

The Effect of Daddy Quota on Gender Labor Market Outcomes

Petra Niedermayerova

Cheonghum Park

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Abstract

In the study, we investigate the effect of a father-specific parental leave policy reform—the so called daddy quota—on the labor market outcomes in Quebec. We provide a simple theoretical framework that describes two channels through which the reform may affect the gender specific labor market outcomes. The first channel, statistical discrimination, suggests that the reform makes employers less likely to discriminate based on gender because it increases the likelihood that fathers participate in the parental leave. This leads to a decrease in the wage of younger men. The second channel, gender norm change, suggests that the reform reduces the social stigma associated with working mothers. This change leads to an increase in women’s labor force participation.

Using a difference-in-difference approach, we test the hypothesis that the reform-generated increase in parental leave taken by fathers leads to an increase in the employment of women and a decrease in the wage of men. We find that the reform leads to an increase in the probability of employment for women of all ages, and the results remain robust to alternative specifications. Consistent with the gender norm channel, we find that QPIP leads to a reduction in younger males’ wages. The analysis suggests that the daddy quota does not only promote gender equality through its direct effects on fathers, but also through its indirect effects on opportunities of women in the labor market.

1 Introduction

In the developed economies, parental leave is typically a gender neutral policy that, in theory, enables parents to share their absence from the labor market due to the family-related responsibilities. Although the generosity and structure of these policies vary, in all of the OECD countries women are more likely than men to stay on the parental leave. The gender difference in parental leave take-up is distinctive in majority of OECD countries. Men represent around one in five parents who take advantage of the paid publicly-administered parental leave. (OECD 2016) The existing literature has mostly focused on the direct effects of parental leave policies on parents of young children, providing evidence of improvement in both parental and child outcomes.¹ The studies however do not consider the indirect effects on gender disparities in the labor market, which are caused by the differential take-up of parental leave between mothers and fathers.

In the study, we investigate the effect of a father-specific parental leave policy reform in Quebec on four broad demographic groups, which are not necessarily directly affected by the parental leave. We will consider two distinct channels, through which the reform may affect gender labor market outcomes - statistical discrimination and gender norms. First, the statistical discrimination channel relates to the expected productivity of workers from each demographic group. Employers who are obliged to provide job protection and other parental leave benefits to mothers incur additional costs when hiring them. These costs include hiring and training temporary employees to substitute mothers for the duration of their parental leave. It is not surprising, then, that firms may engage in discriminatory behavior against women in childbearing age who may potentially request a parental leave in the future. The employers would generally offer lower wages to younger women than those who are from other demographic groups but have similar skills. In the end, the very policy that helps mothers return to the labor market and strengthen their labor market attachment may cause employers to favor male employees.

Second, the design of parental leave policy may be able to affect the gender norms in the society. The dominant parental leave take-up of women promotes the traditional view on family, with a male breadwinner and a female caretaker. Such gender norms can make it challenging for women to participate in the labor market while having young children, as they can be seen as bad mothers

1. Parental leave is specially critical for single parents.

who do not provide sufficient child care. Furthermore, it may be difficult for career-oriented mothers to take days-off and demand work flexibly if they do not want to be stigmatized as another female worker pursuing the *mommy track*.²

Some countries have reformed their parental leave policies in the effort to reduce the gender gap in take-up rates. The programs are typically referred to as the father-specific parental leave, paternity leave or the daddy quota. In the analysis, we exploit a reform in Quebec, the *Quebec Parental Insurance Program (QPIP)*, which significantly increased the take-up of parental leave by fathers. The 2006 QPIP reform established up to five weeks of the daddy quota, which, we believe, provides an optimal environment to study the effect of parental leave take-up. First, the impact of the reform on father’s participation has been enormous, which is not typically the case for gender neutral parental leave expansions. The proportion of fathers claiming or intending to claim the benefit rose from 22% in 2004 to 83% in 2013, which contrasts a modest increase from 9% to 13.3% in the rest of Canada. (Lero 2015) Second, with the introduction of QPIP, Quebec has become the only province in Canada with family policy that includes a paternity leave, which enables us to compare the labor outcomes in Quebec to the remaining provinces. Lastly, there is a large evidence of gender gap in the Canadian labor market. In spite of the fact that women exceed men in the amount of education, gender wage gap and glass ceiling phenomenon persist. (OECD 2012) Therefore QPIP represents an opportunity to examine the evolution of gender gap in labor market following a parental leave policy reform.

Due to the features of QPIP and our dataset, we employ a difference-in-difference technique as our main empirical strategy. Our results suggest that QPIP leads to a significant increase in the probability of being employed for younger and older women in Quebec, while leaving the probability of employment for men unchanged. We take into account variety of specifications, and conduct a robustness check in order to verify that the results are driven by the QPIP reform.

To the best of our knowledge, this is the first study that investigates the effects of paternity leave on women in childbearing age, and one of the few studies that consider the effect family-related policy on women in childbearing age. Additionally, we provide a simple theoretical framework, which formally defines the mechanism through which the paternity leave indirectly affects the gen-

2. A common expression for a career of women who prioritize home production, and therefore is willing to make career sacrifices such as declining promotions, or reducing work hours.

der differences in labor market outcomes.

