



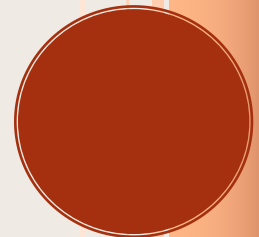
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Fertility Incentives in Canada: A Cohort Analysis

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Fertility Incentives in Canada: A Cohort Analysis

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Abstract

We study the fertility effects of the 1997 Quebec Family Policy, which introduced universal childcare and simultaneously ended its newborn allowance. Using a 20% sample of Canadian tax returns, we find that the reform reduced overall fertility at the intensive margin but had varying impacts by life stage. For younger cohorts of women early in their careers and family planning, the reform increased their likelihood of having a first or second child without reducing employment, suggesting that subsidized childcare may have helped young women balance work and family life. In contrast, for older cohorts of women, most of whom already had at least one child, the reform boosted employment but decreased the likelihood of having more children, implying that increased maternal employment may have raised the opportunity costs of additional children.

Keywords: Family policy, fertility, childcare, newborn allowance.

JEL codes: J13

Conflict of interest: The authors declare that they have no conflict of interest.

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1 Introduction

Low fertility rates and an aging population are common challenges in many developed countries. These demographic shifts could lead to significant economic consequences, such as increased costs for healthcare and pensions, higher tax burdens, and labor market shortages. To combat declining fertility and promote goals of gender equality and child development, most high-income countries have introduced family policies, such as family benefits, childcare subsidies, and parental leave.

A large body of literature has explored the effects of fiscal and family policies on various family outcomes, including fertility (see [Gauthier \(2007\)](#), [Olivetti and Petrongolo \(2017\)](#), and [Albanesi et al. \(2023\)](#) for comprehensive reviews of the literature). However, it remains less understood whether such family policy changes could have differential impacts on fertility decisions across women at various life stages. For example, younger women, who are less likely to have given birth, may be more likely to respond at the extensive margin when they encounter these policy changes, while older women may be more likely to be affected at the intensive margin. Fertility decisions at different margins may exhibit different elasticities in response to family benefits. Also, these women may be at distinct points in their careers, as some might be new entrants to the workforce, while others might have paused their careers for childbirth. As a result, similar policies could have varying impacts on labor supply across women at different life stages, which may indirectly influence their fertility decisions.

This paper investigates the differential impact of family policies on fertility across women who experienced these policy changes at different stages of their lives, drawing from a reform implemented in the Canadian province of Quebec. Specifically, we exploit the introduction of a new family policy in Quebec in September 1997. The centerpiece of the reform is the well-known universal childcare program, which provides regulated childcare spaces for all children aged from 0 to 4 at a subsidized rate. In addition, the new family policy concurrently discontinued the Allowance for Newborn Children (ANC), which provided cash benefits to Quebec residents when a child was born between May 1, 1988, and September 30, 1997.

The family policy reform in Quebec provides an interesting policy environment for several reasons. First, women in different age cohorts varied in exposure to the canceled newborn allowance. For instance, most women in their early 20s at the time of the reform would not have benefited from the newborn allowance as they would have been too young to have their first child. Meanwhile, most women in their 30s already had at least one child before 1997 and would have benefited from the newborn allowance. In addition, the impact of subsidized childcare can vary by age cohort as fertility margins may differ across life stages. Specifically,

women in their early 20s at the time of the reform would mostly be contemplating having their first child, while women in their mid-20s would generally be contemplating having either a first or second child. Women in their 30s would mostly be considering whether to have a second or higher-order child. The importance of childcare availability and its effect on women’s fertility and employment may depend on these differences in fertility margins.

Despite the unique policy environment of Quebec’s family policy reform, it is worth noting that we cannot separately identify the effects of the introduction of universal childcare and the cancellation of the newborn allowance because these two changes occurred simultaneously as part of the new family policy. Therefore, the estimates presented in this paper should be interpreted as the *net* effect of the family policy on fertility outcomes.

To study the effect of Quebec’s new family policy on fertility, we use the Longitudinal Administrative Databank (LAD) from 1993 to 2005, which comprises a random 20% sample of Canadians who filed a federal tax return and their families with a longitudinal design. In particular, the LAD reports the age of each child associated with a tax filer, allowing us to identify fertility outcomes from a large administrative data set.

We begin by examining the overall impact of Quebec’s new family policy on fertility. For this analysis, we focus on a repeated cross-sectional sample of women of childbearing age each year in the LAD and employ the synthetic control method. We find some evidence that the policy decreased the share of women in Quebec who gave birth to a second or higher-order child. In contrast, the policy did not have a discernible impact on the share of women who gave birth to their first child.

Although the new family policy had an overall negative impact on fertility, its impact could vary significantly across women who experienced the reform at different stages of their lives. To investigate these differences, we use a longitudinal sample of women who were consistently present in the LAD from 1993 to 2005 and divide our sample into three age cohorts based on their age in 1998, right after the policy’s implementation: aged from 20–24, 25–29, and 30–34. We then employ a dynamic difference-in-differences (DID) approach separately for each cohort.¹

Our results indicate that for the youngest cohort of women (aged from 20–24 in 1998), the new family policy increased the likelihood of having a first child by 6.6 percentage points (11.3%) and a second child by 7 percentage points (23%) by 2005 for women in Quebec, compared with their counterparts in the rest of Canada. In addition, we do not find evidence

¹Since the panel data analysis focuses on tracking individual longitudinal changes rather than changes in aggregate outcomes, the synthetic control method is not suitable.

suggesting that employment was adversely affected for this cohort in Quebec relative to the rest of Canada. Most of the women in this cohort (about 80%) did not have a child at the time of the reform, making them less likely to have been affected by the elimination of the ANC. Therefore, these results support the hypothesis that the availability of subsidized childcare can encourage younger women to have children without interrupting their careers.

In contrast to the youngest cohort, the older cohorts of women experienced different impacts. We find that for the cohort aged from 30–34 in 1998, the reform decreased the likelihood of having a second child by 5 percentage points (7%) and a third or higher-order child by 2.4 percentage points (8.6%) by 2005 for women in Quebec. Given that nearly 70% of the women in this cohort already had at least one child when the reform was introduced, the discontinuation of the newborn allowance might have discouraged them from having more children. In addition, we find that the reform increased the likelihood of employment for the older cohorts of women in Quebec compared with their counterparts in the rest of Canada. Increased maternal employment due to the availability of affordable childcare for their existing children may raise the opportunity cost of having additional children, thereby discouraging further expansions of family size among older women.

Finally, we examine the effect of the reform across income groups and find that the results are primarily driven by women from high-income families. Specifically, for women aged from 30–34 in 1998 whose pre-reform family incomes were above the median, the reform significantly decreased their likelihood of having children of any order. This could be because they reacted more strongly to the cancellation of the newborn allowance as higher-income families exhibited a larger increase in fertility when the ANC was introduced in 1989 (Milligan, 2005). Another possibility is that high-income families might have faced more difficulty securing a childcare space once universal childcare was introduced due to increased demand for subsidized childcare from both low- and high-income families.

Our paper contributes to the literature in several ways. First, extensive literature has explored the effect of the Quebec universal childcare program on a wide range of outcomes such as families' childcare utilization behavior (Baker et al., 2008; Haeck et al., 2015; Ding et al., 2021), parents' labor supply, health, subjective well-being, and parenting practices (Baker et al., 2008; Lefebvre and Merrigan, 2008; Lefebvre et al., 2009; Brodeur and Connolly, 2013; Kottelenberg and Lehrer, 2013; Haeck et al., 2015; Molnar, 2022; Karademir et al., 2023), as well as children's behavioral, cognitive, non-cognitive, and health outcomes (Baker et al., 2008, 2019; Haeck et al., 2015, 2018; Kottelenberg and Lehrer, 2013, 2017). We contribute to the literature by evaluating the causal effect of the new family policy on

fertility outcomes.

In addition to providing novel empirical evidence on the causal impact of the reform on fertility, our findings can act as an alternative explanation for some results in the literature. While multiple studies document substantial negative effects of the universal childcare program on children’s outcomes, the literature has not yet reached a consensus regarding the underlying mechanisms behind these findings.² Our findings suggest that the composition of families with young children has changed under the universal childcare program due to changes in women’s fertility decisions. Specifically, older and higher-income families are less likely to have more children after the implementation of the new family policy. This shift could be an additional channel contributing to the observed negative impact of the program on child development outcomes.

More broadly, this paper adds to the literature on the impact of family policies on fertility. [Gauthier \(2007\)](#), [Olivetti and Petrongolo \(2017\)](#), and [Albanesi et al. \(2023\)](#) present comprehensive reviews and discussions of this literature. In particular, many studies have examined the impact of family cash benefits on fertility, generally finding a positive effect, although the impact by birth order varies across policies ([Gauthier, 2007](#)). In the Canadian context, [Duclos et al. \(2001\)](#), [Milligan \(2005\)](#), [Kim \(2014\)](#), [Malak et al. \(2019\)](#), and [Zhao \(2021\)](#) find that there was a relative increase in fertility in Quebec within the first 2–3 years following the introduction of the newborn allowance in 1988.

Previous studies have also examined how childcare costs affect fertility, yielding mixed results. For example, [Mörk et al. \(2013\)](#) study a Swedish childcare reform and find that lower user fees increased the number of first births. [Bauernschuster et al. \(2016\)](#) study the expansion of public childcare coverage in Germany and find positive effects on fertility. In contrast, [Schlosser \(2005\)](#) finds that the introduction of free public preschool for children aged from 3–4 in Israel did not affect fertility.³

We contribute to this literature by exploring the life-cycle aspect of the impact of family policies on fertility. In particular, we emphasize that a family policy change could have heterogeneous impacts on individuals who experienced the change at different stages of their

²[Baker et al. \(2008, 2019\)](#) present evidence that reporting artifacts, lower childcare quality, and socialization problems of small children are unlikely to be the driving forces. [Kottelenberg and Lehrer \(2017\)](#) show that childcare attendance substantially reduces many parenting practices for two-parent families. [Chaparro et al. \(2020\)](#) argue that Quebec’s program may have caused households with better alternative care to take up the subsidized childcare.

³Studies on Germany ([Hank and Kreyenfeld, 2003](#)), Sweden ([Andersson et al., 2004](#)), and Finland and Norway ([Rønsen, 2004](#)) find that the availability and characteristics of childcare had no statistically significant effect on fertility. [Del Boca \(2002\)](#) finds a positive effect of better access to childcare on fertility in Italy.

lives. In addition, while prior studies mainly examined the effect of childcare subsidies in Europe, our study delves into the largest universal childcare program in North America. The North American setting differs significantly from Europe regarding baseline factors such as female labor force participation and childcare costs. Our findings suggest that the introduction of universal childcare helped balance work and family for relatively young women who were at the beginning stages of their careers and family planning, thereby increasing their likelihood of having a first or second child.

The rest of the paper is organized as follows. Section 2 provides the background on Quebec’s new family policy. Section 3 describes the data. The empirical methods are outlined in Section 4. The results are presented and discussed in Section 5. Section 6 concludes.

2 Background

Termination of the Allowance for Newborn Children (ANC) On May 12, 1988, the Canadian province of Quebec announced the introduction of the Allowance for Newborn Children (ANC) with the aim of boosting fertility. All Quebec residents were eligible for a cash benefit when a child joined the family between May 1, 1988, and September 30, 1997, regardless of their employment status or income. The amount of the allowance depended on the birth rank of the newborn child. In 1988, families with a first or second newborn child were eligible for a one-time \$500 cash benefit; families with a third or higher-order birth were eligible for a total amount of \$3,000 paid in 8 quarters. The benefits increased over the next four years and starting in May 1992, families with a first newborn child were eligible for a one-time \$500 benefit; families with a second newborn child were eligible for a total amount of \$1,000 paid in 2 years; families with a third or higher-order birth were eligible for a total amount of \$8,000 paid in 20 quarters.

However, as part of the new Quebec family policy, the ANC was discontinued for children born after September 30, 1997. The termination was announced in the *Montreal Gazette* on November 1, 1996, and the information was likely to be widely disseminated. Although subsequent works such as Milligan (2005) and Zhao (2021) found positive effects of the ANC on fertility, the Quebec government eliminated the newborn allowance, in part due to its perceived insufficient impact. The funds were then redirected to support the new universal childcare program, which was announced at the same time as the termination of the ANC (Thompson, 1996; Milligan, 2005).

Introduction of Universal Childcare In September 1997, the government of Quebec implemented a major reform of its family policy, and the centerpiece was the launch of the largest universal childcare program in North America. The program aimed to provide regulated childcare facilities to all children aged 0–4 at a price of \$5 per day, regardless of their parents’ employment or income. The program was phased in over four years with 4-year-olds eligible starting in September 1997. It was then extended to 3-year-olds in 1998, 2-year-olds in 1999, and ultimately all children under 2 years old in 2000. Over time, the subsidized price increased from \$5 in 1997 to \$7 per day in 2004 and finally to \$8.5 in 2021. The number of subsidized childcare spaces also increased from 76,715 spaces in 1997 to 132,545 spaces in 2000, and to 217,000 spaces in 2012 (Lefebvre and Merrigan, 2008; Haeck et al., 2015).

