (200,005 versus 325,753 spaces in the other provinces) where 196,813 children are in a totally subsidized space compared to 155,886 children receiving a total or partial subsidy in the RofC. [Table A2](#) also shows that Québec has a unique child care regime compared to those existing in the other provinces in terms of provincial funding¹, monthly (daily) fees and eligibility.

2.2. Kindergarten as day care

Publicly provided (pre) kindergarten for (4) 5-year-olds implies an implicit subsidy for day care. All provinces offer publicly provided free kindergarten for 5-year-olds in a school setting under the auspices of the Department of Education. All programs are for a half-day (2 h and 30 min) during the school year, except in Québec (which is for a full day since the fall of 1997), New-Brunswick, and Nova-Scotia. In almost all provinces parents are free to register their child in kindergarten as

¹ In the other provinces, licensed childcare providers may receive one time funding (for the expansion of spaces) or recurring funding (for equipment, infrastructure, administration, and salary enhancement grants).

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