The study is organized in the following way: Section 2 discusses related literature and Section 3 provides background to QPIP. The theoretic framework is provided in Section 4, and Section 5 presents the empirical strategy and results. Finally, Section 6 concludes.

2 Literature Review

Recent research focuses on the effect that family programs have on parental and child outcomes. First, studies evaluate the effectiveness of paid parental leave extension on child’s development and welfare. Baker and Milligan (2010) find that while the leave expansion in Canadian context increased the time mothers spend with their children during the first year of their life, they did not find an impact on children development. Rossin (2011) finds that the 1993 Family and Medical Leave Act led to a small increase in birth weight and decrease in the likelihood of premature birth in the US. Dustmann and Schönberg (2012) focus on the impact of three expansions in leave coverage in Germany. They find no evidence that expansion in maternity leave coverage impacted child’s long term outcomes.

Second branch of the parental leave research examines how duration of the paid family leave affects the labor opportunities faced by parents as they return to the labor market. The proponents of paid parental leave claim that the policy encourages gender equality as it allows mothers to retain occupation-specific human capital and match-specific search capital after the childbirth (Schönberg and Ludsteck 2014). The opponents of a more generous paid parental leave argue, that the extensions in parental leave duration are associated with loss of human capital, work network, and self-confidence. All of these reduce parents’ chances of resuming their careers. Since parental leave is taken predominantly by mothers, these studies generally investigate female labor market outcomes. Rossin-Slater, Ruhm, and Waldfogel (2013) show that the California’s Paid Parental Leave Program (CPFL) increased the use of maternity leave without worsening mothers’ labor market outcomes. In fact, the authors document an increase in the work hours, and provide some evidence of a growth in the wage income. Lalive et al. (2014) analyze a series of parental leave extensions in Austria, and conclude that the policies led to significant delays in return to work, however do not seem to hurt mothers’ labor market outcomes in the medium run.

Existing studies that are most closely related to our research question consider the effects that parental leave policy have on women in childbearing age in the labor market. Ruhm (1998) investigates the impact of parental leave length on female labor market outcomes in nine European countries. He finds that while extended parental leave increases employment of women, it may hurt their wages. Das and Polachek (2015) estimate the effect of CPFL on younger women’s labor force participation and unemployment. They show that labor force participation of young women increases but their unemployment rate and unemployment duration increase. Thomas (2016) constructs an adverse selection model and test its implications empirically to shows that mandated maternity leave policies benefit women in childbearing age in terms of higher probability of remaining employed, however significantly limit their chances to be promoted.

Other closely related branch of parental leave literature focuses on the effect of parental leave reforms on father’s participation in childcare. Bartel et al. (2018) use CPFL to track the behavior of fathers. Their findings suggest that men indeed respond to the expanded parental leave opportunities. Finally, Patnaik (2019) analyzes the QPIP and finds that father’s take-up increased drastically. Moreover, the provision of father-specific parental leave reduced the stigma associated with men’s active participation in childcare. Patnaik’s (2019) results suggest that QPIP reduced the gender specialization within families, as parents’ contribution to housework became more equal. These findings provide a rationale for utilizing QPIP in our analysis. We possess an evidence that QPIP significantly altered gender differential take-up of parental leave as well as some aspects of the gender roles within a family.

3 Background

The Employment Insurance (EI) program, one of the largest federal programs, used to provide parental benefits in all provinces in Canada. In the beginning of 2006, Quebec replaced EI with its Quebec Parental Insurance Plan, from then on providing eligible workers with maternity leave, paternity leave, parental leave or adoption leave. Both EI and QPIP are financed by payroll taxes, and include a job-protecting provision.

QPIP made the family benefits more generous, accessible and flexible. The EI’s criteria for eligibility include 600 hours of insurable work, an employee status, and offers C\$39,000 maximum

insurable earnings. QPIP requires minimum of C\$2,000 insurable earnings, which extended the eligibility to parents with non-standard employment, who did not fulfill the EI's hourly criteria. Additionally, QPIP offers benefits to self-employed workers and maximum insurable earnings of C\$57,000. QPIP lets families choose from two plans - basic or special plan. The basic plan includes lower benefits for longer period (maximum 18 maternity weeks and 32 parental weeks), whereas the special plan shortens the benefit period while providing higher benefits (15 maternity weeks and 25 weeks). (Gouvernement du Québec 2018) Altogether, these changes allowed more parents to take advantage of the parental benefits, and provided participating parents with larger compensation of foregone wages.

Crucially for this study, Quebec has become the only province with a portion of the parental leave designated specifically to fathers. The basic plan offers up to five consecutive weeks of paternity leave with the wage replacement rate of 70%. The special plan includes up to three consecutive weeks of paternity leave compensated with a 75% replacement rate. The paternity leave can begin as early as during the week of child's birth, and has to end no later than 52 weeks after the birth. The total amount of parental leave weeks available to fathers increased from 35 to 37.³ The maximum length of parental leave available to mothers was not affected by the transition from EI to QPIP. In total, mothers' paid leave contains 18 weeks of maternity leave and up to 32 weeks of parental leave. Overall, maximum family leave increased from 50 weeks to 55 weeks. Parents have the option to stay on the leave at the same time or in succession.

