

# Strategic Avoidance of Advance Notice Requirements During Mass Layoffs\*

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## Abstract

This paper investigates the impact of advance notice requirements on firm behavior during large-scale workforce reductions in two Canadian provinces. We exploit discontinuous policy rules in Ontario's Employment Standards Act (ESA) and Quebec's Act Respecting Labor Standards (LNT) to estimate the cost of additional notice requirements for firms conducting mass terminations. Our novel empirical evidence shows that firms in both provinces strategically manipulate the scale of layoffs to circumvent additional notice obligations. In Ontario, we find an approximate 300% increase in the frequency of layoff events that bunch just below the 200-worker threshold where the mandatory notice period discontinuously increases from 8 to 12 weeks. In Quebec, we document a slightly less pronounced 100% increase in layoff events just below the 100-worker threshold where identical notice extensions apply. These discrete jumps in mandatory notice reveal that the costs associated with additional notice provisions for displaced workers significantly distort firms' termination behavior during mass layoffs.

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# 1 Introduction

Displaced workers—those who lose their employment due to firm downsizing, restructuring, or outright closure—face persistent and painful consequences. The consequences of displacement extend far beyond the immediate loss of employment and associated disruption to earnings. Workers have been shown to experience prolonged spells of unemployment, diminished earnings trajectories even upon re-employment, and adverse impacts to mental and physical well-being (Farber, 2017; Black et al., 2022). These costs extend beyond the individual. Displacement imposes broader economic costs through human capital depreciation, reduced labor force participation, and increased reliance on social safety net programs (Krueger and Meyer, 2002; Nekoei and Weber, 2017; Foote et al., 2019). Traditional policy instruments aimed at mitigating these adverse effects, such as unemployment insurance, tend to trigger after the worker has already borne the brunt of the disruption. Although unemployment insurance mitigates income shocks, it may inadequately compensate for the depreciation of human capital associated with labor market detachment. Moreover, while firms partially internalize the costs of unemployment insurance through experience rating, the fiscal burden predominantly falls on the public sector, raising crucial questions about the optimal design of risk-sharing arrangements between workers, firms, and government. By targeting earlier interventions, policymakers may alleviate significant public resource constraints while simultaneously protecting vulnerable workers and internalizing a larger portion of the social cost of displacement onto the firms conducting terminations. One such preemptive policy is Mandatory Notice (MN) laws, which require firms to provide advance notice (AN) to workers in the event of mass layoffs.

In most developed countries, regulation requires that firms provide advance notice to workers when conducting a mass layoff (Jones and Kuhn, 1995). By affording displaced workers the opportunity to conduct job-search activities during their notice period (i.e., “on-the-job-search”) without disruption to employment or earnings, MN laws facilitate a smooth transition in employment that would not typically occur under conventional, abrupt, termination procedures that occur in the absence of advance notice according to firm profit-maximizing behavior. While such legislative attempts to balance firm pecuniary interest with the well-being of the worker are well motivated, advance notice may be very costly. If sufficiently costly, the efficacy of such protective measures

may be undermined if firms strategically manipulate their behavior to avoid giving additional notice to workers. We examine one particular dimension of this question by investigating the tendency of firms to exploit quasi-exogenous variation in notice requirements in two Canadian provinces: Ontario and Quebec.

While notice has been shown to be marginally beneficial to workers (see, for example, [Friesen, 1997](#)), less is known on the cost to firms conducting the mass layoffs. From a firm's perspective, the costs associated with advance notice can include disruptions to production efficiency, increases in administrative burdens, or spillovers on morale to remaining employees ([Alfitian and Vogeslang, 2022](#)).

Prior work by [Strunk et al. \(2018\)](#) reveals that workers impacted by layoff events exhibit diminished productivity relative to their counterparts, who do not face a layoff-induced imminent job threat. While a myriad of factors could explain this underperformance, the most likely driver is a reduction in the provision of employee effort. Indeed, complementary evidence by [Kuhn and Yu \(2021\)](#), which examines the setting in which workers provide advance notice of voluntary resignations to firms, indicates that nearly two-thirds of productivity losses associated with turnover occur before the departing employee's final separation date. In large-scale termination events, henceforth referred to as "mass layoffs", the most productive workers may be among the first to vacate their positions, while the remaining, less-productive, employees continue to allocate work hours towards job search in pursuit of alternative employment prospects, hence exacerbating the cost to the firms in terms of production losses.

The primary challenge to estimating the costs imposed on firms by advance notice requirements is that the assignment of such mandatory notice policies is inherently nonrandom. Our analysis overcomes this hurdle by exploiting quasi-random variation in notice requirements facilitated by mass termination legislation in two Canadian provinces. In Ontario, the Employment Standards Act (ESA) enacted in 2000 introduced specific rules governing firms conducting mass layoff events. In Quebec, the Act Respecting Labor Standards (LNT) established in 2002 provides a similar but distinct framework. Notably, the mandatory provision of advance notice in both provinces is a discrete function of the number of employees being terminated, though the specific thresholds differ. In Ontario, firms must provide 8 weeks' notice for terminating 50-199 workers, 12 weeks for 200-499 workers, and 16 weeks for 500+ workers. In Quebec, the thresholds are lower: 8 weeks for 10-99

workers, 12 weeks for 100-299 workers, and 16 weeks for 300+ workers.

The discontinuous notice requirements associated with the size of the termination event under both the ESA and LNT yield a testable hypothesis: if advance notice is sufficiently costly for firms, then profit-maximizing employers will strategically reduce the scale of their layoffs to be just below the thresholds that trigger longer mandatory notice requirements. This should generate bunching (i.e. excess mass) in the distribution of layoff events sized near the policy discontinuities. Our paper exploits this predicted bunching pattern in both provinces to assess whether the costs of mandatory notice requirements meaningfully distort firms' layoff decisions across different institutional contexts.

We provide compelling evidence that firms in both provinces strategically manipulate the scale of their workforce reductions to circumvent additional advance notice requirements imposed by the policy. In Ontario, we identify a 300% increase in the frequency of layoff events immediately below the 200-worker threshold, at which firms are required to provide an additional 4 weeks of notice. This corresponds to approximately 48 additional layoffs that bunch to avoid additional notice, leaving approximately 9,300 workers with less notice than they would have received under a smooth termination schedule. In Quebec, we find a similar impact: a 100% increase in layoff events just below the 100-worker threshold, corresponding to 60 additional layoff events and affecting approximately 5,700 workers. Our findings are robust to alternative sample and counterfactual specifications and reveal pronounced heterogeneity across industries and time periods in both provinces.<sup>1</sup> We also demonstrate that this strategic behavior is not isolated to transitory economic shocks or local labor market conditions.

This study contributes to several distinct strands of the literature. Foremost, our work relates to the body of research examining employment protection laws, with a specific focus on the benefits and costs associated with advance notice requirements for worker displacement ([Jones and Kuhn, 1995](#); [Kuhn and Yu, 2021](#); [Ruhm, 1992](#)). While most prior studies have concentrated on the potential advantages accruing to workers, we are among the first to estimate firms' strategic responses to such policies across multiple jurisdictions. Our paper is closely related to [Cederlöf et al. \(2024\)](#), which examines the impact of Mandatory Notice (MN) laws in the Swedish setting. Using administrative data on layoff notifications, the authors explore how firms and employees respond to MN requirements. The institutional setting of Sweden imposes idiosyncratic MN requirements that

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<sup>1</sup>We are unable to explore alternative counterfactuals in the Quebec setting, due to the nature of the data

diverge from more common policy regimes studied elsewhere, including the contexts investigated in our work. Specifically, the Swedish MN duration is a discrete function of age and tenure at the firm, while the order of worker layoffs adheres to a last-in-first-out (LIFO) principle. This contrasts with the MN frameworks investigated in our context, where the notice obligation solely depends on the scale of the termination event, irrespective of characteristics like employee age or seniority. As a result, firms in these settings retain greater flexibility in selectively terminating their least productive workers rather than being bound by rigid age-and-tenure-based layoff protocols as in the Swedish system. Even more, [Cederlöf et al. \(2024\)](#) altogether ignore the incentive for firms to manipulate both the timing and discrete number of layoffs to avoid productivity losses. Our paper considers this hitherto neglected perspective and provides evidence from two provinces with different threshold levels.

