

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

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Outline of the presentation:

1. Early Childhood education and Care policy in Québec and other Provinces
2. Conceptual issues
3. Empirical strategy
4. Data set
5. Results
6. Conclusions

The policy pursued 3 major objectives:

1. To fight poverty
2. To increase mothers' participation in the labour market
3. To enhance child development/equality of opportunity for children

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.

1. Implementation of the policy in Québec

Childcare services

- On September 1st 1997: 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
 - On September 1st 1999, the 2 year-olds (on September 30th) were eligible
 - On September 1st 2000, all children aged 0-4 years
- Number of subsidized spaces: 1997=74,058 and 2004=177,848 (+100,000)
- Number of children aged 1-4 years: 1997=365,519 and 2004=296,656 (-68,863)

Kindergarten (in public schools)

- ▣ For children aged 5 years on September 30th 1997: full-day instead of part-day

Before- and after-school childcare (in public schools)

- On September 1998, the Department of Education began subsidizing before- and after-school day care at the reduced contribution of \$5 per day per child

1. Early childhood care and education policies in other provinces

Childcare services

- In all provinces fee-subsidy program: Amount depends on family income and is geared to low-income families

Kindergarten (in public schools)

- In Ontario, most School boards offer a part-day junior kindergarten (2hours 1/2 per day) for children aged 4
- In 7 provinces: part-day (2hours 1/2 per day) kindergarten for children aged 5
- In 2 provinces (New-Brunswick, Nova-Scotia) kindergarten is full-day
- In general the age eligibility for kindergarten is 5 years of age

Before- and after-school childcare (in public schools)

- 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.

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

**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	Subsidy per space in \$
	Centre and family-based				
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
2003-2004	1,099	211	≈ 0	1,310	8,015
2004-2005	1,162	224	≈ 0	1,386	n.a.

2. Conceptual issues

- ▶ Policies instruments before (and still there for 1 and 2) the low-fee policy:
 - 1) Québec's refundable tax credit for childcare expenses (contingent on income)
 - 2) Tax deduction (for childcare expenses) at the federal level
 - 3) Parent fee-subsidy (based on income) and grants to licensed providers
- ▶ With the \$5 per day policy, high income families experienced a larger reduction in net childcare prices than low-income families, all other things equal
- ▶ Incentive effects introduced by childcare subsidies depend on type of subsidy (Blau, 2003)
 - A) Linear subsidy of S dollars per hour: ($W - F + S$, where W =wage rate and F =Fee)
 - B) Non-linear subsidy (based on income): $S_1 > S_2 > S_3 \dots$
 - C) Other non-linear subsidy: fixed amount in \$ or fixed number of childcare hours
 - The \$5 fee for day care: fixed cost for a fixed number of hours
- ▶ For 5\$/day: 10-11 hours of day care per day, independently from labour force status, hours of work and family income (or \$1,305 per year for 261 days of full-time day care)
- ▶ Expectations: positive effects on labour force participation, hours at work; changes in type of childcare used and hours spent in childcare by children

3. Empirical Model: Based on a Difference-in-Differences Procedure

The DD approach

$$DD \equiv E(Y1-Y0|Q=1) = \{E(Y1|Q=1) - E(Y0|Q=1)\} - \{E(Y1|C=0) - E(Y0|C=0)\} \quad (1)$$

where Y=an outcome before and after a policy; Q=treatment group; C=Other provinces

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

The DDD approach (simply presented with two periods):

$$\begin{aligned} &[(T.Gr.QC. - T.GrQC)_{2002-1998} - (T.GrQC - T.GrQC)_{1998-1994}] \\ &\quad \text{less} \\ &[(C.Gr.Can. - C.Gr.Can.)_{2002-1998} - (C.Gr.Can. - C.Gr.Can.)_{1998-1994}] \\ &\quad Gr=group=0-5 \text{ years} \end{aligned}$$

A more general model:

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

If the correct model is (5), DD estimates: $\beta + \gamma_{12} (k + k^*) + \gamma_{22} k-1$;
and DDD estimates: $\beta + \gamma_{12} (k - k^*) + \gamma_{22} k-1$

