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Abstract

This paper studies the underlying drivers of small business behavior at the discontinuity in the statutory corporate income tax rates, i.e., the corporate tax kink. It intends to capture the behavioural responses to the tax change at the kink. Increased investments and reported costs are possible strategies that firms use to adjust their taxable income to avoid higher tax rates. High concentration of firms in the taxable income distribution should then be accompanied by a spike in investment at the kink. To evaluate this hypothesis, this study employs the universe of firm-level tax returns from Canada over the 2001 to 2019 period to estimate the distribution of corporate investment and costs around the tax kink along the extensive and intensive margins. It calculates the share of firms that increased their investment to move to the kink and their contribution to overall bunching. Overall, the level and significance of bunching in investments and costs, over time and across specific capital categories, support the hypothesis that small businesses respond to the tax rate change by increasing investment in vehicles and machinery and equipment relatively more than in buildings or intangibles.

1 Introduction

Lesica (Forthcoming) established that small businesses in Canada respond strongly to tax incentives: there is a significant and persistent excess mass of firms at the corporate income tax (CIT) kink point, a taxable income (TXI) threshold at which the marginal tax rate changes discontinuously. This paper extends these results by uncovering the drivers of bunching behaviour. Specifically, it examines how small businesses adjust the underlying components of TXI by exploiting how CIT changes at the kink affect corporate capital investment and reported costs. The results show that small businesses bunch at the TXI kink by reporting higher business costs and increasing investment in machinery and equipment (M&E) and vehicles, while avoiding intangible capital.

To perform these estimates, the study employs firm-level corporate tax return data for the population of Canadian small businesses, i.e., T2 Corporation Income Tax Return administrative records, over the period from 2001 to 2019. During this period, the Canadian corporate tax structure changed in two key dimensions: (1) the small business tax rate was substantially reduced (from 20% in 2001 to around 12% in 2019), while (2) the TXI threshold at which the preferential small business tax rate applies increased (from $200,000 to $500,000) in several steps. The study exploits these corporate tax changes and the significant bunching of firms to examine how they affect corporations' investment decisions across different capital types and how these vary over time.

The basic proposition analyzed is that small businesses with TXI somewhat above the tax kink point have a strong incentive to reduce their TXI down to the threshold to maintain their preferential tax treatment. This will result in bunching at the kink. One way firms can do this is by making additional capital investments or reporting higher operating expenses, costs of sales and labour costs, defined as "recurrent costs." Higher capital investment allows them to claim capital depreciation allowances, which can be deducted from TXI. While total recurrent costs translate one for one into a TXI reduction, the extent to which capital investments reduce TXI depends on the depreciation rate allowances and speed.

This paper documents large and statistically significant spikes in investment at the tax kink, measured both by direct capital acquisitions and claimed capital depreciation allowances. Significantly higher investment and the share of investing firms at the tax kink reflect that small businesses are responsive to tax rate changes and increase capital investment to reduce TXI.

If firms that would not otherwise make additional investments engage in higher investment to reduce their TXI, an investment spike should be observed around the kink with bunching. The size and distribution of this spike can then be used to identify "investment bunchers" and calculate their number. The study quantifies the distribution of these investment bunchers and estimates their contribution to the overall TXI bunching along the extensive and intensive margins. The extensive margin captures those firms that report a positive capital depreciation allowance in the TXI bin, while the intensive margin measures a higher-than-predicted mean or median investment value for that income bin. Also, an important source of variation for investment bunching is the differential treatment of capital by fiscal depreciation allowance rates. Various capital assets are differently suitable for deducting capital depreciation with the purpose of reducing TXI.

Further, this study provides evidence for how these margins vary across capital types that differ in their divisibility and capital depreciation rates, thereby identifying the (unintended) effects of tax incentives on corporate investment and cost reporting. Administrative tax return data for Canadian corporations can be used to measure capital investment by direct capital acquisition and depreciation claims firms make, which precisely capture those investments affected by tax incentives. Capital investments are further classified into four asset categories: vehicles, M&E, buildings and intangibles. Recurrent costs are measured by firms' total costs separated into operating expenses, costs of sales, wages and salaries.