Additionally, our paper contributes to the literature investigating regulations whose provisions vary as a function of firm size ([Garicano et al., 2016](#); [Martins, 2009](#); [Schivardi and Torrini, 2008](#)). Finally, our findings also inform the literature evaluating public unemployment insurance programs by exploring an alternative policy mechanism aimed at mitigating the adverse consequences of job displacement.

This paper proceeds as follows: Section 2 outlines the institutional context, providing details on the Employment Standards Act and Act Respecting Labor Standards, along with their associated advance notice requirements for mass layoffs. Section 3 describes our data sources and sample construction procedures. Sections 4 and 5 present our empirical approach and corresponding results, respectively. Section 6 presents a cost versus benefit analysis that explores the financial incentives to bunch. Section 7 concludes.

## 2 Institutional Details

### 2.1 Ontario: Employment Standards Act

The Employment Standards Act (ESA) of Ontario, 2000, outlines comprehensive regulations regarding termination of employment. The legislation establishes the minimum standards to which employers must adhere across various dimensions of the employment contract, including

wages, hours, and conditions for dismissal. While the ESA mandates modest notice periods based on individual worker tenure at the establishment, it also includes provisions specific to “mass terminations” events, defined as the termination of 50 or more employees at an establishment within a four-week period. The strict mass termination provisions are intended to allow sufficient transition time for displaced workers and prevent abrupt shocks to local labor markets from precipitous workforce reductions.

In the case of mass terminations in Ontario, notice requirements are a discrete function of the scale of the layoff event. As depicted in Figure 1A, the employer must provide:

- 8 weeks’ notice if terminating between 50 and 199 employees
- 12 weeks’ notice if terminating between 200 and 499 employees
- 16 weeks’ notice if terminating 500 or more employees

## 2.2 Quebec: Act Respecting Labor Standards

The Act Respecting Labor Standards (LNT) established in Quebec in 2002 introduced specific rules for firms conducting “mass terminations.” According to the LNT, a mass termination occurs when the employment of 10 or more employees is terminated at an employer’s establishment within a two-month period. This lower threshold compared to Ontario’s 50-worker minimum reflects Quebec’s more stringent approach to worker protection.

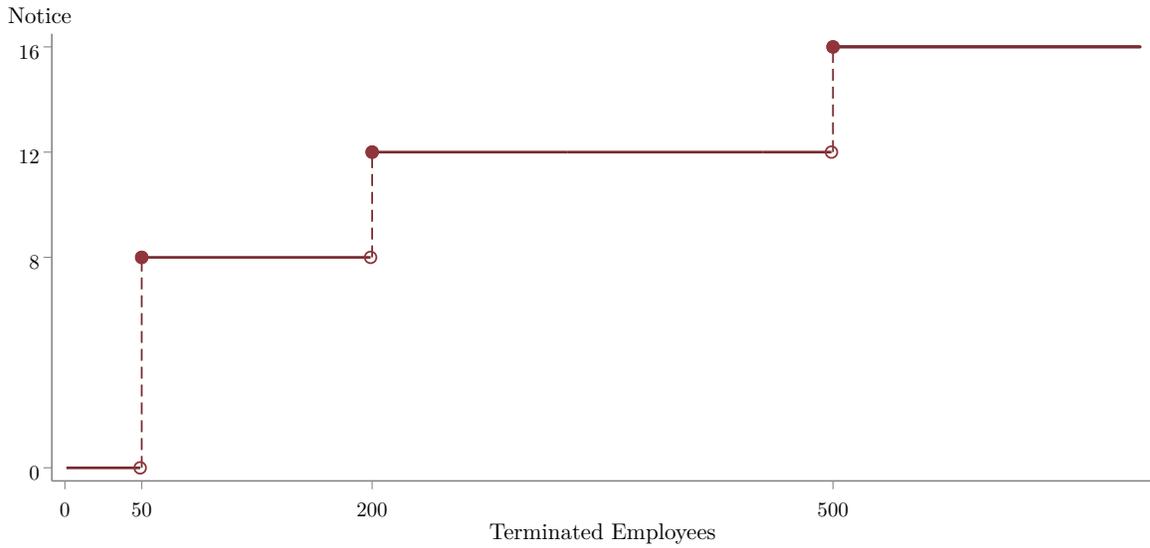
In Quebec, mandatory advance notice is also a discrete function of the scale of the layoff event, but with different thresholds than Ontario. As shown in Figure 1B, employers must provide:

- 8 weeks’ notice if terminating between 10 and 99 employees
- 12 weeks’ notice if terminating between 100 and 299 employees
- 16 weeks’ notice if terminating 300 or more employees

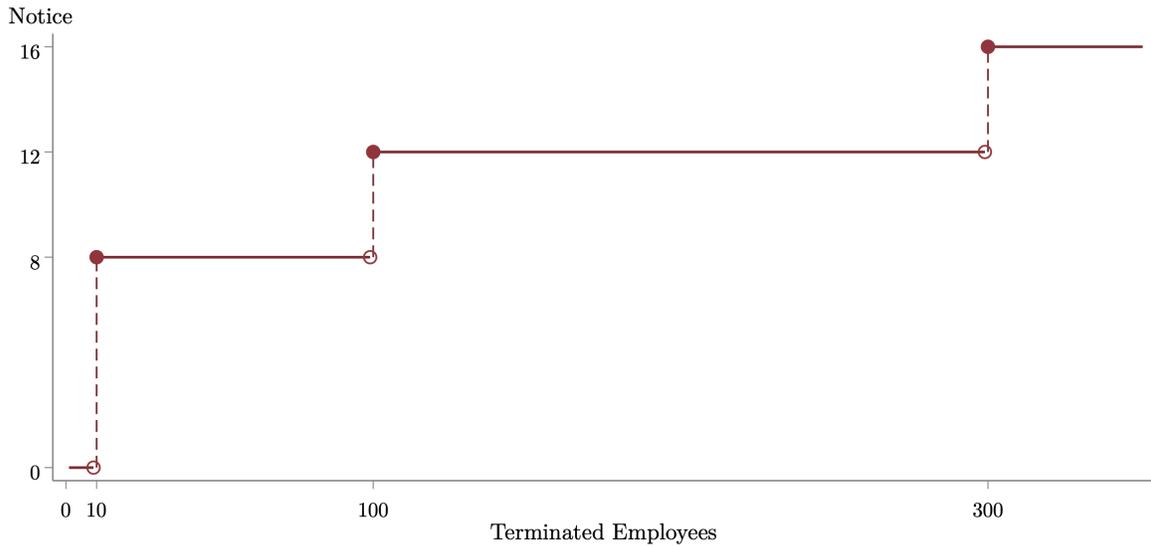
These discrete notice requirements in both provinces generate discontinuous incentives for firms engaging in employment terminations at scale. Employers that fail to adhere to the legislated requirements may face punitive penalties or prosecution. The variation in threshold levels between provinces provides a unique opportunity to examine whether firms’ strategic responses to advance notice requirements are a function of setting in addition to firm and workforce compositions.

Figure 1: Policy Structures

(A) Ontario: Employment Standards Act of 2000



(B) Quebec: Act Respecting Labor Standards of 2002



*Note:* This figure plots a visual representation of the discontinuous advance notice period requirements in both Ontario and Quebec for instances of mass worker displacement. As the figure illustrates, the duration of the mandatory advance notice increases discontinuously at specific termination thresholds. Panel (A) corresponds to the Employment Standards Act in Ontario, and Panel (B) for the Act Respecting Labor Standards in Quebec.

### 3 Data

Our Ontario data source was acquired through Ontario’s Freedom of Information and Protection of Privacy Act, which mandates public access to municipal records upon request. Pursuant to the Employment Standards Act, the Ministry of Labour requires firms planning mass terminations of 50 or more workers to submit "Notice of Termination Employee Lists" (also referred to as "Form 1s") to the Director of Employment Standards. These comprehensive records, detailing forthcoming large-scale layoff events, have been systematically collected and archived by the ministry from 2001 to the present. Our analysis focuses on the 2001-2014 period.<sup>2</sup>

Our Quebec data consists of Notices of Collective Dismissal submitted to the Ministry of Employment and Social Solidarity by firms, as required under the Act Respecting Labor Standards. These notices must be filed when firms plan to terminate 10 or more employees within a two-month period. The data covers the period from 2003 to 2024, providing a longer and more recent window than our Ontario sample.