With control variables, an anticipation effect and year effects:

$$Y_{it} = \alpha + \theta Q_i + (\gamma_{11} + \gamma_{12}Q_i)T + [\gamma_{21} + \gamma_{22}(T-s)]I(T \geq s) + \sum \beta_d Q_{id} + \Phi' X_{it} + \varepsilon_{it} \quad (6)$$

where d=1998, 1999, 2000, 2001, 2002

and

Y_{it} = Labour force participation (for specific months) in the reference year
= Number of hours at work in the reference year
= Number of weeks at work in the reference year
= Earned income in all jobs in the reference year

4. Data set

Statistics Canada Longitudinal Survey of Labour and Income Dynamics (SLID):

- ▶ A nationwide survey on households (incomes and labour force participation)
- ▶ Covers all provinces except: Territories, native reserves, the military, ...
- ▶ A rotating 6 years 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, 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 16 or more

Samples

- All mothers (single and in two-parent families) with at least one child aged 0-5 years; in Quebec and other Provinces (Rest of Canada)
- Mothers by 2 levels of education (high school or less, and more than high school)
- Children aged 1-5 years and 0-5 years

Figure 4: Mothers' labour force participation rate in April by age of children

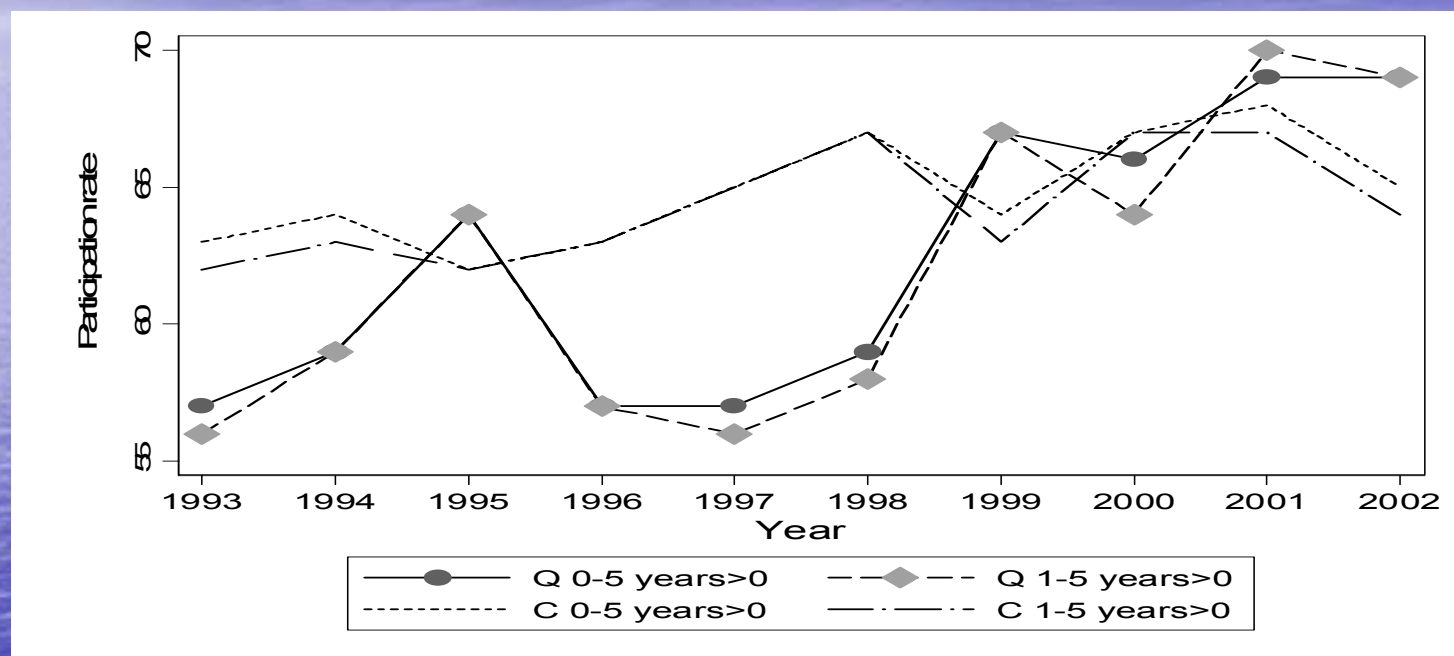