The results show that bunching in recurrent costs and capital investment is particularly high during the 2009-to-2019 period, during which the TXI kink point is stable at $500,000. Vehicle investing displays statistically significant bunching—the largest—across both margins, contributing 8% to 10% of all bunchers in the extensive margin and 50% in the intensive margin. M&E bunching is smaller and statistically significant only at the intensive margin, where investment bunchers represent around 48% to 70% of all bunchers. Conversely, structures bunching is detected only at the extensive margin and represents 6% to 8% of all bunchers. The lack of intensive margin bunching is not surprising given the high initial cost of investment in structures and the lowest depreciation allowance available among the four capital types. Lastly, intangibles are noisier. Unlike the other categories, they show a reduction in the intensive and extensive margins.

Recurrent costs are much larger than capital investment costs in dollar terms and show statistically significant bunching around the kink, particularly for the years 2009 to 2019. Bunching in costs is 300% of the predicted value in the 2005-to-2008 period, and 250% higher from 2009 to 2019. Recurrent cost bunching is also recorded in the bins just to the left of the kink for direct wages, salaries and even level of employment.

Furthermore, investments in vehicles and M&E are an important instrument of bunching for both one-time bunchers and the more sophisticated repeat bunchers. Overall, estimates show that intensive investments play a larger role as a channel of firms' TXI bunching.

The question of how corporate investment reacts to taxation is a perennial one, and economic policy makers debate tax incentive effects when deciding how to stimulate corporate investments (Hall and Jorgenson 1967). This paper primarily contributes to two strands of literature.

First, the study is related to the work of Brockmeyer (2014), which examines investment bunching by firms in the United Kingdom from 2001 to 2007, with a goal to modify their TXI to lower their tax obligation. The United Kingdom has a corporate tax system similar to Canada's, with preferential treatment of small businesses and several kinks in the tax rate schedule, most prominently at £10,000 and £300,000. Brockmeyer (2014) finds that firms at the lower £10,000 kink prominently used higher investments in short-life machinery to reduce their TXI, but firms at the higher £300,000 kink did not adjust their investment behaviour. Boonzaaier et al. (2019) explore the prevalence of South African firms reporting extra expenses and sales around the kink as a signal of bunching channels. Bachas and Soto (2021) find overreporting of costs rather than underreporting of revenue in Costa Rica.[1] Coles et al. (2022) estimate the corporate elasticity of TXI for U.S. firms and then decompose this elasticity into economic versus accounting responses. They find that 67% of firms' response is attributable to accounting-type responses. Bergolo et al. (2021) examine the channels of bunching in the personal income tax of Uruguay and document that the behavioural response at the kink point is driven by the itemized deduction response and underreporting of income by individuals. Earlier, Paetzold (2019) found that individual earners in Austria target the kink with deduction claims. In this study, a parallel channel is examined at the corporate level: that small businesses target a kink in the TXI distribution with capital depreciation allowance claims and higher deductible costs.

Second, by exploiting the bunching of small businesses at a CIT kink, this study investigates the effects of a discontinuous tax change on capital investment decisions, with a focus on heterogeneity across capital types. As Zwick and Mahon (2017) highlight, effective tax policy targeting capital investment necessitates understanding which firms respond to tax incentives and why. Their findings indicate that firms, particularly small firms facing greater financial frictions,

1. TXI is not the only possible threshold that affects a firm's behaviour as it reaches the limit. Almunia and Lopez-Rodriguez (2018) investigate a tax-enforcement revenue threshold in Spain that induces firms to strategically bunch at the threshold and avoid stricter tax monitoring. Garicano, Lelarge and Van Reenen (2016) analyze how size-contingent laws affect firms in France, where certain labour laws start to bind on firms with 50 or more employees. Best et al. (2015) consider a minimum tax scheme in Pakistan where corporations are taxed either on profits or revenue in Pakistan, depending on which tax liability is larger. This kink creates significant compliance incentives.

