ONLINE APPENDIX:

Impacts of Corporate Tax Cuts on Firms and Workers: Evidence from Small Businesses

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A Descriptive Statistics and Institutional Details

A.1 Descriptive Statistics

Corporate Income Taxes in Canada Table A.1 lists Canada's federal and provincial corporate income tax rates from 2009 to 2017. While the general and small business tax rates in BC, and Ontario remained stable between 2011 and 2017, Alberta, New Brunswick, Nova Scotia, Newfoundland and Labrador, Prince Edward Island, and Yukon experienced non-trivial changes in their tax rates. In 2014 and 2015, Quebec cut the tax rate for small businesses operating in the M&P sector. In Appendix B.3, we include previously excluded provinces where the corporate tax rates did not change between 2011 and 2017 (Manitoba, Northwest Territories, Nunavut, and Saskatchewan) as part of the control provinces and find similar results.

Figure A.1, Panel (a) shows the share of SBD claimants among all CCPCs in each year, separately for the treated group (M&P in Quebec) and the control group. The share of SBD claimants is roughly the same between these two groups during our sample period. Note that a small firm may not claim SBD in a given year depending on its taxable income. Panel (b) plots the size distribution of SBD claimants using the probability density and cumulative distribution of total assets in 2013. Roughly 99 percent of SBD claimants have total assets below 10 million CAD.

Table A.2 reports the share of firms, along with their revenue shares, asset shares, and employment shares, by provinces and territories in Canada. Quebec, BC and Ontario jointly make up 73.6 percent of all firms, 71.4 percent of total assets, 73.5 percent of total revenue, and 75.2 percent of total employment. By including these three provinces, our analysis sample provides a good representation of the entire Canadian economy.

Characteristics of the Analysis Sample Figure A.2, Panel (a) shows the share of firms entering or exiting the sample in each year, separately for treated and control firms. From 2011 to 2017, there has been a modest decline in the entry rates and a slight increase in the exit rates. However, treated and control firms show parallel trends in both rates before and after the reform. Panel (b) shows the share of treated firms that become large in each year is stable at around 0.5 – 0.7 percent before the reform, and increases to around one percent by the end of our sample period. By contrast, the share of treated firms that become small is flat (at round 0.3 percent) throughout our sample period, and the shares for control firms (that become either large or small) are also flat during our sample period. This is consistent with our results that the tax cuts lead small firms to expand, so some treated firms may become large after the reform. Nevertheless, the increase in the share of treated firms becoming large after the reform is small (only about 0.3 percentage points).

Figure A.3 shows the distribution of M&P firms in the top 20 industries (by 4-digit NAICS) in our sample, separately for Quebec and BC/Ontario. For most of these industries, the share of M&P firms is similar across provinces. To account for non-trivial differences in the industrial composition across provinces (e.g. in NAICS 3371, 3152, and 3335) that potentially confound our results, we perform robustness checks controlling for industry-by-year fixed effects and reweighting industries to balance the distribution of M&P firms between Quebec and BC/Ontario (see Appendix B.2).

Summary Statistics of Subsamples Table A.3 reports summary statistics for owner-workers linked to firms in our analysis sample. Panel A shows that an average owner-worker owns 1.4

firms, has 66 percent of ownership of a given firm, and derives 80 percent of total income as labor income from their owned firms. Roughly 30 percent of owner-workers have family members with ownership at the same firm and 19.5 percent have family members owning and working at the same firm. Panels B – C show the distribution of owner-workers and their family members across the within-firm earnings distribution. A large share of owner-workers and their family members are concentrated in the top tercile of the distribution.

Table A.4, Panel A reports summary statistics of workers excluded from the analysis sample, i.e., part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who were not continuously employed by the same firm during 2011 – 2013. Compared to workers in the analysis sample (see Table 1), these excluded workers are characterized by lower annual earnings and younger ages, and a larger share of them in non-M&P sectors are females. Consistent with previous findings, excluded workers in the M&P sector are older and earn more than those in non-M&P sectors, but they are comparable across provinces. Moreover, Panel B shows that excluded workers are concentrated in the lowest quartile of the overall earnings distribution relative to those in the analysis sample.

Table A.5 reports summary statistics of firms and workers in our analysis samples, separately by provinces and by high-growth versus low-growth industries. To distinguish high-growth and low-growth industries, we first calculate each firm's annual growth rate of total assets in 2011 – 2013 and aggregate at the industry level. Then we define high-growth (low-growth) industries as those with industry-average growth rates above (below) the sample median. We find that high-growth and low-growth industries are similar in size measured by tangible assets and average payrolls, but the high-growth industries are more profitable, with greater revenue, after-tax profits, EBITDA per worker, and worker-level earnings. High-growth industries also employ a greater share of male workers. Similarly, Table A.6 reports summary statistics separately by provinces and by high-tech versus low-tech industries within the M&P sector. We find that firms in high-tech industries are not particularly larger but are more profitable than firms in low-tech industries.[1] In fact, high-tech industries in the M&P sector are more likely to be high-growth industries: In 2013, the two categories (measured as indicator variables) have a Pearson's correlation coefficient $\rho = 0.352$.

Table A.7 reports summary statistics, separately by provinces and industries with high versus low capital intensity. Analogous to the growth rate, we calculate industry-specific capital intensity by aggregating firms' capital intensity (sum of tangible and intangible assets scaled by total revenue) in 2011 – 2013, and split the sample by the median capital intensity. On average, firms in capital intensive industries generate less revenue, are less profitable (in terms of after-tax profits and EBITDA per worker) and pay lower wages to workers. In addition, capital intensive industries are less likely to be high-tech ($\rho = -0.110$) or high-growth ($\rho = -0.053$) industries.

A.2 Other Tax Reforms

Next, we discuss additional tax benefits that specifically apply to small businesses in the M&P sector in Quebec, and show additional tests to confirm that our results are unlikely driven by these

[1] We define high-tech and low-tech industries following Heckler (2005). Most of the high-tech industries in non-M&P sectors are professional services (2-digit NAICS code 54) where firms are more vulnerable to tax-avoidance by high-income professionals. Therefore, we exclude this entire sector from the sample and do not distinguish high-tech and low-tech industries in non-M&P sectors.

extraneous policies.

Tax Deduction for Transportation Costs First, small firms in the M&P sector in Quebec are eligible for additional tax deductions for transportation costs if their locations are remote from major urban centers. For example, small firms located in the "intermediate zone" are eligible to deduct two percent of their gross income with a 100,000 CAD cap; small firms located in the "remote zone" are eligible to deduct four percent of their gross income with a 250,000 CAD cap; and small firms located in the "special remote zone" are eligible to deduct six percent of their gross income with no cap.[2] In short, the further away a firm is located from major urban centers, the greater tax benefit the firm gets. We test whether firms eligible for larger additional tax deductions (located in either the "remote zone" or the "special remote zone") show greater responses to the tax cuts regarding our key outcomes, relative to firms ineligible or eligible for smaller additional tax deductions (located in either the major urban centers or the "intermediate zone"). Table A.8 shows that the difference in tax effects on these outcomes are neither economically significant nor statistically different from zero, implying that this additional tax benefit is unlikely to confound our results.

Investment Tax Credits Second, small firms in the M&P sector in Quebec are eligible for tax credits for acquiring or making addition to buildings. The rate of the tax credit (up to 50 percent) is determined by where the building is located and the taxable capital of the eligible firm for the taxation year. The expenditures on a building are capped at 150,000 CAD cumulatively. To test whether this additional tax benefit affects our main results, we directly check whether treated firms' investment in buildings increases after the reform. Table A.9, column (1) shows that treated firms' investment in buildings hardly changes after the reform.

Third, small firms in the M&P sector in Quebec are eligible for tax credits for integrating (e.g., buying a qualified management software) information technologies (IT) in their business processes. The total amount of credit is limited to 62,500 CAD. While we observe investment in physical capital assets (computer hardware and associated system software), we do not observe IT-related expenditures in our data. However, if the rise in additional tax credits is what drives our main findings, we should expect to see a disproportional increase in treated firms' investment tax credits relative to their taxable income after the reform. Table A.9, column (2) shows that treated firms' investment tax credits, scaled by taxable income, stay roughly the same after the reform.

Reduction in Health Services Fund Contribution Fourth, there was a reduction in Health Services Fund (HSF) contribution rates for small firms in the primary (agriculture, forestry, fishing, hunting, mining, quarrying and oil & gas extraction) and manufacturing sectors at the end of 2014. The contribution rate decreases from 2.7 percent to 1.6 percent for firms with total payroll below one million CAD, and the new rate is subject to a linear increase from 1.6 percent to 4.26 percent

[2]The major urban centers include the Montréal, Québec and Gatineau census metropolitan areas (CMAs). The intermediate zone is defined as the territory, delimited by the RCMs, within a radius of 100 kilometres of Gatineau or Québec or within a radius of 150 kilometres of Montréal. The remote zone is defined as the territory, delimited by the RCMs, beyond a radius of 100 kilometres of Gatineau or Québec or beyond a radius of 150 kilometres of Montréal. The special remote zone is made up of territories more isolated from the rest of Québec, i.e. the municipality of L'Île-d'Anticosti, the agglomeration of Îles-de-la-Madeleine, the Golfe-du-Saint-Laurent MRC (Côte-Nord) and the Kativik Regional Government (Nord-du-Québec).

for firms with total payroll between one million and five million CAD.[3] To test whether this policy drives the estimated difference between M&P firms and non-M&P firms in Quebec, we conduct a heterogeneity analysis based on firms' pre-reform total payroll. Since the reduction in the HSF contribution rate becomes much smaller for firms with total payroll above one million CAD, we expect smaller impacts of this policy on our key outcomes.[4] Table A.10 shows that the responses to tax cuts among treated firms (and their workers) with pre-reform total payroll below one million CAD are *not* larger than those above one million CAD. Hence, the reduced HSF contribution rate is unlikely to confound for our results.

In summary, while there exist additional tax benefits specifically affecting small firms in the M&P sector in Quebec, we provide evidence that these extraneous benefits are not the main driver behind our findings. Furthermore, one can interpret our results as scaled by changes in average effective tax rates, which account for other changes in corporate tax benefits such as the investment tax credits and tax deductions. Again, our heterogeneity results suggest that changes in average effective tax rates driven by these additional tax benefits are likely very small for treated firms in our analysis sample.

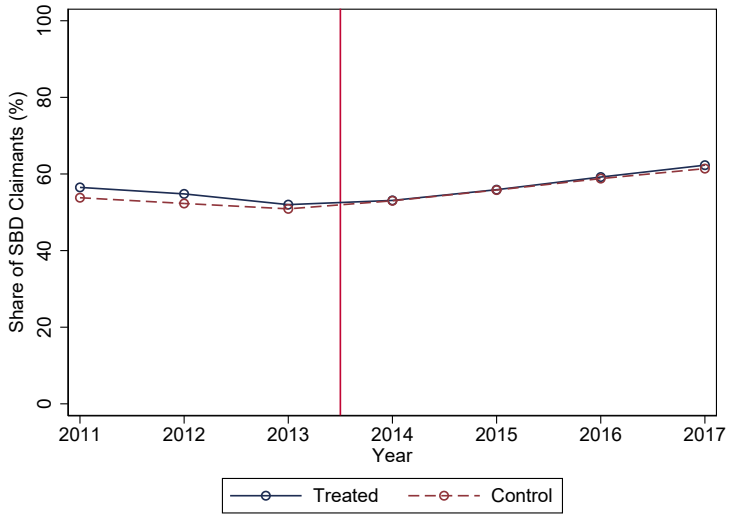
Additional Tax Benefits for High-Income Individuals Finally, we consider the introduction of a higher top marginal rate bracket of 33 percent in 2016 for individuals with annual taxable income above 200,000 CAD. Although the reform is at the federal level affecting all provinces and sectors, it is a potential concern if a large share of high-income individuals are owners of small M&P firms in Quebec. To address this concern, Figure A.4 plots the share of individuals with taxable income above 200,000 CAD in each year from 2011 to 2017, by provinces and by M&P sector versus non-M&P sectors. Panels (a) – (c) focus on owners, owner-workers, and nonowner-workers at firms in our analysis sample, respectively. During the sample period, these shares at M&P firms in Quebec remain small and flat over time, relative to those at non-M&P firms in Quebec. Furthermore, there exists a similar and constant relative difference in the share of high-income individuals between M&P firms and non-M&P firms in the control provinces. Therefore, any potential impacts from the introduction of this new bracket in 2016 would be absorbed in our triple-differences design.

[3]For example, the contribution rate would decrease (i) from 3.09 percent to 2.27 percent for firms whose payroll is two million CAD, (ii) from 3.48 percent to 2.93 percent for firms whose total payroll is three million CAD, and (iii) from 3.87 percent to 3.6 percent for firms whose total payroll is four million CAD. The contribution rate would remain at 4.26 percent for firms whose total payroll is at or above five million CAD.

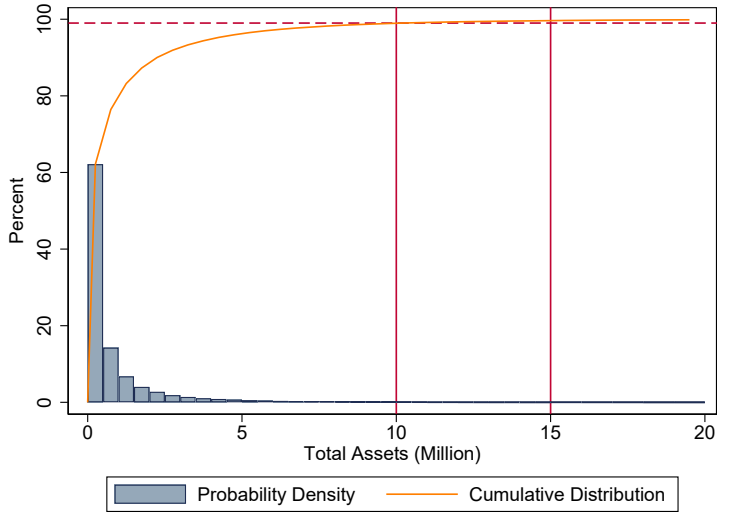
[4]The share of firms whose total payroll is above two million CAD is very small, so our estimates become noisier if we perform the heterogeneity analysis based on a higher threshold in total payroll.