Figure 5: Mothers' labour force participation rate in August by age of children

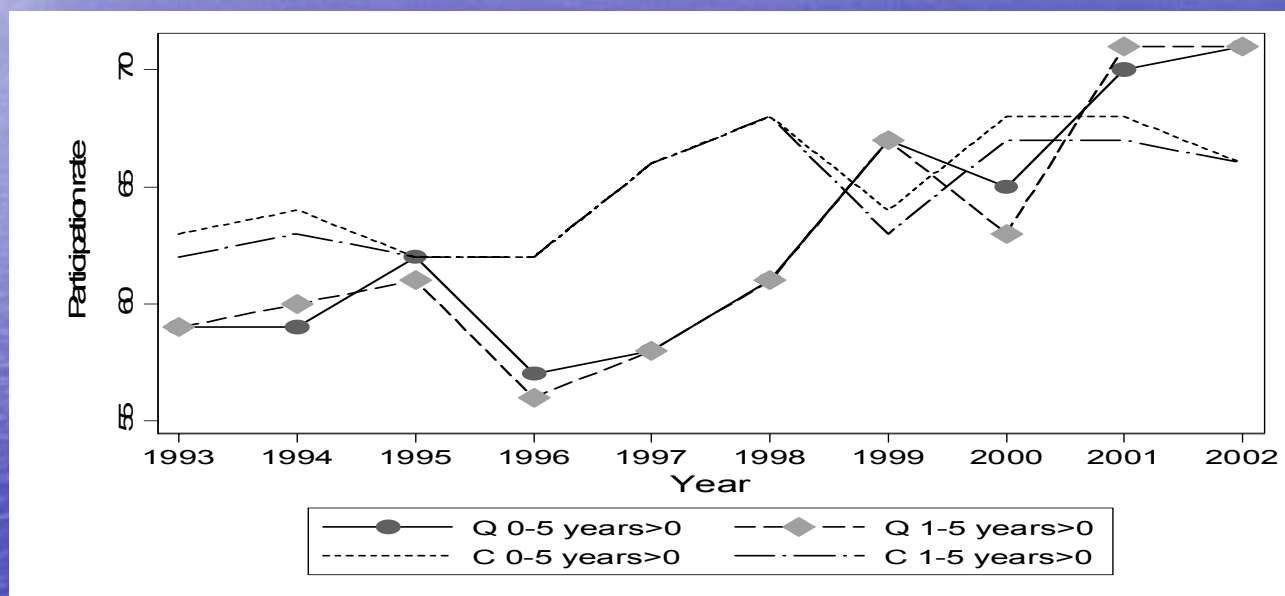


Figure 6: Mothers' annual weeks at work by age of children

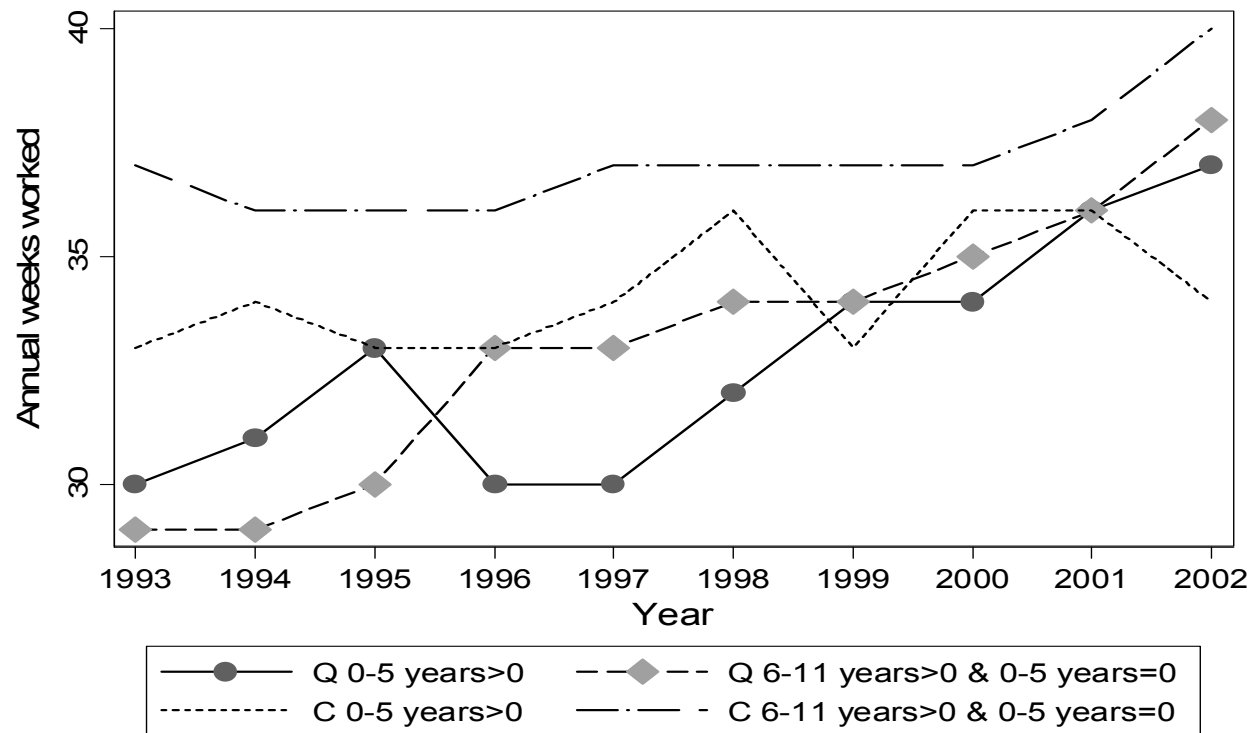


Figure 7: Mothers' annual hours at work by age of children

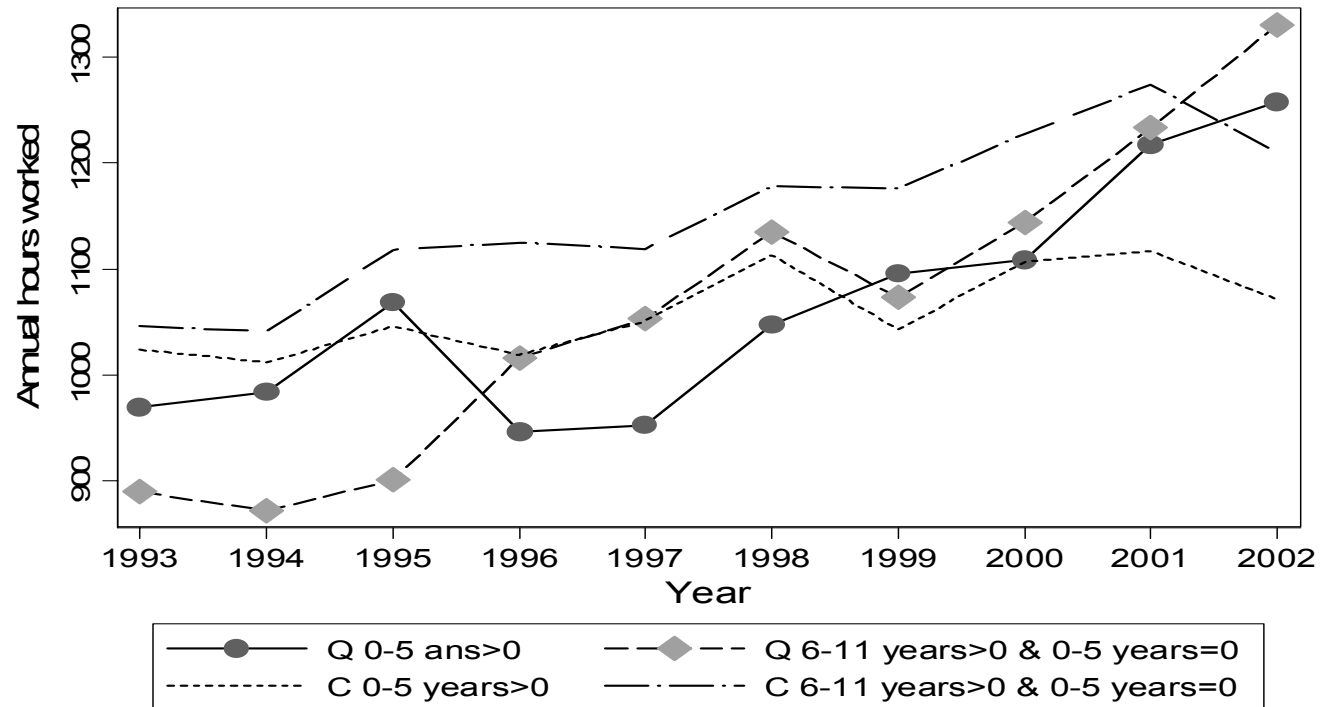
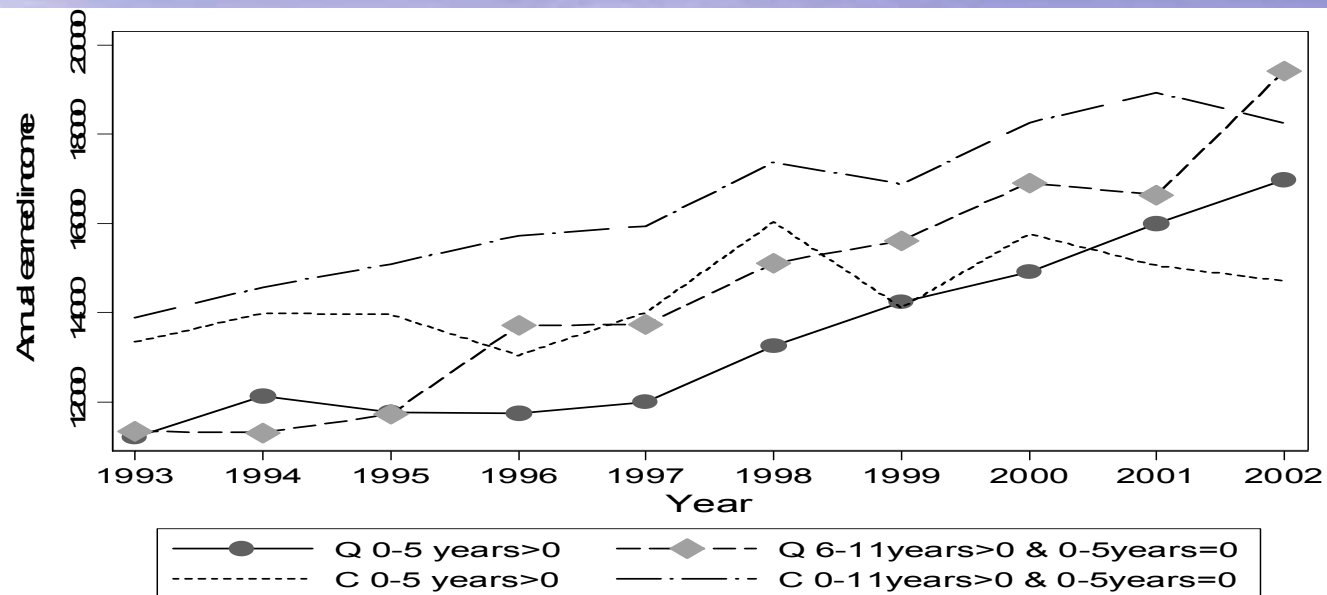
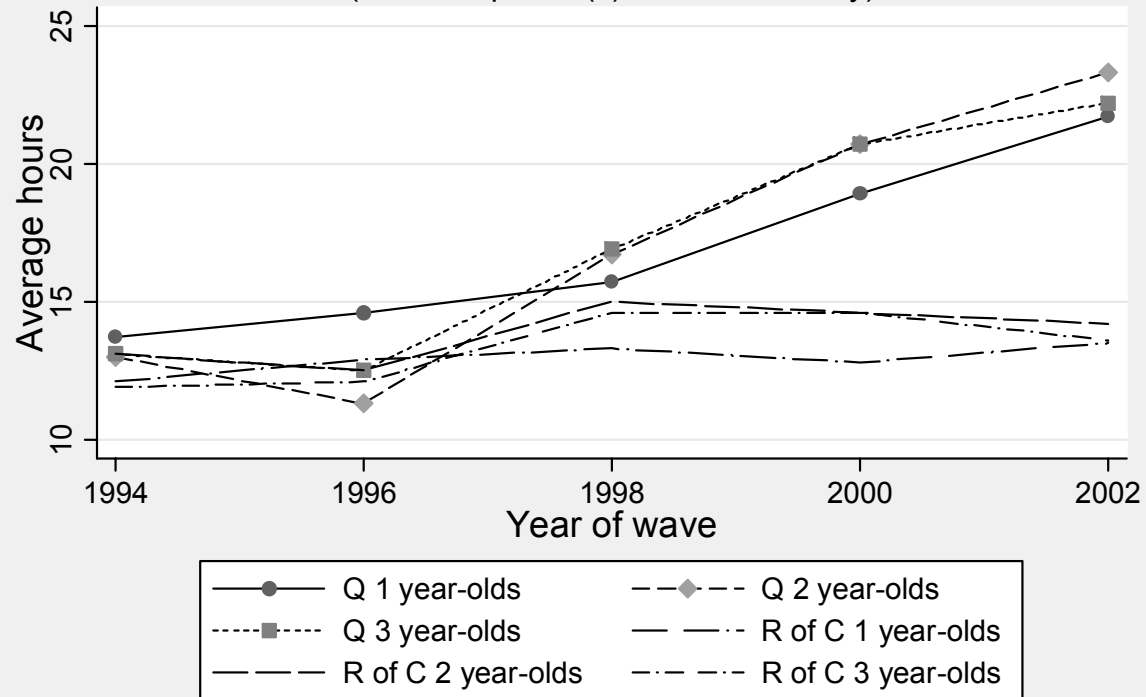