Although eligibility for the universal childcare program does not depend on family income, the effective reduction in the net price of childcare services differed across family income levels. Before the reform, Quebec’s low-income families had access to tax credits for childcare expenses, social assistance benefits that covered the essential needs of children, and means-tested subsidized daycare spots, all of which considerably reduced childcare expenses (Baril et al., 2000; Lefebvre and Merrigan, 2003). After considering various fiscal measures, the net price for daycare services, originally around \$25 per day, was approximately \$11 for middle-income families and \$5 for low-income families prior to family policy reform. This implies that middle- and high-income families experienced a larger deduction in net childcare costs with the introduction of the universal childcare program (Lefebvre and Merrigan, 2008). Nevertheless, low-income families may still have benefited from the universal childcare program as they may have faced challenges in taking advantage of tax benefits related to childcare expenses, possibly due to liquidity constraints or the use of informal childcare services without receipts.

Table 1 reports the Quebec government’s annual expenditures on the ANC and the universal childcare program. While expenditures on the universal childcare program are substantially higher than those on the ANC, it is worth noting that the goal of the universal childcare subsidy was not only to promote fertility but also to facilitate maternal employment and provide better access to affordable childcare.

3 Data

Tax Data Our main dataset comes from the Longitudinal Administrative Databank (LAD), a 20% random sample of all Canadian tax filers and their families. The LAD has a longitudinal design spanning from 1982 to 2021. Filing and non-filing family members such as spouses and children are identified from the tax returns and other supplementary files.⁴ The LAD includes demographic information such as sex, age, marital status, and immigration status.⁵ It also reports detailed measures of individual and family income. For children, the data provide the age of each child and the number of children by age.

One potential concern of using the LAD for fertility outcomes is that some tax filers may not report information on children. We argue that this is less likely to be a concern because people have the incentive to report children in order to claim dependent benefits and child-related expenses. Also, in Section 5.1, we show that the LAD data generates similar results as those using aggregate Vital Statistics data.

Vital Statistics To complement the LAD, we also use the Canadian Vital Statistics birth database from Statistics Canada for aggregate-level analysis. We use aggregate data that provide the total number of births by mother’s province of residence annually. To calculate the fertility rate by year and province, we divide the total number of births by the population of women aged 20 to 44 in that province and year.

Study Periods We limit our analysis to the period between 1993 and 2005, for three reasons. First, previous studies suggest that compared with the rest of Canada, fertility rates in Quebec increased in the first few years after the implementation of the ANC in 1988 and then began to exhibit relatively parallel fertility trends starting around 1990 (see Figure 1 of Milligan (2005) and Figure 4a of Zhao (2021)). Figure B.1 in the Appendix confirms that similar patterns hold in the Vital Statistics data as well. Second, the LAD changed how children were identified from their parents’ tax forms in 1993. Lastly, the Quebec Parental Insurance Plan (QPIP) was launched in January 2006, which reserved parental leave for fathers. Zhao (2021) provides evidence that this “daddy quota” led to increased fertility.

⁴Unlike other countries such as the U.S. where married couples can file taxes jointly, all taxpayers in Canada must file separately and provide information about their marital status, their legal or common-law spouses (e.g., name, Social Insurance Number (SIN), net income, employment status), and their dependents including children (e.g., name, date of birth, SIN, relationship with tax filer, whether they live with the tax filer). Children are also identified using information from family benefit programs such as the Family Allowance Program (prior to 1993) and the Canada Child Benefit program (since 1993).

⁵The data unfortunately do not include information on educational attainment.

Therefore, we focus on the period between 1993 and 2005 to exclude years with other policy interventions and to ensure data consistency throughout our study period.

4 Empirical Strategy

We estimate the *net* effect of the new Quebec family policy in 1997—encompassing both the introduction of universal childcare and the discontinuation of the newborn allowance—on fertility using two empirical methods. First, we employ the synthetic control method on a repeated cross-sectional sample from the LAD to estimate the overall effect of the family policy. Second, we examine differences in how fertility decisions affected women who were “shocked” by the new family policy at distinct life stages. To do this, we use a dynamic difference-in-differences (DID) (or event study) approach to estimate the impact of the new family policy on fertility outcomes separately for women in different cohorts, using an individual-level panel sample from the LAD.

Throughout our analysis, we treat the period from 1993 to 1996 as the pre-reform period and exclude 1997 from the estimation sample to avoid ambiguity. Since the new family policy was implemented in September 1997, the earliest cohort of children whose births were affected by the reform would be those born in 1998. However, the policy change was announced in a *Montreal Gazette* article on November 1, 1996 (Thompson, 1996). Thus, some mothers who gave birth in late 1997 may have been influenced by the new policy as well. To avoid this ambiguity, we exclude 1997 from our sample.

Synthetic Control Method The synthetic control method (Abadie and Gardeazabal, 2003; Abadie et al., 2010) is designed to evaluate low-frequency policy interventions that occur at an aggregate level and affect aggregate units, making it particularly well-suited to the setting of our study. Rather than selecting the comparison group in an informal way (e.g., the rest of Canada or the neighboring provinces), the synthetic control method uses a data-driven process to construct the comparison group. The method constructs a weighted average of untreated units as a synthetic control, where the weights are chosen so that the resulting synthetic control best reproduces the values of predictors of fertility outcomes in Quebec *prior to* the reform. Then the effect of the reform is estimated by comparing the evolution of the fertility outcome between Quebec and its synthetic control after the reform.

Inference for the synthetic control method is based on permutation. A simpler version is to iteratively reassign the treatment to each unit in the donor pool (i.e., the set of po-

tential comparisons, including provinces other than Quebec in our context) and estimate the “placebo effect” in each iteration. Then we construct the permutation distribution by pooling the effect estimated for Quebec and the placebo effects estimated for other provinces. The effect estimated for Quebec is deemed significant when its magnitude is extreme relative to the permutation distribution. The formal inferential procedure is based on the permutation distribution of a test statistic that measures the ratio of the post-intervention fit relative to the pre-intervention fit between the outcome of a treated unit and its synthetic control (Abadie et al., 2010).

The synthetic control method only requires aggregate data. We construct annual *province*-level panel data from 1993 to 2005. The donor pool consists of nine provinces other than Quebec.⁶ The outcome variables are annual fertility rates at the province level, measured as the share of women aged 20 to 44 who gave birth to any child, a first child, a second child, or a higher-order child in a given year, calculated from the LAD. We also use the fertility rate calculated from the Vital Statistics as an outcome, which we define as the total number of births divided by the female population aged 20 to 44). The fertility predictors include the corresponding outcome variable in the *pre-reform* years.⁷

For robustness, we furthermore apply the synthetic difference-in-differences estimator (Arkhangelsky et al., 2021). The methodology and corresponding results are discussed in Appendix A.

Dynamic DID with Individual-level Panel Data To investigate whether the new family policy’s impact on fertility decisions varied across women at different stages of their lives, we use a longitudinal sample from the LAD, comprising women who were consistently present in the LAD from 1993 to 2005. We focus on three age cohorts based on their age in 1998, right after the policy implementation: women aged 20–24, 25–29, and 30–34 in 1998 (i.e., women born in 1974–1978, 1969–1973, and 1964–1968, respectively). We then use a dynamic DID (or event study) approach to estimate the impact of the policy on fertility for each cohort separately.

It is important to note that in this panel data analysis, we track a fixed group of women

⁶We exclude the three territories (Northwest Territories, Yukon, and Nunavut) from the donor pool as they account for only 0.3% of the Canadian population and aggregate statistics generated from these three territories are noisier due to the small number of observations.

⁷For robustness, we further include the average share of women in different age brackets (20–24, 25–29, 30–34, 35–39, and 40–44) over the pre-reform years as additional fertility predictors. We find that adding these predictors does not change the results. Therefore, they are not reported in this paper but are available upon request.

in a defined age cohort over time. Thus, the dynamic DID approach compares changes in fertility outcomes over time for each given woman, contrasting those in Quebec and their counterparts in the rest of Canada. Because this analysis focuses on individual longitudinal changes rather than aggregate trends, the synthetic control method is not applicable for this panel analysis.⁸

Our baseline specification is

$$Y_{ipt} = \beta_0 + \sum_{t=1993}^{1995} \beta_t Policy_{pt} + \sum_{t=1998}^{2005} \beta_t Policy_{pt} + \gamma_p + \delta_t + X_{ipt}\Lambda + \epsilon_{ipt}, \quad (1)$$

where each observation is a woman i residing in province p in year t .⁹ Because the panel data analysis examines changes in fertility over time for a *given* individual, we define the outcome variable to reflect the *cumulative* fertility outcome of each individual i by year t . Specifically, Y_{ipt} is an indicator for having a child by year t (i.e., $Y_{ipt} = 1$ if $t \geq j$ where j is the year the child was born). Similarly, we also use indicators for having a first child, second child, and third child by year t as dependent variables. $Policy_{pt}$ is a dummy variable equal to 1 if p is Quebec and the new family policy was already implemented in year t (i.e., $t \geq 1998$). The parameters of interest are β_t ($t \geq 1998$), which represent the intention-to-treat effect of the policy—i.e., the effect on all Quebec women exposed to the new family policy. The omitted reference year is 1996 as we exclude 1997 from the estimation sample due to reasons described in the beginning of Section 4. We also control for province fixed effects γ_p , year fixed effects δ_t , and a vector of individual characteristics X_{ipt} , including age and age-squared.

The key identifying assumption is that the time trend between Quebec and other provinces would have been the same in the absence of the reform. However, there may be concerns about the validity of this common trends assumption. Since the 1997 reform was preceded by the introduction of the ANC in 1988, it is possible that the ANC led to different fertility trends over time between Quebec and the rest of Canada. Later in the paper, we show that some of our outcomes indeed show evidence of differential pre-reform trends. Therefore, we additionally implement a parametric event study analysis following [Dobkin et al. \(2018\)](#), where the choice of the functional form is guided by the observed patterns of the

⁸The synthetic control method is designed for comparative case studies and the method only requires aggregate statistics. In contrast, the cohort analysis is based on tracking the same set of individuals, who naturally age. Thus, the outcome variable is based on progressively older groups of women as time progresses.

⁹Note that the treatment is not staggered in our context as the policy was implemented only in Quebec in 1997. Therefore, the issue of negative weights associated with the difference-in-differences approach does not apply here ([Callaway and Sant’Anna, 2021](#); [Goodman-Bacon, 2021](#)).

pre-treatment trends. As we will see in the results below, the nonparametric event study estimates suggest that a linear trend captures any pre-reform trends quite well.

For our parametric event study specification, we allow for a linear pre-reform trend

$$Y_{ipt} = \beta_0 + \beta_1 EventYear_{pt} + \sum_{t=1998}^{2005} \beta_t Policy_{pt} + \gamma_p + \delta_t + X_{ipt}\Lambda + \epsilon_{ipt}, \quad (2)$$

where $EventYear_{pt}$ is equal to $(t - 1996)$ if p is Quebec and zero otherwise. The coefficients of interest are β_t ($t \geq 1998$), which reflects the change in the fertility outcome following the new Quebec family policy relative to any preexisting linear trend (β_1). The identification assumption is that the introduction of the new Quebec family policy is uncorrelated with deviations of the outcome from a linear trend. The assumption still requires that no other contemporaneous shocks occurred with the new Quebec reform that simultaneously affected women’s fertility decisions.

5 Results

5.1 Overall Effect of the Quebec Family Policy on Fertility

Figure 1 presents our synthetic control estimation results of the overall effect of the 1997 Quebec family policy.¹⁰ The left panels show the yearly fertility outcomes for Quebec and its synthetic counterpart; the right panels report the estimated effects for Quebec and the placebo effects for other provinces in the donor pool. Figures 1a and 1b present the results for the fertility rate calculated from the Vital Statistics, namely the total births divided by the female population aged 20–44. The rest of the panels present our results for the fertility outcomes using the LAD repeated cross-sectional sample, including the share of women aged 20–44 who gave birth to a newborn, a first child, a second child, and a third or higher-order child. Table B.1 presents the estimated effects for each post-policy year and the p -values (i.e., the fractions of placebo effects that are at least as large as the main effect). Table B.2 presents the contribution of each province in the donor pool to the synthetic control for Quebec.

Figures 1a–1d show that both the Vital Statistics and the LAD yield comparable results, suggesting that the new family policy in Quebec had a small negative effect on fertility rates

¹⁰Figure B.2 presents the trends of fertility outcomes in Quebec versus the rest of Canada from 1993 to 2005. The figure suggests that Quebec saw a steeper downward trend in most of the fertility outcomes compared with the rest of Canada prior to the reform.

in the first few years following its implementation, with the main effect greater than the majority of the placebo effects only between 1998 and 2000. The fact that both data sources generate similar results reassures that the LAD is a reliable data source for studying fertility.

Figure 1e indicates that unfortunately, the resulting synthetic control does not provide a good match of the pre-policy trajectory of the share of women giving a first birth in Quebec. Figure 1f shows that the estimated effects are negligible, with their magnitudes no greater than the magnitudes of most of the placebo effects. Lastly, Figures 1g–1j present evidence that the policy decreased the share of women having a second or higher-order birth. The magnitude of the main effect is greater than most of the placebo effects for most post-policy periods, especially for the share of women having a second birth.

In summary, the synthetic control results indicate that the net effect of the new family policy on fertility was negative at the intensive margin for women in Quebec. Appendix A presents the synthetic difference-in-differences estimates, which suggest very similar effects.

5.2 Effects of the Quebec Family Policy by Cohort

While there is evidence that Quebec’s new family policy negatively affected fertility overall, its effect may differ across age cohorts due to potentially distinct fertility incentives or previous career disruptions. In addition, women across age cohorts may have had different experiences with the old system. We examine the role of these differences by estimating the non-parametric and parametric event study specifications separately for each age cohort. Figure 2 presents the non-parametric event study estimates based on Equation 1 by age cohort, as well as the estimated pre-policy linear relationship between the outcome and year (β_1) from the parametric event study regression specified in Equation 2. Tables 2–4 present the parametric event study estimates of the effects of the family policy on fertility in each post-policy year for each cohort.