From these administrative records in both provinces, we construct panel datasets chronicling the termination schedules of affected establishments. For Ontario, we extract the number of employees on payroll as well as the number of workers being terminated at the specific establishment address, disaggregated by employment classification: salaried, hourly, or other. We also document the parent company and corresponding address. For Quebec, we collect the same information, less the employee classification type and total number of workers on payroll.

We record the exact date on which the layoffs are scheduled to occur in both provinces. While we observe the dates on which the forms were received by the respective ministries, we assign the year of the form to correspond to the date of the listed termination. Thus, every observation in our data is unique to the establishment, address, termination-date level. This granular establishment-layoff-level data enables us to precisely characterize the dynamics of mass layoff events across both provinces.

To investigate heterogeneity across industries, we exploit Anthropic’s API to infer likely industry categories for each establishment based on observable establishment characteristics.

During our sample periods, the Ontario Ministry of Labour recorded 2,280 mass layoff events,

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<sup>2</sup>We are currently endeavoring to expand the data window through 2023 by acquiring the most recent years of data and assembling existing years.

while Quebec’s Ministry recorded approximately 5,410 events. In Ontario, 12 percent were attributed to complete plant or firm closures, while 36 percent corresponded to partial closures. Given that the strategic incentive to manipulate advance notice requirements may be attenuated for firms undergoing complete closures, these cases are excluded from the analysis in the main specification, unless otherwise noted. The underlying assumption is that firms intending to continue operations following layoff events may face stronger incentives to strategically adjust their employment contractions compared to establishments scheduled for complete closure.

Figure 2: Fraction of Workforce Being Terminated (Ontario)



*Note:* This figure plots the distribution corresponding to the fraction of the workforce that is terminated within an establishment among firms for which we can distinguish, in Ontario.

Finally, to mitigate concerns over manipulation of layoff timing within the policy windows (4 weeks in Ontario, 2 months in Quebec), our core analysis focuses solely on the initial wave of workforce reductions at each establishment, deferring an examination of the discrete timing margin to future work.<sup>3</sup>

<sup>3</sup>Repeat layoff events within an establishment account for less than 10% of our Ontario sample, making us under-powered to detect any strategic responses of firms on this dimension.

Descriptive statistics characterizing both samples are presented in Table 1. The data reveals striking differences between the provinces. Most notably, Quebec’s mass termination events are substantially smaller in scale: establishments undergoing partial closures terminate an average of 44 workers in Quebec compared to 96 workers in Ontario, attributable to Quebec’s lower reporting threshold. This difference persists for complete closures, where Quebec establishments terminate 45 workers on average versus 151 in Ontario.

The administrative data also differ markedly in their coverage and detail. Ontario’s Form 1s provide comprehensive establishment information, revealing that firms undergoing partial closures terminate an average of 35% of their workforce, with hourly employees comprising 80% of terminated workers. However, Ontario faces significant classification challenges, with 52% of events unable to be definitively categorized as partial or full closures. In contrast, Quebec’s administrative system, while recording only total termination counts, achieves complete classification of all 8,718 mass termination events, with 64% identified as partial closures. The Quebec sample is also substantially larger, containing nearly four times as many observations as Ontario despite covering a comparable time period. Again, this is, at least in part, mechanically driven by the lower reporting threshold.

## 4 Empirical Strategy

To estimate the effect of additional notice requirements on firms’ termination decisions, we employ a bunching design in both provinces. Unlike regression discontinuity or regression kink designs, the bunching approach is well-suited for settings where agents can precisely manipulate the assignment variable determining treatment assignment (Kleven, 2016). In our context, firms have the ability to strategically adjust the scale of their layoffs to position themselves above or below the policy thresholds triggering differential notice period obligations. Our primary identifying assumption is that in the absence of the policy discontinuities, the frequency of layoff events should be a smooth function with respect to the number of terminated workers. In other words, the thresholds should have no influence on firms’ termination conduct apart from the induced variation in mandated notice lengths.

To test our hypothesis that advance notice requirements impose sufficiently high costs to induce strategic firm behavior aimed at circumventing lengthier notice mandates, we employ a bunching

Table 1: Summary Statistics: Ontario and Quebec

	Ontario (2001-2014)			Quebec (2003-2024)	
	Partial Closure	Full Closure	Unknown	Partial Closure	Full Closure
Total Workforce	382.1 (420.3)	150.5 (167.3)	–	–	45.43
Fraction Workforce Terminated	0.351 (0.312)	1.000 (n/a)	–	–	1.00 (n/a)
Total Workers Terminated	95.51 (150.1)	150.5 (167.3)	154.4 (344.5)	43.88 (83.30)	45.43 (68.87)
<i>By Employee Type (Ontario only):</i>					
Hourly Employees	76.33 (134.2)	124.1 (153.9)	–	–	–
Salaried Employees	17.33 (44.82)	24.36 (32.97)	–	–	–
Other Employees	1.945 (12.44)	2.014 (8.359)	–	–	–
Observations	817	282	1,181	5,602	3,116
Share of Sample	35.8%	12.4%	51.8%	64.3%	35.7%

*Notes:* This table presents establishment-level summary statistics for mass layoff events. Means are presented with standard deviations in parentheses. For Ontario, "Unknown" indicates cases where closure type could not be determined. Total workforce and fraction terminated are only observable in Ontario data where employment levels are reported. Employee type breakdown is only available for Ontario establishments. Quebec data only includes total workers terminated. Dashes (–) indicate data not available in administrative records.

estimation approach with the following procedure. First, we group the raw worker termination counts into discrete bins, which smooths some of the noise stemming from firms' tendency to implement diffuse employment terminations instead of concentrating layoff events into a point mass directly below the threshold.<sup>4</sup> To account for the remaining dispersion, we fit a polynomial regression to the distribution of this binned running variable, excluding observations in the immediate vicinity of the policy discontinuity. This effectively predicts the counterfactual density of the running variable in the absence of the discontinuous policy incentives and prevents bias from the bunching region influencing the estimates. Finally, we quantify the excess mass around the discontinuity as the difference between the observed distribution and the counterfactual density predicted by the

<sup>4</sup>We assign each worker termination count to the maximum of that bin. For instance, worker termination counts 196, 197, 198, 199 are assigned to bin "199."

polynomial regression. This excess mass captures firms’ strategic response to the additional notice requirements associated with crossing the threshold, measured as the precise frequency of layoff events bunching below the discontinuity.

For Ontario, we estimate a regression of the following form, drawing directly from [Chetty et al. \(2011\)](#), and isolating our analysis to the 200-worker discontinuity:

$$l_j = \sum_{i=0}^{q=7} \beta_i (w_j)^i + \sum_{k=175}^{250} \gamma_k \mathbb{1}[w_j = k] + \varepsilon_j \quad (1)$$

Here,  $l_j$  denotes the count of layoff events in worker bin  $j$ ,  $w_j$  is the running variable representing worker bin counts, and  $q$  specifies the polynomial order.<sup>5</sup> The first term imposes a smooth distribution of layoffs outside of the bunching region. The second term captures the bunching region around the discontinuity, where  $k \in \{175, 179, 184, 189, 194, 199\}$  due to binning. Our primary coefficients of interest are  $\gamma_k$ , which capture the excess number of termination events corresponding to each worker bin located near the 200-worker threshold.<sup>6</sup>

For Quebec, we adapt the specification to account for the different threshold at 100 workers:

$$l_j = \sum_{i=0}^{q=7} \beta_i (w_j)^i + \sum_{k=80}^{125} \gamma_k \mathbb{1}[w_j = k] + \varepsilon_j \quad (2)$$

where we focus on the bunching region around the 100-worker threshold. For the final analysis, we concentrate on workers 80-99 to capture the bunching effect.

For both provinces, we predict the counterfactual distribution of layoff sizes in the absence of the policy discontinuities using a restricted version that excludes the bunching region:

$$\hat{l}_j = \sum_{i=0}^q \hat{\beta}_i (w_j)^i \quad (3)$$

Finally, we measure the excess mass of layoff events resulting from firm manipulation by comparing

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<sup>5</sup> $q$  is fixed to 7 to remain consistent with the literature, but our results are not sensitive to polynomial order after degree 3.