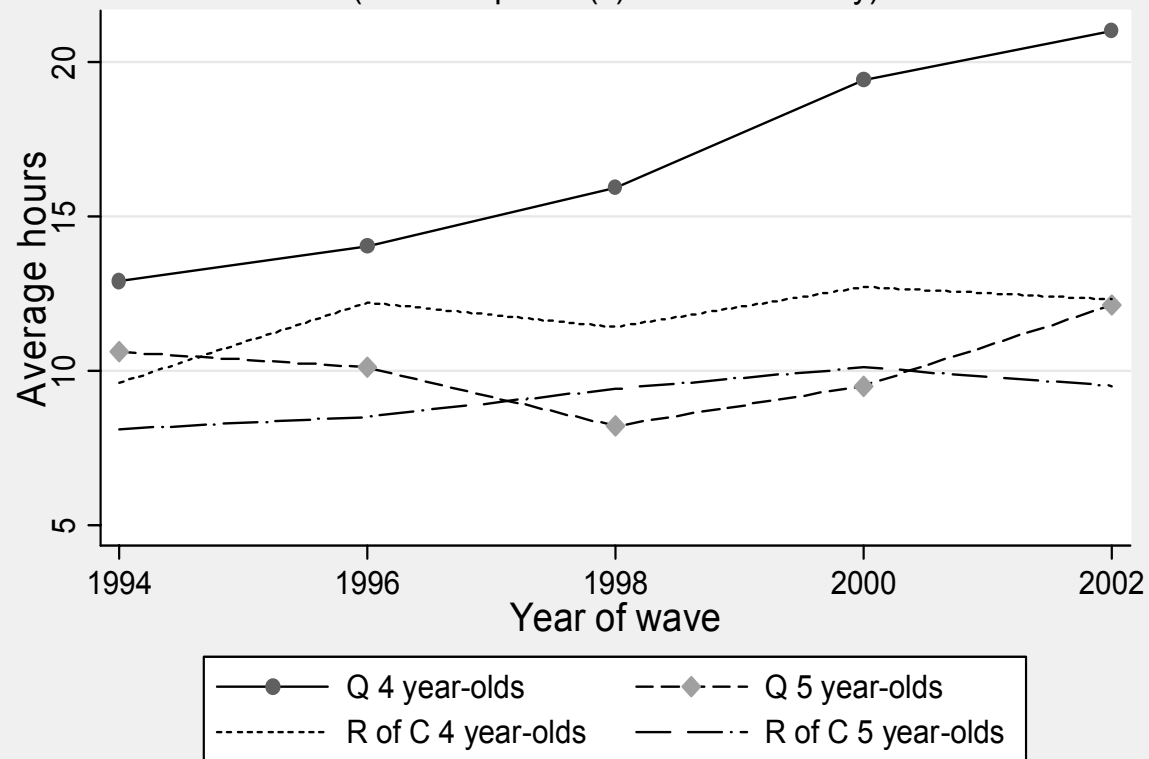
Figure 8: Mothers' annual average earned income in 1992\$