Figure A.1: Distribution of SBD Claimants

(a) Share of CCPCs that Claim SBD by Year



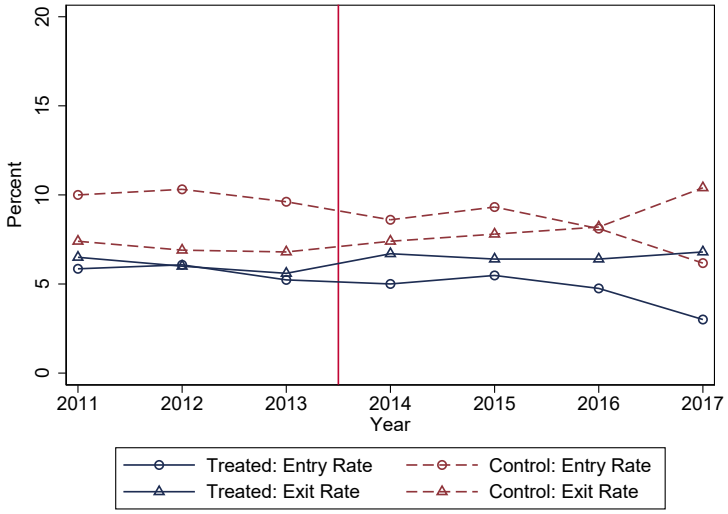
(b) Total Assets Distribution among SBD Claimants



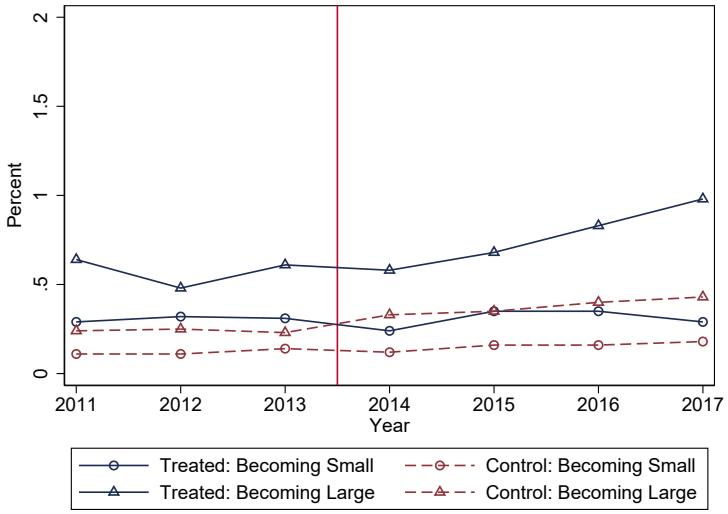
Notes: Panel (a) figure shows the share of CCPCs that claimed SBD in Quebec, BC, and Ontario, for each year from 2011 to 2017. Note that a small firm (based on its taxable capital) may not claim SBD in a given year depending on its taxable income. The dark navy line indicates treated firms in the M&P sector in Quebec, and the red line indicates control firms in non-M&P sectors or in BC/Ontario. Panel (b) shows the probability density and cumulative distribution of total assets among SBD claimants in our sample in 2013. About 99 percent of SBD claimants have total assets below 10 million CAD.

Figure A.2: Firm Entry and Exit

(a) Share of Firms Entering or Existing the Sample

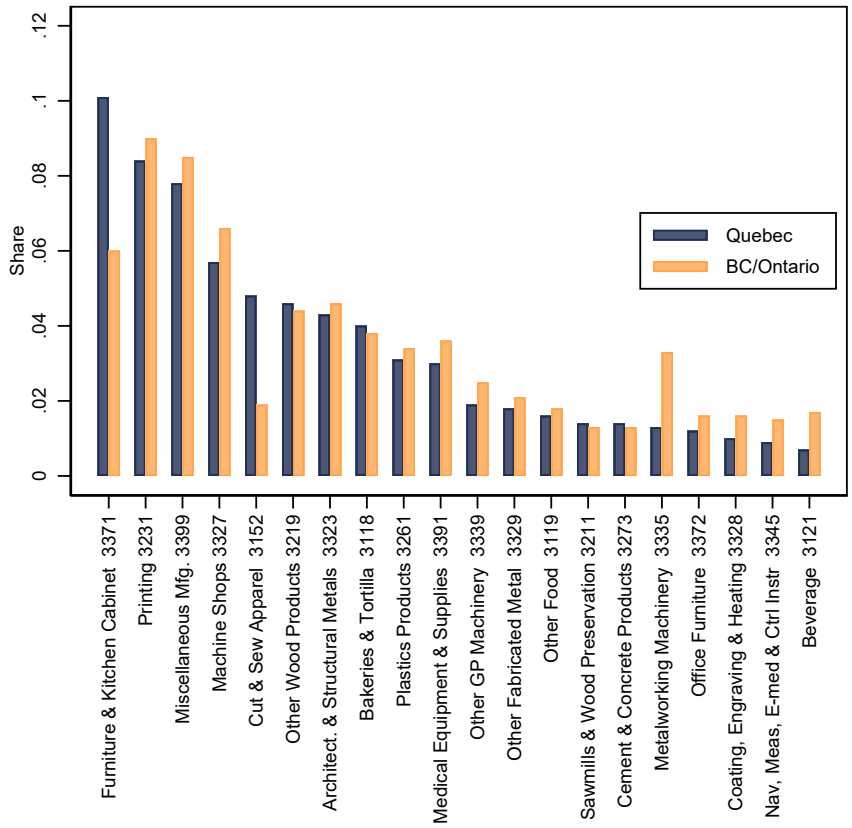


(b) Share of Firms Becoming Small or Large



Notes: Panel (a) shows the share of firms entering or exiting our analysis sample in each year from 2011 to 2017. The dark navy lines represent treated firms in the M&P sector in Quebec, and the red lines represent control firms in non-M&P sectors or in BC/Ontario. The circles represent entry rates and the triangles represent exit rates. Panel (b) shows the share of large firms that become reclassified as small firms (circles) and the share of small firms that become reclassified as large firms (triangles) in each year from 2011 to 2017.

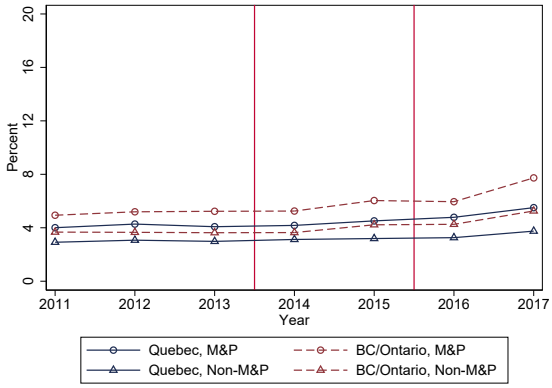
Figure A.3: Distribution of 4-digit NAICS Industries



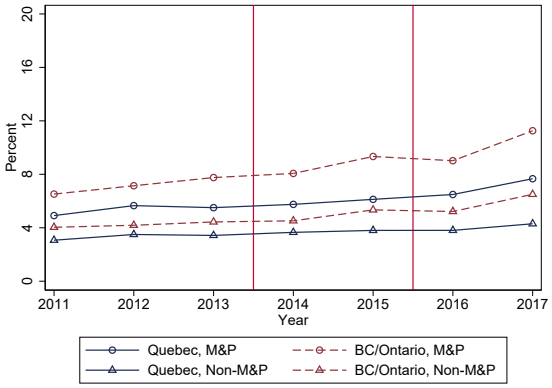
Notes: This figure shows the shares of firms in top 20 industries (4-digit NAICS) in the M&P sector, for Quebec versus BC/Ontario, respectively, during 2011 – 2013. The dark blue bars represent Quebec, and the orange bars represent BC/Ontario.

Figure A.4: Share of Owners and Workers with Taxable Income above 200,000 CAD

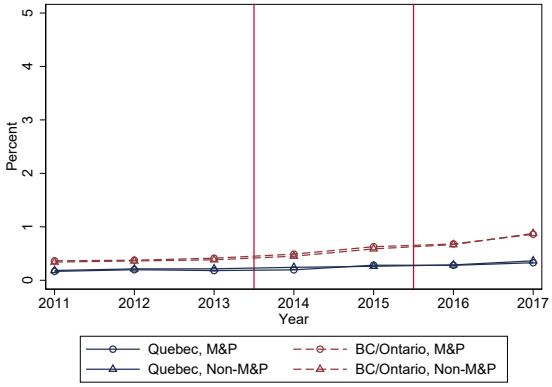
(a) Owners



(b) Owner-workers



(c) Non-owners Workers



Notes: The figure shows the share of individuals with taxable income above 200,000 CAD from 2011 to 2017. Panels (a) – (c) focus on owners, owner-workers, and nonowner-workers at firms in our analysis sample, separately for firms in Quebec and BC/Ontario and in the M&P and non-M&P sectors.

Table A.1: Corporate Income Tax Rates

Province	Firm type	2009	2010	2011	2012	2013	2014	2015	2016	2017
Federal	General (M&P)	19	18	16.5	15	15	15	15	15	15
	General (non-M&P)	19	18	16.5	15	15	15	15	15	15
	Small (M&P)	11	11	11	11	11	11	11	10.5	10.5
	Small (non-M&P)	11	11	11	11	11	11	11	10.5	10.5
Quebec	General (M&P)	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.8
	General (non-M&P)	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.8
	Small (M&P)	8	8	8	8	8	6	4	4	4
	Small (non-M&P)	8	8	8	8	8	8	8	8	8
British Columbia	General (M&P)	11	10.5	10	10	11	11	11	11	11
	General (non-M&P)	11	10.5	10	10	11	11	11	11	11
	Small (M&P)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2
	Small (non-M&P)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2
Ontario	General (M&P)	12	10	10	10	10	10	10	10	10
	General (non-M&P)	14	12	11.5	11.5	11.5	11.5	11.5	11.5	11.5
	Small (M&P)	5.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
	Small (non-M&P)	5.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Alberta	General (M&P)	10	10	10	10	10	10	12	12	12
	General (non-M&P)	10	10	10	10	10	10	12	12	12
	Small (M&P)	3	3	3	3	3	3	3	3	2
	Small (non-M&P)	3	3	3	3	3	3	3	3	2
Manitoba	General (M&P)	12	12	12	12	12	12	12	12	12
	General (non-M&P)	12	12	12	12	12	12	12	12	12
	Small (M&P)	1	0	0	0	0	0	0	0	0
	Small (non-M&P)	1	0	0	0	0	0	0	0	0
New Brunswick	General (M&P)	12	11	10	10	12	12	12	14	14
	General (non-M&P)	12	11	10	10	12	12	12	14	14
	Small (M&P)	5	5	5	4.5	4.5	4.5	4	3.5	3
	Small (non-M&P)	5	5	5	4.5	4.5	4.5	4	3.5	3
Nova Scotia	General (M&P)	16	16	16	16	16	16	16	16	16
	General (non-M&P)	16	16	16	16	16	16	16	16	16
	Small (M&P)	5	5	4.5	4	3.5	3	3	3	3
	Small (non-M&P)	5	5	4.5	4	3.5	3	3	3	3
Newfoundland and Labrador	General (M&P)	5	5	5	5	5	5	5	15	15
	General (non-M&P)	14	14	14	14	14	14	14	15	15
	Small (M&P)	5	4	4	4	4	3	3	3	3
	Small (non-M&P)	5	4	4	4	4	3	3	3	3

Table A.1: Corporate Income Tax Rates (Continued)

Province	Firm type	2009	2010	2011	2012	2013	2014	2015	2016	2017
Northwest Territories	General (M&P)	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
	General (non-M&P)	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
	Small (M&P)	4	4	4	4	4	4	4	4	4
	Small (non-M&P)	4	4	4	4	4	4	4	4	4
Nunavut	General (M&P)	12	12	12	12	12	12	12	12	12
	General (non-M&P)	12	12	12	12	12	12	12	12	12
	Small (M&P)	4	4	4	4	4	4	4	4	4
	Small (non-M&P)	4	4	4	4	4	4	4	4	4
Prince Edward Island	General (M&P)	16	16	16	16	16	16	16	16	16
	General (non-M&P)	16	16	16	16	16	16	16	16	16
	Small (M&P)	2.1	1	1	1	4.5	4.5	4.5	4.5	4.5
	Small (non-M&P)	2.1	1	1	1	4.5	4.5	4.5	4.5	4.5
Saskatchewan	General (M&P)	10	10	10	10	10	10	10	10	9.5
	General (non-M&P)	12	12	12	12	12	12	12	12	11.5
	Small (M&P)	4.5	4.5	2	2	2	2	2	2	2
	Small (non-M&P)	4.5	4.5	2	2	2	2	2	2	2
Yukon	General (M&P)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	General (non-M&P)	15	15	15	15	15	15	15	15	12
	Small (M&P)	4	4	4	2.5	2.5	1.5	1.5	1.5	1.5
	Small (non-M&P)	4	4	4	4	4	3	3	3	2

Table A.2: Distribution of Firms across Provinces

Provinces and Territories	(1) Firm Share	(2) Assets Share	(3) Revenue Share	(4) Employment Share
Quebec	0.230	0.240	0.243	0.251
Ontario	0.357	0.332	0.359	0.358
British Columbia	0.148	0.143	0.133	0.143
Subtotal	0.736	0.714	0.735	0.752
Alberta	0.153	0.158	0.145	0.127
Manitoba	0.027	0.031	0.029	0.032
New Brunswick	0.018	0.018	0.018	0.019
Newfoundland and Labrador	0.013	0.015	0.014	0.013
Nova Scotia	0.019	0.019	0.021	0.022
Prince Edward Island	0.004	0.004	0.004	0.004
Saskatchewan	0.029	0.036	0.031	0.028
Northwest Territories	0.001	0.002	0.002	0.001
Nunavut	0.000	0.001	0.000	0.000
Yukon	0.001	0.002	0.001	0.001
Total	1.000	1.000	1.000	1.000

Notes: This table reports the distribution of firms in Canada across provinces and territories in 2013. Quebec, British Columbia, and Ontario make up about 75 percent of firm counts, total assets, total revenue, and total employment.

Table A.3: Summary Statistics of the Ownership Data

	(1) All	(2) Treated	(3) Control
A. Characteristics of Owner-workers			
Number of Businesses Owned	1.4217	1.5678	1.4163
Shares Owned	0.6595	0.5771	0.6625
Labor Income / Total Income	0.8017	0.7982	0.8018
Family Owners	0.3098	0.1942	0.3141
Family Owner-workers	0.1951	0.1315	0.1974
B. Share of Owner-workers by Earnings Terciles			
1st Tercile	0.0288	0.0208	0.0294
2nd Tercile	0.0514	0.0322	0.0526
3rd Tercile	0.2189	0.2072	0.2197
All	0.1099	0.0943	0.1110
C. Share of Owner-workers and Families by Earnings Terciles			
1st Tercile	0.0554	0.0382	0.0566
2nd Tercile	0.0749	0.0470	0.0768
3rd Tercile	0.2152	0.1843	0.2172
All	0.1237	0.0957	0.1256

Notes: Panel A reports summary statistics of the ownership data separately for owner-workers at treated and control firms. Variables include the average number of businesses owned (including businesses not in our analysis sample), ownership rate, and labor income from owned businesses relative to total income, whether the owner-worker has family members owning the same firm, and whether the owner-worker has family members owning and working at the same firm. All variables are measured as averages over the years from 2011 to 2013. Panel B reports the share of owner-workers (relative to all workers in the analysis sample) by treated and control firms and by within-firm earnings terciles. Part-time workers whose annual earnings are below 4000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. Panel C repeats Panel B for owner-workers as well as their family members who own and work at the same firms.