We first consider the youngest cohort of women born between 1974 and 1978, who were aged from 20–24 in 1998. About 20% of women in this cohort in Quebec had their first child by 1996, 5.7% had their second child by 1996, and only 1% had their third child by 1996. Given that most of these women did not have a child when the new family policy was implemented, shifts in their fertility decisions after the reform are more likely to have been influenced by the availability of subsidized childcare than the discontinuation of the newborn allowance. Figures 2a–2c present evidence that women in this cohort in Quebec were more likely to have their first child and second child compared with their counterparts elsewhere post-reform. In contrast, the impact on their likelihood of having a third child is

statistically insignificant, likely because they were still too young to consider having a third child by the end of our period of analysis.

It is noteworthy that Quebec already saw a steeper downward trend in the likelihood of having a second or third child among women in this cohort prior to the new family policy. After accounting for a linear pre-reform trend, the estimates in column 1 of Table 2 suggest that the likelihood of having a first child grew by 2.5 percentage points by 1998 and by 6.6 percentage points by 2005 for women in this cohort (aged from 20–24 in 1998) in Quebec compared with those in the rest of Canada. We then calculate the magnitude of these effects relative to the “counterfactual Quebec” based on the assumption that Quebec follows a linear trend in the outcome compared with the rest of Canada in the absence of the reform.¹¹ The magnitude of the effect on the likelihood of having a first child is around 11% by 2005. Column 4 shows that the likelihood of having a second child increased by 0.8 percentage points (8%) by 1998 and by 7 percentage points (23%) by 2005. Given the large impact observed over eight years after the reform, the results indicate that changes in fertility outcomes are unlikely to be driven by shifts in the timing of fertility.

We then consider the cohort of women aged from 25–29 in 1998. By 1996, 40%, 17.7%, and 5% of the women in this cohort in Quebec had their first, second, and third child, respectively. Figure 2d suggests weak evidence that the reform lowered the likelihood of having a first child for women in Quebec in the later post-reform years. The estimates in column 1 of Table 3 indicate a decrease of 6.4 percentage points (7.6%) by 2005, but the decrease is statistically significant only from 2003 and onwards. Figures 2e and 2f do not show evidence of an impact on the likelihood of having a second or third child; this is confirmed with the estimates in columns 4 and 7 of Table 3, which are small in magnitude and statistically insignificant.

¹¹Although it is common to measure the magnitude of treatment effects relative to the pre-policy mean in the treated group, this may be misleading in our setting as the dependent variables are *cumulative* fertility measures that weakly increase over time due to the panel nature of the sample. For instance, column 4 of Table 2 reports a 7.14 percentage point increase in the likelihood of having a second child in 2005, which is a 125% increase relative to the mean of the dependent variable in Quebec in 1996 (5.72%). This overstates the magnitude of the treatment effect as column 5 clearly shows that the mean of the dependent variable naturally increases with time. Therefore, we argue that it is more reasonable to express the magnitude of the treatment effect in year t relative to a measure of a “counterfactual Quebec” in the same year. Specifically, we calculate the “counterfactual Quebec” (i.e., the mean of the outcome in Quebec in the absence of the policy) in post-reform year $t \geq 1998$ as

$$\begin{aligned} \text{Counterfactual Quebec Mean}_t &= \text{ROC Mean}_t - (\text{ROC Mean}_{1996} - \text{Quebec Mean}_{1996}) \\ &\quad + \text{Pre-trend Slope} \cdot (t - 1996) \end{aligned}$$

and compute the implied percentage of the treatment effect as $100 \times \frac{\beta_t}{\text{Counterfactual Quebec Mean}_t}$.

The oldest cohort of our analysis includes women aged from 30–34 in 1998. By 1996, 69%, 44%, and 17% of the women in this cohort in Quebec had their first, second, and third child, respectively. Figures 2g–2i suggest no evidence of an impact on the likelihood of having a first child, but large negative impacts on the likelihood of having a second or third child. While Quebec already saw a steeper upward trend in the likelihood of having a second child, there is no strong evidence of differential trends in the likelihood of having a third child. After accounting for a potential linear pre-reform trend, the estimates in Table 4 suggest a decrease in the likelihood of having a second child by 1.2 percentage points (2%) by 1998 and 4.9 percentage points (7%) by 2005. The decrease in the likelihood of having a third child was 0.4 percentage points (2%) by 1998 and 2.4 percentage points (9%) by 2005.

In conclusion, for women in their early 20s when the new family policy was implemented, we find notable positive effects of the policy on their likelihood of having a first and second child. These positive effects may be driven by the availability of universal childcare lowering the chance of work interruptions associated with childbirth as fertility responses among these younger women are less likely to have been affected by the cancellation of the newborn allowance.¹² In contrast, for women in their early 30s when the new family policy was implemented, we find that the reform negatively affected the likelihood of having their second and third child. This may be due to the cancellation of the newborn allowance discouraging them from having more children since most of these older women in Quebec had benefited from the newborn allowance at the time of the reform. In addition, the universal childcare program may have affected the labor supply decisions of women whose children were eligible for the program, which could indirectly affect their decision to have a subsequent child. We further examine this possibility in the following section.

5.3 The Role of Female Labor Supply

In this section, we examine whether changes in female labor supply could be a potential mechanism underlying the observed changes in fertility decisions as previous studies have shown that the introduction of universal childcare had a large positive impact on the employment of mothers with preschool-aged children (Baker et al., 2008; Lefebvre and Merrigan, 2008; Lefebvre et al., 2009; Haeck et al., 2015). On the one hand, universal childcare could encourage women to have a child, especially at the extensive margin, since the availability

¹²Mörk et al. (2013) examine a Swedish childcare reform and find that lower user fees increased the number of first births. Similarly, Bauernschuster et al. (2016) analyze the expansion of public childcare coverage in Germany and find positive effects on fertility.

of more affordable childcare may enable women to have children without significant career interruptions. In addition, the greater financial gains from mothers' increased labor supply could encourage them to have more children due to income effects. On the other hand, increased labor supply may raise women's opportunity cost of childbearing and child-rearing, leading to women opting to have fewer children in the long run. In particular, women with young children may decide to send their existing children to subsidized care and increase their labor supply rather than having additional children.

In this section, we provide additional evidence on the potential roles of female employment by examining the effect of the 1997 family policy reform on women's employment separately for our three age cohorts. We define women's employment status based on their employment income reported in the LAD. Specifically, we consider a woman to be "employed" and "full-time employed" if her real annual employment income is above \$3,500 and \$14,000, respectively, in 2002 constant dollars.¹³

Figure 3 presents the non-parametric event study estimates of the effect of the Quebec family policy on female employment and the estimated pre-policy linear trend. The parametric estimates and the calculated effects in percentages are presented in Tables 5–7. For the youngest cohort of women (aged from 20–24 in 1998), the results in Figures 3a and 3b do not show evidence that these women were less likely to be employed or in full-time employment.¹⁴ Combined with our results in Section 5.2 that the reform boosted the likelihood of Quebecois women having their first and second child, these findings are consistent with the hypothesis that subsidized childcare can facilitate a balance between work and family life for young women.

For the older cohorts of women, many of them already had a child when the reform was implemented. Consistent with previous findings that universal childcare increased maternal employment, the results in Figures 3c and 3f suggest that Quebec's new family policy increased the likelihood of being employed or in full-time employment for the older cohorts of

¹³The \$14,000 threshold is chosen by multiplying the average minimum wage during our study period (\$7 per hour) by full-time annual working hours (40 hours per week \times 50 weeks = 2000 hours). We set one-fourth of \$14,000 (i.e., \$3,500) as the threshold for "employment." Based on the employment income distribution from Statistics Canada (Table 11-10-0240-01), more than 85% of women with employment income earned employment income above \$3,500 and around 90% of full-time full-year female workers earned employment income above \$14,000.

¹⁴It is less likely that the universal childcare program would increase the labor supply of women in this cohort. This is because most of them did not have a child prior to the policy's implementation and therefore, their pre-policy employment choices would not be a reflection of career interruptions due to childbirth. Also, women in this cohort are less likely to immediately benefit from the subsidized childcare with an *existing* child.

women in Quebec, especially for the cohort of women aged 25–29 in 1998. Table 6 reports that Quebec women in this cohort were more likely to be employed by 6 percentage points (8%) and in full-time employment by 9 percentage points (16%) in 2005, compared with women in the same cohort in the rest of Canada. These findings suggest that the decreased likelihood of having more children among the older cohorts may have partly been driven by the higher opportunity costs due to increased labor supply.

5.4 Heterogeneity by Income

We now examine the effects of the policy across different income groups for two main reasons. First, the reduction in net childcare costs in Quebec due to the introduction of universal childcare varied by family income. In particular, higher-income families experienced a greater decrease in the net cost of daycare services than lower-income families, after accounting for pre-policy tax benefits.¹⁵ Second, the cancellation of the newborn allowance could affect the fertility decisions of women across income groups differently. Although the amount of the allowance was not income dependent, Milligan (2005) finds that higher-income families exhibited a larger increase in fertility in response to the introduction of the ANC.

To explore heterogeneous responses across income groups, we continue using the longitudinal sample. For each woman in the sample, we calculate her average family income during the pre-policy period (1993–1996). Within each cohort, we then determine the median of these average pre-policy family incomes. Women with family incomes above this median are classified as the high-income group, while those below are classified as the low-income group. We use pre-policy income to categorize income groups as post-policy income may be affected by the policy through changes in women’s labor supply. In addition, we focus on the oldest cohort (aged 30–34 in 1998) in this analysis since younger cohorts are more likely to be in school during the pre-policy years, making their pre-policy family income a reflection of their parent’s economic status rather than their own.

Figure 4 presents the non-parametric event study estimates of the effect of the Quebec family policy on fertility for women from low-income families (Figures 4a–4c) and high-income families (Figures 4d–4f), focusing on the cohort aged 30–34 in 1998. While there is evidence of pre-reform trends for some outcomes, a linear trend can capture these pre-reform trends extremely well, as shown in the figures. Tables 8 and 9 present the parametric event

¹⁵While low-income families were eligible for pre-policy tax benefits, they may have faced challenges in fully utilizing these tax benefits, possibly due to liquidity constraints, which could still make the universal childcare program beneficial for them.

study estimates and the relative magnitudes of the effects in percentages.

For women from low-income families, Figures 4a–4b present no strong evidence that the family policy affected their likelihood of having a first or second child. Furthermore, Figure 4c suggests a small negative impact on their likelihood of having a third or higher-order child. In contrast, Figures 4d–4f indicate that for women from high-income families, the family policy significantly decreased their likelihood of having children of any order. Table 9 suggests that the policy decreased the likelihood of having a first, second, and third or higher-order child by 3.7%, 15%, and 12% for the oldest cohort of women from high-income families in Quebec by 2005, compared with their counterparts in the rest of Canada. Figure B.3 in the Appendix presents the results using individual income instead of family income. The conclusions remain unchanged.

Although the introduction of universal childcare greatly reduced the net cost of daycare services for high-income families, we find that women from these families were less likely to have a child both at the extensive and intensive margins post-reform. This could be due to several reasons. First, high-income families may have faced greater difficulty securing a childcare space under the universal childcare program. Specifically, high-income families who previously could afford non-subsidized daycare centers would now face increased competition from both high- and low-income families for limited daycare spots. Moreover, since many for-profit daycare centers entered agreements with the Department of the Family to provide subsidized spaces, the number of non-subsidized spaces abruptly dropped since 1997 (see Table 2 of Lefebvre and Merrigan (2008)).

Second, the negative impact on fertility may be due to high-income families responding more sensitively to the cancellation of the newborn allowance. This is consistent with Milligan (2005), who found that the positive fertility response to the introduction of the ANC was stronger among women with higher levels of family income. Milligan (2005) provides several potential explanations for this finding. One possibility is that this reflects unobservable differences in the responsiveness to fertility incentives between high- and low-income women. For example, high-income women may have a stronger tendency towards planned pregnancies, making them more responsive to policy changes in fertility benefits. Alternatively, this finding aligns with the seminal child quantity-quality model by Becker and Tomes (1976), which predicts that the income elasticity of child quantity would rise with family income.

5.5 Robustness Check

We conduct a robustness check by examining the effect of the Quebec family policy for women who were married or in common-law relationships in 1996, just before the introduction of the new family policy. We conduct this analysis because, in addition to the new family policy in Quebec, there were several other changes in family and child benefits in both Quebec and the rest of Canada in the late 1990s. [Baker et al. \(2005\)](#) carefully model these changes and show that for two-parent families, there was little differential impact across provinces, except for the new family policy in Quebec. Therefore, by focusing on women who were married or in common-law relationships just before the reform, the estimated effects, at least in the short run, are less likely to be influenced by other potential contemporaneous shocks.

Figure 5 presents the non-parametric event study estimates of the effect of the Quebec family policy on fertility for women who were married or in common-law relationships in 1996. Tables B.3–B.5 present the parametric estimates and the relative magnitude of the estimates in percentages. The results are consistent with the main results in Figure 2. For married women in the youngest cohort, we find that those in Quebec were more likely to have their first and second child after the introduction of the new family policy but less likely to have a third or higher-order child. Married women in the older cohorts, in particular those aged 30–34 in 1998, were less likely to have more children. These results present additional evidence that our main results are unlikely to be driven by other contemporaneous changes in social benefits.