Our analysis largely follows Patnaik's (2019) finding that establishing the daddy quota, in fact, made fathers stay on parental leave significantly longer. Based on her analysis, QPIP led to 53 percentage points increase in father's claim rate along with an increase in the leave duration of three weeks. Following QPIP, average father stayed on the paternity leave for five weeks, that is, the amount of time allocated exclusively to fathers by the daddy quota. In comparison, Patnaik (2019) finds positive, but insignificant effect of QPIP reform on both participation rate and average leave duration of mothers. Although the reform did not eliminate the differential uptake of the paid parental leave, it contributed to its reduction.

In our analysis, we assume that younger women are only affected by the QPIP through the establishment of daddy quota. We may worry that the generosity of QPIP causes even larger participation

3. The total amount includes five weeks of paternity leave and 32 weeks of gender neutral parental leave.

of mothers, thus enriching employment options for women without children. Patnaik’s (2019) evidence however does not support such hypothesis, as the leave-taking behavior of mothers has not been significantly altered by QPIP. Alternatively, we may worry that the larger financial incentives of QPIP affect fertility decisions of younger single women. It could be the case that younger women who would otherwise work, decide to start a family sooner due to the favorable family policy. Patnaik (2019) addresses the possibility of change in fertility choices, and does not find support for it in the analysis.

4 Model

This section describes a simple static model that provides a framework for understanding the impacts of QPIP on labor market outcomes. The model distinguishes between statistical discrimination channel and gender norm channel, and shows that the latter plays a primary role in the increase of female employment in the equilibrium.

Household’s labor supply:

Each household i , an element of the finite set of households, I , has two members, female and male, and differs from other households only in the age of the family members, $a(i) \in \{Y, O\}$ ⁴, and the heterogeneous gender norm effect, $\gamma_i(\cdot)$, which will be described below. The share of young household is α . Each household’s utility function is as follows:

$$w_{Fi}L_{Fi} + w_{Mi}L_{Mi} - \frac{L_{Fi}^2}{2} - \frac{L_{Mi}^2}{2} - \gamma_i(Q)\mathbb{1}\{L_{Fi} > 0\}. \quad (1)$$

For each member $g \in \{F, M\}$ in household i , w_{gi} is the wage in the labor market, L_{gi} is the amount of labor supply, and $\gamma_i(Q)$ is the fixed utility cost of female labor force participation before ($Q = 0$) and after ($Q = 1$) the QPIP reform, borrowed from Thomas (2016). However, unlike Thomas (2016), we introduce heterogeneity to the participation cost. In specific, $\gamma_i(Q) = \mu_{a(i)}(Q) + \varepsilon$ where $\mu_O(1) < \mu_O(0) < \mu_Y(1) < \mu_Y(0)$ and $\varepsilon \sim Uniform[-\frac{1}{2}, \frac{1}{2}]$. The assumptions include that the reform reduced the participation cost for both older and younger women, and that the older women’s participation cost is generally lower than younger women. Each household’s optimal labor

4. We assume that both family members have the same ‘age’.

supply given the wages and the fixed utility costs would be as follows:

$$L_{Fi}^S(w_{Fi}; \gamma_i(Q)) = w_{Fi} \cdot \mathbb{1} \left\{ w_{Fi} \geq \sqrt{2\gamma_i(Q)} \right\}, \quad (2)$$

$$L_{Mi}^S(w_{Mi}) = w_{Mi}. \quad (3)$$

Note that the female member's labor force participation will be determined by the relative level of wage and fixed utility cost of participation, while the male member works for any positive wage.

Labor market equilibrium:

We assume that each worker's expected productivity in household i follows $\theta_{gi} = \theta_{g,a(i)}$ for $g = F, M$, or that the expected productivity of each individual depends only on the age and the gender. We also assume that the labor market is competitive and the firms have the following production function:⁵

$$F(\{L_{Fi}, L_{Mi}\}_{i \in I}; \{w_{Fi}, w_{Mi}, \theta_{Fi}, \theta_{Mi}\}_{i \in I}) = \sum_{i \in I} [L_{Fi}(\theta_{Fi} - w_{Fi}) + L_{Mi}(\theta_{Mi} - w_{Mi})]. \quad (4)$$

Then, the equilibrium wage, $w_{g,a(i)}^*$, and employment $l_g^* = \sum_i L_{gi}^*$ for $i \in I, g = F, M$, given $Q = 0, 1$ would be described as follows:

$$w_{g,a(i)}^* = \theta_{g,a(i)}, \quad (5)$$

$$l_{M,Y}^* = \theta_{M,Y} \cdot \alpha I, \quad (6)$$

$$l_{M,O}^* = \theta_{M,O} \cdot (1 - \alpha) I, \quad (7)$$

$$l_{F,Y}^*(Q) = \theta_{F,Y} \cdot \alpha I \cdot \Phi_Y(Q), \quad (8)$$

$$l_{F,O}^*(Q) = \theta_{F,O} \cdot (1 - \alpha) I \cdot \Phi_O(Q), \quad (9)$$

where $\Phi_{a(i)}(Q) = \min \left\{ \max \left\{ \frac{\theta_{F,a(i)}^2}{2} - \mu_{a(i)}(Q), -\frac{1}{2} \right\} + \frac{1}{2}, 1 \right\}$, which stands for the labor force participation rate of women with age $a(i)$, given $Q = 0, 1$. Note that $\Phi_{a(i)}$ is weakly decreasing in $\mu_{a(i)}$.