Table A.4: Summary Statistics of Excluded Workers

A. Worker Characteristics

	Quebec		BC/Ontario	
	(1) M&P	(2) Non-M&P	(3) M&P	(4) Non-M&P
Annual Earnings ('000)	28.3	22.2	32.7	23.1
Age	38.7	34.5	39.6	34.8
Male	0.681	0.584	0.676	0.555
Observations	96,195	898,145	159,635	1,801,345
Workers	51,100	474,880	86,365	991,980

B. Earnings Distribution

		Analysis Sample	Excluded Sample
1st Quartile	(<11,161 CAD)	0.0914	0.4133
2nd Quartile	(11,161–24,444 CAD)	0.2484	0.2517
3rd Quartile	(24,444–42,378 CAD)	0.3197	0.1782
4th Quartile	(≥42,378 CAD)	0.3405	0.1568

Notes: Panel A reports summary statistics of workers excluded from the analysis sample by provinces and by M&P versus non-M&P sectors. The sample consists of part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013. All variables are measured as averages over the years from 2011 to 2013. Panel B shows the distribution of earnings for workers in the analysis sample and those in the excluded sample. A greater share of excluded workers fall into the lowest quartile of the earnings distribution.

Table A.5: Summary Statistics by High-growth and Low-growth Industries

	Quebec		BC/Ontario	
	(1)	(2)	(3)	(4)
	High-growth	Low-growth	High-growth	Low-growth
A. Firm Characteristics				
Employment	7.0	10.0	6.4	9.1
Average Payrolls ('000)	23.6	22.3	23.8	21.6
Tangible Assets ('000)	399.6	409.8	329.5	369.1
Total Revenue ('000)	1,353.4	1,250.0	1,274.2	1,149.0
EBITDA per Worker ('000)	13.1	6.3	11.0	5.9
After-tax Profits ('000)	44.0	30.2	37.1	24.8
Taxable Income ('000)	57.0	43.3	47.6	35.4
Provincial Average Tax Rates	0.089	0.085	0.047	0.046
Federal Average Tax Rates	0.085	0.086	0.088	0.086
Firm Age	12.0	12.5	11.4	11.6
Zero/Negative Profits	0.279	0.349	0.348	0.418
Observations	148,855	153,995	326,155	325,345
Firms	54,505	55,930	122,355	120,615
B. Worker Characteristics				
Annual Earnings ('000)	40.6	30.9	46.3	35.2
Age	43.9	43.5	44.6	43.6
Male	0.734	0.546	0.703	0.536
Observations	582,505	617,465	1,119,685	1,084,460
Workers	194,170	205,820	373,230	361,485

Notes: This table reports summary statistics by province and by high-growth versus low-growth industries. Panels A – B report firm and worker characteristics, respectively. The firm sample consists of Canadian-Controlled Private Corporations with total assets below 10 million CAD and located in Quebec, BC, and Ontario. Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. All variables are measured as averages over the years from 2011 to 2013. We calculate each industry's growth rate of total assets (averaged across firms in 2011 – 2013) and define high-growth (low-growth) industries as those with above- (below-) median growth rates. The book value of tangible assets, net of depreciation, represents a firm's capital stock. EBITDA is earnings before interest, taxes, depreciation, and amortization. After-tax profits are firms' net income after taxes and extraordinary items. Provincial and federal income tax rates are the firm's provincial and federal taxes (reported as Part I tax payable), respectively, scaled by taxable income. "Zero/Negative Profits" is an indicator equal to one if the firm makes zero or negative profits (total revenue minus total expenses) in a given year.

Table A.6: Summary Statistics by High-tech and Low-tech Industries

	Quebec		BC/Ontario	
	(1) High-tech	(2) Low-tech	(3) High-tech	(4) Low-tech
A. Firm Characteristics				
Employment	11.1	11.5	9.4	10.1
Average Payrolls ('000)	42.4	34.8	40.9	35.6
Tangible Assets ('000)	660.8	807.3	567.8	730.3
Total Revenue ('000)	1,924.2	1,614.3	1,754.2	1,557.9
EBITDA per Worker ('000)	10.8	6.9	7.8	6.4
After-tax Profits ('000)	72.8	49.2	57.7	43.5
Taxable Income ('000)	101.0	70.6	80.0	61.1
Provincial Average Tax Rates	0.097	0.090	0.056	0.051
Federal Average Tax Rates	0.077	0.080	0.077	0.081
Firm Age	13.4	14.3	13.6	14.2
Zero/Negative Profits	0.315	0.334	0.380	0.388
Observations	3,275	25,465	7,105	48,970
Firms	1,170	9,035	2,585	17,565
B. Worker Characteristics				
Annual Earnings ('000)	46.4	37.3	53.6	45.3
Age	45.0	45.8	46.7	46.6
Male	0.758	0.681	0.716	0.702
Observations	20,990	171,770	39,110	281,635
Workers	6,995	57,255	13,035	93,880

Notes: This table reports summary statistics by province and by high-tech versus low-tech industries. Panels A – B report firm and worker characteristics, respectively. The firm sample consists of Canadian-Controlled Private Corporations with total assets below 10 million CAD and located in Quebec, BC, and Ontario. The worker sample consists of workers at these firms; part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. All variables are measured as averages over the years from 2011 to 2013. High-tech and low-tech industries are defined at the level of 4-digit NAICS following Heckler (2005) and we focus on industries in the M&P sector. The book value of tangible assets, net of depreciation, represents a firm's capital stock. EBITDA is earnings before interest, taxes, depreciation, and amortization. After-tax profits are firms' net income after taxes and extraordinary items. Provincial and federal income tax rates are the firm's provincial and federal taxes (reported as Part I tax payable), respectively, scaled by taxable income. "Zero/Negative Profits" is an indicator equal to one if the firm makes zero or negative profits (total revenue minus total expenses) in a given year.

Table A.7: Summary Statistics by Industries with High versus Low Capital Intensity

	Quebec		BC/Ontario	
	(1) High Capital Intensity	(2) Low Capital Intensity	(3) High Capital Intensity	(4) Low Capital Intensity
A. Firm Characteristics				
Employment	9.3	7.6	8.9	6.5
Average Payrolls ('000)	23.6	22.2	23.9	21.3
Tangible Assets ('000)	498.4	297.8	442.0	247.8
Total Revenue ('000)	1,032.5	1,606.2	1,029.8	1,409.5
EBITDA per Worker ('000)	7.5	12.0	6.1	11.1
After-tax Profits ('000)	34.9	39.4	28.6	33.5
Taxable Income ('000)	48.4	52.0	40.1	43.0
Provincial Average Tax Rates	0.087	0.088	0.047	0.047
Federal Average Tax Rates	0.085	0.086	0.085	0.089
Firm Age	12.3	12.2	11.6	11.4
Zero/Negative Profits	0.327	0.302	0.402	0.363
Observations	161,190	141,660	339,365	312,130
Firms	58,565	51,865	125,955	117,015
B. Worker Characteristics				
Annual Earnings ('000)	32.4	38.8	37.1	44.6
Age	44.0	43.5	43.7	44.5
Male	0.634	0.640	0.610	0.633
Observations	602,480	597,490	1,104,195	1,099,950
Workers	200,825	199,165	368,065	366,650

Notes: This table reports summary statistics by province and by industries with high versus low capital intensity. Panels A – B report firm and worker characteristics, respectively. The firm sample consists of Canadian-Controlled Private Corporations with total assets below 10 million CAD and located in Quebec, BC, and Ontario. Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. All variables are measured as averages over the years from 2011 to 2013. We calculate each industry's capital intensity (tangible and intangible assets scaled by revenue, averaged across firms in 2011 – 2013) and define high-capital (low-capital) industries as those with above- (below-) median capital intensity. The book value of tangible assets, net of depreciation, represents a firm's capital stock. EBITDA is earnings before interest, taxes, depreciation, and amortization. After-tax profits are firms' net income after taxes and extraordinary items. Provincial and federal income tax rates are the firm's provincial and federal taxes (reported as Part I tax payable), respectively, scaled by taxable income. "Zero/Negative Profits" is an indicator equal to one if the firm makes zero or negative profits (total revenue minus total expenses) in a given year.

Table A.8: Additional Tax Deductions for Transportation Costs

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC (Non-remote)	0.0168	0.0250	0.0115
	(0.0061)	(0.0073)	(0.0029)
Post × MP × QC (Remote)	0.0233	0.0276	0.0173
	(0.0079)	(0.0096)	(0.0039)
Difference	0.0065	0.0027	0.0058
	(0.0090)	(0.0109)	(0.0043)
Mean Dep. Var. (Non-remote)	11.6	36.6	39.0
Mean Dep Var. (Remote)	11.1	33.6	36.5
Observations	2,106,660	2,106,660	6,692,680
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,235	343,235	1,070,455
Adjusted R2	0.917	0.889	0.813

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and industry-by-year fixed effects. Column (3) includes worker fixed effects and industry-by-year fixed effects. For each outcome, we estimate equation (2) for firms (or equation (6) for workers) in the M&P sector in remote and special remote zones versus other regions of Quebec, both relative to the baseline control group, and compare the two coefficient estimates in a single regression. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table A.9: Changes in Other Tax Incentives

	(1) Investment in Buildings	(2) Investment Tax Credits / Taxable Income
Post × MP × QC	-0.0670	-0.0007
	(0.2831)	(0.0003)
Mean Dep. Var.	5.7	0.011
Observations	2,106,660	2,106,660
Firms (Treated)	10,205	10,205
Firms (Control)	343,235	343,235
Adjusted R2	0.274	0.560

Notes: Columns (1) – (2) report triple-differences estimates on $Post \times MP \times QC$ in equation (2) for firms' investment in buildings and investment tax credits scaled by taxable income, respectively. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for column (1). All specifications include firm fixed effects and year fixed effects. Standard errors are clustered at the firm level and reported in parentheses.

Table A.10: Tax Effects by Total Payrolls Below and Above One Million

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC (Below One Million)	0.0196	0.0230	0.0117
	(0.0058)	(0.0071)	(0.0032)
Post × MP × QC (Above One Million)	0.0224	0.0360	0.0167
	(0.0125)	(0.0125)	(0.0041)
Difference	0.0027	0.0130	0.0050
	(0.0137)	(0.0143)	(0.0052)
Mean Dep. Var. (Below One Million)	7.4	21.2	35.7
Mean Dep Var. (Above One Million)	40.2	138.2	41.1
Observations	2,106,660	2,106,660	6,692,680
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,235	343,235	1,070,455
Adjusted R2	0.917	0.889	0.814

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and industry-by-year fixed effects. Column (3) includes worker fixed effects and industry-by-year fixed effects. For each outcome, we estimate equation (2) for firms (or equation (6) for workers) with total payrolls below and above one million CAD in 2013, and compare the two coefficient estimates in a single regression. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

B Robustness Checks and Internal Validity

In Appendix B, we show the results from additional robustness tests mentioned from Section III to Section VI. Again, "firms" refer to *small* businesses, unless noted otherwise.

B.1 Alternative Difference-in-Differences Estimates

In Sections III and IV, we describe and discuss the results from separate difference-in-differences models comparing M&P firms (and their workers) with non-M&P firms (and their workers) in Quebec before and after the reform, and making the same comparison in the control provinces. We estimate another set of separate difference-in-differences models comparing M&P firms (and their workers) in Quebec with M&P firms (and their workers) in the control provinces before and after the reform, and making the same comparison for non-M&P firms (and their workers):

$$Y_{jt} = \sum_{\tau=2011}^{2017} \beta_{\tau}^{MP=i} \cdot \mathbb{1}_{\{t=\tau\}} \cdot QC_j + \alpha_j + \phi_t + u_{jt} \quad \text{if} \quad MP_j = i \in \{0,1\}. \tag{B.1}$$

$$Y_{ijt} = \sum_{\tau=2011}^{2017} \beta_{\tau}^{MP=k} \cdot \mathbb{1}_{\{t=\tau\}} \cdot QC_{ij} + \alpha_i + \phi_t + u_{ijt} \quad \text{if} \quad MP_{ij} = k \in \{0,1\}. \tag{B.2}$$

Then we compute and summarize the average effects by estimating the following set of difference-in-differences models:

$$Y_{jt} = \beta^{MP=i} \cdot Post_t \cdot QC_j + \alpha_j + \phi_t + u_{jt} \quad \text{if} \quad MP_j = i \in \{0,1\}. \tag{B.3}$$

$$Y_{ijt} = \beta^{MP=k} \cdot Post_t \cdot QC_{ij} + \alpha_i + \phi_t + u_{ijt} \quad \text{if} \quad MP_{ij} = k \in \{0,1\}. \tag{B.4}$$

For each of our main outcomes (employment, average payrolls, and annual earnings), we show separate difference-in-differences estimates, as well as our triple-differences estimate, to present our results transparently and discuss where the effects are coming from. Figure B.1, Panels (a) – (c) plot estimates of $\beta_{\tau}^{MP=1}$ and $\beta_{\tau}^{MP=0}$ from equations (B.1) and (B.2). Panels (a) – (b) show that M&P firms in Quebec reduced their employment and average payrolls relative to M&P firms in the control provinces from 2011 to 2013 (the navy line). Furthermore, non-M&P firms in Quebec reduce their employment and average payrolls by a similar proportion relative to non-M&P firms in the control provinces from 2011 to 2013 (the red line). After 2014, we observe continued declines in employment and average payrolls for M&P firms in Quebec relative to M&P firms in the control provinces, but we see even larger declines in these outcomes for non-M&P firms in Quebec relative to non-M&P firms in the control provinces. Panel (c) shows that workers at M&P firms in Quebec experience a moderate increase in their earnings from 2011 to 2013 relative to workers at M&P firms in the control provinces. We observe a similar increase for workers at non-M&P firms in Quebec relative to workers at non-M&P firms in the control provinces from 2011 to 2013. After 2014, we see a decline in earnings of workers at M&P firms in Quebec relative to those of workers at M&P firms in the control provinces. We see even a larger decline in earnings of workers at non-M&P firms in Quebec relative to those of workers at non-M&P firms in the control provinces after 2014.