6 Conclusion

In 1997, the Canadian province of Quebec introduced the largest universal childcare program in North America and terminated its newborn allowance benefits simultaneously. This paper studies how this new family policy affects fertility across women in different cohorts in Quebec using a 20% sample of Canadian tax return data.

We find that for women in their early 20s when the reform was implemented, most of whom had not yet had a child, the reform increased their likelihood of having a first and second child over the eight years following the reform, without lowering their likelihood of employment. The results support the hypothesis that universal childcare allows young women to have a child without having to interrupt their careers.

In contrast, we find that for women who were in their early 30s at the time of the reform, there was an increase in the likelihood of employment but a decrease in the likelihood of

having a second or higher-order child in Quebec compared with their counterparts in the rest of Canada. Given that most of these women already had at least one child by the time of the reform, the discontinuation of the newborn allowance may have discouraged them from having additional children. In addition, increased maternal employment facilitated by the reform could have raised the opportunity cost of having another child. Overall, our findings highlight the importance of considering life-cycle differences when assessing the fertility impacts of family policies.

Data Availability Statement

This study uses restricted-access microdata provided by Statistics Canada Research Data Centres (RDCs). Access to RDC microdata is based on approval from Statistics Canada and therefore, the microdata used in this study cannot be shared publicly. Instructions on how to apply for access to RDC microdata can be found at <https://www.statcan.gc.ca/en/microdata/data-centres/access>. The program codes used to generate the findings of this study can be made public upon journal acceptance.

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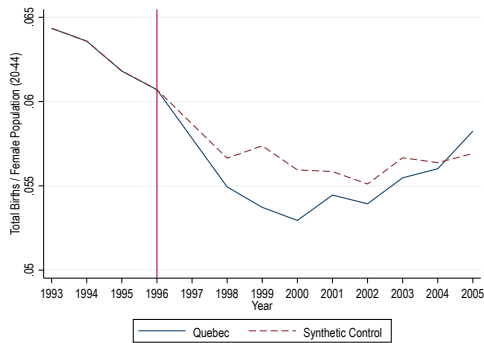
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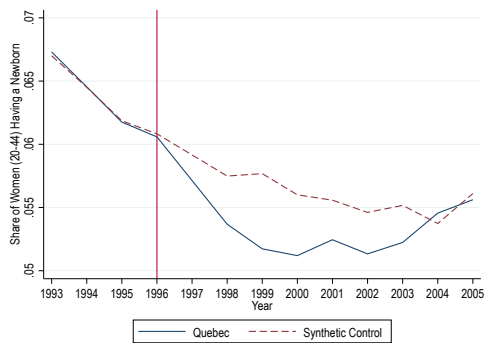
Tables and Figures



(a) Total Births/Females (20–44)



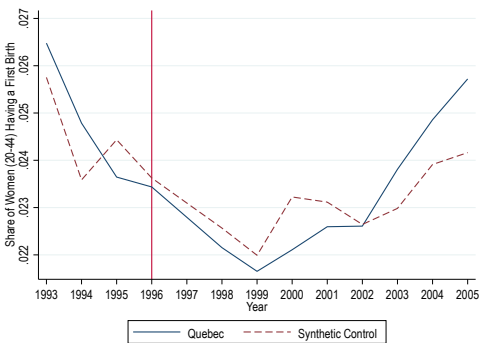
(b) Effect on Total Births/Females



(c) Having a Newborn



(d) Effect on Having a Newborn



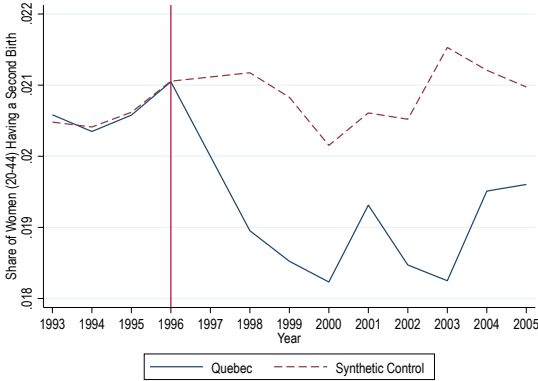
(e) Having a First Birth



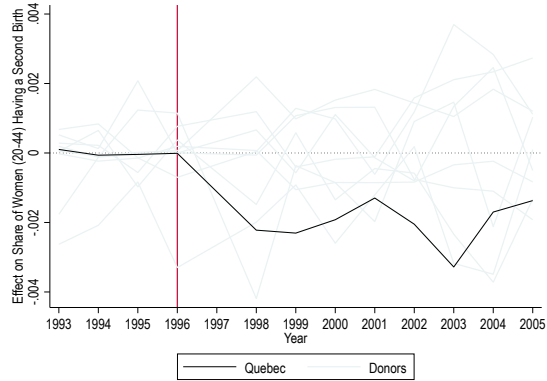
(f) Effect on Having a First Birth

Figure 1: Synthetic Control Estimation: Trends and Estimated Effects

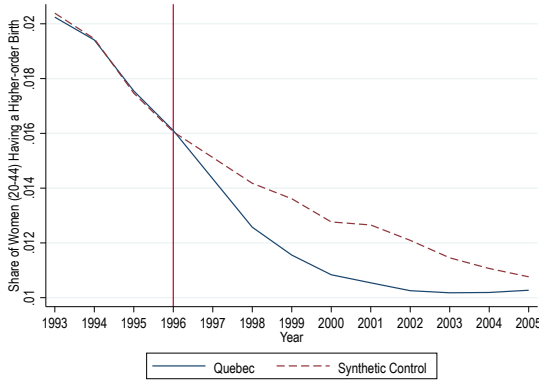
(Continues)



(g) Having a Second Birth



(h) Effect on Having a Second Birth



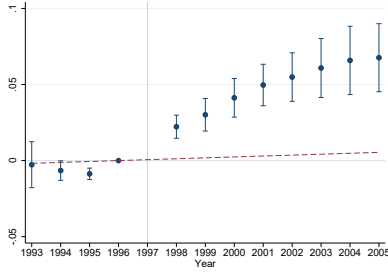
(i) Having a Higher-order Birth



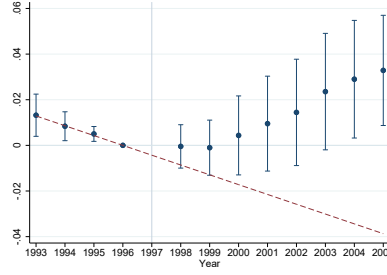
(j) Effect on Having a Higher-order Birth

Figure 1: Continued.

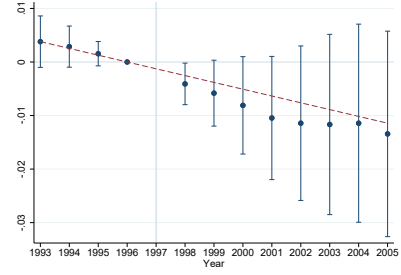
Notes: The sample comprises all women in the LAD aged from 20–44 each year from 1993–2005. The left panels present the trend of the fertility outcomes for Quebec and the synthetic control. The right panels present the estimated effects for Quebec and the placebo effects for other provinces in the donor pool. The outcomes include the fertility rate (total birth/female population aged from 20–44) calculated from Vital Statistics (panels (a) and (b)), and the share of women aged from 20–44 having a newborn, a first birth, a second birth, or a higher-order birth from the LAD (panels (c)–(j)).



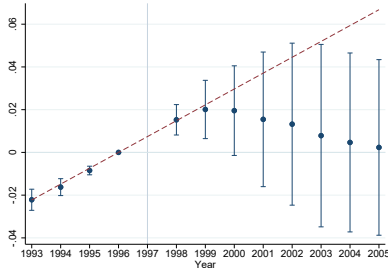
(a) Having First Child
(20–24 in 1998)
Quebec Mean in 1996: 0.20



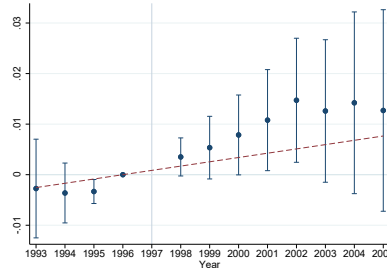
(b) Having Second Child
(20–24 in 1998)
Quebec Mean in 1996: 0.06



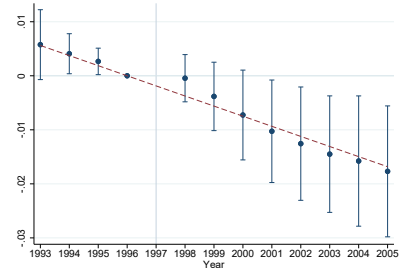
(c) Having Third+ Child
(20–24 in 1998)
Quebec Mean in 1996: 0.01



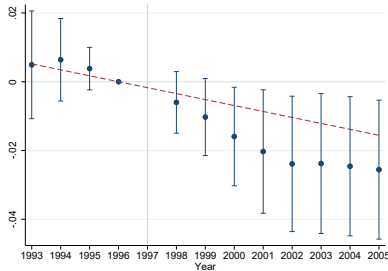
(d) Having First Child
(25–29 in 1998)
Quebec Mean in 1996: 0.40



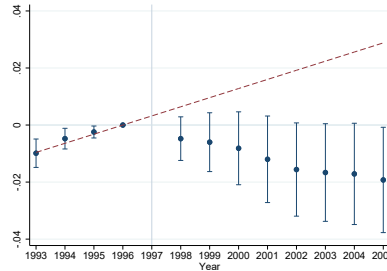
(e) Having Second Child
(25–29 in 1998)
Quebec Mean in 1996: 0.18



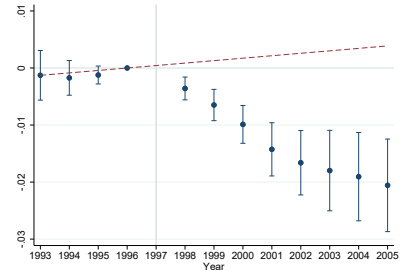
(f) Having Third+ Child
(25–29 in 1998)
Quebec Mean in 1996: 0.05



(g) Having First Child
(30–34 in 1998)
Quebec Mean in 1996: 0.69



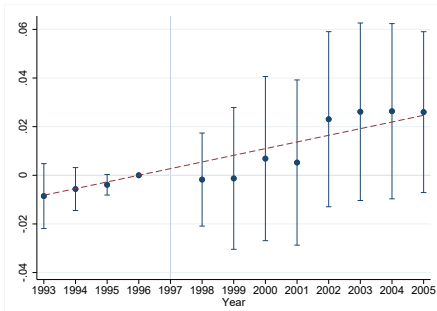
(h) Having Second Child
(30–34 in 1998)
Quebec Mean in 1996: 0.44



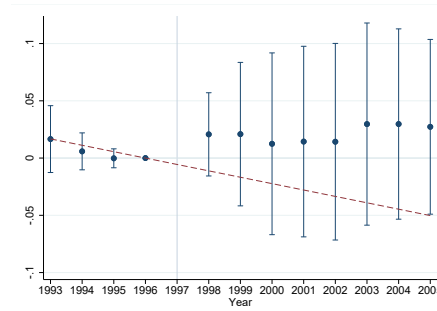
(i) Having Third+ Child
(30–34 in 1998)
Quebec Mean in 1996: 0.17

Figure 2: Effect of Quebec Family Policy on Fertility by Cohort

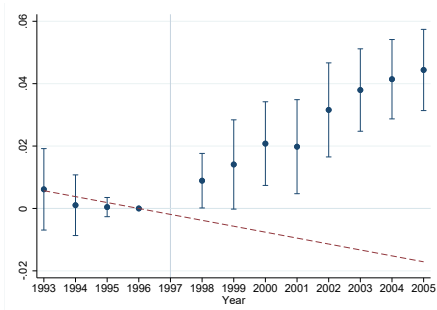
Notes: The sample comprises women who were consistently present in the LAD from 1993 to 2005. The first, second, and last three panels are based on women aged from 20–24, 25–29, and 30–34 in 1998, respectively (i.e., birth years 1974–1978, 1969–1973, and 1964–1968, respectively). The dependent variables are dummy variables indicating whether a woman has her first, second, and third (or subsequent) child. The figure presents the event study estimates of β_t ($t = 1993, 1994, 1995, 1998, \dots, 2005$) based on Equation 1, where 1996 is the omitted group. The figure also presents the estimated pre-policy linear relationship between the outcome and year (β_1) based on Equation 2.