5. Note that we are abusing the notation for the expected productivity θ_{gi} in the production function. This would generate no further complications as the expected production would be equal to the production function with expected productivity in our case.

Effects of QPIP reform:

There are two main effects of the reform on the labor market. First, since younger men enjoy more weeks of leave, their expected productivity decreases. This is the statistical discrimination channel we discussed above. Second, because QPIP challenges the traditional gender norms, younger women face lower barrier to participate in the labor market. More importantly, because of the flexible usage of parental leaves after the reform, the overall workplace flexibility increases so that the fixed utility cost of participating in the labor force decreases for women.

The statistical discrimination channel can be traced through equation (5) and where the productivity loss for young men results in their wage to drop. On the other hand, the workplace flexibility channel increases both young and old women's employment as can be seen in equations (8) and (9). The employment increase would be greater for the younger age group whose workplace flexibility is affected more directly by the reform. Hence, our two main implications of the model would be as follows:

- (1) Statistical discrimination: young men's wage will decrease,
- (2) Workplace flexibility: women's employment will increase, and more so for young women.

In the following section, we will discuss the empirical strategy and see if the findings are consistent with the implications of the model.

5 Empirical Exercise

5.1 Empirical Method

In the empirical analysis of the QPIP reform, we use the Canadian Labour Force Survey (LFS) from 2002 to 2010. LFS is a large monthly survey, which consists of a nationally-representative sample. LFS uses a rotating panel sample design, and includes employment and unemployment information. We construct four demographic groups: women/men between 17 and 44 years old with no or younger children (the youngest child below 5 years) and women/men between 50 and 64 years old with no or older children (the youngest child at least 13 years old). We employ a difference-in-difference strategy in order to determine whether daddy quota affected labor market outcomes of each of the four groups in Quebec. The pre-reform group consists of the 2002 - 2005 data, and

the 2006 - 2010 data serve as the post-reform group. Quebec is the only province in Canada that provided an individual non-transferable right to the parental leave for fathers. Therefore, Quebec represents our treated group while other Canadian provinces serve as the control group.⁶ The outcome of interest is a binary variable *Employed*, constructed according to employment definition of the *International Labour Organisation*.

In order to identify the causal effect of QPIP using the difference-in-difference technique, it must be the case that in the reform's absence, Quebec and the remaining provinces' labor market outcomes would follow the same trend. Figure 1 plots the probability of being employed for each groups, separately for Quebec and the rest of Canada from 2002 to 2014. The likelihood of employment in Quebec is smaller for all groups except of the younger women. The pre-trends are aligned, which suggest that the Canadian provinces represent an appropriate control group for Quebec in this study. Also, in the case of younger women, we observe a widening of the gap in probability of employment between Quebec and rest of the provinces after 2006, which is consistent with the timing of QPIP. However, in the empirical analysis, we need to consider a potential confounding factor, that is, the significant movement in the business cycle during the post-period. Particularly, Canada entered a recession in 2008, which would bias our analysis, if the impact of economic downturn differed across provinces. I further analyze the issue in the Robustness Check.

As a starting point of the empirical strategy, we present the characteristics of the sample. Table 1 includes summary statistics of the selected variables separately for Quebec and control groups before the QPIP reform. Quebec's overall labor force participation rate and probability of employment are both below the rest of Canada during the pre-treatment period. The differences in education, age, marital status, and probability of having children are relatively small in their magnitude and we control for these characteristics in every specification of the following exercise.

The main empirical analysis starts with the baseline difference in difference regression:

$$Y_{ipt} = \alpha + \beta * After_t * Quebec_p + \gamma * Quebec_p + \delta * After_t + \phi * X_{ipt} + \epsilon_{ipt}, \quad (10)$$

where Y_{ipt} represents an outcome of interest for a person i living in a province p surveyed in a year t . It takes value one if the individual is employed and zero otherwise. δ_t and λ_p denote the year and

6. We combine the remaining provinces into the following five regions: Ontario, Alberta, Manitoba and Saskatchewan, British Columbia, and Atlantic Region.

province fixed effects. $Quebec_p$ is a binary variable taking the value of one when the individual lives in Quebec, and $After_t$ takes value of one when the individual is present in the dataset after the QPIP reform, that is 2006 or later. X_{ipt} is a set of personal characteristics including age education level marital status and presence/age of child, ϵ_{ipt} is the error term. Standard errors are clustered at the province-year level to account for random shocks affecting individuals in a each province every year.

The generalized difference in difference regression with fixed effects takes the following form:

$$Y_{ipt} = \alpha + \beta * Quebec_p * After_t + \phi * X_{ipt} + \delta_t + \lambda_p + \epsilon_{ipt}. \quad (11)$$

Since the sample consists of multiple provinces and periods, the second specification adds terms δ_t and λ_p , denoting the year and province fixed effects. δ_t accounts for differences over time that are common to all provinces, while λ_p captures differences between the provinces, which are constant over time.