Table B.1, Panel A reports estimates of $\beta^{MP=1}$ and $\beta^{MP=0}$ from equations (B.3) and (B.4). Relative to M&P firms and their workers in the control provinces, M&P firms and their workers in Quebec experience 1.9 percent, 4.6 percent, and 0.4 percent decline in employment, average payrolls, and annual earnings, respectively, after the reform. Relative to non-M&P firms and their workers in the control provinces, non-M&P firms and their workers in Quebec experience 3.6 percent, 6.9 percent, and 1.7 percent decline in employment, average payrolls, and annual earnings, respectively, after the reform. Note that the difference in the separate difference-in-differences estimates almost equals the triple-differences estimate, consistent with our findings described in Section IV.

These results lead to the following important interpretations. First, both M&P firms and non-M&P firms in Quebec are already reducing employment and average payrolls compared to their counterparts in the control provinces even before the reform ("province-specific trends"). Second, after the reform, both M&P firms and non-M&P firms in Quebec continue to reduce their employment and average payrolls relative to their counterparts in the control provinces. Third, however, the relative declines in employment and average payrolls between M&P firms in Quebec and M&P firms in the control provinces are *smaller* compared to the relative declines for non-M&P firms. So when we compare small firms in Quebec with small firms in the control provinces, the increase in employment and average payrolls for M&P firms is only relative to non-M&P firms in Quebec. We also see a similar pattern for worker earnings in Panel (c), except that earnings of workers at both M&P firms and non-M&P firms in Quebec increase relative to those of workers at both M&P firms and non-M&P firms in the control provinces before the reform. Therefore, the additional (triple) difference is necessary to absorb the general (e.g., downward or upward) trend in these key outcomes between Quebec and the control provinces.

B.2 Alternative Specifications

We check whether our results are confounded by industry- or region-specific shocks that coincide with the reform. To do so, we additionally control for 4-digit NAICS industry-by-year fixed effects and commuting zone-by-year fixed effects, and cluster standard errors at the industry level. Tables B.2 report estimates on key outcomes, showing that they are qualitatively similar to our main findings.

To address the concern that our results are driven by differences in industrial compositions across provinces, we re-weight firms and workers in the M&P sector in British Columbia and Ontario such that they have the same distribution of 4-digit NAICS industries as the M&P sector in Quebec. Suppose that before the reform, p_k is the share of observations in the 4-digit NAICS industry k in Quebec, and $\tilde{p}_k$ is the share in British Columbia and Ontario. Then we assign weights of $p_k/\tilde{p}_k$ for observations in the M&P sector in British Columbia and Ontario and weights equal to one for other observations. The results in Table B.3 are qualitatively similar to our main results.

Additionally, Table B.4 reports estimates weighted by firms' pre-reform total assets in 2013. Specifically, we weight each observation according to its total assets measured in 2013 so that each observation contributes to regression estimates according to its economic scale, making the parameter estimates "dollar-weighted". While large firms are assigned greater weights, the estimated effects remain positive and significant, and the effects on firms' employment and average payrolls have larger magnitudes compared to the baseline unweighted results.

B.3 Alternative Samples

Next, we consider alternative definitions of small businesses in our sample. Table B.5 use firms with taxable capital either missing or below 10 million CAD during the pre-reform period. Note that firms are legally required to report their taxable capital only if it is above 10 million CAD, and roughly 99 percent of our sample have missing observations in taxable capital. The results from these robustness tests are qualitatively similar to our main findings.

Furthermore, Table B.6 shows the results including previously excluded provinces without any change in corporate income tax rates in 2011 – 2017 (Manitoba, Northwest Territories, Nunavut, and Saskatchewan) as part of the control provinces. Table B.7 shows the results including previously excluded sectors (agriculture, finance, real estate, professional services, and healthcare) as part of the control sectors. Results from including these previously excluded provinces and sectors are qualitatively similar to our main results.

In the baseline worker sample, we impose tenure restrictions and drop multiple-job holders and those making below 4,000 CAD in annual earnings to focus on full-time workers with stable jobs. In Table B.8, we relax these restrictions and include the previously excluded workers. While this greatly increases the sample size, the estimated effect on workers' earnings is qualitatively similar to (if anything, larger than) our main estimate. In particular, the tax cuts raised earnings for both owner-workers and nonowner-workers, with larger incidence on non-owners' earnings consistent with the results in Table 5. Moreover, Table B.9 shows that workers across the within-firm earnings distribution benefit from the tax cuts even when we included these previously excluded workers.

Following the same incidence calculation used in Section VII.B and using these estimates based on the extended sample incorporating previously excluded workers, we find that on average, workers without ownership bear 47 percent of the corporate tax burden, and firm owners bear 53 percent of the tax burden. Among the firm owners, those who also derive labor income from their firm bear 32 percent of the tax burden. Changes in labor earnings of these owner-workers are much smaller than those of nonowner-workers because owner-workers primarily benefit from tax cuts via increased profits of the firms they own. In fact, the incidence on owner-workers is only 0.02 based on increased wages alone, and the incidence through increased profits is 0.30. Combining both worker types, we find that tax incidence on workers (based on changes in wages alone) is 0.49, accounting for nearly a half of the overall tax burden.

Relative to the incidence estimates based on our main sample, the estimates based on the extended sample are different mainly because the incidence on workers without ownership is larger. The estimated increase in earnings of nonowner-workers (Column 2, Table B.8) is almost twice as large in the extended sample as the estimate in the main sample. The larger response in earnings in the extended sample is entirely driven by part-time workers (i.e., those with annual earnings below 4,000 CAD), multiple-job holders, or those without the tenure restrictions. Because these types of workers likely have weak attachment to their firm, it is unclear how much of the change in their earnings is driven by changes in their working hours as opposed to changes in their wages. Therefore, our preferred specification is the one with sample restrictions explained in Section III, which yields the incidence estimates based on the main sample discussed in Section VII.B.

B.4 Placebo Tests

In Table B.10, we conduct placebo tests using non-CCPC firms and workers. They are ineligible for small business deductions regardless of their sectors or locations, and therefore, are not directly impacted by the reform. Across all outcomes we study, the estimated coefficients are indistinguishable from zero and noisier due to smaller sample sizes. Thus, our main results are unlikely driven by other contemporaneous shocks.

B.5 Bunching at Taxable Income Threshold of 500,000 CAD

The small business deduction for CCPCs is only applicable for the first 500,000 CAD of taxable income. We examine whether there is any evidence of bunching by CCPCs at the taxable income threshold of 500,000 CAD. Furthermore, we test whether there is any change in bunching for treated firms, relative to control firms, after the reform.

Panel (a) of Figure B.2 shows the distribution of taxable income for CCPCs in the M&P sector in Quebec (treated group) before and after the reform. We focus on taxable income in the range between 250,000 CAD and 750,000 CAD. Visually, there is little evidence of bunching at the threshold, and no change in the distribution of taxable income after the reform. We observe a similar pattern for non-M&P firms in Quebec in Panel (b). Panels (c) – (f) plot the distribution of taxable income for M&P and non-M&P firms in the control provinces. In contrast to the treated group, the share of control firms with taxable income between 470,000 CAD and 505,000 CAD is disproportionately large, suggesting bunching around 500,000 CAD.

To quantify the relative change of bunching between treated and control firms before and after the reform, we estimate the probability of bunching around the threshold following the approach by Saez (2010). Specifically, we estimate equation (2) for the probability that a firm's taxable income falls between 470,000 CAD and 505,000 CAD. Then we re-estimate equation (2) for the probability that a firm's taxable income falls in two neighboring regions – between 440,000 CAD and 470,000 CAD or between 505,000 CAD and 510,000 CAD. The difference between these two estimates indicates the effect of the reform on bunching with regard to the original taxable income distribution. Table B.11 shows that the probability of bunching by treated firms relative to control firms does not change after the reform, implying that the tax cuts do not affect bunching around the taxable income threshold.

Even if the change in tax rates above the threshold is only at the marginal rate, one may expect to see firms bunching at the taxable income cutoff if there is a large difference in the general tax rate and small business tax rate. The main explanation for the lack of bunching for firms in Quebec is that the difference between the general tax rate and small business tax rate had been historically small compared to the difference in British Columbia and Ontario. For example, from 2009 to 2013, the small business tax rate in British Columbia and Ontario was up to seven percentage points lower than the general tax rate, while the small business tax rate in Quebec was only 3.9 percentage points lower than the general tax rate. Even after the tax rate cut in 2014 for small M&P firms in Quebec, the lack of bunching at the taxable income threshold persisted, likely because of inertia. Table B.12 reports a subsample analysis where we focus on firms just below the taxable income threshold (and above 400,000 CAD). We find almost no impacts of the tax cuts on firms (and their workers) close to the threshold. In other words, the reform impacts are concentrated among small M&P firms in Quebec below 400,000 CAD in taxable income.

B.6 Worker Reallocation

We examine whether there is reallocation of workers from control firms to treated firms after the reform, and how much this allocation can explain our results on employment. This analysis implicitly assumes that treated and control firms compete in the input market for workers. Notice that any employment growth at treated firms relative to control firms may arise from absolute employment growth at treated firms or absolute employment decline at control firms. If the relative employment growth at treated firms is mainly driven by workers moving out of control firms (especially towards treated firms), then the employment effect of the reform will be overestimated due to violation of the Stable Unit Treatment Value Assumption (SUTVA). As such, we would not only overstate the real employment effect of the tax cuts on treated firms, but also reach a different welfare implication on the labor market.

Besides incumbent workers at treated firms (in the M&P sector in Quebec), every new worker hired by a treated firm must come from (i) control firms (non-M&P firms in Quebec or firms in British Columbia or Ontario), (ii) other firms eligible for small business deductions (e.g., in other provinces or in excluded sectors), (iii) ineligible firms (large firms above 10 million CAD in total assets or non-CCPCs), or (iv) non-employment (unemployed, fresh graduates, or new immigrants). For groups (i) – (iii), we compute the net inflow to treated firms in each year during 2011 – 2017 as the number of workers moving from each group to treated firms minus the number of workers moving in opposite ways. Figure B.3 plots the net inflows from each group, scaled by total employment at treated firms in the same year. Table B.13 reports the average net inflows from each group (also scaled by total employment at treated firms) in the pre- and post-reform periods, respectively.

According to Table B.13, there had been a net outflow of workers from treated to control firms in 2011 – 2013, which constitutes 1.2 percent of total employment at treated firms per year. After the reform, the net outflow from treated to control firms slows down to 0.5 percent of total employment at treated firms per year. Therefore, the net inflow of workers from control to treated firms *increases* by 0.7 percentage points, suggesting that the employment growth at treated firms is partially due to worker reallocation from control firms. However, since control firms employ a much larger number of workers, such outflow only constitutes 0.03 percent of total employment at control firms.[5] In terms of percent (log point) changes, control firms hardly experience any employment loss due to the reform, and the relative employment growth at treated firms is hardly explained by employment declines at control firms. As such, it is unlikely that worker reallocation between treated and control firms leads to a significant upward bias in the triple-differences estimate on employment.

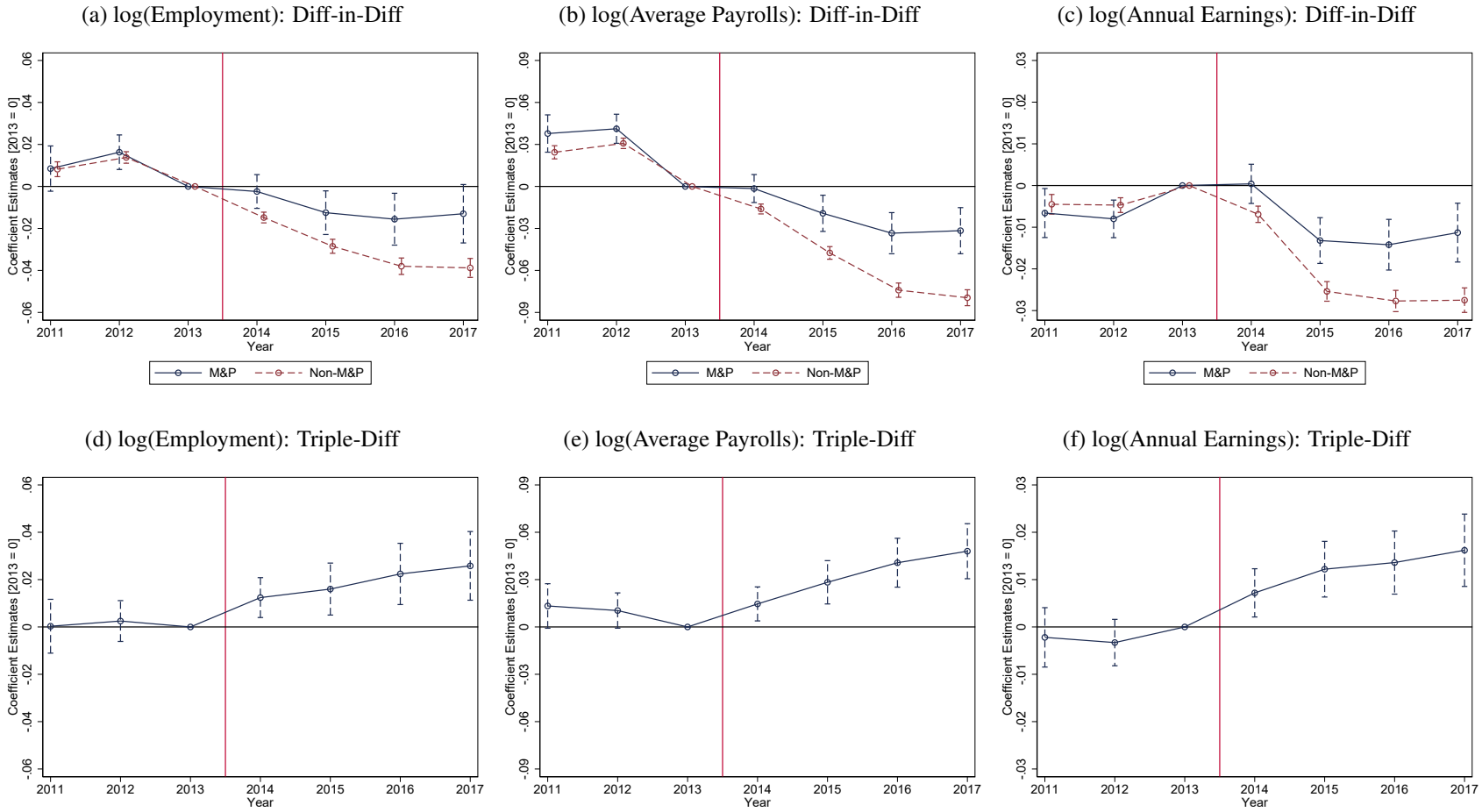
Figure B.3 and B.13 also show the net inflow of workers from other eligible firms and ineligible firms to treated firms. After the reform, the net inflow from other eligible firms turns negative, suggesting that treated firms lose workers to other eligible firms over time. Similarly, the net inflow from ineligible firms to treated firms stays negative in 2011 – 2017 and declines over time. Overall, the total net inflow of workers from all other firms to treated firms is negative and the magnitude keeps getting smaller throughout the sample period.