<sup>6</sup>We restrict our main specification to the 200-worker discontinuity, to avoid contamination with the 500-worker threshold. Correspondingly, we restrict our sample to worker termination counts between 49 and 459. We conduct a similar exercise for Quebec.

the observed and counterfactual distributions:

$$\hat{m}_j = \sum_{k \in \text{bunching region}} l_j - \hat{l}_j = \sum_{k \in \text{bunching region}} \hat{\gamma}_k \quad (4)$$

We employ a variety of robustness checks to ensure the validity and stability of our results. First, we verify that our findings are not sensitive to specification choices by restricting the analysis to the subset of years for which we can unambiguously determine whether firms underwent complete closure or remained operational post-layoff. Further, we examine the robustness of our estimates to alternative constructions of the counterfactual distribution. Specifically, we exploit the sample of complete firm closures as an alternative counterfactual benchmark, as these events are plausibly characterized by reduced incentives to strategically manipulate.

## 5 Results

### 5.1 Bunching Evidence from Ontario

The results from estimating the excess mass around the policy discontinuity in Ontario, as specified in Equation 4, are visualized in Figure 3. Specifically, the raw data on partial workforce reductions in Panel A reveals a pronounced decline in the frequency of reported layoff events involving fewer than 50 terminated workers. This is consistent with the ESA’s provisions that exempt smaller termination events from the mandatory notice obligations and the conspicuous increase in frequency reported termination events at the 50-worker threshold highlights that the reporting threshold is, in fact, binding. Moreover, Panel B visually showcases the substantial excess mass for the 200-worker threshold, where the mandatory notice period increases from 8 to 12 weeks discontinuously.

Our estimates provide empirical evidence of firms strategically restricting the scale of their workforce reductions to circumvent the *additional* 4-week advance notice obligation associated with crossing this policy threshold.

To gauge the economic significance of this strategic behavior, we benchmark the observed excess mass against a baseline measure of layoff activity near the vicinity — the predicted number of

layoffs given by the smooth counterfactual. By considering the predicted number of layoff events in the bin immediately to the left of the 200-worker threshold, we can normalize our bunching estimate against what would have happened had the policy discontinuities not existed. This indicates an approximate 300% increase in layoff events just below the notch relative to just above. Aggregating this effect across the four bins yields total of 48 additional layoffs in the bunching region. Crucially, each of these 48 excess layoff events corresponds to workforce reductions between 175 and 199 terminated employees. Consequently, our estimates imply that approximately 9,300 workers receive substantially less advance notice as a result of their employers strategically limiting layoff scale to remain below the policy discontinuity.

## 5.2 Bunching Evidence from Quebec

The Quebec results reveals similar strategic behavior by firms. Figure 4 shows clear visual evidence of bunching below the 100-worker threshold. The raw distribution shows a sharp spike in layoff events just below 100 workers, with a notable drop immediately after this threshold where the notice requirement increases from 8 to 12 weeks.

Our bunching estimation for Quebec indicates a 100% increase in layoff events at the 99-worker bin relative to the counterfactual distribution. This represents approximately 60 additional layoff events that bunch just below the threshold to avoid the additional 4 weeks of notice. Given that each of these events involves 80-99 terminated workers, we estimate that approximately 5,700 workers in Quebec receive less advance notice than they would under a smooth termination schedule.

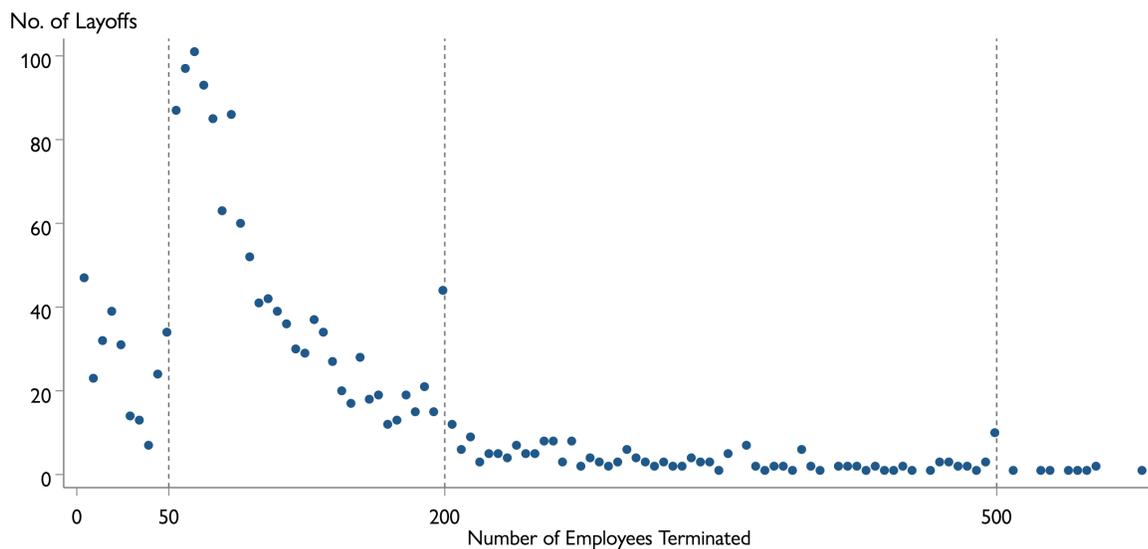
## 5.3 Cross-Provincial Comparison

Table 2 provides a direct comparison of the bunching results from both provinces. While both show significant bunching below the thresholds where notice requirements increase, Ontario exhibits a substantially stronger response (300% increase) compared to Quebec (100% increase).

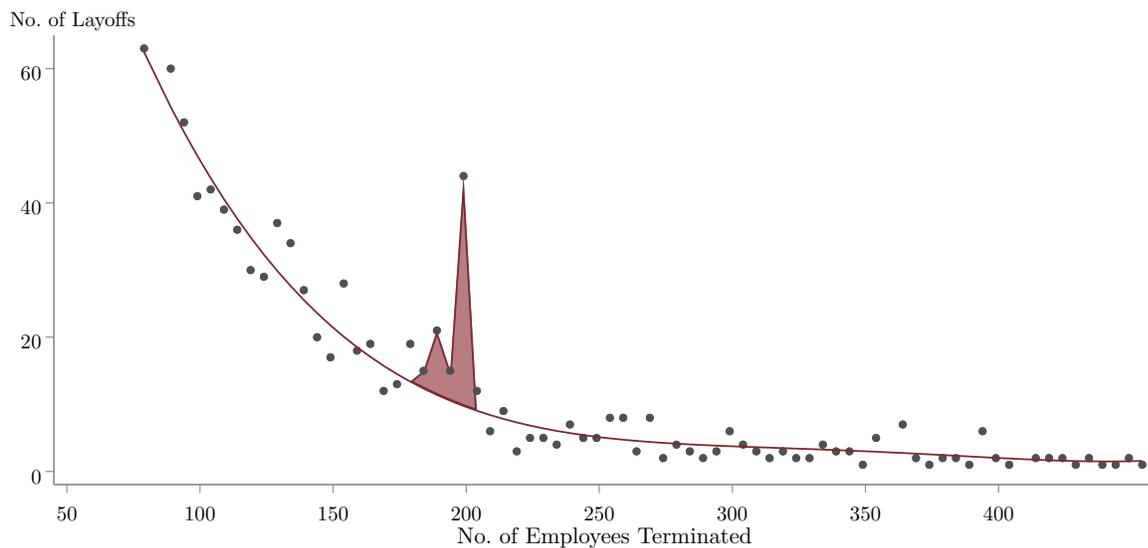
The more pronounced bunching intensity in Ontario may reflect several mechanisms. First, the different threshold levels likely affect different types of firms. Ontario's 200-worker threshold targets medium-to-large establishments, which may have greater operational flexibility to manipulate layoff sizes without compromising core business functions. In contrast, Quebec's 100-worker threshold