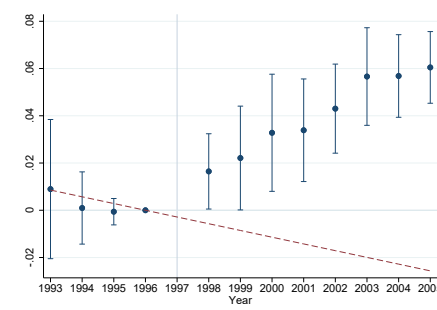
(a) Earnings > \$3,500
(20–24 in 1998)
Quebec Mean in 1996: 0.69



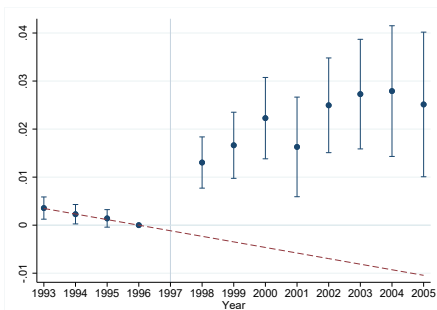
(b) Earnings > \$14,000
(20–24 in 1998)
Quebec Mean in 1996: 0.18



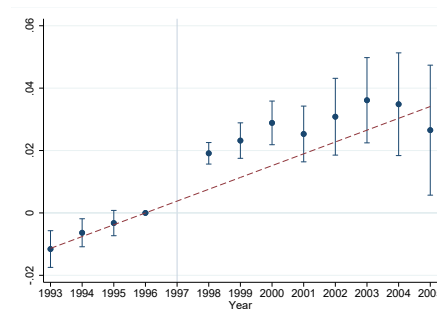
(c) Earnings > \$3,500
(25–29 in 1998)
Quebec Mean in 1996: 0.71



(d) Earnings > \$14,000
(25–29 in 1998)
Quebec Mean in 1996: 0.42



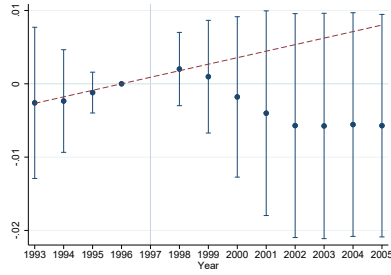
(e) Earnings > \$3,500
(30–34 in 1998)
Quebec Mean in 1996: 0.70



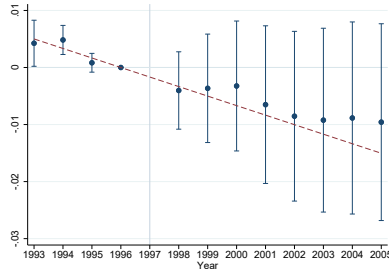
(f) Earnings > \$14,000
(30–34 in 1998)
Quebec Mean in 1996: 0.50

Figure 3: Effect of Quebec Family Policy on Female Employment by Cohort

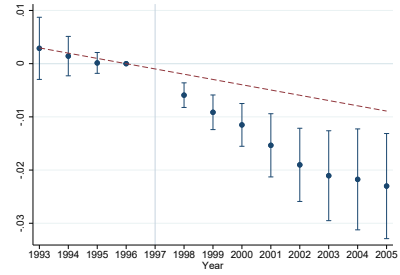
Notes: The sample comprises women who were consistently present in the LAD from 1993–2005. The first, second, and last two panels are based on women aged from 20–24, 25–29, and 30–34 in 1998, respectively (i.e., birth years 1974–1978, 1969–1973, and 1964–1968, respectively). The dependent variables are dummy variables indicating whether a woman has employment income above \$3,500 and \$14,000 (in 2002 dollars). The figure presents the event study estimates of β_t ($t = 1993, 1994, 1995, 1998, \dots, 2005$) based on Equation 1, where 1996 is the omitted group. The figure also presents the estimated pre-policy linear relationship between the outcome and year (β_1) based on Equation 2.



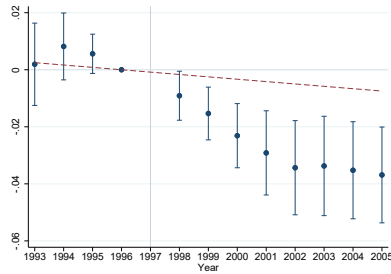
(a) Having First Child
(Low Income)
Quebec Mean in 1996: 0.71



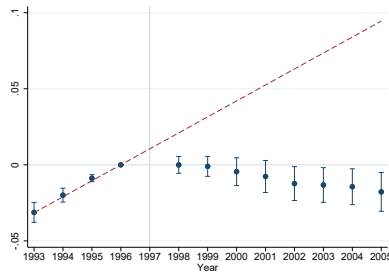
(b) Having Second Child
(Low Income)
Quebec Mean in 1996: 0.47



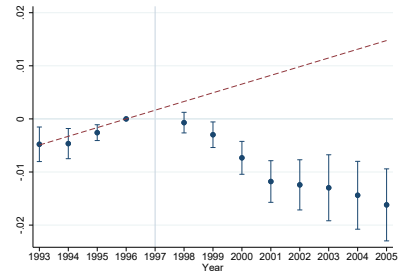
(c) Having Third+ Child
(Low Income)
Quebec Mean in 1996: 0.21



(d) Having First Child
(High Income)
Quebec Mean in 1996: 0.67



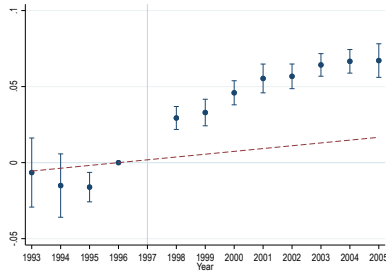
(e) Having Second Child
(High Income)
Quebec Mean in 1996: 0.41



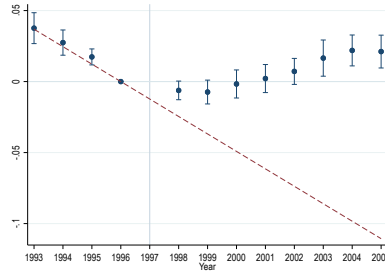
(f) Having Third+ Child
(High Income)
Quebec Mean in 1996: 0.12

Figure 4: Effect of Quebec Family Policy on Fertility by Family Income Group
(Women Aged 30–34 in 1998)

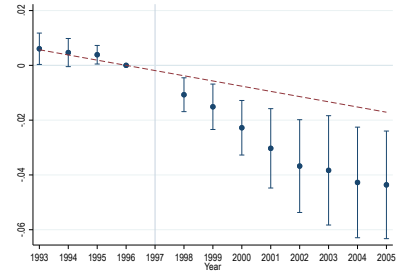
Notes: The sample comprises women from aged 30–34 in 1998 (i.e., born between 1964 and 1968) who were consistently present in the LAD from 1993–2005. The first and last three panels are based on low- and high-income women (depending on whether their pre-policy average family incomes were below or above the median), respectively. The dependent variables are dummy variables indicating whether a woman has her first, second, and third (or subsequent) child. The figure presents the event study estimates of β_t ($t = 1993, 1994, 1995, 1998, \dots, 2005$) based on Equation 1, where 1996 is the omitted group, as well as the estimated pre-policy linear relationship between the outcome and year (β_1) based on Equation 2.



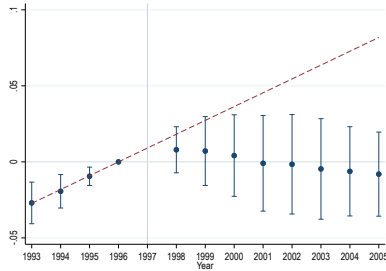
(a) Having First Child
(20–24 in 1998)
Quebec Mean in 1996: 0.41



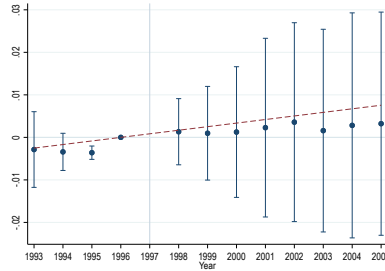
(b) Having Second Child
(20–24 in 1998)
Quebec Mean in 1996: 0.12



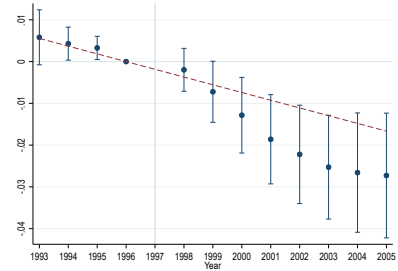
(c) Having Third+ Child
(20–24 in 1998)
Quebec Mean in 1996: 0.02



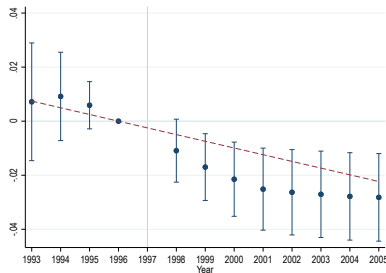
(d) Having First Child
(25–29 in 1998)
Quebec Mean in 1996: 0.54



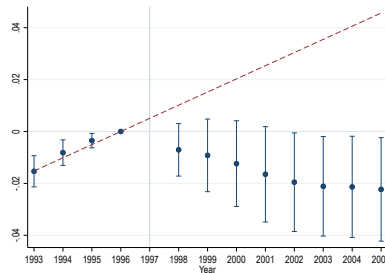
(e) Having Second Child
(25–29 in 1998)
Quebec Mean in 1996: 0.24



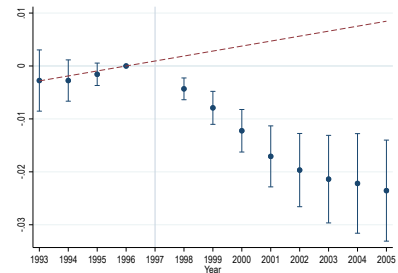
(f) Having Third+ Child
(25–29 in 1998)
Quebec Mean in 1996: 0.07



(g) Having First Child
(30–34 in 1998)
Quebec Mean in 1996: 0.78



(h) Having Second Child
(30–34 in 1998)
Quebec Mean in 1996: 0.51



(i) Having Third+ Child
(30–34 in 1998)
Quebec Mean in 1996: 0.19

Figure 5: Effect of Quebec Family Policy on Fertility by Cohort: Women Married in 1996

Notes: The sample comprises women who were married or in common-law relationships in 1996 and were consistently present in the LAD from 1993–2005. The first, second, and last three panels are based on women aged from 20–24, 25–29, and 30–34 in 1998, respectively (i.e., birth years 1974–1978, 1969–1973, and 1964–1968, respectively). The dependent variables are dummy variables indicating whether a woman has her first, second, and third (or subsequent child). The figure presents the event study estimates of β_t ($t = 1993, 1994, 1995, 1998, \dots, 2005$) based on Equation 1, where 1996 is the omitted group. The figure also presents the estimated pre-policy linear relationship between the outcome and year (β_1) based on Equation 2.

Table 1: Government Expenditures on ANC and Universal Childcare

ANC			Universal Childcare (Total Subsidies)		
Year	In Million \$	% of Quebec GDP	Fiscal Year [†]	In Million \$	% of Quebec GDP
1988	52	0.04	1996-1997	288	0.16
1989	111	0.08	1997-1998	294	0.16
1990	151	0.10	1998-1999	470	0.23
1991	180	0.12	1999-2000	642	0.30
1992	197	0.13	2000-2001	844	0.38
1993	195	0.13	2001-2002	1,020	0.44
1994	196	0.12	2002-2003	1,206	0.50
1995	191	0.11	2003-2004	1,310	0.52
1996	186	0.11	2004-2005	1,386	0.53

Sources: Milligan (2002) for the ANC and Lefebvre et al. (2010) for the universal childcare.

[†] The fiscal year runs from April to March.

Table 2: Effect of Quebec Family Policy on Fertility (in Percentage Points): Aged 20–24 in 1998

Year	Having First Child			Having Second Child			Having Third Child		
	(1) Event Study	(2) Mean in ROC	(3) Implied %*	(4) Event Study	(5) Mean in ROC	(6) Implied %*	(7) Event Study	(8) Mean in ROC	(9) Implied %*
1998	2.47*** (0.23)	29.35	9.29	0.79*** (0.22)	12.61	7.75	-0.17* (0.08)	3.24	-6.50
1999	3.19*** (0.35)	33.00	10.53	1.17*** (0.26)	15.50	9.25	-0.22 (0.14)	4.35	-6.11
2000	4.25*** (0.57)	36.99	12.37	2.14*** (0.36)	18.41	14.14	-0.31 (0.18)	5.56	-6.62
2001	5.03*** (1.04)	41.36	12.97	3.08*** (0.42)	21.64	17.18	-0.42 (0.25)	6.81	-7.24
2002	5.49*** (1.54)	45.94	12.64	4.01*** (0.40)	24.99	19.23	-0.39 (0.29)	8.09	-5.61
2003	6.03*** (2.09)	51.02	12.42	5.35*** (0.46)	28.52	22.13	-0.29 (0.33)	9.47	-3.53
2004	6.47*** (2.54)	55.79	12.12	6.32*** (0.45)	32.36	23.10	-0.14 (0.33)	10.97	-1.46
2005	6.58*** (2.88)	60.45	11.32	7.14*** (0.61)	36.60	22.91	-0.21 (0.31)	12.46	-1.92
<i>EventYear_{pt}</i>	0.060 (0.24)			-0.43** (0.16)			-0.13 (0.081)		
Observations [†]		666,610			666,610			666,610	
Mean in 1996									
Quebec		19.93			5.72			0.97	
ROC		22.81			7.28			1.34	

Notes: The table presents the parametric event study estimates in Equation 2. All coefficients are expressed in percentage points. The sample comprises women aged 20–24 in 1998 (i.e., birth years 1974–1978) who were consistently present in the LAD from 1993–2005. Standard errors are in parentheses and clustered at the province level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[†] Counts are rounded to the nearest 5 due to the LAD vetting rules.

* Magnitude of the effect in percentage relative to the “counterfactual Quebec.” Refer to footnote 11 for further details.