Similar to the reallocation of workers, about 0.18 percent of firms in non-M&P sectors switch to the M&P sector and 0.01 percent of firms outside of Quebec move to Quebec after the reform,

[5] Accounting for such a percent change in the employment at control firms, our triple-differences point estimate in Table 3, column (1) becomes $0.0174 - 0.0003 = 0.0171$, which remains similar to the original estimate.

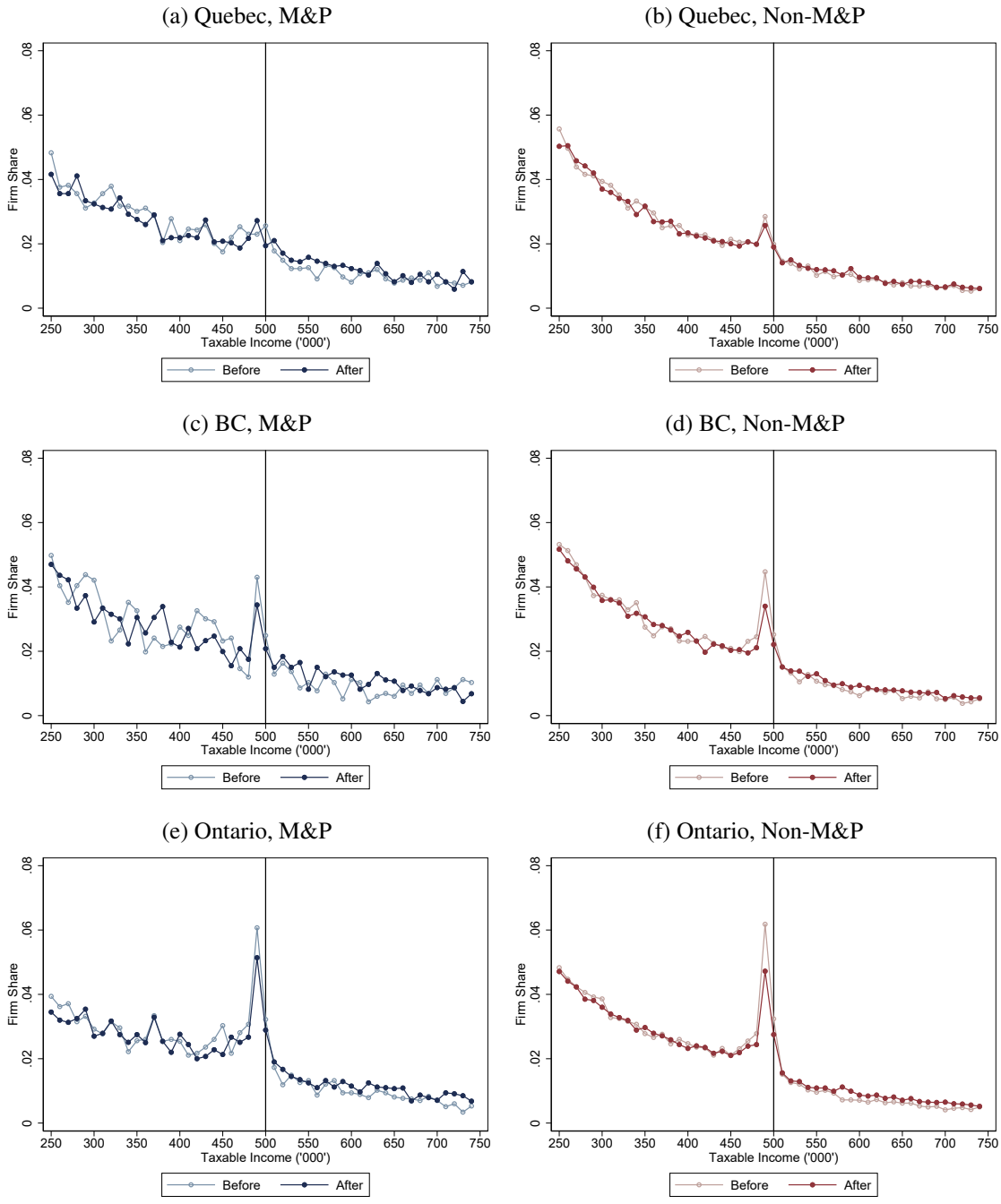
suggesting very little reallocation of firms across sectors or provinces. This is likely driven by the fact that the vast majority of firms in our analysis sample are small businesses that are mostly single establishments or multi-establishments within the same province.

Figure B.1: Alternative Difference-in-Differences Estimates



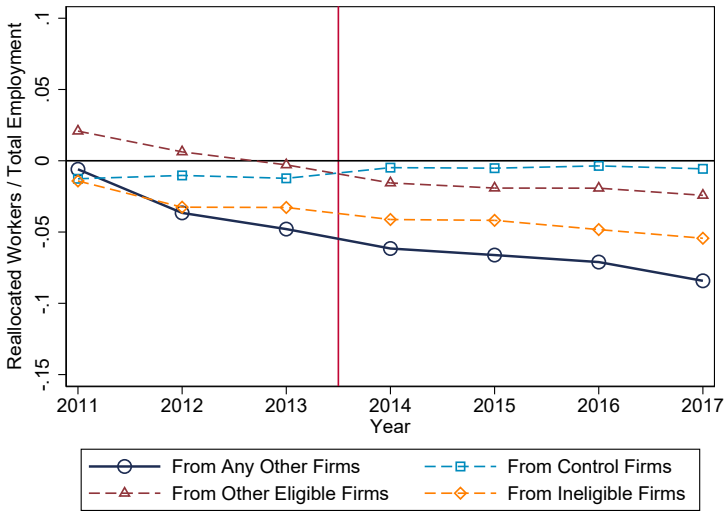
Notes: Panels (a) – (b) show difference-in-differences estimates on $\mathbb{1}_{\{t=\tau\}} \times QC$ in equation (B.1), separately for firms in M&P and non-M&P sectors. Panel (c) shows the same estimates in equation (B.2), separately for workers in M&P and non-M&P sectors in 2013. Panels (d) – (e) show triple-differences estimates on $\mathbb{1}_{\{t=\tau\}} \times MP \times QC$ in equation (1). Panel (f) shows the same estimates in equation (5). Dependent variables are firms' log(employment), log(average payrolls), and workers' log(annual earnings). The solid vertical line indicates the reform year. The dashed lines represent 95 percent confidence intervals.

Figure B.2: Distribution of Taxable Income around 500,000 CAD



Notes: Panels (a) – (f) show the distribution of taxable income between 250,000 and 750,000 CAD in Quebec, BC, and Ontario, and in M&P versus non-M&P sectors, respectively. The light blue and light red lines represent years 2011 – 2013 ("before"). The dark blue and dark red lines represent years 2014 – 2017 ("after").

Figure B.3: Worker Reallocation to Treated Firms



Notes: The figure shows the share of workers at treated firms who are reallocated from control firms, other eligible firms, ineligible firms, and any other firms combined, respectively, in each year during 2011 – 2017. Other eligible firms refer to CCPCs with total assets below 10 million in excluded sectors or in provinces other than Quebec, British Columbia, and Ontario. Ineligible firms refer to non-CCPCs or CCPCs with total assets above 10 million regardless of their provinces or sectors.

Table B.1: Alternative Difference-in-Differences Specification

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
A. Difference-in-Differences			
Post × Quebec (M&P)	-0.0185	-0.0455	-0.0041
	(0.0050)	(0.0060)	(0.0024)
Post × Quebec (Non-M&P)	-0.0359	-0.0689	-0.0174
	(0.0016)	(0.0020)	(0.0010)
B. Triple-Differences			
Post × MP × QC	0.0174	0.0234	0.0133
	(0.0052)	(0.0063)	(0.0026)
Mean Dep. Var.	11.4	35.6	38.3
Observations	2,106,660	2,106,660	6,692,680
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,235	343,235	1,070,455
Adjusted R^2	0.917	0.888	0.813

Notes: Panel A reports difference-in-differences estimates on $Post \times MP$ in equation (B.3) separately for firms in M&P and non-M&P sectors, and the same estimates in equation (B.4) separately for workers in M&P and non-M&P sectors in 2013. Panel B reports triple-differences estimates on $Post \times MP \times QC$ in equations (2) and (6). In columns (1) – (3), dependent variables are firms' log(employment), log(average payrolls), and workers' log(annual earnings), respectively. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and year fixed effects. Column (3) includes worker fixed effects and year fixed effects. Standard errors are clustered at the industry level for columns (1) – (2), two-way clustered at the industry level and worker level for column (3), and reported in parentheses.

Table B.2: Including Industry × Year and Commuting Zone × Year FEs

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC	0.0210	0.0274	0.0150
	(0.0094)	(0.0123)	(0.0072)
Mean Dep. Var.	11.4	35.6	38.3
Observations	2,106,660	2,106,660	6,692,680
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,235	343,235	1,070,455
Adjusted R^2	0.917	0.889	0.815

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects, industry-by-year fixed effects, and commuting zone-by-year fixed effects. Column (3) includes worker fixed effects, industry-by-year fixed effects, and commuting zone-by-year fixed effects. Standard errors are clustered at the industry level for columns (1) – (2), two-way clustered at the industry level and worker level for column (3), and reported in parentheses.

Table B.3: Re-weighting Industries

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC	0.0185	0.0248	0.0112
	(0.0054)	(0.0065)	(0.0026)
Mean Dep. Var.	11.4	35.6	38.3
Observations	2,106,480	2,106,480	6,692,250
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,195	343,195	1,070,385
Adjusted R^2	0.917	0.889	0.815

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and industry-by-year fixed effects. Column (3) includes worker fixed effects and industry-by-year fixed effects. Treated and control firms (or workers) in the M&P sector are re-weighted such that both groups have the same distribution of 4-digit NAICS industries. Observations in the M&P sector in British Columbia and Ontario are weighted by $p_k/\tilde{p}_k$, where p_k is the share of observations in industry k within the M&P sector in Quebec during 2011 – 2013, and $\tilde{p}_k$ is the share within the M&P sector in British Columbia and Ontario. Other observations are weighted by one. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table B.4: Weighting by Firms' Total Assets in 2013

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC	0.0282	0.0458	0.0139
	(0.0078)	(0.0082)	(0.0038)
Mean Dep. Var.	25.2	84.5	40.8
Observations	2,106,285	2,106,285	6,638,315
Firms/Workers (Treated)	10,195	10,195	64,250
Firms/Workers (Control)	343,015	343,015	1,070,455
Adjusted R^2	0.935	0.915	0.834

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Estimates are weighted by each firm's total assets in 2013. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Estimates are weighted by total assets of each worker's main employer in 2013. Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and year fixed effects. Column (3) includes worker fixed effects and year fixed effects. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table B.5: Firms with Taxable Capital below 10 Million CAD

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC	0.0186	0.0276	0.0211
	(0.0050)	(0.0060)	(0.0026)
Mean Dep. Var.	17.7	60.0	40.9
Observations	2,179,530	2,179,530	9,287,755
Firms/Workers (Treated)	11,115	11,115	116,160
Firms/Workers (Control)	354,170	354,170	1,436,960
Adjusted R^2	0.925	0.902	0.823

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and year fixed effects. Column (3) includes worker fixed effects and year fixed effects. The sample consists of CCPCs (and their workers) with taxable capital below 10 million CAD or missing during 2011 – 2013. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table B.6: Including Other Provinces

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC	0.0170	0.0239	0.0135
	(0.0051)	(0.0062)	(0.0025)
Mean Dep. Var.	11.4	35.6	38.3
Observations	2,268,455	2,268,455	7,138,995
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	370,685	370,685	1,147,390
Adjusted R^2	0.916	0.888	0.816

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and year fixed effects. Column (3) includes worker fixed effects and year fixed effects. The sample includes other Canadian provinces without change in corporate income tax rates in 2011 – 2017 (Manitoba, Northwest Territories, Nunavut, and Saskatchewan). Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table B.7: Including Other Sectors

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC	0.0108	0.0132	0.0082
	(0.0052)	(0.0063)	(0.0025)
Mean Dep. Var.	11.4	35.7	38.3
Observations	3,039,365	3,039,365	8,491,115
Firms/Workers (Treated)	10,155	10,155	64,250
Firms/Workers (Control)	498,530	498,530	1,370,160
Adjusted R^2	0.913	0.874	0.821

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and industry-by-year fixed effects. Column (3) includes worker fixed effects and industry-by-year fixed effects. The sample includes previously excluded agriculture, finance and real estate, healthcare, and professional services sectors. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table B.8: Including Part-time and Multiple-job Workers, and Dropping Tenure Restrictions

	(1) log(Annual Earnings)	(2) log(Annual Earnings): Nonowner-workers	(3) log(Annual Earnings): Owner-workers
Post × MP × QC	0.0222	0.0262	0.0069
	(0.0036)	(0.0038)	(0.0084)
Mean Dep. Var.	36.1	33.4	63.4
Observations	12,707,210	11,201,565	1,505,645
Workers (Treated)	115,160	106,050	9,110
Workers (Control)	2,618,210	2,369,005	249,205
Adjusted R^2	0.747	0.735	0.765

Notes: Column (1) reports triple-differences estimates on *Post* × *MP* × *QC* in equation (6) for workers' log(annual earnings). Columns (2) – (3) report the same estimates for workers without and with ownership of firms they work at, respectively. Part-time workers whose annual earnings are below 4000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are *included*. The mean dependent variable is based on years from 2011 to 2013 and measured in thousand CAD. The specification includes worker fixed effects and year fixed effects. Standard errors are two-way clustered at the firm level and worker level and reported in parentheses.