Figure 3: Ontario Distribution of Layoffs

(A) Distribution of Layoffs



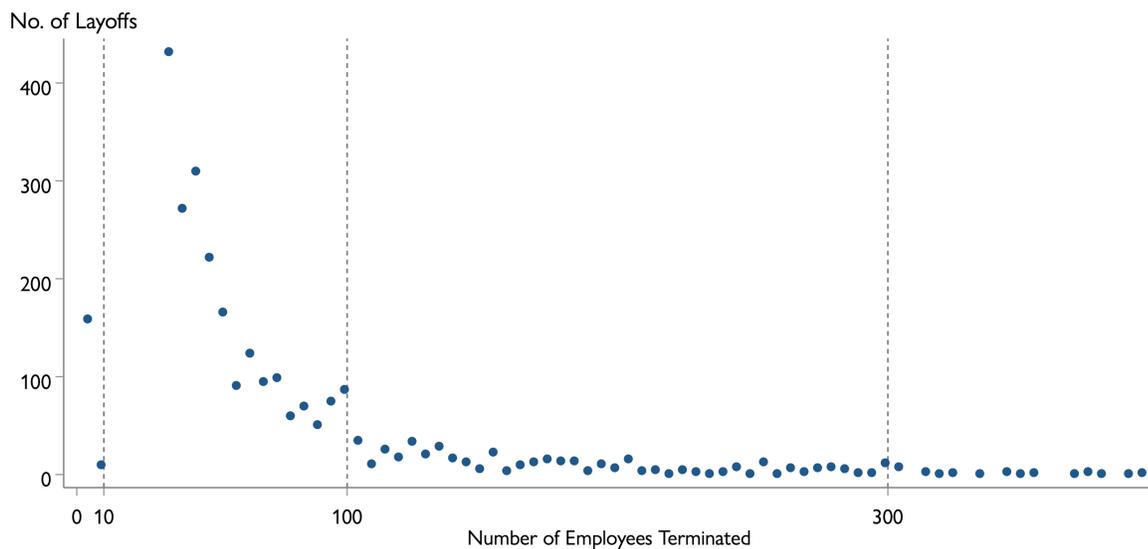
(B) Excess Mass



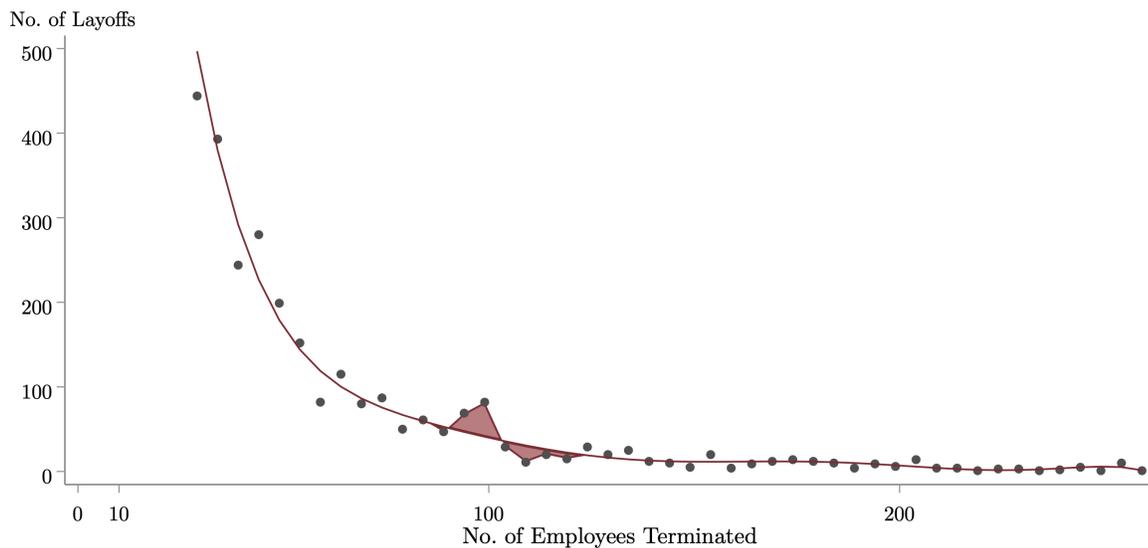
*Note:* This figure plots the raw empirical distribution of mass termination events as a function of the number of workers terminated in Ontario. Panel (A) displays the raw distribution across the entire range of workforce reductions observed in our data. Panel (B) focuses the perspective by restricting the analysis to the 200-worker threshold. The red-shaded region is the excess mass, or bunching, associated with being below the threshold that triggers additional notice.

Figure 4: Quebec Distribution of Layoffs

(A) Distribution of Layoffs



(B) Excess Mass



*Note:* This figure plots the raw empirical distribution of mass termination events as a function of the number of workers terminated in Quebec. Panel (A) displays the raw distribution across the entire range of workforce reductions observed in our data. Panel (B) focuses the perspective by restricting the analysis to the 100-worker threshold. The red-shaded region is the excess mass, or bunching, associated with being below the threshold that triggers additional notice.

affects smaller firms that may face tighter constraints on their ability to reduce layoff scales.

Second, the different time windows for aggregating layoffs create asymmetric incentives across provinces. Ontario’s 4-week window enables firms to more easily engage in sequential layoff events—for instance, a firm wanting to terminate 200 workers could terminate 199 with 8 weeks’ notice, wait 4 weeks for the count to reset, then terminate the remaining worker. Quebec’s 2-month window, conversely, attenuates the incentive to bunch if firms have fixed termination targets. The longer waiting period makes sequential layoffs more costly, as firms must maintain unproductive workers for an additional month before completing their desired workforce reduction. We explore this further in Section 6.

## 5.4 Heterogeneity Analysis

### 5.4.1 Industry Heterogeneity

In both Ontario and Quebec, Figure 5 reveals that the observed excess mass below policy discontinuities is almost entirely concentrated within the “Manufacturing” industry, which is also notably over-represented in both samples. This pronounced, industry-specific, pattern potentially reflects broader economic conditions prompting firms in these sectors to aggressively pursue cost-cutting measures, including the substitution towards foreign labor through alternative production arrangements. The similar industry composition across provinces suggests that workers in these sectors are particularly exposed to such adjustments.

### 5.4.2 Temporal Heterogeneity

The persistence of the observed bunching patterns across different time periods is illustrated in Figure 6. In Ontario, the bunching pattern persists across three distinct sub-samples: (1) the pre-Great Recession period (2001-2007), (2) the post-Great Recession period (2008-2014), and (3) the concentrated years spanning the Great Recession (2008-2010).

The Quebec data, covering 2003-2024, provides an even longer window to examine temporal patterns. Similar to Ontario, we show bunching behavior that persists across all subsamples, suggesting that firms’ strategic behavior in manipulating termination amounts to circumvent heightened notice requirements is a persistent phenomenon rather than a transitory response to

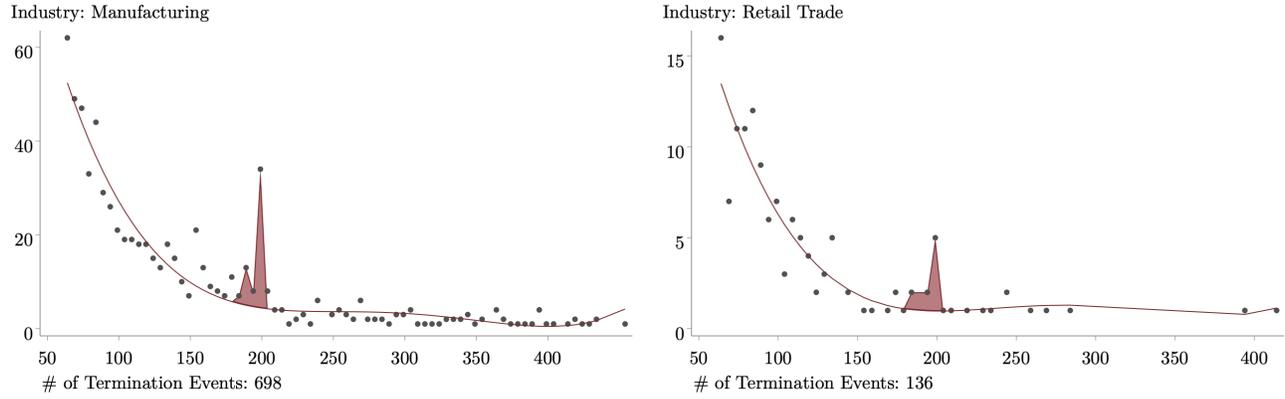
Table 2: Bunching at Advance Notice Thresholds: Quebec vs. Ontario