Final specification relaxes the common effect of QPIP for all years, and instead allows for year specific effects of QPIP:

$$Y_{ipt} = \alpha + \beta_t * Quebec_p * Year_t + \phi * X_{ipt} + \delta_t + \lambda_p + \epsilon_{ipt}. \quad (12)$$

In all three specifications, β represents the coefficient of interest. In the first two specification it is equal to the average treatment effect of QPIP reform on the employment in Quebec. In the last specification, β_t contains a specific value of QPIP's effect for each year of interest.

5.2 Results

Columns 1 to 4 of Table 2 present results of the empirical exercise for younger and older women. The two columns of each group's results represent the coefficients from the specifications (1) and (2) respectively. The coefficient of interest is positive and significant in both specifications for both groups. The magnitude and significance of the QPIP effect increases with the inclusion of fixed effects.

The regression results of specification (3) are included Table 3. Figure 2 depicts the yearly coef-

ficients for each group graphically, which allows for an easier interpretation. Consistent with our hypothesis, the likelihood of female employment in Quebec was not significantly different from other provinces before the reform, and starting in 2007, it became significantly higher than in the control provinces. The gradual increase of QPIP’s effect is expected, as the mechanism through which the reform affects gender labor market outcomes require an adjustment period. The employers need to observe that fathers spend more time taking care of their children, and, at least temporarily, reduce their labor supply. Father’s behavior therefore resembles mother’s behavior when it comes to the reduction in the labor supply associated with the family responsibilities. The adjustment of labor division in families represents a rather gradual process, and the employers update their expectations about the labor attachment of their male and female employees as more families are exposed to QPIP.

Table 2 also presents the results of an analogous empirical exercise for younger and older men in columns 5 to 8. We do not find a significant effect of QPIP on the probability of being employed for either male group. Similarly, Figure 2 reveals the male yearly coefficients from specification (3) are dominantly non-significant.

The effect of QPIP on wages of the four demographic groups are presented in Table 4. The difference-in-difference estimates indicate that the reform had a negative impact on wages of younger women, older women, and younger men. The decrease in women’s wages can be explained by the increase in their employment, while the decrease in younger men’s wages is a result of the statistical discrimination channel included in the model. The wage of older men is not significantly affected by the reform.

5.3 Robustness Check: Bartik instrument

Our results could be driven by varying responses to macroeconomic shocks. It is important to note that during 2008 and 2009 Canada was impacted by the Great Recession. The significant downturn may represent a confounding factor in the estimation of QPIP’s effects on the labor market outcomes. For example, Quebec may respond to the recession differently than the remaining Canadian provinces due to its industry composition. In order to test whether the results are driven by the differential response to the business cycle, we construct the so called Bartik instrument and include it as an additional control variable in the preferred specifications of the main analysis.

The instrument is constructed as the average national employment growth across the industries weighted by the local industry employment shares. The co-variate captures the local labor demand unrelated to the changes in local labor supply (Bartik 1991; Wozniak 2010).

$$Bartik_{pt} = \sum_{i=1}^{18} e_{pit-1} (\ln E_{-pit} - \ln E_{-pit-1})$$

In the formula above, e_{pit} represents the share of province p 's employment in industry i in year t . E_{-pit} stands for the national employment in industry i in year t excluding province p 's employment in that industry. While the results in Table 5 confirms the importance of Bartik instrument, the main results persists.

6 Conclusion

In the past decades, the labor force participation as well as the labor force attachment of women have undergone substantial changes. Women nowadays enjoy higher degrees of economic independence and lower amount of labor market barriers due to the changing gender norms. Despite the progress, research documents a persistence of gender differences in labor market outcomes: the glass ceiling, occupational segregation as well as the gender wage gap to name a few. It is therefore important for policy makers to identify policies that eliminate the remaining disadvantages faced by women in the labor market, thereby further advancing the economic status of women in our society.

The child-rearing responsibilities play a significant role in defining the long-run gender differences in the labor market. Parental leave policies present powerful public policy tools, with a potential to influence the division of child-related responsibilities. The economic literature has mostly focused on a fraction of the complex effects, which parental leave policy design may have. In the study, we investigate the effects that a father-specific parental leave policy reform in Quebec has on demographic groups, which may not be directly affected by it. We find that through increasing fathers' take-up of parental leave, the QPIP reform increases the likelihood of employment for women of all ages. The result is consistent with the change in gender norms, which reduces barriers to employment for women. We also find a reduction in the wage caused by the QPIP for all

groups but older men. The reduction in younger men's wages suggest that father-specific parental leave also reduces statistical discrimination in the labor market. The reduction in women's wage is consequence of an increased competition in the labor market. Overall, our findings suggest that the daddy quota in Quebec led to equalization of labor market opportunities of men and women.