Table B.9: Tax Effects by Within-Firm Earnings Terciles Including Previously Excluded Workers

	(1) log(Annual Earnings)	(2) log(Annual Earnings) Excl. Owners	(3) log(Annual Earnings) Excl. Owners and Families
Post × MP × QC (1st Tercile)	0.0244	0.0240	0.0232
	(0.0085)	(0.0085)	(0.0086)
Post × MP × QC (2nd Tercile)	0.0365	0.0371	0.0384
	(0.0044)	(0.0044)	(0.0044)
Post × MP × QC (3rd Tercile)	0.0111	0.0131	0.0122
	(0.0036)	(0.0038)	(0.0038)
Mean Dep. Var. (1st Tercile)	17.9	17.8	17.9
Mean Dep. Var. (2nd Tercile)	30.4	30.3	30.4
Mean Dep. Var. (3rd Tercile)	56.0	51.8	51.9
Observations	11,781,800	10,757,440	10,416,865
Workers (Treated)	111,490	103,935	101,620
Workers (Control)	2,440,115	2,276,695	2,216,795
Adjusted R^2	0.759	0.748	0.748

Notes: Column (1) reports triple-differences estimates on $Post \times MP \times QC$ in equation (6) for log(annual earnings). Part-time workers whose annual earnings are below 4000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are *included*. Column (2) repeats column (1) but excludes owner-workers. Column (3) repeats column (1) but excludes owner-workers and their family members who also work at their firms. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD. We estimate equation (6) for workers separately by within-firm earnings terciles in 2013. The sample focuses on firms with at least three workers. All specifications include worker fixed effects and industry-by-year fixed effects. Standard errors are two-way clustered at the worker level and firm level, and reported in parentheses.

Table B.10: Placebo Tests Using Non-CCPCs

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC	-0.0268	0.0168	-0.0393
	(0.0509)	(0.0457)	(0.0344)
Mean Dep. Var.	141.0	669.5	61.5
Observations	16,790	16,790	679,090
Firms/Workers (Treated)	260	260	14,050
Firms/Workers (Control)	3,150	3,150	103,720
Adjusted R^2	0.958	0.959	0.796

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and year fixed effects. Column (3) includes worker fixed effects and year fixed effects. The sample consists of non-CCPCs (and their workers) that are not impacted by the reform regardless of their sectors or provinces. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table B.11: Bunching of Taxable Income at 500,000 CAD

	(1)
	Bunching Probability
Post × MP × QC	-0.0004
	(0.0011)
Observations	2,183,350
Firms (Treated)	11,145
Firms (Control)	354,710

Notes: Column (1) reports triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for the probability of excessive bunching between 470,000 CAD and 505,000 CAD for treated firms relative to control firms following Saez (2010). Standard errors are clustered at the firm level and reported in parentheses.

Table B.12: Firms with Taxable Income between 400,000 and 500,000 CAD

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC	-0.0012	0.0047	0.0096
	(0.0276)	(0.0349)	(0.0109)
Mean Dep. Var.	25.2	89.9	43.1
Observations	29,580	29,580	304,770
Firms/Workers (Treated)	200	200	3,190
Firms/Workers (Control)	4,290	4,290	47,385
Adjusted R^2	0.934	0.885	0.840

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and year fixed effects. Column (3) includes worker fixed effects and year fixed effects. The sample consists of firms (and their workers) with taxable income between 400,000 CAD and 500,000 CAD in 2013. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table B.13: Worker Reallocation

	(1) Pre-reform (2011 – 2013)	(2) Post-reform (2014 – 2017)	(3) Difference (Post minus Pre)
From Control Firms	-0.0117	-0.0048	0.0069
From Other Eligible Firms	0.0077	-0.0195	-0.0272
From Ineligible Firms	-0.0268	-0.0463	-0.0195
Total Reallocation	-0.0308	-0.0706	-0.0398

Notes: Column (1) reports net inflow of workers from control firms, other firms, and ineligible firms to treated firms, averaged across the pre-reform years 2011 – 2013. Column (2) reports the same statistics averaged across the post-reform years 2014 – 2017. Column (3) reports differences between the pre- and post-reform years. Other eligible firms refer to CCPCs with total assets below 10 million and in provinces other than Quebec, British Columbia, and Ontario, or in excluded sectors. Ineligible firms refer to non-CCPCs or CCPCs with total assets above 10 million regardless of their provinces or sectors. All statistics are scaled by total employment at treated firms in the same year, so that they represent the share of employment at treated firms that results from worker reallocation.

C Mechanisms and Heterogeneity Results

In Appendix C, we test potential mechanisms for responses in employment, average payroll, and worker earnings to the tax cuts and provide heterogeneity results in addition to those discussed in Section V.

Lowering corporate income tax rates for small firms can affect their outcomes through two channels: by increasing (immediate) cash flow and by reducing the cost of capital. Under the first channel, firms may invest in both capital and labor following an increase in cash flow, whereas the second channel requires some complementarity between capital and labor. In Appendices C.1 – C.3, we show that firms' responses to the tax cuts is likely driven by a mix of both channels.

In a perfectly competitive labor market, wages will increase when lower corporate tax rates shift the market-level labor demand upward. Alternatively, wages can increase after a tax cut if firms have monopsony power and face upward-sloping labor supply curves. In particular, firms may increase wages more than they do in the competitive benchmark as they demand more labor. Appendix C.4 tests whether the effects of the tax cuts are different depending on labor market concentration. Appendix C.5 also examines rent sharing or rent extraction as a potential mechanism behind our worker-level estimates. We do not explore heterogeneity based on the firm's unionization rate because most small firms in our sample do not have unions.[6]

C.1 Tax Effects by Growth Potentials

By High-growth versus Low-growth Industries We test whether firms and workers in high-growth industries respond more strongly to tax cuts than those in low-growth industries. The intuition is that firms with higher growth rates likely have projects with higher net present value, making it particularly worthwhile to invest in productive capital. Accordingly, these firms may experience larger increases in productivity and profitability, leading to more hiring and higher salaries for workers.

To test whether the effects of the tax cuts are stronger in faster-growing industries, we compute each firm's growth rate using year-to-year changes in total assets ($Assets_t/Assets_{t-1}$) from 2011 to 2013, and define "high-growth" (or "low-growth") industries as those with pre-reform average growth rates above (or below) the sample median.[7]

We estimate specification (2) separately for firms in high-growth and low-growth industries. To estimate these effects on worker-level earnings, we use specification (6) separately for workers in high-growth and low-growth industries in the year before the reform. Table C.1 shows that the tax effects are larger for firms and workers in high-growth than low-growth industries. These results imply that firms in high-growth industries tend to grow faster and demand more labor in order to facilitate their expansion after the tax cuts.

By High-tech versus Low-tech Industries Similar to the heterogeneity based on growth rates, we examine whether firms in high-tech industries pay higher salaries to their workers after the tax

[6] In our analysis sample, only 1.7 percent of treated firms and 2.8 percent of control firms have any union workers in 2013.

[7] Within the M&P sector in our sample, the top five high-growth industries by employment are (1) screw, nut, and bolt manufacturing (3327), (2) plastic product manufacturing (3261), (3) general-purpose machinery manufacturing (3339), (4) metalworking machinery manufacturing (3335), and (5) fabricated metal product manufacturing (3329).

cuts. Following Heckler (2005), we define an industry as high-tech if employment in technology-oriented occupations accounts for at least 9.8 percent of that industry's total employment.[8]

We estimate our main specifications (2) and (6) separately for firms and workers in high-tech industries and low-tech industries. Note that we use the same control group in both estimations because we do not have this distinction between high-tech and low-tech industries in non-M&P sectors.[9] Table C.2 show that the tax effects are larger in high-tech than low-tech industries. These results imply that firms in high-tech industries tend to demand more labor in order to grow more after the tax cuts. This is consistent with the results comparing high-growth versus low-growth industries.

C.2 The Cost of Capital Channel

A standard user cost of capital widely used in the literature (Zwick and Mahon 2017; Maffini et al. 2019; Curtis et al. 2022), $c = \frac{1-\tau z}{1-\tau}(r+\delta)$, contains the tax component $\frac{1-\tau z}{1-\tau}$, where τz represents the net present value of tax deductions due to capital cost allowances for one dollar increase in investment. A reduction in (statutory) corporate income tax rate mechanically lowers the cost of capital ($\partial c/\partial \tau > 0$), which can induce firms to invest in capital. Assuming some degree of complementarity between capital and labor, a tax-induced increase in capital would lead to an increase in employment and wages. In Section VII.A, we estimate that the reform leads to a 1.14 percent reduction in the cost of capital for treated firms, relative to control firms, in our sample.

To explore the reduction in the cost of capital as a potential mechanism behind our findings, we test whether more capital-intensive firms respond more strongly relative to less capital-intensive firms after the tax cuts. We use our measure of capital stock (book value of tangible and intangible assets net of depreciation and amortization) scaled by total revenue as a proxy for capital intensity at the 4-digit industry level, and define an industry as capital-intensive if the ratio is above the sample median in 2013. We estimate our main specifications (2) and (6) separately for firms and workers in more capital-intensive industries and less capital-intensive industries.

Table C.3 shows that the differences in responses between capital-intensive and less capital-intensive industries are not statistically different from zero; thus, industries that likely experience a larger decrease in the cost of capital do not respond more than less capital intensive industries. These results seem consistent with the fact that our estimated change in the cost of capital is not large, and a reduction in corporate tax rates generally has a smaller impact on the cost of capital relative to other tax incentives such as bonus depreciation or investment tax credits. For example, Curtis et al. (2022) estimate that the bonus depreciation policy leads to a 14.5 percent reduction in the cost of capital, which is much larger than the estimated change in the cost of capital from the tax rate cuts in our setting.

There were no other tax incentives specific to firms in high-growth, high-tech, or capital-intensive industries after the reform. However, it is still possible that high-growth, high-tech, and capital-intensive firms are better able to exploit the tax rate cuts if they expand faster and generate

[8] Within our analysis sample, the top five high-tech industries by employment are (1) pharmaceutical and medicine manufacturing (3254), (2) general-purpose machinery manufacturing (3339), (3) communications equipment manufacturing (3342), (4) navigational, measuring, electro-medical, and control instruments manufacturing (3345), and (5) industrial machinery manufacturing (3339).

[9] The definition of Heckler (2005) also includes non-M&P sectors, but most high-tech industries in non-M&P sectors (e.g., professional services or healthcare) are excluded from our analysis sample.

higher taxable income. In other words, the larger the increase in taxable income, the larger the benefit of tax rate cuts in the net-present-value sense because they get to deduct a larger amount of taxes earlier, which may help with their growth. Table C.4 shows the estimates on provincial average tax rates and taxable income, separately by firms' industry type (e.g., high-growth versus low-growth). Indeed, firms in high-growth, high-tech, and capital-intensive industries experience a larger increase in taxable income compared to firms in low-growth, low-tech, and less capital-intensive industries on average. Subsequently, the decrease in average effective tax rates is larger for firms in high-growth and capital-intensive industries, but we see similar reductions in average tax rates for firms in high-tech and low-tech industries. These results provide suggestive evidence that firms in high-growth, high-tech, and capital-intensive industries benefit more from the same tax rate cuts due to their faster growth in profits after the reform.

C.3 The Cash-flow Channel

Small businesses may not be able to optimally invest in capital or labor due to financial constraints. Lowering corporate income tax rates may increase immediate cash flow to small firms with positive taxable income by reducing their tax burdens, which can subsequently relax their financial constraints. Small firms with tax cuts can use this extra cash to re-invest, which can not only lead to their growth, but also increase profits, assuming that they were sub-optimally investing due to constraints before the tax cuts. Our finding that profitability increases for treated firms is consistent with the idea that these small businesses were constrained before, and that increasing cash flow through tax cuts helps them grow and become more profitable over time.

As a way to test the cash-flow channel, we check whether the tax effects are stronger for firms that appear more financially constrained, using measures of financial constraints in the literature such as total revenue, leverage ratio, and retained earnings. Table C.5 shows results on the key outcomes separately for smaller and larger firms, i.e., firms with total revenue below and above the within-industry median in 2013.[10] We additionally control for industry-by-year fixed effects to absorb any industry-specific shock in a given year across these specifications. It turns out that we do not find statistically larger responses in employment or average payrolls among smaller firms. This is likely due to the fact that our treated firms are small businesses and mostly cash-constrained. If anything, larger firms show greater (although statistically insignificant) responses in employment and average payroll, because they are either more labor-intensive or have higher taxable income so that the tax cuts bring immediate cash-flow to these firms.[11] Furthermore, Tables C.6 and C.7 show that the tax effects do not seem to statistically differ based on the pre-reform leverage ratio or retained earnings scaled by total assets, suggesting that cutting small firms based on measures of cash constraints may not give us enough variation in our setting to test the cash-flow channel.

C.4 Labor Market Concentration

In highly concentrated labor markets where firms likely have monopsony power, lower corporate taxes may lead to even higher wages for workers. This is because monopsonistic firms have the

[10] Our results are qualitatively similar when we split firms by the overall sample median.

[11] Small firms with initially low taxable income would still benefit from the tax cuts in expectation; as these firms continue to invest and grow, they will pay lower taxes on their future income, although they may not have immediate cash-flow effects.

ability to set wages differently relative to the competitive benchmark when after-tax profits increase through a tax cut. Therefore, we hypothesize that workers in more concentrated labor markets may experience a larger increase in their annual earnings after their firms experience a tax cut.

We test whether the effects of the tax cuts are stronger for workers located in more concentrated labor markets. We define labor markets using industry-by-commuting zone cells and measure concentration by the Herfindahl-Hirschmann Index (HHI) used in antitrust analysis. We estimate our main specifications (2) and (6), separately for firms in labor markets below and above the median HHI within industries in 2013. We additionally control for industry-by-year fixed effects to absorb any industry-specific shock in a given year across these specifications.

Table C.8 shows that the differences in responses between low-HHI and high-HHI labor markets are statistically not different from zero for employment, average payroll, and worker earnings after the tax cuts. While these results suggest no differential effects by local labor market concentration, our results could be driven by the fact that most of our treated firms are small businesses that may not have market power to begin with. In other words, it is possible that larger firms in high-HHI labor markets can increase (decrease) wages more after a tax cut (a tax hike) (Fuest et al., 2018).

C.5 The Rent-Sharing Channel

Firms with and without Owner-workers Furthermore, we test whether firms without any owner-worker respond to tax incentives differently from firms with at least one owner-worker. If the increase in worker earnings is smaller at firms without any owner-worker, it may indicate rent-extraction by passive owners after tax cuts and go against the fair-wage channel. Table C.9 shows that the impacts of the tax cuts are not statistically different between firms with and without owner-workers, providing further support for the fair-wage mechanism.