respond robustly to capital depreciation incentives. More recently, Chodorow-Reich et al. (2024) provide comprehensive evidence on the impact of the *Tax Cuts and Jobs Act* of 2017, which reduced the top corporate tax rate from 35% to 21% in the United States. They document that domestic firms which received larger tax cuts experienced greater investment growth, with average domestic investment increasing by 20%. In the Canadian context, Finance Canada (2014) reports that the TXI threshold for the preferential small business tax leads to bunching among small firms, but does not significantly affect their investment decisions. Conversely, Dachis and Lester (2015) argue that firms constrained by the TXI threshold restrict their capital investment. In contrast to these findings, this study shows that firms use capital investments to reduce TXI and bunch at the tax kink.

The rest of the paper is organized as follows. Section 2 outlines the empirical method for investment bunching estimation. Section 3 describes the small business taxation system in Canada and the firm-level data used. Section 4 presents the evidence on firms' cost and investment bunching.

2 Estimating investment bunching

This section outlines the empirical strategy used to assess firms' responses to a discontinuity in the corporate income tax (CIT) schedule, specifically at a "kink," following the approach of Brockmeyer (2014). Analogous to individuals facing discontinuities in personal income tax schedules (Saez, 2010), small businesses with taxable income (TXI) just above the CIT threshold have an incentive to reduce their reported TXI to qualify for preferential tax rates, resulting in observable bunching at the threshold (Lesica, Forthcoming).

However, unlike individual income, the costs of generating corporate income, such as investment and labor expenses, are typically tax deductible. Firms may thus utilize higher cost claims, including increased capital investment, as a way to decrease reported TXI and retain eligibility for preferential tax.

The primary hypothesis tested in this study is that if firms reduce TXI through increased capital investment or cost reporting, then bunching in TXI should be accompanied by corresponding spikes in investment or costs around the kink. To examine this hypothesis, this analysis evaluates investment and cost behavior both at the extensive and intensive margins, focusing on the area around CIT kinks in Canada between 2001 and 2019 to identify the mechanisms underlying observed bunching.

A growing literature has employed the bunching methodology to evaluate behavioural responses to tax policy and estimate structural parameters, such as the elasticity of TXI, because it avoids endogeneity problems.[2] Empirically, it involves calculating the number of bunchers B in a specified bunching window around the tax kink. B is defined as the difference between the observed (empirical) frequency f_j and the counterfactual estimated frequency $\hat{f}_j$ in the bunching window. To estimate $\hat{f}_j$, a flexible polynomial is fitted to the observed frequency distribution of firms in TXI bins j but excludes the interval around the kink $\left[z_L, z_U\right]$:

$$f_j = \sum_{i=0}^{q} \beta_i \left(z_j\right)^i + \sum_{i=z_L}^{z_U} \gamma_i \times 1\left[z_j = i\right] + \nu_j, \tag{1}$$

2. Recent research has indicated certain identification issues with the bunching method; see Blomquist et al. (2021) and Bertanha, McCallum, and Seegert (2023). Lesica (Forthcoming) applied these methods to estimate corporate TXI elasticity for Canada.

where f_j is the firm count and z_j is the TXI in bin j; γ_i is the bin fixed effect in the bunching window $\left[z_L, z_U\right]$ and q is the order of the polynomial. To compensate for the fact that bunchers reduce their TXI down to the kink, i.e., come from the right of the distribution, the estimated counterfactual distribution from equation (1) is corrected upwards to the right of the kink. All standard errors are bootstrapped, TXI is grouped in $1,000 bins, and, for consistency, the bunching window $\left[z_L, z_U\right]$ is adopted from Lesica (Forthcoming).

The predicted values $\hat{f}_j$ from regression equation (1) are used to calculate the number of bunchers within the bunching window as the difference between observed and empirical bin counts:

$$B = \sum_{j=z_L}^{z_U} \left(f_j - \hat{f}_j\right). \tag{2}$$

A comprehensive review of the bunching methodology and its applications can be found in Kleven (2016). The empirical estimation of investment bunching at both the extensive and intensive margins in this study is based on the approach developed by Brockmeyer (2014), which is summarized below.[3]

2.1 Extensive investment bunching

The extensive investment margin captures firms that respond to the CIT kink by undertaking new capital investments they otherwise would not have made. Specifically, some firms with taxable income above the kink find it optimal to purchase new capital assets in order to reduce their TXI and remain at the threshold. These firms are therefore interpreted as adjusting their capital investment behavior with the aim of lowering TXI to bunch at the kink.