Table 3: Effect of Quebec Family Policy on Fertility (in Percentage Points): Aged 25–29 in 1998

Year	Having First Child			Having Second Child			Having Third Child		
	(1) Event Study	(2) Mean in ROC	(3) Implied %*	(4) Event Study	(5) Mean in ROC	(6) Implied %*	(7) Event Study	(8) Mean in ROC	(9) Implied %*
1998	0.10 (0.35)	50.91	0.19	0.30 (0.35)	27.75	1.16	0.30** (0.12)	9.30	4.06
1999	-0.16 (0.69)	55.71	-0.18	0.40 (0.50)	32.05	1.32	0.15 (0.17)	10.91	1.70
2000	-0.96 (1.08)	60.52	-1.44	0.56 (0.70)	36.13	1.62	-0.01 (0.22)	12.53	0.00
2001	-2.11 (1.64)	65.22	-3.10	0.77 (1.06)	40.54	1.98	-0.12 (0.31)	14.24	-0.85
2002	-3.07 (1.99)	69.08	-4.14	1.08 (1.38)	44.59	2.50	-0.17 (0.41)	15.93	-0.75
2003	-4.35* (2.27)	72.53	-5.61	0.78 (1.67)	48.32	1.66	-0.17 (0.50)	17.52	-0.68
2004	-5.42** (2.27)	75.41	-6.73	0.86 (2.05)	51.64	1.71	-0.11 (0.66)	19.03	-0.62
2005	-6.39** (2.27)	77.68	-7.57	0.62 (2.31)	54.66	1.16	-0.12 (0.82)	20.47	-0.58
<i>EventYear_{pt}</i>	0.74*** (0.085)			0.09 (0.17)			-0.19 (0.11)		
Observations [†]	1,685,940			1,685,940			1,685,940		
Mean in 1996									
Quebec	40.15			17.75			4.99		
ROC	41.25			19.73			6.52		

Notes: The table presents the parametric event study estimates in Equation 2. All coefficients are expressed in percentage points. The sample comprises women aged 25–29 in 1998 (i.e., birth years 1969–1973) who were consistently present in the LAD from 1993 to 2005. Standard errors are in parentheses and clustered at the province level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[†] Counts are rounded to the nearest 5 due to the LAD vetting rules.

* Magnitude of the effect in percentage relative to the “counterfactual Quebec.” Refer to footnote 11 for further details.

Table 4: Effect of Quebec Family Policy on Fertility (in Percentage Points): Aged 30–34 in 1998

Year	Having First Child			Having Second Child			Having Third Child		
	(1) Event Study	(2) Mean in ROC	(3) Implied %*	(4) Event Study	(5) Mean in ROC	(6) Implied %*	(7) Event Study	(8) Mean in ROC	(9) Implied %*
1998	-0.37*** (0.09)	75.31	-0.49	-1.17*** (0.30)	53.60	-2.22	-0.41*** (0.11)	23.37	-1.97
1999	-0.625** (0.23)	77.78	-0.80	-1.61*** (0.39)	56.87	-2.86	-0.74*** (0.16)	24.95	-3.30
2000	-1.02** (0.34)	79.90	-1.26	-2.15*** (0.46)	59.52	-3.62	-1.12*** (0.22)	26.38	-4.69
2001	-1.28** (0.43)	81.57	-1.48	-2.85*** (0.53)	61.91	-4.59	-1.60*** (0.29)	27.68	-6.34
2002	-1.47** (0.61)	82.81	-1.79	-3.53*** (0.57)	63.72	-5.50	-1.88*** (0.37)	28.66	-7.16
2003	-1.28 (0.84)	83.72	-1.55	-3.96*** (0.58)	65.11	-6.01	-2.06*** (0.45)	29.44	-7.61
2004	-1.19 (1.13)	84.44	-1.43	-4.32*** (0.59)	66.06	-6.43	-2.21*** (0.55)	30.03	-7.98
2005	-1.11 (1.40)	84.97	-1.33	-4.86*** (0.60)	66.87	-7.12	-2.41*** (0.60)	30.47	-8.55
<i>EventYear_{pt}</i>	-0.17 (0.27)			0.32*** (0.08)			0.04 (0.08)		
Observations [†]	2,095,910			2,095,910			2,095,910		
Mean in 1996									
Quebec	68.96			43.99			17.20		
ROC	68.76			45.47			19.87		

Notes: The table presents the parametric event study estimates in Equation 2. All coefficients are expressed in percentage points. The sample comprises women aged 30–34 in 1998 (i.e., birth years 1964–1968) who were consistently present in the LAD from 1993 to 2005. Standard errors are in parentheses and clustered at the province level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[†] Counts are rounded to the nearest 5 due to the LAD vetting rules.

* Magnitude of the effect in percentage relative to the “counterfactual Quebec.” Refer to footnote 11 for further details.

Table 5: Effect of Quebec Family Policy on Employment (in Percentage Points):
Aged 20–24 in 1998

Year	Earnings >\$3,500			Earnings >\$14,000		
	(1) Event Study	(2) Mean in ROC	(3) Implied %*	(4) Event Study	(5) Mean in ROC	(6) Implied %*
1998	-0.68 (0.91)	77.83	-0.88	3.47 (2.77)	41.67	9.16
1999	-0.91 (1.46)	80.21	-1.14	4.05 (4.52)	50.71	8.73
2000	-0.37 (1.76)	81.48	-0.44	3.76 (5.80)	57.71	7.12
2001	-0.81 (1.87)	82.33	-0.97	4.51 (6.44)	61.32	8.07
2002	0.70 (2.10)	81.68	0.86	5.06 (7.03)	61.98	9.03
2003	0.74 (2.21)	81.55	0.90	7.16 (7.61)	62.49	12.79
2004	0.48 (2.31)	81.68	0.59	7.72 (7.83)	63.33	13.72
2005	0.17 (2.30)	81.62	0.21	8.03 (8.02)	64	14.25
<i>EventYear_{pt}</i>	0.27 (0.23)			-0.56 (0.49)		
Observations [†]		666,610			666,610	
Mean in 1996						
Quebec		68.92			17.73	
ROC		70.18			20.42	

Notes: The table presents the parametric event study estimates in Equation 2. All coefficients are expressed in percentage points. The sample comprises women aged 20–24 in 1998 (i.e., birth years 1974–1978) who were consistently present in the LAD from 1993–2005. Standard errors are in parentheses and clustered at the province level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[†] Counts are rounded to the nearest 5 due to the LAD vetting rules.

* Magnitude of the effect in percentage relative to the “counterfactual Quebec.” Refer to footnote 11 for further details.

Table 6: Effect of Quebec Family Policy on Employment (in Percentage Points):
Aged 25–29 in 1998

Year	Earnings >\$3,500			Earnings >\$14,000		
	(1) Event Study	(2) Mean in ROC	(3) Implied %*	(4) Event Study	(5) Mean in ROC	(6) Implied %*
1998	1.37*** (0.20)	75.51	1.86	2.41*** (0.65)	54.28	4.81
1999	2.08*** (0.31)	76.87	2.78	3.26*** (0.85)	56.87	6.22
2000	2.93*** (0.46)	77.47	3.91	4.62*** (1.20)	58.40	8.60
2001	3.03*** (0.63)	78.41	3.99	5.01*** (1.86)	59.46	9.19
2002	4.40*** (0.94)	77.54	5.88	6.21*** (2.56)	58.61	11.64
2003	5.22*** (1.29)	77.62	7.00	7.85*** (3.04)	58.98	14.70
2004	5.76*** (1.63)	77.89	7.71	8.16*** (3.79)	60.06	15.05
2005	6.24*** (1.98)	78.16	8.35	8.81*** (4.37)	60.90	16.08
<i>EventYear_{pt}</i>	-0.19 (0.23)			-0.29 (0.50)		
Observations [†]		1,685,940			1,685,940	
Mean in 1996						
Quebec		70.84			41.72	
ROC		72.53			45.34	

Notes: The table presents the parametric event study estimates in Equation 2. All coefficients are expressed in percentage points. The sample comprises women aged 25–29 in 1998 (i.e., birth years 1969–1973) who were consistently present in the LAD from 1993–2005. Standard errors are in parentheses and clustered at the province level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[†] Counts are rounded to the nearest 5 due to the LAD vetting rules.

* Magnitude of the effect in percentage relative to the “counterfactual Quebec.” Refer to footnote 11 for further details.

Table 7: Effect of Quebec Family Policy on Employment (in Percentage Points):
Aged 30–34 in 1998

Year	Earnings >\$3,500			Earnings >\$14,000		
	(1) Event Study	(2) Mean in ROC	(3) Implied %*	(4) Event Study	(5) Mean in ROC	(6) Implied %*
1998	1.53*** (0.26)	72.59	2.16	1.12*** (0.23)	54.74	2.09
1999	2.00*** (0.32)	74.18	2.77	1.15*** (0.47)	56.45	2.07
2000	2.68*** (0.41)	75.19	3.66	1.33*** (0.58)	57.75	2.34
2001	2.20*** (0.53)	77.36	2.92	0.60 (0.69)	59.82	1.01
2002	3.18*** (0.51)	77.23	4.24	0.77 (0.85)	60.09	1.29
2003	3.53*** (0.60)	77.82	4.67	0.92 (0.95)	61.07	1.50
2004	3.71*** (0.76)	78.63	4.86	0.42 (1.04)	62.50	0.66
2005	3.55*** (0.88)	79.37	4.61	-0.79 (1.19)	64.08	-1.21
<i>EventYear_{pt}</i>	-0.12*** (0.04)			0.38*** (0.09)		
Observations [†]		2,095,910			2,095,910	
Mean in 1996						
Quebec		69.65			49.96	
ROC		71.12			52.20	

Notes: The table presents the parametric event study estimates in Equation 2. All coefficients are expressed in percentage points. The sample comprises women aged 30–34 in 1998 (i.e., birth years 1964–1948) who were consistently present in the LAD from 1993–2005. Standard errors are in parentheses and clustered at the province level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[†] Counts are rounded to the nearest 5 due to the LAD vetting rules.

* Magnitude of the effect in percentage relative to the “counterfactual Quebec.” Refer to footnote 11 for further details.

Table 8: Effect of Quebec Family Policy on Fertility (in Percentage Points):
Aged 30–34 in 1998 from Low-Income Families

Year	Having First Child			Having Second Child			Having Third Child		
	(1) Event Study	(2) Mean in ROC	(3) Implied %*	(4) Event Study	(5) Mean in ROC	(6) Implied %*	(7) Event Study	(8) Mean in ROC	(9) Implied %*
1998	0.04 (0.20)	78.50	0.06	-0.07 (0.25)	58.53	-0.11	-0.36* (0.18)	29.97	-1.41
1999	-0.15 (0.27)	80.26	-0.20	0.14 (0.34)	60.91	0.26	-0.58** (0.237)	31.49	-2.18
2000	-0.52 (0.30)	81.85	-0.65	0.35 (0.40)	62.88	0.62	-0.72** (0.32)	32.81	-2.59
2001	-0.83** (0.37)	83.18	-1.03	0.19 (0.48)	64.73	0.33	-1.00** (0.43)	33.99	-3.51
2002	-1.09** (0.46)	84.19	-1.33	0.15 (0.50)	66.26	0.26	-1.27** (0.51)	34.95	-4.29
2003	-1.18* (0.59)	84.98	-1.44	0.25 (0.52)	67.44	0.42	-1.37** (0.63)	35.72	-4.56
2004	-1.25 (0.74)	85.55	-1.52	0.46 (0.50)	68.27	0.75	-1.34* (0.75)	36.30	-4.39
2005	-1.36 (0.91)	85.96	-1.63	0.55 (0.49)	68.97	0.90	-1.37 (0.80)	36.75	-4.44
<i>EventYear_{pt}</i>	0.09 (0.18)			-0.17** (0.07)			-0.10 (0.20)		
Observations [†]		1,048,055			1,048,055			1,048,055	
Mean in 1996									
Quebec		70.78			46.64			21.44	
ROC		74.55			52.65			26.44	

Notes: The table presents the parametric event study estimates in Equation 2. All coefficients are expressed in percentage points. The sample comprises women aged 30–34 in 1998 (i.e., birth years 1964–1968) who were consistently present in the LAD from 1993–2005. This table focuses on low-income women whose pre-policy family income was below the median. Standard errors are in parentheses and clustered at the province level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[†] Counts are rounded to the nearest 5 due to the LAD vetting rules.

* Magnitude of the effect in percentage relative to the “counterfactual Quebec.” Refer to footnote 11 for further details.

Table 9: Effect of Quebec Family Policy on Fertility (in Percentage Points):
Aged 30–34 in 1998 from High-Income Families

Year	Having First Child			Having Second Child			Having Third Child		
	(1) Event Study	(2) Mean in ROC	(3) Implied %*	(4) Event Study	(5) Mean in ROC	(6) Implied %*	(7) Event Study	(8) Mean in ROC	(9) Implied %*
1998	-1.01*** (0.18)	72.30	-1.34	-0.18*** (0.25)	48.95	-0.32	-0.34*** (0.09)	17.13	-2.12
1999	-1.55*** (0.34)	75.45	-1.97	-3.32*** (0.34)	53.05	-5.69	-0.74*** (0.13)	18.78	-4.10
2000	-2.25*** (0.48)	78.06	-2.76	-4.72*** (0.43)	56.34	-7.53	-1.33*** (0.18)	20.29	-6.82
2001	-2.77*** (0.56)	80.04	-3.32	-6.09*** (0.55)	59.24	-9.13	-1.94*** (0.18)	21.74	-9.20
2002	-3.21*** (0.73)	81.51	-3.79	-7.61*** (0.66)	61.34	-10.89	-2.17*** (0.22)	22.72	-9.75
2003	-3.06*** (0.92)	82.52	-3.58	-8.75*** (0.74)	62.91	-12.07	-2.39*** (0.26)	23.50	-10.26
2004	-3.13** (1.20)	83.40	-3.62	-9.91*** (0.82)	63.97	-13.30	-2.69*** (0.33)	24.09	-11.23
2005	-3.21** (1.47)	84.03	-3.69	-11.30*** (0.90)	64.89	-14.78	-3.04*** (0.37)	24.54	-12.34
<i>EventYear_{pt}</i>	-0.08 (0.25)			1.05*** (0.11)			0.16** (0.06)		
Observations [†]		1,047,850			1,047,850			1,047,850	
Mean in 1996									
Quebec		66.78			40.84			12.21	
ROC		63.29			38.71			13.67	

Notes: The table presents the parametric event study estimates in Equation 2. All coefficients are expressed in percentage points. The sample comprises women aged 30–34 in 1998 (i.e., birth years 1964–1968) who were consistently present in the LAD from 1993–2005. This table focuses on high-income women whose pre-policy family income was above the median. Standard errors are in parentheses and clustered at the province level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[†] Counts are rounded to the nearest 5 due to the LAD vetting rules.