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7 Tables

Table 1: Descriptive Statistics for Quebec and Control Groups Before QPIP (2002 - 2005)

	Quebec, Before QPIP	Control, Before QPIP	Difference
Labor force	0.636	0.652	0.016***
Employed	0.581	0.604	0.024***
High school or less	0.462	0.474	0.012***
Some college	0.081	0.090	0.010***
Post-secondary diploma	0.327	0.292	-0.035***
Bachelors degree	0.094	0.098	0.004***
Graduate degree	0.037	0.046	0.009***
Women	0.514	0.518	0.003***
Married	0.610	0.613	0.004***
Child	0.321	0.325	0.004***
17-19	0.048	0.052	0.004***
20-21	0.031	0.032	0.000**
22-24	0.045	0.044	-0.002***
25-26	0.030	0.028	-0.002***
27-29	0.043	0.042	-0.000
30-34	0.073	0.078	0.005***
25-26	0.088	0.090	0.002***
40-44	0.106	0.105	-0.000
45-49	0.106	0.102	-0.005***
50-59	0.094	0.089	-0.004***
55-59	0.082	0.076	-0.006***
60-64	0.064	0.058	-0.007***
65-69	0.050	0.049	-0.001***
70 & above	0.108	0.120	0.012***
<i>N</i>	873,600	3,947,754	

Note: Statistics comparing Quebec and control provinces' characteristics for the pre-treatment period: 2002-2005.

** Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level.

Table 2: QPIP Effect on the Probability of Employment by Gender and Age

Dependent Variable	<i>Younger women</i>		<i>Older women</i>		<i>Younger men</i>		<i>Older men</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Quebec*After	0.0170** (0.0068)	0.0174*** (0.0054)	0.0118 (0.0141)	0.0124*** (0.0043)	0.0074 (0.0127)	0.0084 (0.0061)	-0.0113 (0.0130)	-0.0098* (0.0050)
After	-0.0072 (0.0059)		0.0326*** (0.0099)		-0.0111 (0.0106)		0.0120 (0.0118)	
Quebec	-0.0188*** (0.0048)		-0.0651*** (0.0117)		-0.0204*** (0.0069)		-0.0322*** (0.0101)	
Mean DV	0.73	0.73	0.59	0.59	0.78	0.78	0.70	0.70
R^2	0.08	0.09	0.15	0.15	0.10	0.11	0.12	0.13
N	2122089	2122089	1328309	1328309	2286983	2286983	1242603	1242603
Province&year FE	NO	YES	NO	YES	NO	YES	NO	YES
All covariates	YES	YES	YES	YES	YES	YES	YES	YES
Clustered std. e.	YES	YES	YES	YES	YES	YES	YES	YES

Note: Younger women/men sample consists of 17-49 year old women/men with no or young children (youngest child below 5 years), who were part of the Labor Force Survey between 2002 and 2010. Older women/men sample consist of 50-64 years old women/men with no or older children (youngest child at least 13 years old), who were part of the Labor Force Survey between 2002 and 2010.

Standard errors are in parentheses. All specifications include covariates: education, age, marital status and age of the youngest child. Specifications (2) and (4) include province and state fixed effects. Standard error in specifications are clustered at province-year level.

** Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level.

Table 3: QPIP Effect on the Probability of Employment: Yearly Coefficient

Dependent Variable	<i>Younger women</i>	<i>Older women</i>	<i>Younger men</i>	<i>Older men</i>
Quebec*2002	-0.0077 (0.0064)	-0.0111 (0.0074)	0.0191** (0.0084)	0.0048 (0.0082)
Quebec*2003	-0.0045 (0.0047)	-0.0026 (0.0047)	-0.0023 (0.0089)	0.0071 (0.0067)
Quebec*2004	0.0001 (0.0039)	0.0060 (0.0044)	-0.0024 (0.0061)	0.0092 (0.0077)
Quebec*2006	-0.0011 (0.0051)	-0.0042 (0.0039)	0.0064** (0.0029)	-0.0111* (0.0062)
Quebec2007	0.0105*** (0.0025)	0.0149*** (0.0031)	0.0030 (0.0080)	-0.0077 (0.0067)
Quebec2008	0.0039 (0.0043)	0.0130*** (0.0024)	0.0083 (0.0056)	-0.0164** (0.0080)
Quebec2009	0.0246*** (0.0042)	0.0154*** (0.0045)	0.0153** (0.0069)	-0.0001 (0.0077)
Quebec2010	0.0332*** (0.0040)	0.0130** (0.0051)	0.0268*** (0.0039)	0.0106 (0.0084)
N	2122089	1328309	2286983	1242603
R^2	0.09	0.15	0.11	0.13
All covariates	YES	YES	YES	YES
Clustered std. e.	YES	YES	YES	YES

Note: Younger women/men samples consists of 17-49 year old women/men with no or young children (youngest child below 5 years), who were part of the Labor Force Survey between 2002 and 2010. Older women/men sample consist of 50-64 years old women/men with no or older children (youngest child at least 13 years old), who were part of the Labor Force Survey between 2002 and 2010.

Standard errors are in parentheses. All specifications include covariates: education, age, marital status and age of the youngest child as well as province and state fixed effects. Standard error in specifications are clustered at province-year level. 2015 is the base year.

** Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level.

Table 4: QPIP effect on the log hourly wage by group

	<i>Younger women</i>	<i>Older women</i>	<i>Younger men</i>	<i>Older men</i>
Quebec*After	-0.0241*** (0.0090)	-0.0215** (0.0090)	-0.0273*** (0.0099)	-0.0113 (0.0095)
Mean DV	2.72	2.88	2.86	3.11
R^2	0.42	0.24	0.40	0.17
N	1394728	631752	1543681	612689
Province&year FE	YES	YES	YES	YES
All covariates	YES	YES	YES	YES
Clustered std. e.	YES	YES	YES	YES

Note: Young women/men sample consists of 17-49 year old women/men with no or young children (youngest child below 5 years), who were part of the Labor Force Survey between 2002 and 2010. Older women/men sample consist of 50-64 years old women/men with no or older children (youngest child at least 13 years old), who were part of the Labor Force Survey between 2002 and 2010.

Standard errors are in parentheses. All columns reflect specification (2), which includes covariates - education, age, marital status and age of the youngest child, as well as province and state fixed effects. Standard error in specifications are clustered at province-year level.

** Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level.

Table 5: QPIP effect on the Probability of Employment: Bartik Included

	<i>Younger women</i>	<i>Older women</i>	<i>Younger men</i>	<i>Older men</i>
Quebec*After	0.0168*** (0.0056)	0.0103** (0.0045)	0.0074 (0.0061)	-0.0103* (0.0052)
Bartik	-0.1449 (0.1852)	-0.6117** (0.2460)	-0.2825 (0.2711)	-0.1398 (0.2930)
Mean DV	0.73	0.59	0.78	0.70
R^2	0.09	0.15	0.11	0.13
N	2122089	1328309	2286983	1242603
Province&year FE	YES	YES	YES	YES
All covariates	YES	YES	YES	YES
Clustered std. e.	YES	YES	YES	YES

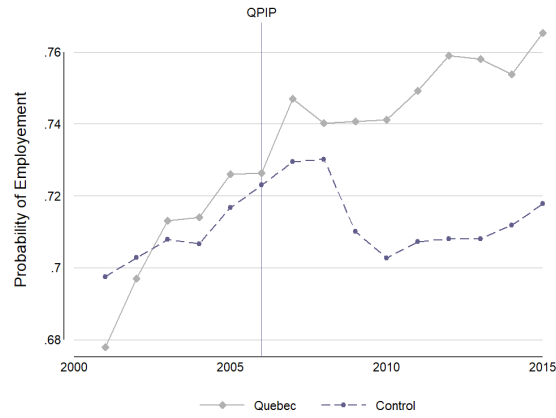
Note: Young women/men sample consists of 17-49 year old women/men with no or young children (youngest child below 5 years), who were part of the Labor Force Survey between 2002 and 2010. Older women/men sample consist of 50-64 years old women/men with no or older children (youngest child at least 13 years old), who were part of the Labor Force Survey between 2002 and 2010 (analogical for men groups).

Standard errors are in parentheses. All columns reflect specification (2), which includes covariates - education, age, marital status and age of the youngest child, as well as province and state fixed effects. Standard error in specifications are clustered at province-year level.

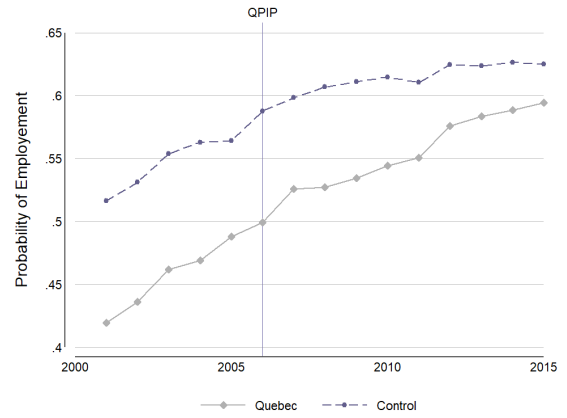
** Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level.

8 Figures

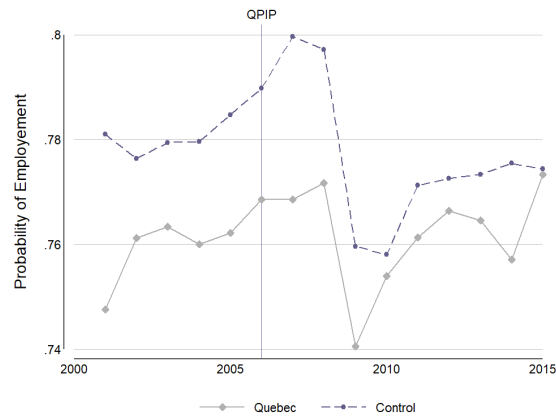
Figure 1: Likelihood of Employment by Year and Demographic Group