	Quebec (100-worker threshold)	Ontario (200-worker threshold)
<i>Panel A: Bunching Estimates</i>		
Excess mass at threshold bin ( $\hat{\gamma}_{99}, \hat{\gamma}_{199}$ )	40.93	32.74
Counterfactual frequency ( $\hat{l}_{99}, \hat{l}_{199}$ )	41.07	11.26
Percentage increase	99.7%	290.6%
<i>Panel B: Aggregate Effects</i>		
Total excess mass in bunching region	59.10	62.12
Number of affected workers	5,746	9,302
Worker bins in bunching region	80–99	175–199
<i>Panel C: Policy Parameters</i>		
Notice increase at threshold	8 → 12 weeks	8 → 12 weeks
Reporting threshold	10 workers	50 workers
Layoff aggregation window	2 months	4 weeks
<i>Panel D: Sample Characteristics</i>		
Time period	2003–2024	2001–2014
Total layoff events in sample	5,365	2,280

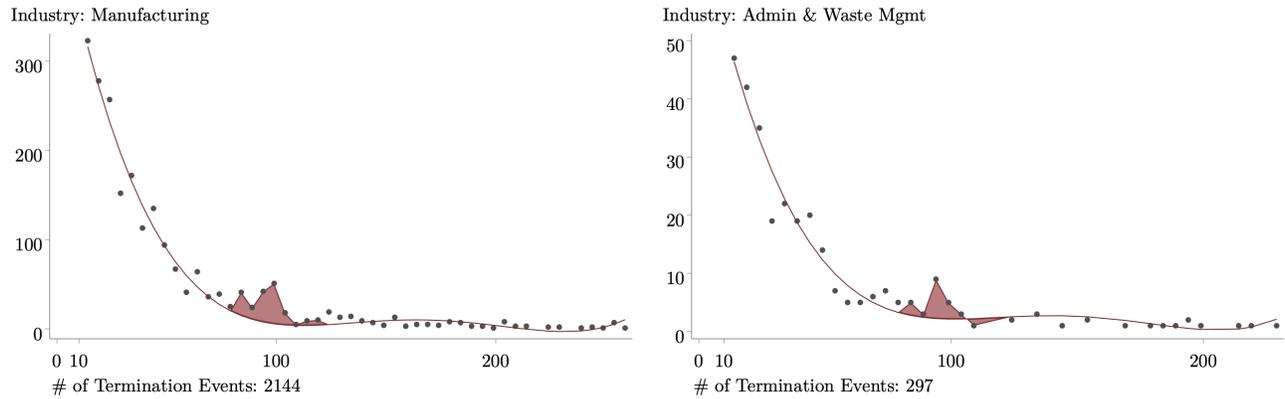
*Notes:* This table compares bunching behavior at the first major advance notice threshold in Quebec (100 workers) and Ontario (200 workers). Panel A reports the excess mass at the bin immediately below the threshold ( $\hat{\gamma}$ ), the counterfactual prediction ( $\hat{l}$ ), and the implied percentage increase. Panel B aggregates effects across the entire bunching region. Panel C provides institutional context, including the time window for aggregating layoffs to determine if a mass termination has occurred. Panel D describes the sample characteristics for each province.

Figure 5: Heterogeneity by Industry

(A) Ontario



(B) Quebec



*Note:* This figure shows the distribution of layoffs by industry in Ontario and Quebec. Industry classifications follow NAICS codes.

fluctuating labor market conditions.

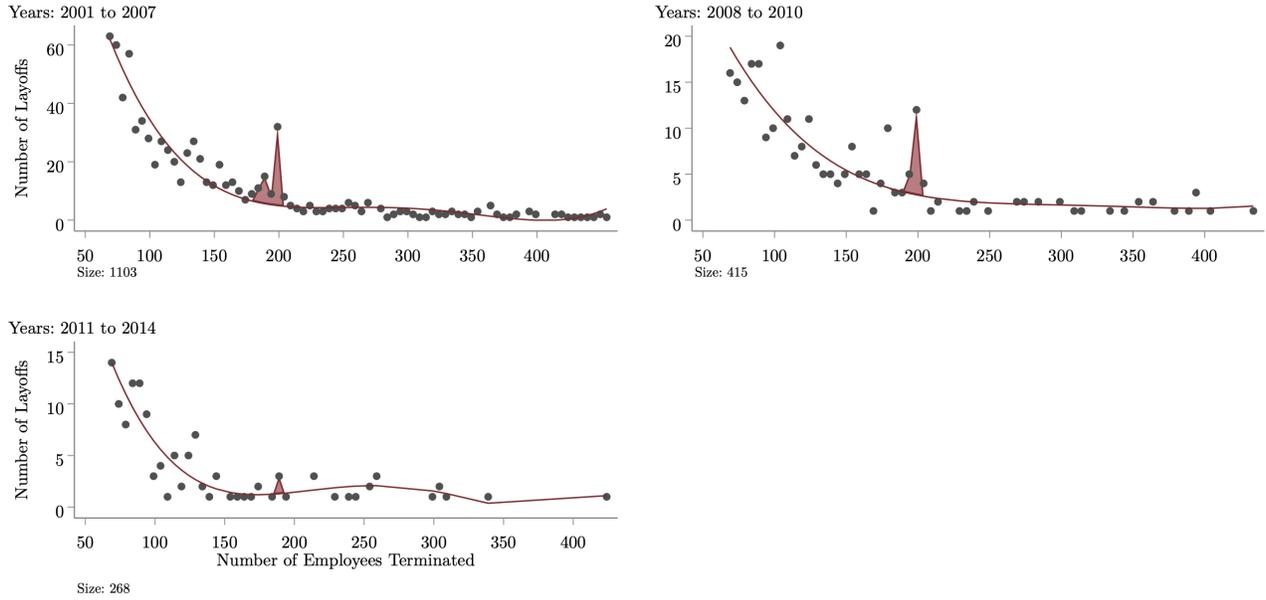
## 5.5 Robustness Checks

Crucially, our results are robust to several alternative specifications. For Ontario, restricting the analysis to the subset of years for which we can perfectly discern whether firms underwent complete shutdown or remained operational yields similar results. The findings, highlighted in Figure 7, showcase that while the overall frequencies of layoff events are reduced in this restricted sample, we continue to observe substantial bunching immediately to the left of the policy discontinuity.

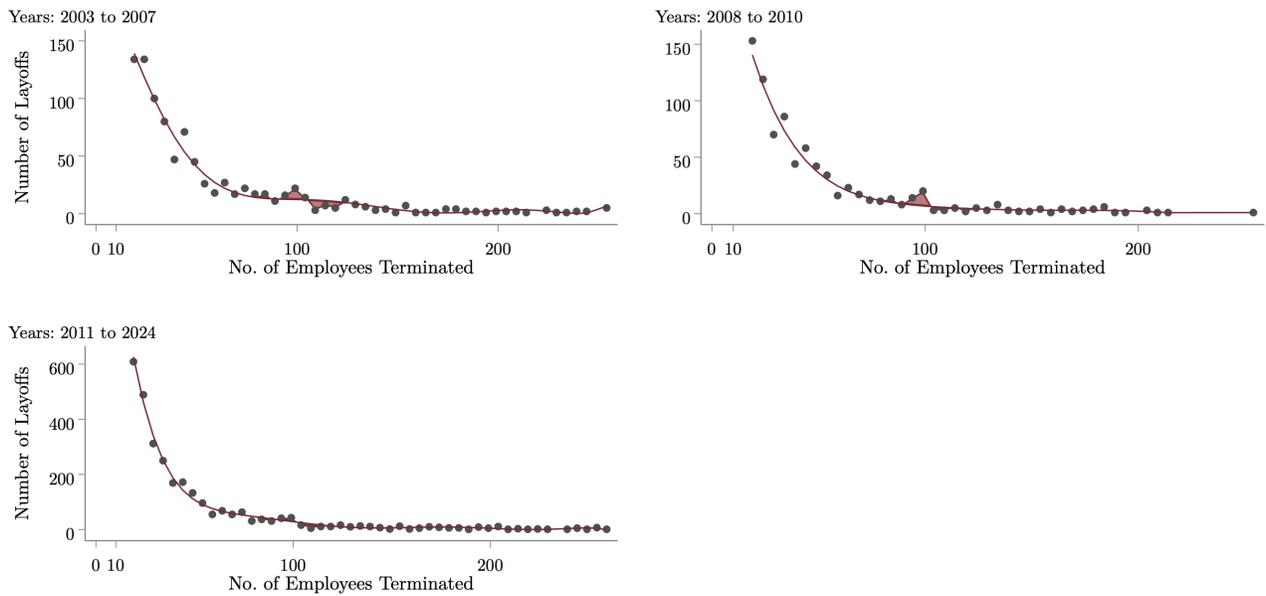
Even more, the evidence of excess mass below the notch is robust to an alternative construction