Average number of hours per week spent in primary care
(To allow parent(s) to work or study)



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(To allow parent(s) to work or study)



5. Results

Three specifications were estimated for each sample:

- (i) Assumes a constant treatment effect for the years 1999 to 2002 ($\beta_{1999}=\beta_{2000}=\beta_{2001}=\beta_{2002}$) and no pre-program trends ($\gamma_{11}=\gamma_{12}=0$);
- (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
With and without an anticipation effect β_{1998}

The control variables used:

mother's age, age squared, years of education, years squared, immigration status, a dummy variable for single-mothers, number of children older than 5 years of age, number of children less than 6 years, the presence of a child less than 3, and earned income from a source other than the mother

5. Results

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

Specification (iii) shows an increasing effect of the program that is consistent with the gradual increase in subsidized places

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.

5. Results

Labour Force Participation

For all mothers, the effects, when constant, range between 7.5 and 9.2 points and the largest effects are for the year 2001 and 2002 ranging between 11 and 13 points, which are very large considering the participation rate was around 57% in Québec in 1993 (69% in 2002)

Annual Hours at Work

Effects range between 138 and 148 hours when the sample is not split by education (average of 1,000 hours in 2002)

We observe a 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)

5. Results

Annual Weeks at Work

The effects range between 3.3 and 4.6, quite large effects as the average number of weeks worked was 30 in 1993 and 37 in 2002

The strongest effects are for less educated mothers. This is consistent with the results on annual hours worked

The effects increase with time, reaching up to 9.2 weeks (but with a large standard error) for uneducated mothers. For mothers with children from 1 to 5, the effect for 2002 is 6.1 and statistically significant. The general pattern of the results is consistent with participation and hours worked

Annual Real Earnings (in 1992\$)

Results depend on specification; the effects on earnings are not always statistically;
Around \$2,000 per year when significant
(average earnings in 2002=\$16,000; in 1996=\$11,000)

6. Conclusions

- Before the low-fee policy, families paid on average \$18 per day before tax and credits. On the basis of this information we can say that prices fell on average by approximately 50 percent
- The estimated effects of the policy (labour force participation, annual hours worked, weeks worked and earnings) are all quite credible and in line with the price elasticities found in other empirical studies on childcare

Policy implications

1. Considering the costs of the program (on an annual basis):

- a) On average the subsidy is \$8,000 per space in year 2003-2004
- b) For a child aged less than 18 month in a not-for-profit centre: \$15,000
- c) For a 2-4 years child in a not-for-profit centre: \$10,500
- d) For a 2-4 years child in a for-profit centre: \$7,500
- e) For a 2-4 years child in a family-based day care setting: \$5,800

→ The public funds dedicated to the policy appears relatively high if their only advantage is to increase labour 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 an average of \$40 per day)

2. Incentives of the 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
→ “no” other as financially attractive options for families with very young children (e.g. cash-for-care, half-day or half-week day care,)
3. Most educators in centre are unionized with federations representing employees in the education sector
→ Wage spiral; Union leaders maintain that educators are underpaid and that their wages do not respect gender equity (since almost all educators are women).
4. Other weaknesses:
 - “One size fits all issue”: regime serves well needs of two-parents families working full-time with a rather standard working schedule
 - Participation in subsidized childcare is skewed towards double-earners high income families (problem of horizontal and vertical equity of the in-kind transfers)
 - Low participation of vulnerable and at-risk children and, if in childcare, more likely to be in low-quality childcare services (according to two surveys on childcare quality)