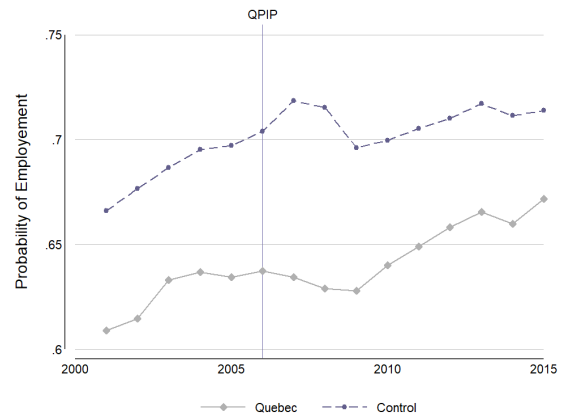
(a) *Younger women*



(b) *Older women*



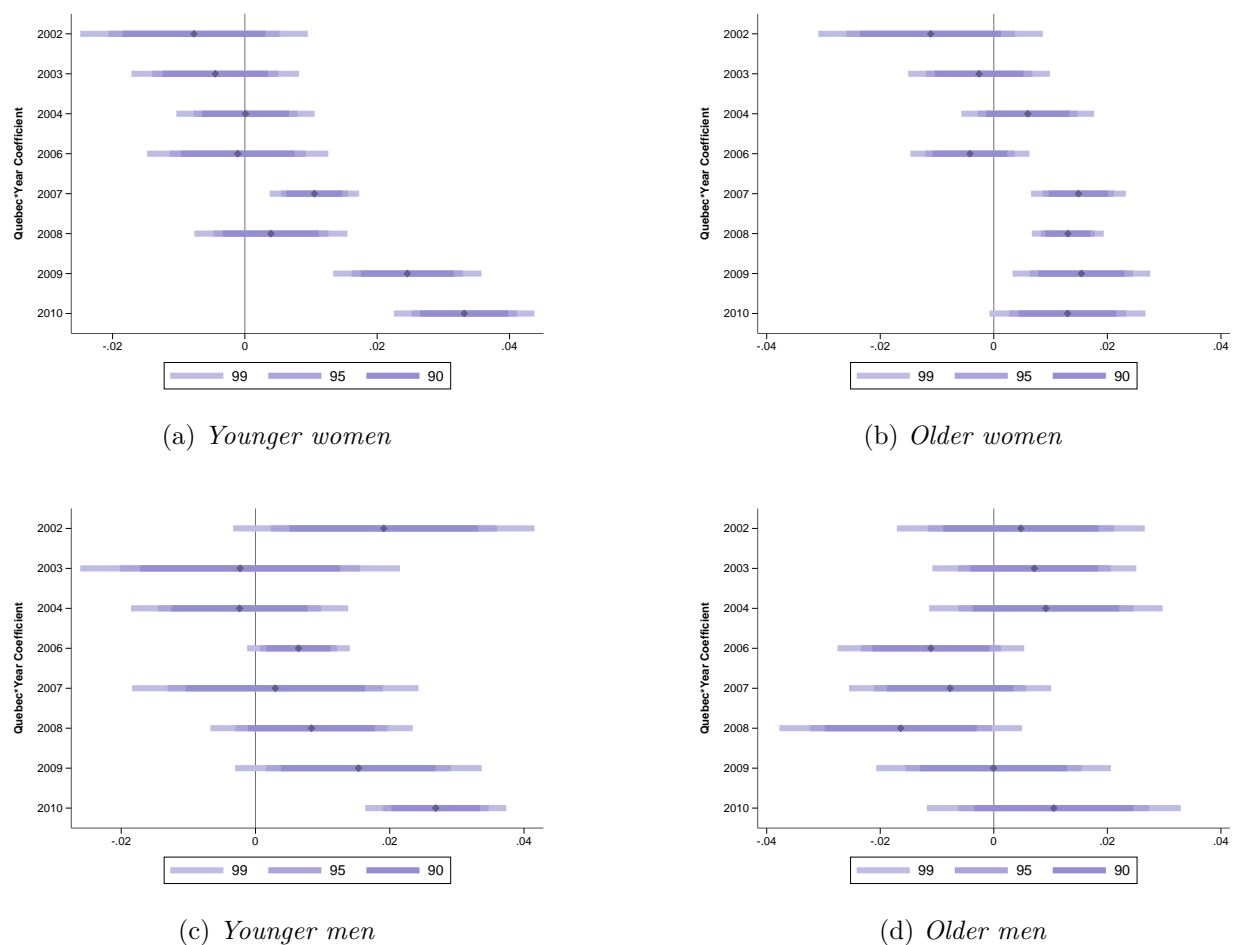
(c) *Younger men*



(d) *Older men*

Note: Younger women/men sample consists of 17-49 year old women/men with no or young children (youngest child below 5 years), who were part of the Labor Force Survey between 2002 and 2010. Older women/men sample consist of 50-64 years old women/men with no or older children (youngest child at least 13 years old), who were part of the Labor Force Survey between 2002 and 2010.

Figure 2: The Effect of QPIP on the Probability of Employment: Quebec Year Specific Coefficients
From Table 3



Note: Figure plot year-specific coefficients from the regression results in Table 3. The year 2005 is omitted. Younger women/men sample consists of 17-49 year old women/men with no or young children (youngest child below 5 years), who were part of the Labor Force Survey between 2002 and 2010. Older women/men sample consist of 50-64 years old women/men with no or older children (youngest child at least 13 years old), who were part of the Labor Force Survey between 2002 and 2010.