Figure 6: Heterogeneity by Time

(A) Ontario

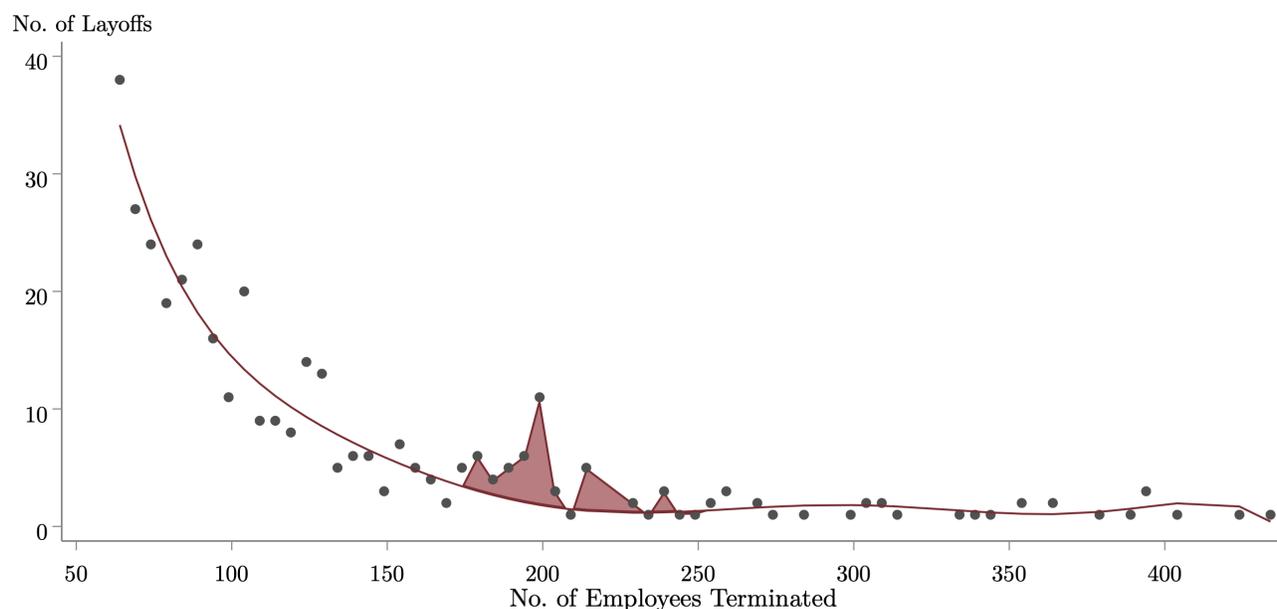


(B) Quebec



*Note:* This figure shows the distribution of layoffs by three distinct subsamples of the data in Ontario and Quebec: (1) the pre-Great Recession period (2001-2007), (2) the post-Great Recession period (2008-2014), (3) the concentrated years spanning the Great Recession (2008-2010)

Figure 7: Ontario: Partial Closures Only



*Note:* This figure shows the distribution of layoffs in Ontario using strictly the partial closure sample.

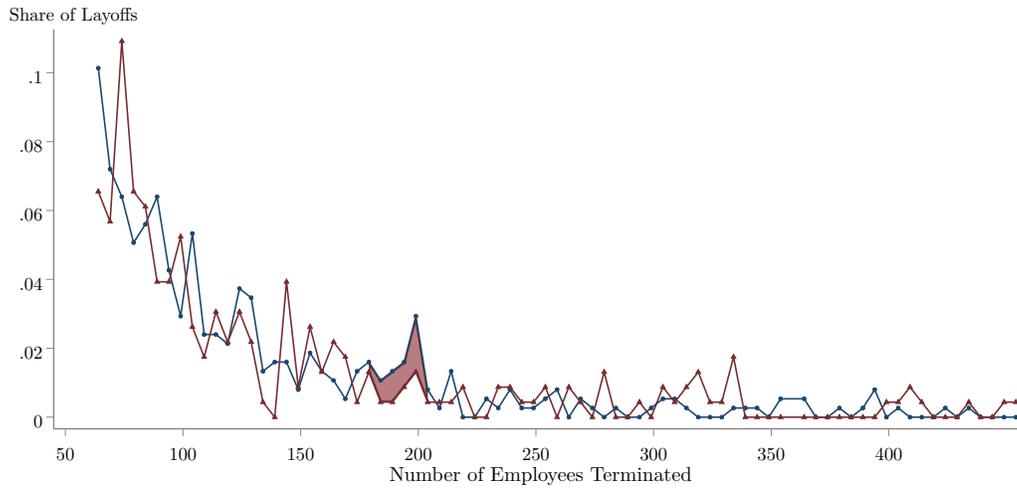
of the counterfactual distribution. Figure 8 plots the share of layoff events classified as partial closures (blue line) versus complete firm closures (red line) across worker bins. The underlying assumption is that firms conducting full shutdowns are constrained in their ability to strategically manipulate the scale of their termination events. While the alternative counterfactual relying on complete closures introduces noise, it reinforces our core finding of substantial bunching induced by the discontinuous policy incentives.

## 6 Cost/Benefit Analysis of Strategic Avoidance Behavior

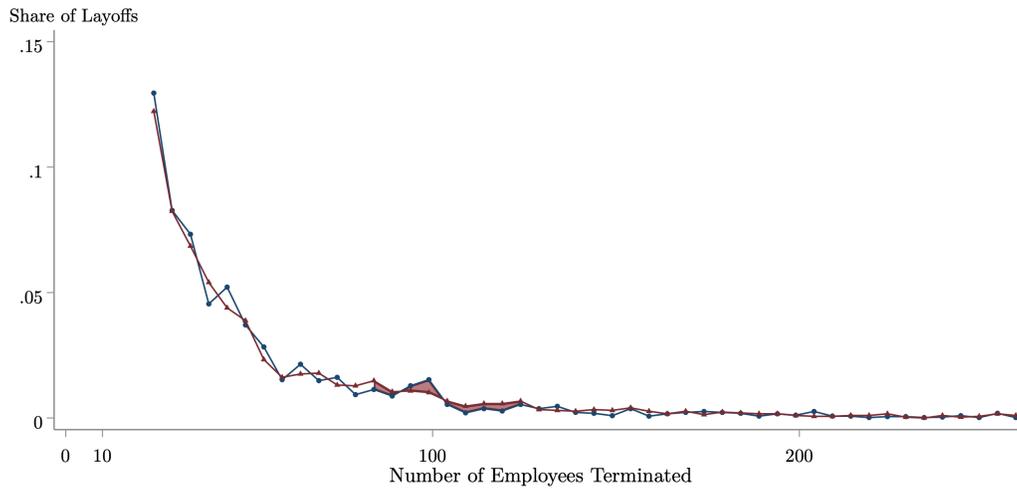
To better understand the incentives underlying the bunching behavior documented in Section 5, we conduct simulations that estimate the costs firms face under different strategic approaches to mass terminations. These simulations help quantify potential trade-offs and opportunities for savings that drive observed bunching behavior and provide insights into effects of the threshold-based advance notice policies.

Figure 8: Firm Closures as Counterfactual

(A) Ontario



(B) Quebec



Note: This figure shows the distribution of layoffs Ontario and Quebec using the “full closure” sample as the counterfactual. The blue line captures the partial closure sample, the red the full closures.