* Magnitude of the effect in percentage relative to the “counterfactual Quebec.” Refer to footnote 11 for further details.

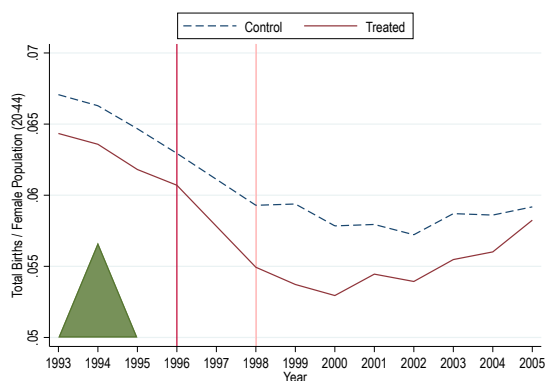
Appendix

A Synthetic Difference-in-differences Estimates of the Effect of Quebec Family Policy on Fertility

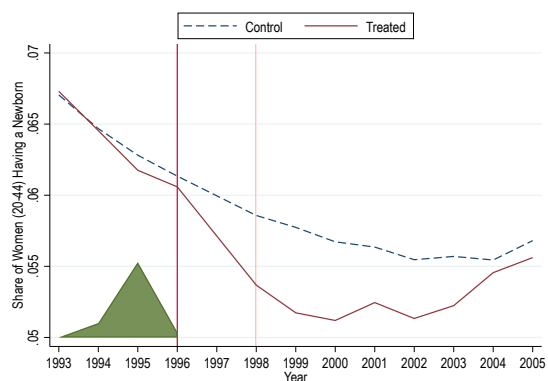
In addition to using the synthetic control method, we apply the synthetic difference-in-differences (SDID) estimator proposed by [Arkhangelsky et al. \(2021\)](#). The SDID estimator differs from the synthetic control estimator in two key ways. First, SDID reweights untreated units to ensure the trend is parallel (not necessarily identical) to the trend of the treated unit before the intervention. Second, SDID introduces time weights to focus on a subset of pre-intervention periods. These time weights are chosen so that the average post-intervention outcome for each untreated unit differs by a constant from the weighted average of the pre-intervention outcome for the same unit. These unit and time weights are then used in a basic two-way fixed effects regression to estimate the average treatment effect. [Arkhangelsky et al. \(2021\)](#) propose three ways to estimate the variance. The “placebo method” is used when the number of treated units is small—in our case, there is only one treated unit, namely Quebec. This inference method builds on the permutation inference procedure used in the synthetic control method.

Figure [A.1](#) shows the fertility outcome trends for Quebec and the control group constructed using SDID unit weights. The figure also displays the time weights applied to the pre-intervention periods. It demonstrates that SDID is able to find unit weights such that the control group’s time trend is parallel to Quebec’s trend, especially in the pre-intervention periods with higher weights.

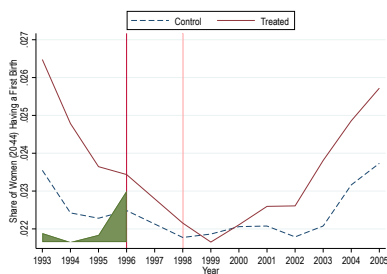
Table [A.1](#) compares the SDID and synthetic control estimates of the average effect of the Quebec Family Policy on fertility. Both methods suggest that the policy had a negligible and imprecisely estimated effect on the share of women having a first birth. In contrast, both methods indicate that the policy decreased the share of women having a second birth and a third or higher-order birth, although only the estimates for the second birth are statistically significant.



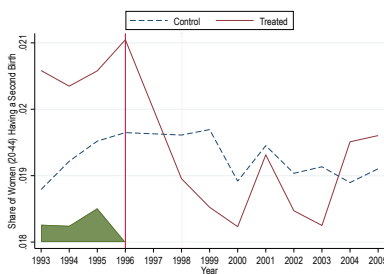
(a) Total Births/Females (20–44)



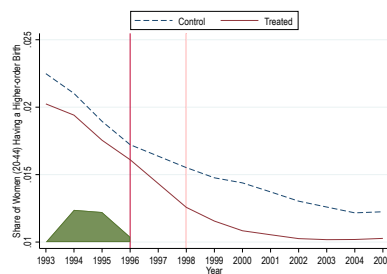
(b) Having a Newborn



(c) Having a First Birth



(d) Having a Second Birth



(e) Having a Third+ Birth

Figure A.1: SDID Estimation: Effect of Quebec Family Policy on Fertility

Notes: This figure presents the trend of the fertility outcomes for Quebec and the SDID weighted average of other provinces. The figure also presents the SDID time weights on the pre-intervention periods. The outcomes include the fertility rate (total birth/female population aged 20–44) calculated from Vital Statistics (panel a), and the share of women aged 20–44 having a newborn, a first birth, a second birth, and a third (or higher-order) birth from LAD (panels b–e).

Table A.1: Synthetic Control vs. Synthetic Difference-in-Differences:
Average Effect of Quebec Family Policy on Fertility

	Fertility Rate (1)	Newborn (2)	First Birth (3)	Second Birth (4)	Third+ Birth (5)
SDID	-0.085 (0.159)	-0.285 (0.199)	-0.039 (0.155)	-0.164* (0.099)	-0.127 (0.118)
SC	-0.133 (0.196)	-0.295 (0.245)	0.011 (0.166)	-0.202* (0.109)	-0.151 (0.156)

Notes: The table presents the synthetic difference-in-differences (SDID) and synthetic control (SC) estimates of the average effect of the Quebec Family Policy on fertility. The placebo variance estimation method is used with 200 repetitions. Standard errors are in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

B Supplementary Tables and Figures

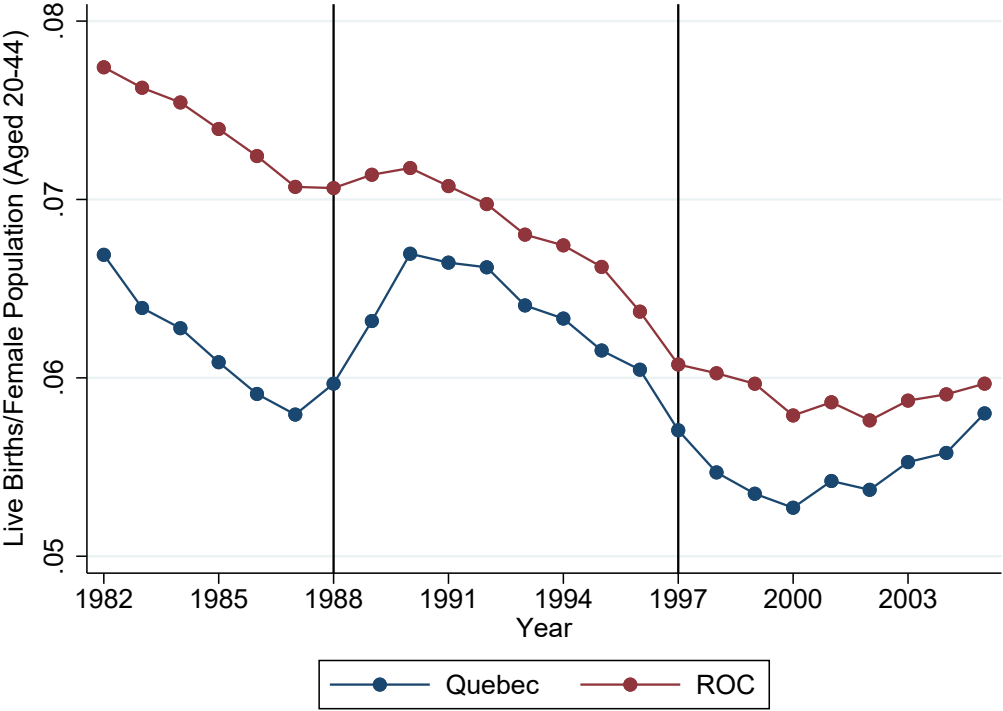
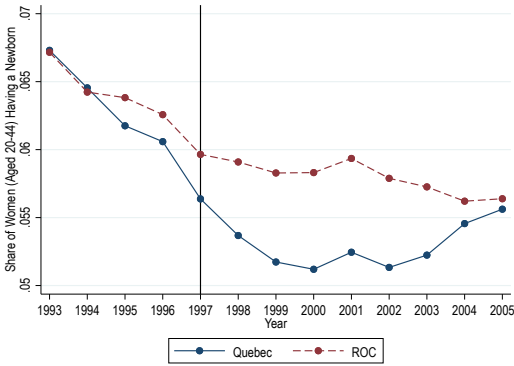
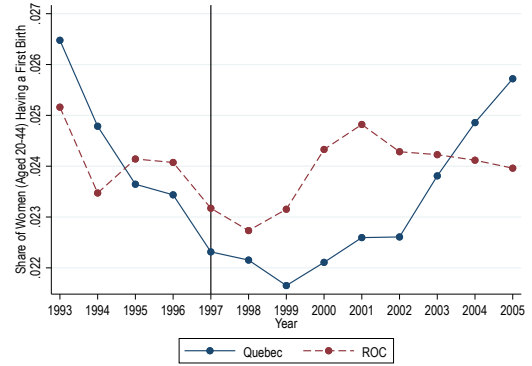


Figure B.1: Trends in Fertility: Quebec vs. Rest of Canada (Vital Statistics 1982–2005)

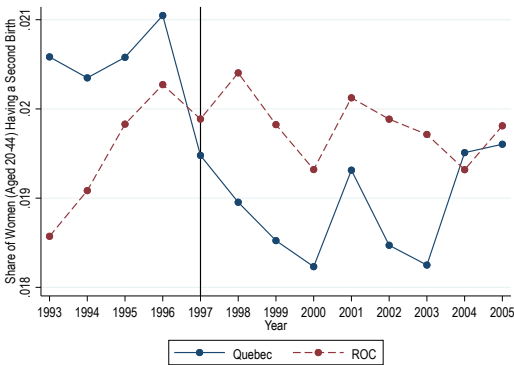
Notes: This figure plots fertility rates in Quebec and the rest of Canada from 1982–2005, using data on live births and population from Statistics Canada (catalog no. 84-210-XIB and Table 17-10-0005-01). The fertility rate is computed as the number of live births over the female population aged 20–44.



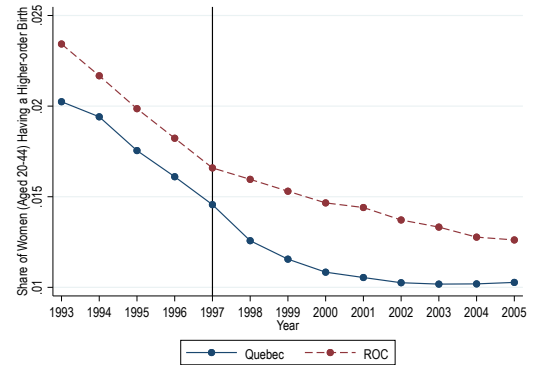
(a) Having Newborn (Aged 0)



(b) Having First Birth (Aged 0)



(c) Having Second Birth (Aged 0)



(d) Having Third+ Birth (Aged 0)

Figure B.2: Trends in Fertility: Quebec vs. Rest of Canada (LAD 1993–2005)

Notes: The sample comprises all women aged 20–44 in the LAD each year from 1993–2005. The figures present the share of women having a newborn (panel a), a first birth (panel b), a second birth (panel c), and a third or higher-order birth (panel d) in Quebec versus the rest of Canada.