Within-firm Earnings Gap Finally, we test whether the earnings gap between workers at the top and bottom quantiles changes after the tax cuts. Table C.10 shows the estimates on the log earnings gap between workers at the top x percentile versus those at the bottom x percentile in the within-firm earnings distribution:

$$\log\left(\frac{\text{Annual Earnings}_{jt}^{p(100-x)}}{\text{Annual Earnings}_{jt}^{p(x)}}\right).$$

Across different measures of the earnings gap based on deciles ($x = 10$), quartiles ($x = 25$), and terciles ($x = 33$), we do not see any change in the earnings gap after the reform. Since such changes could be driven by changes in worker composition, columns (4) – (6) of Table C.10 repeat the same exercise using only workers who continue to stay at their original firms after the reform, thereby holding the worker composition fixed. We still do not find any change in the earnings gap among stayers after the tax cuts. Taken together, these results are consistent with our results in Table 6 that workers across the within-firm earnings distribution experience an increase in their earnings, providing further support for the fair-wage mechanism behind the earnings responses in our setting.

Table C.1: Tax Effects by High-growth versus Low-growth Industries

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC (Low-growth)	0.0104	0.0135	0.0003
	(0.0067)	(0.0080)	(0.0031)
Post × MP × QC (High-growth)	0.0336	0.0467	0.0324
	(0.0084)	(0.0103)	(0.0047)
Difference	0.0232	0.0332	0.0321
	(0.0107)	(0.0130)	(0.0056)
Mean Dep. Var. (Low-growth)	11.2	33.1	37.3
Mean Dep Var. (High-growth)	11.9	40.3	41.4
Observations	2,106,660	2,106,660	6,692,680
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,235	343,235	1,070,455
Adjusted R^2	0.917	0.888	0.813

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and year fixed effects. Column (3) includes worker fixed effects and year fixed effects. For each outcome, we estimate equation (2) for firms (or equation (6) for workers) in 4-digit NAICS industries with pre-reform growth rates below and above the sample median, and compare the two coefficient estimates in a single regression. Growth rates are defined by average growth rates of firms' total assets. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table C.2: Tax Effects by High-tech versus Low-tech Industries

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC (Low-tech)	0.0122	0.0160	0.0121
	(0.0055)	(0.0066)	(0.0027)
Post × MP × QC (High-tech)	0.0579	0.0813	0.0238
	(0.0151)	(0.0182)	(0.0069)
Difference	0.0456	0.0654	0.0116
	(0.0159)	(0.0191)	(0.0072)
Mean Dep. Var. (Low-tech)	11.5	34.8	37.3
Mean Dep Var. (High-tech)	11.1	42.4	46.4
Observations	2,106,660	2,106,660	6,692,680
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,235	343,235	1,070,455
Adjusted R^2	0.917	0.888	0.813

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and year fixed effects. Column (3) includes worker fixed effects and year fixed effects. For each outcome, we estimate equation (2) for firms (or equation (6) for workers) in high-tech and low-tech industries within the M&P sector, both relative to the baseline control group, and compare the two coefficient estimates in a single regression. High-tech industries are defined at the level of 4-digit NAICS following Heckler (2005). Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table C.3: Tax Effects by Industrial Capital Intensity

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC (Low-capital)	0.0158	0.0101	0.0153
	(0.0215)	(0.0255)	(0.0088)
Post × MP × QC (High-capital)	0.0200	0.0292	0.0098
	(0.0056)	(0.0067)	(0.0029)
Difference	0.0042	0.0191	-0.0055
	(0.0222)	(0.0263)	(0.0093)
Mean Dep. Var. (Low-capital)	10.4	30.2	41.9
Mean Dep Var. (High-capital)	11.5	36.1	38.0
Observations	2,106,660	2,106,660	6,692,680
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,235	343,235	1,070,455
Adjusted R^2	0.917	0.888	0.813

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and year fixed effects. Column (3) includes worker fixed effects and year fixed effects. For each outcome, we estimate equation (2) for firms (or equation (6) for workers) in 4-digit NAICS industries with capital intensity below and above the sample median in 2013, and compare the two coefficient estimates in a single regression. Capital intensity is the sum of tangible and intangible assets scaled by revenue and measured at the 4-digit NAICS industry level. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table C.4: Responses of Tax Outcomes by Industries

	(1) Provincial Avg. Tax Rates	(2) Taxable Income
A. By Industry's Growth Rate		
Post × MP × QC (Low-growth)	-0.0122	1.3349
	(0.0012)	(1.5339)
Post × MP × QC (High-growth)	-0.0164	12.5392
	(0.0014)	(2.4199)
Difference	-0.0042	11.2042
	(0.0018)	(2.8651)
Mean Dep. Var. (Low-growth)	0.090	64.7
Mean Dep Var. (High-growth)	0.092	91.6
Observations	1,165,415	2,106,660
Firms (Treated)	7,645	10,205
Firms (Control)	244,590	343,235
Adjusted R^2	0.363	0.724
B. By High-tech versus Low-tech Industries		
Post × MP × QC (Low-tech)	-0.0141	4.3193
	(0.0009)	(1.3507)
Post × MP × QC (High-tech)	-0.0122	12.6756
	(0.0026)	(4.6113)
Difference	0.0019	8.3562
	(0.0027)	(4.7947)
Mean Dep. Var. (Low-tech)	0.090	70.6
Mean Dep Var. (High-tech)	0.097	101.0
Observations	1,165,415	2,106,660
Firms (Treated)	7,645	10,205
Firms (Control)	244,590	343,235
Adjusted R^2	0.363	0.724
C. By Industry's Capital Intensity		
Post × MP × QC (Low-capital)	-0.0057	2.1282
	(0.0033)	(4.8883)
Post × MP × QC (High-capital)	-0.0144	5.3545
	(0.0010)	(1.3817)
Difference	-0.0088	3.2264
	(0.0035)	(5.0798)
Mean Dep. Var. (Low-capital)	0.087	64.3
Mean Dep Var. (High-capital)	0.091	75.0
Observations	1,165,415	2,106,660
Firms (Treated)	7,645	10,205
Firms (Control)	244,590	343,235
Adjusted R^2	0.363	0.724

Notes: Columns (1) – (2) report triple-differences estimates on $Post \times MP \times QC$ in equation (2) for firms' provincial average tax rates and taxable income, respectively. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for column (2). All specifications include firm fixed effects and year fixed effects. For each outcome, we estimate equation (2) for firms in high-growth and low-growth industries (Panel A), in high-tech and low-tech industries (Panel B), and in industries with high and low capital intensity (Panel C); then we compare the two coefficient estimates in a single regression. See Tables C.1 – C.3 for definitions of each type of industries. Standard errors are clustered at the firm level and reported in parentheses.

Table C.5: Tax Effects by Pre-reform Revenue

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC (Low Revenue)	0.0169	0.0194	0.0137
	(0.0079)	(0.0102)	(0.0033)
Post × MP × QC (High Revenue)	0.0223	0.0336	0.0132
	(0.0069)	(0.0076)	(0.0038)
Difference	0.0054	0.0142	-0.0004
	(0.0104)	(0.0127)	(0.0050)
Mean Dep. Var. (Low Revenue)	3.8	10.4	35.7
Mean Dep Var. (High Revenue)	19.2	61.4	40.6
Observations	2,106,660	2,106,660	6,692,680
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,235	343,235	1,070,455
Adjusted R^2	0.917	0.889	0.814

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and industry-by-year fixed effects. Column (3) includes worker fixed effects and industry-by-year fixed effects. For each outcome, we estimate equation (2) for firms (or equation (6) for workers) with revenue below and above industry-specific medians in 2013, and compare the two coefficient estimates in a single regression. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table C.6: Tax Effects by Pre-reform Leverage Ratio

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC (Low Leverage)	0.0207	0.0250	0.0083
	(0.0067)	(0.0080)	(0.0033)
Post × MP × QC (High Leverage)	0.0233	0.0329	0.0187
	(0.0084)	(0.0103)	(0.0038)
Difference	0.0025	0.0079	0.0103
	(0.0107)	(0.0130)	(0.0051)
Mean Dep. Var. (Low Leverage)	12.4	39.1	39.1
Mean Dep Var. (High Leverage)	10.1	31.2	37.2
Observations	2,106,660	2,106,660	6,692,680
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,235	343,235	1,070,455
Adjusted R^2	0.917	0.889	0.814

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and industry-by-year fixed effects. Column (3) includes worker fixed effects and industry-by-year fixed effects. For each outcome, we estimate equation (2) for firms (or equation (6) for workers) with leverage ratio below and above industry-specific medians in 2013, and compare the two coefficient estimates in a single regression. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table C.7: Tax Effects by Pre-reform Cash Flow (Retained Earnings Scaled by Assets)

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC (Low Cash)	0.0200	0.0281	0.0202
	(0.0083)	(0.0102)	(0.0038)
Post × MP × QC (High Cash)	0.0216	0.0277	0.0071
	(0.0066)	(0.0080)	(0.0034)
Difference	0.0016	-0.0004	-0.0131
	(0.0106)	(0.0129)	(0.0050)
Mean Dep. Var. (Low Cash)	10.2	31.6	37.6
Mean Dep Var. (High Cash)	12.4	39.0	38.8
Observations	2,106,660	2,106,660	6,692,680
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,235	343,235	1,070,455
Adjusted R^2	0.917	0.889	0.814

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and industry-by-year fixed effects. Column (3) includes worker fixed effects and industry-by-year fixed effects. For each outcome, we estimate equation (2) for firms (or equation (6) for workers) with retained earnings scaled by total assets below and above industry-specific medians in 2013, and compare the two coefficient estimates in a single regression. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table C.8: Tax Effects by Pre-reform Labor Market Concentration

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC (Low HHI)	0.0222	0.0298	0.0109
	(0.0087)	(0.0106)	(0.0041)
Post × MP × QC (High HHI)	0.0194	0.0274	0.0157
	(0.0070)	(0.0084)	(0.0034)
Difference	-0.0028	-0.0024	0.0048
	(0.0116)	(0.0140)	(0.0055)
Mean Dep. Var. (Low HHI)	11.9	36.2	38.0
Mean Dep Var. (High HHI)	11.2	35.3	38.4
Observations	2,106,660	2,106,660	6,692,680
Firms/Workers (Treated)	10,205	10,205	64,250
Firms/Workers (Control)	343,235	343,235	1,070,455
Adjusted R^2	0.917	0.889	0.814

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and industry-by-year fixed effects. Column (3) includes worker fixed effects and industry-by-year fixed effects. For each outcome, we estimate equation (2) for firms (or equation (6) for workers) in labor markets with Herfindahl-Hirschman Index (HHI) below and above industry-specific medians in 2013, and compare the two coefficient estimates in a single regression. Labor markets are defined by 4-digit NAICS industries and commuting zones. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table C.9: Tax Effects by Firms with and without Owner-workers

	(1) log(Employment)	(2) log(Average Payrolls)	(3) log(Annual Earnings)
Post × MP × QC (Without Owner-workers)	0.0144	0.0235	0.0136
	(0.0080)	(0.0097)	(0.0037)
Post × MP × QC (With Owner-workers)	0.0243	0.0289	0.0121
	(0.0069)	(0.0083)	(0.0035)
Difference	0.0099	0.0054	-0.0015
	(0.0105)	(0.0127)	(0.0050)
Mean Dep. Var. (Without Owner-workers)	12.0	37.6	38.0
Mean Dep Var. (With Owner-workers)	10.9	33.8	38.5
Observations	2,106,285	2,106,285	6,692,605
Firms/Workers (Treated)	10,195	10,195	64,250
Firms/Workers (Control)	343,015	343,015	1,070,455
Adjusted R^2	0.917	0.889	0.814

Notes: Columns (1) – (2) report triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for firms' log(employment) and log(average payrolls), respectively. Column (3) reports the same estimates in equation (6) for workers' log(annual earnings). Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (2) – (3). Columns (1) – (2) include firm fixed effects and industry-by-year fixed effects. Column (3) includes worker fixed effects and industry-by-year fixed effects. For each outcome, we estimate equation (2) for firms (or equation (6) for workers) with and without owner-workers in 2013, and compare the two coefficient estimates in a single regression. Standard errors are clustered at the firm level for columns (1) – (2), two-way clustered at the firm level and worker level for column (3), and reported in parentheses.

Table C.10: Tax Effects on Within-firm Earnings Gap

	(1) 90th-10th Earnings Gap: All Workers	(2) 75th-25th Earnings Gap: All Workers	(3) 66th-33th Earnings Gap: All Workers
Post × MP × QC	0.0014	0.0062	0.0031
	(0.0069)	(0.0050)	(0.0043)
Mean Dep. Var.	1.121	0.613	0.404
Observations	1,940,580	1,940,580	1,940,580
Firms (Treated)	9,975	9,975	9,975
Firms (Control)	329,340	329,340	329,340
Adjusted R^2	0.635	0.465	0.345
	(4) 90th-10th Earnings Gap: Stayers	(5) 75th-25th Earnings Gap: Stayers	(6) 66th-33th Earnings Gap: Stayers
Post × MP × QC	0.0006	0.0015	-0.0015
	(0.0061)	(0.0046)	(0.0041)
Mean Dep. Var.	0.787	0.447	0.299
Observations	1,505,115	1,505,115	1,505,115
Firms (Treated)	8,215	8,215	8,215
Firms (Control)	237,950	237,950	237,950
Adjusted R^2	0.733	0.632	0.539

Notes: Column (1) reports triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for the 90th-10th percentile earnings gap of firms in the analysis sample. The earnings gap is calculated as the difference between the 90th and 10th percentile of workers' log(annual earnings) within each firm. Columns (2) – (3) repeat column (1) for the 75th-25th percentile earnings gap and the 66th-33th percentile earnings gap, respectively. Columns (4) – (6) repeat columns (1) – (3) but calculate the earnings gaps among stayers: We exclude part-time workers with annual earnings below 4,000 CAD, multiple-job holders, workers who are not continuously employed by the same firm from 2011 to 2013, and track the remaining workers until they leave the firms after 2014. The mean for each dependent variable is based on years from 2011 to 2013. All specifications include firm fixed effects and year fixed effects. Standard errors are clustered at the firm level and reported in parentheses.

D Additional Results

In Appendix D, we provide additional results on (i) other firm outcomes, (ii) new entrants' earnings and changes in worker compositions, (iii) owner outcomes, and (iv) workers' income taxes.

D.1 Other Corporate Outcomes

Table D.1 reports estimates of the tax effects on firms' investment. Columns (1) – (3) report the effects on investment, investment in computers, and intangible assets. Investment is calculated using data on firms' capital cost allowance for each type of assets. Intangible assets are measured in book value, net of amortization.[12] On average, the tax cuts increase firms' investment by 2,180 CAD per year and investment in computers by 689 CAD per year. In addition, firms' intangible assets increase by 4.7 percent after receiving the tax cuts.