## 6.1 Simulation Framework

We simulate a representative firm that seeks to terminate substantial amount of their workforce while navigating advance notice requirements in both provinces. Specifically, we focus on three potential strategies:

1. *No Strategic Behavior*: Terminate the desired number of workers (200 in Ontario, 100 in Quebec) and comply with the resulting 12-week group notice requirement.
2. *Threshold Bunching*: Terminate workers just below the policy discontinuity (199 workers in Ontario, 99 in Quebec) to maintain 8 weeks of group-level notice while avoiding the jump to 12 weeks.
3. *Complete Group-Level Avoidance*: Conduct sequential, smaller, layoffs that remain below mass termination thresholds entirely (below 50 workers in Ontario, below 10 in Quebec), providing only individual tenure-based notice.<sup>7</sup>

For threshold bunching scenarios (i.e., Strategy 2), firms must conducting sequential layoffs to avoid crossing policy thresholds, assuming a fixed, desired, termination size. This requires terminating the bulk of workers (199 in Ontario, 99 in Quebec) with group notice, then waiting for the layoff count to reset before terminating any remaining workers.<sup>8</sup> The institutional reset periods are 4 weeks in Ontario and 8 weeks (2 months) in Quebec. We assume employment costs of \$800 per week ( $\$20/\text{hour} \times 40 \text{ hours}$ ) during all notice and waiting periods.<sup>9</sup>

## 6.2 Simulation Results

Table 3 presents the cost implications associated with each strategic approach for the representative firm in both provinces. The simulation results demonstrate that threshold bunching is

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<sup>7</sup>In Ontario, employees with at least 3 months of service are entitled to 1 week of notice per year of employment, up to a maximum of 8 weeks. Similarly, in Quebec employees are given 1 week for 3 months to 1 year, 2 weeks for 1–5 years, 4 weeks for 5–10 years, and 8 weeks for 10+ years. For both Ontario and Quebec, we assume a log-normal distribution of employee tenure with a mean of 110 months and a standard deviation of 65 months, derived from Statistics Canada, Table 14-10-0055-01 (Job tenure by industry, annual).

<sup>8</sup>For simplicity, we assume no individual tenure-based notice requirements for the final worker terminated in the last batch of bunching scenarios.

<sup>9</sup>Based on reported hourly wages by occupation from Statistics Canada, Table 14-10-0417-01 (Employee wages by occupation, annual)

the financially optimal strategy for firms seeking to conduct substantial workforce reductions and intuitively corroborate our empirical estimates. Specifically, bunching generates significant cost savings compared to both alternative approaches.

Relative to complying with higher notice requirements consistent with the spirit of the legislation (Strategy 1), threshold bunching saves \$640,000 (33%) in Ontario and \$313,600 (33%) in Quebec. The substantial savings associated with this strategy reflect the value firms likely place on avoiding the additional 4 weeks of mandatory notice triggered by crossing the policy discontinuity. Relative to complete avoidance of group-level notice (Strategy 3), threshold bunching saves \$122,400 (9%) in Ontario and \$2,606,400 (80%) in Quebec. The savings are particularly pronounced in Quebec, where complete avoidance requires 88 weeks and over \$3.2 million.

Notably, despite Quebec firms facing substantially larger economic incentives to bunch (over \$2.6 million in potential savings versus \$122,400 in Ontario), our empirical analysis in Section 5 reveals weaker bunching intensity in Quebec (100% increase) relative to Ontario (300% increase). This puzzle suggests that province- and threshold-specific factors beyond simple cost minimization may influence firms' ability to engage in precise strategic manipulation.

These simulation findings provide strong economic justification for the bunching behavior observed in our empirical analysis while highlighting important considerations when designing these employee protection policies. Threshold bunching (Strategy 2) emerges as the clear cost-minimizing strategy, all else equal, by generating substantial savings relative to complete compliance with higher notice requirements or outright avoidance of group-level notice altogether. These results suggest that policymakers seeking to reduce strategic manipulation of layoff scales would need to account for the substantial economic benefits firms derive from avoiding policy discontinuities.

## 7 Conclusion

This paper investigates a pivotal policy intervention aimed at balancing the pecuniary interest of firms undergoing terminations with the welfare consequences for the displaced workers: mandatory advance notice laws in the context of mass terminations. We examine this issue in the context of two Canadian provinces with different institutional frameworks - Ontario's Employment Standards Act and Quebec's Act Respecting Labor Standards - which require firms to increase the duration

Table 3: Strategic Alternatives

	Ontario (target layoff: 200)	Quebec (target layoff: 100)
<i>Strategy 1: No Strategic Behavior</i>		
Workers terminated	200	100
Notice period	12 weeks (group)	12 weeks (group)
Process duration	12 weeks	12 weeks
Total cost	\$1,920,000	\$960,000
<i>Strategy 2: Threshold Bunching</i>		
Workers terminated	199 + 1	99 + 1
Notice structure	8 weeks + waiting	8 weeks + waiting
Process duration	12 weeks	16 weeks
Total cost	\$1,280,000	\$646,400
<i>Strategy 3: Complete Avoidance</i>		
Maximum per layoff event	49 workers	9 workers
Waiting period	4 weeks	8 weeks (2 months)
Process duration	16 weeks	88 weeks
Total cost	\$1,402,400	\$3,252,800
<i>Savings from Bunching</i>		
vs. No strategic behavior	\$640,000	\$313,600
vs. Complete avoidance	\$122,400	\$2,606,400

*Notes:* This table compares the costs of three strategic alternatives for firms seeking to terminate substantial workforces. Strategy 1 represents no strategic behavior, accepting the 12-week group notice requirement for crossing policy thresholds. Strategy 2 (threshold bunching) represents the behavior documented in our empirical analysis, where firms terminate just below policy discontinuities (199 workers receive 8 weeks group notice, with the final worker remaining employed through the group notice period plus the institutional waiting period). Strategy 3 (complete avoidance) represents sequential smaller layoffs that avoid group-level notice entirely by staying below mass termination thresholds.

of advance notice provided to employees as a discontinuous function of the number of workers being terminated. Building upon emerging evidence regarding the productivity impacts associated with advanced disclosure of impending displacement, our study is the first to uncover systematic evidence of an unintended consequence of such policies — firms strategically manipulating the scale of layoffs to circumvent additional notice obligations.

We find substantial evidence of this behavior in the form of excess mass in the distribution of layoff event sizes near the discontinuous policy thresholds in both provinces, indicating that firms deliberately restrict workforce reductions to remain below the thresholds that trigger longer mandatory notice periods. In Ontario, we find an approximate 300% increase in the frequency of layoff events just below the 200-worker threshold. In Quebec, we document a 100% increase just below the 100-worker threshold. Translating these bunching estimates, our findings imply approximately 48 additional layoff events in Ontario and 60 in Quebec, affecting 9,300 workers in Ontario and approximately 5,700 workers in Quebec who receive less advance notice relative to what they would have received had firms not strategically manipulated the number of workers terminated.

We demonstrate the robustness of these results to alternative sample and specification choices, while uncovering significant heterogeneity across industries and persistent temporal patterns. The strategic manipulation is strikingly concentrated among manufacturing and production firms in Ontario, potentially reflecting particular vulnerability to global competition. Moreover, we show that firms engage in this strategic behavior irrespective of transitory labor market fluctuations in both provinces, underscoring the central role these incentives play in driving their decisions.

To better understand the rationale behind these patterns, we simulate firms' decision-making under different termination scenarios. The simulations reveal that threshold bunching is economically rational: firms that restrict layoff sizes just below notice thresholds realize substantial cost savings, ranging from \$313,600 to \$2.6 million per event relative to full compliance. These findings both corroborate the observed bunching behavior and demonstrate that advance notice policies, when designed with discontinuities, create powerful incentives that likely distort firm behavior.

In sum, our analysis contributes to the literature on employment protection policies by quantifying a previously understudied margin of strategic firm behavior: the manipulation of the intensive layoff margin in response to discontinuous requirement incentives. These findings can inform policymakers'

efforts to calibrate legislation that compels firms to internalize the social costs of mass terminations while mitigating the adverse impacts of abrupt job displacement on workers.

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