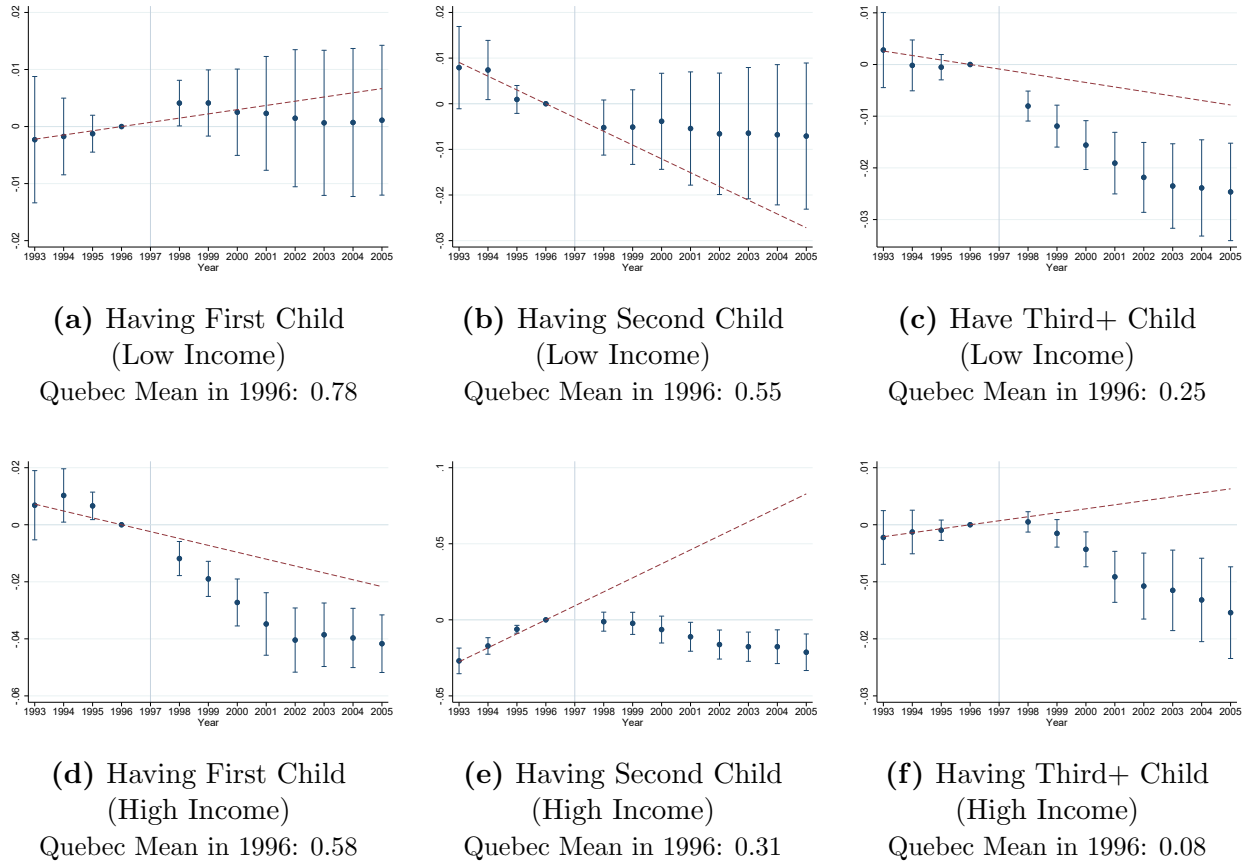


Figure B.3: Effect of Quebec Family Policy on Fertility by Individual Income Group (Women Aged 30–34 in 1998)

Notes: The sample comprises women aged 30–34 in 1998 (i.e., born between 1964 and 1968) who were consistently present in the LAD from 1993–2005. The first and last three panels are based on low- and high-income women (depending on whether their pre-policy average individual income was below or above the median), respectively. The dependent variables are dummy variables indicating whether a woman has her first, second, and third or subsequent child. The figure presents the event study estimates of β_t ($t = 1993, 1994, 1995, 1998, \dots, 2005$) based on Equation 1, where 1996 is the omitted group, as well as the the estimated pre-policy linear relationship between the outcome and year (β_1) based on Equation 2.

Table B.1: Synthetic Control: Effect of Quebec Family Policy on Fertility
(in Percentage Points)

	Fertility Rate		Newborn		First Birth		Second Birth		Third+ Birth	
	effects	<i>p</i> -values	effects	<i>p</i> -values	effects	<i>p</i> -values	effects	<i>p</i> -values	effects	<i>p</i> -values
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1998	-0.17	0.33	-0.38	0.11	-0.04	0.56	-0.22	0.11	-0.16	0.33
1999	-0.36	0.11	-0.59	0.00	-0.03	0.78	-0.23	0.00	-0.21	0.44
2000	-0.30	0.11	-0.48	0.00	-0.22	0.67	-0.19	0.11	-0.19	0.22
2001	-0.14	0.78	-0.31	0.56	-0.05	1.00	-0.13	0.33	-0.21	0.22
2002	-0.12	0.67	-0.33	0.44	0.00	1.00	-0.20	0.00	-0.18	0.33
2003	-0.12	0.67	-0.29	0.56	0.08	0.44	-0.33	0.11	-0.13	0.22
2004	-0.04	1	0.08	1.00	0.09	0.78	-0.17	0.78	-0.09	0.67
2005	0.13	0.78	-0.05	0.89	0.16	0.11	-0.14	0.22	-0.05	0.67
Pre-policy Mean [†]	6.26		6.36		2.46		2.06		1.83	

Notes: The table presents the synthetic control estimates of the treatment effect of the Quebec Family Policy on fertility for each post-policy year. The outcome in columns (1)–(2) is the number of total births/female population aged 20–44 calculated from the Vital Statistics. The remaining outcomes in the table include the share of women aged 20–44 having a newborn (aged 0), a first birth, a second birth, and a third or higher-order birth based on a repeated cross-sectional sample comprising women aged 20–44 in the LAD each year from 1993–2005. The *p*-values are the fractions of placebo effects that are at least as large as the main effect for each post-treatment period.

[†] The mean of the outcome for Quebec from 1993–1996.

Table B.2: Province Weights in the Synthetic Quebec

Provinces	Fertility Rate (1)	Newborn (2)	First Birth (3)	Second Birth (4)	Third+ Birth (5)
Newfoundland and Labrador	0.348	0.08	0	0	0
Prince Edward Island	0.178	0.227	0	0	0
Nova Scotia	0.163	0.382	0.031	0.01	0.008
New Brunswick	0.036	0	0	0.038	0.287
Ontario	0.036	0	0.321	0	0.706
Manitoba	0.037	0	0	0	0
Saskatchewan	0.126	0.311	0	0.33	0
Alberta	0.037	0	0	0.622	0
British Columbia	0.039	0	0.648	0	0

Notes: The table presents the weights of each untreated province in the synthetic control for each fertility outcome. The outcome in column (1) is the number of total births/female population aged 20–44 calculated from the Vital Statistics. The remaining outcomes in the table include the share of women aged 20–44 having a newborn (aged 0), a first birth, a second birth, and a third or higher-order birth based on a repeated cross-sectional sample comprising women aged 20–44 in the LAD each year from 1993–2005.

Table B.3: Effect of Quebec Family Policy on Fertility Among Women Married in 1996 (in Percentage Points): Aged 20–24 in 1998

Year	Having First Child			Having Second Child			Having Third Child		
	(1) Event Study	(2) Mean in ROC	(3) Implied %*	(4) Event Study	(5) Mean in ROC	(6) Implied %*	(7) Event Study	(8) Mean in ROC	(9) Implied %*
1998	3.23*** (0.78)	62.61	5.74	1.62*** (0.42)	31.13	5.59	-0.77*** (0.21)	7.91	-11.55
1999	3.41** (1.14)	68.01	5.50	2.73*** (0.57)	38.25	7.35	-1.02*** (0.22)	10.53	-11.21
2000	4.52*** (1.46)	72.79	6.75	4.53*** (0.68)	44.69	10.11	-1.60*** (0.23)	13.51	-13.38
2001	5.27** (1.89)	76.56	7.44	6.14*** (0.84)	50.84	11.76	-2.16*** (0.34)	16.58	-14.62
2002	5.23* (2.49)	79.84	7.03	7.87*** (1.00)	55.86	13.46	-2.62*** (0.39)	19.51	-14.90
2003	5.79* (2.93)	82.44	7.52	10.04*** (1.21)	60.20	15.62	-2.59*** (0.51)	22.24	-12.87
2004	5.85* (3.22)	84.79	7.34	11.81*** (1.38)	63.92	17.11	-2.84*** (0.52)	24.95	-12.54
2005	5.71 (3.67)	86.62	7.00	12.59*** (1.66)	67.13	17.03	-2.74*** (0.46)	27.20	-11.08
<i>EventYear_{pt}</i>	0.19 (0.40)			1.23*** (0.19)			-0.19* (0.10)		
Observations [†]		169,750			169,750			169,750	
Mean in 1996									
Quebec		40.90			12.33			2.32	
ROC		47.59			17.11			3.18	

Notes: The table presents the parametric event study estimates in Equation 2. All coefficients are expressed in percentage points. The sample comprises women aged 20–24 in 1998 (i.e., birth years 1974–1978) who were married or in common-law relationships in 1996 and were consistently present in the LAD from 1993–2005. Standard errors are in parentheses and clustered at the province level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[†] Counts are rounded to the nearest 5 due to the LAD vetting rules.

* Magnitude of the effect in percentage relative to the “counterfactual Quebec.” Refer to footnote 11 for further details.

Table B.4: Effect of Quebec Family Policy on Fertility Among Women Married in 1996 (in Percentage Points): Aged 25–29 in 1998

Year	Having First Child			Having Second Child			Having Third Child		
	(1) Event Study	(2) Mean in ROC	(3) Implied %*	(4) Event Study	(5) Mean in ROC	(6) Implied %*	(7) Event Study	(8) Mean in ROC	(9) Implied %*
1998	-0.99** (0.39)	69.10	-1.28	0.09 (0.67)	39.46	0.21	0.11 (0.17)	12.50	1.06
1999	-1.98*** (0.56)	74.87	-2.46	-0.03 (0.93)	46.22	0.00	-0.23 (0.24)	14.88	-1.59
2000	-3.19*** (0.60)	79.42	-3.76	-0.09 (1.30)	52.08	0.00	-0.60* (0.31)	17.24	-4.06
2001	-4.60*** (0.67)	83.12	-5.28	-0.07 (1.74)	57.81	0.00	-0.99* (0.47)	19.74	-5.26
2002	-5.59*** (0.65)	85.65	-6.07	-0.02 (2.01)	62.40	0.00	-1.17* (0.63)	22.03	-5.73
2003	-6.79*** (0.72)	87.62	-7.17	-0.31 (2.19)	65.98	-0.47	-1.29 (0.74)	24.08	-5.70
2004	-7.86*** (0.86)	89.15	-8.13	-0.27 (2.46)	68.63	-0.30	-1.24 (0.88)	25.81	-5.31
2005	-8.95*** (1.10)	90.24	-9.09	-0.31 (2.60)	70.70	-0.43	-1.13 (1.04)	27.32	-4.60
<i>EventYear_{pt}</i>	0.91*** (0.24)			0.08 (0.15)			-0.19 (0.11)		
Observations [†]		902,845			902,845			902,845	
Mean in 1996									
Quebec		53.72			24.38			6.63	
ROC		54.22			26.56			8.35	

Notes: The table presents the parametric event study estimates in Equation 2. All coefficients are expressed in percentage points. The sample comprises women aged 25–29 in 1998 (i.e., birth years 1969–1973) who were married or in common-law relationships in 1996 and were consistently present in the LAD from 1993–2005. Standard errors are in parentheses and clustered at the province level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[†] Counts are rounded to the nearest 5 due to the LAD vetting rules.

* Magnitude of the effect in percentage relative to the “counterfactual Quebec.” Refer to footnote 11 for further details.

Table B.5: Effect of Quebec Family Policy on Fertility Among Women Married in 1996 (in Percentage Points): Aged 30–34 in 1998

Year	Having First Child			Having Second Child			Having Third Child		
	(1) Event Study	(2) Mean in ROC	(3) Implied %*	(4) Event Study	(5) Mean in ROC	(6) Implied %*	(7) Event Study	(8) Mean in ROC	(9) Implied %*
1998	-0.78*** (0.17)	84.50	-0.91	-1.80*** (0.39)	61.64	-2.88	-0.59*** (0.17)	25.78	-2.43
1999	-1.14** (0.49)	86.92	-1.29	-2.53*** (0.52)	65.65	-3.76	-1.04*** (0.26)	27.67	-3.99
2000	-1.34 (0.81)	88.67	-1.50	-3.35*** (0.59)	68.73	-4.73	-1.57*** (0.35)	29.35	-5.66
2001	-1.46 (1.10)	89.89	-1.62	-4.27*** (0.63)	71.30	-5.78	-2.14*** (0.45)	30.86	-7.33
2002	-1.33 (1.44)	90.65	-1.45	-5.08*** (0.62)	73.01	-6.69	-2.50*** (0.55)	31.92	-8.21
2003	-1.16 (1.81)	91.23	-1.26	-5.74*** (0.61)	74.23	-7.39	-2.76*** (0.65)	32.74	-8.83
2004	-0.99 (2.18)	91.65	-1.07	-6.27*** (0.61)	74.97	-7.95	-2.94*** (0.79)	33.33	-9.17
2005	-0.77 (2.56)	91.92	-0.84	-6.88*** (0.623)	75.54	-8.59	-3.17*** (0.86)	33.74	-9.74
<i>EventYear_{pt}</i>	-0.25 (0.37)			0.51*** (0.10)			0.09 (0.10)		
Observations [†]		1,514,710			1,514,710			1,514,710	
Mean in 1996									
Quebec		78.03			51.10			19.36	
ROC		76.44			51.21			21.5	

Notes: The table presents the parametric event study estimates in Equation 2. All coefficients are expressed in percentage points. The sample comprises women aged 30–34 in 1998 (i.e., birth years 1964–1968) who were married or in common-law relationships in 1996 and were consistently present in the LAD from 1993–2005. Standard errors are in parentheses and clustered at the province level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[†] Counts are rounded to the nearest 5 due to the LAD vetting rules.

* Magnitude of the effect in percentage relative to the “counterfactual Quebec.” Refer to footnote 11 for further details.