Table D.2 reports estimates on other firm outcomes. Columns (1) – (2) report the tax effects on total operating expenses and total debts. Operating expenses are defined as total expenses net of total taxes paid and interest and bank charges. After the reform, treated firms increase operating expenses and total debts by an average of 71,803 CAD and 27,483 CAD per year, suggesting that 38 percent of the increased spending after the reform is financed through borrowing. Column (3) shows that the tax effects on dividend payouts (scaled by total revenue) are neither economically nor statistically different from zero. Column (4) shows that treated firms' retained earnings scaled by total assets increase relative to control firms, which implies that treated firms retain more after-tax profits after the reform. Overall, these results are consistent with the main firm-level findings that firms with the tax cuts increase their investment in labor and capital, and experience significant growth and profitability relative to control firms.

D.2 New Entrants' Earnings and Worker Compositions

Table D.3 reports estimates of the tax effects on new entrants' annual earnings and worker compositions within a firm. These outcome variables are constructed by aggregating worker-level data at the firm level. Column (1) shows that the tax cuts increase new entrants' average payrolls by 1.9 percent, which is larger but still comparable to the estimate that includes incumbent workers (see Table 5, column (2)). By contrast, columns (2) – (3) show no change in firms' gender composition or the average age of workers. Furthermore, we find no change in firms' skill composition. Following Duan and Moon (2024), we measure firms' demand for skilled labor relative to unskilled labor using the skill ratio, defined as the number of workers with estimated worker-specific wage premiums (Abowd et al., 1999) above the sample median relative to that below the median. Column (4) finds that the skill ratio does not change for treated relative to control firms after the reform. Moreover, column (5) shows the tax effect on the probability of a worker holding a full-time job. We find that the share of full-time workers at treated firms is 74.3 percent before the reform, and increases by 0.5 percentage points after the reform, implying a small increase in the share of workers transitioning to a full-time position at their firm.

[12] In Canada, the book value of intangible assets changes when a firm acquirers patents or completes the development of its own intellectual properties (the "D" part of R&D expenditures) following the International Financial Reporting Standards (IFRS) under certain conditions (International Accounting Standard 38R.57).

D.3 Owner Outcomes

Table D.4 reports estimates of the tax effects on owner outcomes. Critics of the tax reform argue that small business owners would use any increase in after-tax profits from tax reductions to increase payouts to themselves. Therefore, we link our main dataset to the ownership data, which contains information about individuals' ownership of their companies (Section II). This allows us to test whether there is any change in owners' dividend income and ownership rates after the reform.

Table D.4, column (1) reports estimates on the average dividend income of individual owners, aggregated at the firm level. Each owner's dividends income is weighted by her ownership rate relative to the total ownership rate across all individual owners. Column (2) reports estimates on the ownership rate by each individual at each firm. Here, we focus on incumbent owners with any share at treated or control firms in 2013 and keep track of each owner-firm pair even if the owner no longer has ownership of the firm. In this way, we allow owners to sell their shares completely after the reform.

We find no significant changes in these outcomes after the reform. It is still possible that individual owners can increase dividend payouts to their family members. In Table D.2, however, we already showed no significant increase in firm-level dividend payouts after the tax cuts. This is inconsistent with individual owners' increasing dividends to family owners. The above results are consistent with our main findings that owners at treated firms increase their investment in capital and labor rather than increase payouts to themselves.

D.4 Labor Income Taxes

Table D.5 shows estimates of the reform effects on workers' provincial labor income taxes. We find that the tax cuts increase treated workers' provincial labor income taxes by 29.2 CAD per year after the reform. This is consistent with the increases in treated workers' annual earnings. Multiplying this estimate by the number of treated workers yields an increase of 1.87 million CAD per year in labor income tax revenue at the provincial level. Note that we do not directly observe provincial income taxes for workers in Quebec in our data, so we impute them using workers' taxable income and personal income tax schedules during our sample period. Therefore, this imputation likely overstates the provincial income taxes because we do not observe individual tax credits at the provincial level.

Table D.1: Tax Effects on Investment

	(1) Investment	(2) Investment in Computers	(3) log(Intangible Assets)
Post × MP × QC	2.1801	0.6888	0.0468
	(0.5871)	(0.1152)	(0.0128)
Mean Dep. Var.	38.0	6.2	16.2
Observations	2,133,240	2,133,240	2,010,400
Firms (Treated)	10,315	10,315	10,160
Firms (Control)	347,250	347,250	339,810
Adjusted R^2	0.462	0.366	0.903

Notes: Columns (1) – (3) report triple-differences estimates on $Post \times MP \times QC$ in equation (2) for firms' investment, investment in computers, and log(intangible assets), respectively. Investment is the sum of expenditures in different asset classes from a dataset on capital cost allowance for depreciated capital. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD. All specifications include firm fixed effects and year fixed effects. Standard errors are clustered at the firm level and reported in parentheses.

Table D.2: Tax Effects on Other Firm Outcomes

	(1) Operating Expenses	(2) Total Debts	(3) Dividends / Revenue	(4) Retained Earnings / Total Assets
Post × MP × QC	71.8028	27.4833	-0.0015	0.0185
	(12.2795)	(4.6512)	(0.0022)	(0.0048)
Mean Dep. Var.	1641.8	552.6	0.080	0.210
Observations	1,302,150	2,106,660	701,880	2,105,970
Firms (Treated)	8,535	10,205	6,085	10,205
Firms (Control)	256,070	343,235	167,715	343,190
Adjusted R^2	0.940	0.897	0.560	0.810

Notes: Columns (1) – (4) report triple-differences estimates on $Post \times MP \times QC$ in equation (2) for firms' operating expenses, total debts, dividend payouts scaled by revenue, and retained earnings scaled by total assets, respectively. Operating expenses are total expenses net of taxes and interest payments. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for columns (1) – (2). All specifications include firm fixed effects and year fixed effects. Standard errors are clustered at the firm level and reported in parentheses.

Table D.3: Tax Effects on Worker Composition

	(1) Log(Annual Earnings) of New Entrants	(2) Male Share	(3) Average Age	(4) Skill Ratio	(5) Full-time Job
Post × MP × QC	0.0185	-0.0005	-0.0263	0.0099	0.0046
	(0.0067)	(0.0012)	(0.0527)	(0.0143)	(0.0019)
Mean Dep. Var.	25.7	0.697	44.3	1.315	0.743
Observations	1,155,410	1,935,510	1,931,205	1,188,255	12,741,310
Firms/Workers (Treated)	9,975	9,965	9,965	7,990	115,355
Firms/Workers (Control)	329,340	328,640	328,530	239,140	2,623,675
Adjusted R^2	0.698	0.917	0.881	0.649	0.472

Notes: Columns (1) – (4) report triple-differences estimates on $Post \times MP \times QC$ in equation (2) for the average log(annual earnings) of new entrants, share of male workers, average worker age, and skill ratio, respectively, for firms in the analysis sample. Skill ratio is the number of workers with estimated worker-specific wage premiums (Abowd et al., 1999) above the sample median relative to that below the sample median. Column (5) reports coefficient estimates on $Post \times MP \times QC$ in equation (6) for workers' probability of holding a full-time job. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for column (1). Columns (1) – (4) include firm fixed effects and year fixed effects. Column (5) includes worker fixed effects and year fixed effects. Standard errors are clustered at the firm level for columns (1) – (4), two-way clustered at the firm level and worker level for column (5), and reported in parentheses.

Table D.4: Tax Effects on Owner Outcomes

	(1) Dividends Income	(2) Ownership Rate
Post × MP × QC	-0.3297	0.0004
	(0.2636)	(0.0018)
Mean Dep. Var.	13.0	0.562
Observations	1,654,425	2,420,885
Firms (Treated)	8,300	8,110
Firms (Control)	286,675	270,235
Owners (Treated)		12,230
Owners (Control)		380,610
Adjusted R^2	0.638	0.892

Notes: Column (1) reports triple-differences estimates on *Post* × *MP* × *QC* in equation (2) for individual owners' dividends income averaged by firms in the analysis sample. Column (2) reports coefficient estimates on *Post* × *MP* × *QC* in equation (6) for individual owners' ownership rate at the owner-firm level. The mean for each dependent variable is based on years from 2011 to 2013 and measured in thousand CAD for column (1). Column (1) includes firm fixed effects and year fixed effects. Column (2) includes firm-owner fixed effects and year fixed effects. Standard errors are clustered at the firm level in column (1), two-way clustered at the firm level and owner level for column (2), and reported in parentheses.

Table D.5: Tax Effects on Worker's Provincial Income Taxes

	(1)
	Personal Income Tax
Post × MP × QC	0.0292
	(0.0125)
Mean Dep. Var.	4.4
Observations	6,319,390
Workers (Treated)	63,950
Workers (Control)	1,053,725
Adjusted R^2	0.863

Notes: Column (1) reports triple-differences estimates on *Post* × *MP* × *QC* in equation (6) for workers' provincial income taxes. Part-time workers with annual earnings below 4,000 CAD, multiple-job holders, and workers who are not continuously employed by the same firm from 2011 to 2013 are excluded. The mean dependent variable is based on years from 2011 to 2013 and measured in thousand CAD. The specification includes worker fixed effects and year fixed effects. Standard errors are two-way clustered at the firm level and worker level and reported in parentheses.

E Conceptual Framework

In Appendix E, we provide a simple model to describe how changes in corporate tax rates would affect worker earnings. Note that we closely follow the model framework by Fuest et al. (2018) to illustrate the key intuition; therefore, here we minimize the details and references, which can be found in the appendix of their paper.

Consider an economy with many firms that use capital (K) and two types of labor: high-skilled workers (H) and low-skilled workers (L). Assume that the production function, $F(K, H, L)$, is concave with decreasing returns to scale. The after-tax profit of firm i is given by:

$$\pi_i = (1-\tau)p_i F(K_i, H_i, L_i) - (1-\tau)w_i^H H_i - (1-\tau)w_i^L L_i - (1-\lambda\tau)rK_i, \tag{E.1}$$

where τ is the tax rate on corporate income, p_i is the output price (normalized to 1 below), r is the price of capital, w_i is the wage, and λ denotes the share of capital that can be deducted from the tax base. In cases where labor markets do not clear, we assume that unemployed workers receive unemployment benefits (b^H or b^L). Profit-maximization implies the following first-order condition:

$$d\pi_i = -d\tau B_i + d(1-\tau)p_i F(K_i, H_i, L_i) - d(1-\tau)w_i^H H_i - d(1-\tau)w_i^L L_i - d(1-\lambda\tau)rK_i, \tag{E.2}$$

where $B_i = p_i F(K_i, H_i, L_i) - w_i^H H_i - w_i^L L_i - \lambda r K_i$ is the corporate income tax base. The distribution of the corporate tax burden relies on the supply and demand elasticities in factor markets and the wage-setting institutions. In the following subsections, we make different assumptions on the labor market to derive the corporate tax incidence on wages under each setting.

E.1 Competitive Labor Markets (Benchmark)

Let us first assume that input markets are perfectly competitive. The first-order conditions yield:

$$\frac{\partial F(K_i, H_i, L_i)}{\partial K_i} = \frac{(1-\lambda\tau)r}{(1-\tau)}, \quad \frac{\partial F(K_i, H_i, L_i)}{\partial H_i} = w_i^H, \quad \text{and} \quad \frac{\partial F(K_i, H_i, L_i)}{\partial L_i} = w_i^L, \tag{E.3}$$

from which we can solve for the optimal demand for capital and both types of labor: $K_i^D(w_i^H, w_i^L, C_i)$, $H_i^D(w_i^H, w_i^L, C_i)$, and $L_i^D(w_i^H, w_i^L, C_i)$. Here $C_i = \frac{(1-\lambda\tau)r}{(1-\tau)}$ is the cost of capital including the corporate taxes. Labor supply $H_i^S(w^H)$ and $L_i^S(w^L)$ is determined by worker utility maximization, and wages are set by equating labor demand and supply. Then the impact of a corporate tax rate change on wages is given by:

$$\frac{dw_i^S}{d\tau} = \frac{H_i^D L_i^D}{\phi w_i^S} \frac{1-\lambda}{(1-\lambda)(1-\lambda\tau)} (\epsilon_{LC}\epsilon_{HH} - \epsilon_{HC}(\epsilon_{LL} - \mu_L)) \tag{E.4}$$

where $\phi > 0$ is the determinant of the matrix coefficients, $\epsilon_{SS'}$ is the labor demand elasticity of skill type S with respect to wage changes of skill group S', ϵ_{SC} is the labor demand elasticity of skill type S with respect to changes in the cost of capital, and μ_S is the labor supply elasticity of skill type S. In other words, the impact of a corporate tax change on the wage depends on demand and supply elasticities in the labor market.

E.2 The Fair-wage Model

Let us assume that the wage is determined by (1) wages of other employees within the firm, (2) an external reference wage, and (3) profits of the firm (Amiti and Davis, 2012; Egger and Kreickemeier, 2012). In this case, the fair wage of workers is given by: $w_i^H = f_i^H(b_i^H, w_i^L, \pi_i)$ and $w_i^L = f_i^L(b_i^L, w_i^H, \pi_i)$, where b_i is the unemployment benefit. We further assume that the fair wage is increasing in the unemployment benefit, the wage of the other skill group, and the firm's profits. Note that this assumption does not come from the first-order condition, but rather an extra restriction we impose (e.g., due to "fairness" concerns). Finally, an increase in any of the reservation wage increases the fair wage for both skill groups.

In equilibrium, the fair wages are set by the standard first order conditions. The impact of a change in corporate tax rates on wages is given by

$$\frac{\partial w_i^{H*}}{d\tau} = -\frac{B_i}{\Gamma}[1 + \frac{\partial f_i^L}{\partial \pi_i}H(1-\tau) + \frac{\partial f_i^H}{\partial w_i^L} - \frac{\partial f_i^H}{\partial \pi_i}L(1-\tau)] < 0, \tag{E.5}$$

$$\frac{\partial w_i^{L*}}{d\tau} = -\frac{B_i}{\Gamma}[1 + \frac{\partial f_i^H}{\partial \pi_i}L(1-\tau) + \frac{\partial f_i^L}{\partial w_i^H} - \frac{\partial f_i^L}{\partial \pi_i}H(1-\tau)] < 0, \tag{E.6}$$

where

$$\Gamma = 1 - \frac{\partial f_i^H}{\partial w_i^L}\frac{\partial f_i^L}{\partial w_i^H} + \left[\frac{\partial f_i^H}{\partial \pi_i}(H_i + \frac{\partial f_i^L}{\partial w_i^H}L_i) + \frac{\partial f_i^L}{\partial \pi_i}(L_i + \frac{\partial f_i^H}{\partial w_i^L}H_i)\right](1-\tau) > 0. \tag{E.7}$$

Note that the impacts of increases in corporate tax rates on fair wages of both worker types are negative based on the assumptions above. If the higher corporate tax rate reduces the firm's after-tax profits, fairness considerations suggest that all employees would bear part of this increased tax burden.

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