Extensive investment bunching is estimated as the number (share) of firms (s_j) within each TXI bin (z_j) that report positive capital investment costs ($c_j > 0$), measured either by direct acquisition costs or claimed depreciation allowances as indicators of new depreciable capital acquisition.

The estimation of the counterfactual share of investors follows the standard procedure when estimating the counterfactual frequency for bunching analysis by fitting a flexible q-order polynomial to the firm count (s_j),

$$s_j = \sum_{i=0}^{q} \beta_i^E \left(z_j\right)^i + \sum_{i=z_L}^{z_U} \gamma_i^E \times 1\left[z_j = i\right] + \nu_j^E, \tag{3}$$

where z_j is TXI in bin j, and γ_i is the bin fixed effect in the excluded bunching window region bounded by the lower bin $\left[z_L\right]$ and upper bin $\left[z_U\right]$.[4]

The number of extensive investment bunchers is calculated as the difference between the actual and predicted number of firms in the bunching window,

3. Figure 1 and the related discussion by Brockmeyer (2014) illustrate the theoretical underpinning of investment bunching estimation. Readers are encouraged to consult the paper for more methodological details.
4. Equation (3) also allows for the control of round-number effects in the empirical distribution of the investment variable.

$$N^E = \sum_{i=z_L}^{z_U} \left(s_i - \hat{s}_i\right) f_i, \tag{4}$$

where $\hat{s}_i$ is the counterfactual share of investment bunchers estimated from equation (3), while f_i is the frequency count of firms in the TXI bin i. The value of N^E allows for the estimation of the contribution of extensive investment bunchers to the total bunching B from equation (2) as

$$Cont^E = \frac{N^E}{B}. \tag{5}$$

2.2 Intensive investment bunching

Firms aiming to move down to the kink can do so by increasing their capital investment spending. Intensive investment bunching detects whether a firm's capital investment cost (C_j) exceeds the predicted cost in the TXI bin (z_j). If so, there should be significant bunching of C_j at the kink.

To detect capital investment bunching, both direct acquisition costs and claimed capital depreciation allowances are examined, as described in greater detail in Section 3.2. While both mean and median cost values are considered, the main results are presented for mean investment costs.

Similar to the extensive margin, a flexible q-order polynomial is fitted to the binned data to estimate the counterfactual cost $\hat{C}_j$, excluding the bins around the kink $\left[z_L, z_U\right]$,

$$C_j = \sum_{i=0}^{q} \beta_i^I \left(z_j\right)^i + \sum_{i=z_L}^{z_U} \gamma_i^I \times 1\left[z_j = i\right] + v_j^I. \tag{6}$$

The number of intensive investment bunchers is measured as the number of firms with actual investment costs greater than the predicted value $\hat{C}_j$ from $\mathrm{eq:intensive_share}$,

$$N^I = \sum_{i=z_L}^{z_U} \sum_{k \in j} \times 1\left[z_j = i\right] \times 1\left[c_{kj} \geq \hat{C}_j\right], \tag{7}$$

where c_{kj} is the observed cost of firm k in income bin j, compared with the counterfactual cost value $\hat{C}_j$ for that bin. With the number of intensive investment bunchers, the contribution to total bunching is simply

$$Cont^I = \frac{N^I}{B}. \tag{8}$$

When evaluating total costs and their breakdown by asset type, only the intensive investment margin (measured by mean or median dollar cost) is analyzed. The extensive margin is not informative in this context, as nearly all firms report a positive amount.

3 Institutional background and data

The graduated structure of the corporate tax system in Canada creates specific sources of variation for studying bunching in firms' investment and costs. This paper uses detailed firm-level administrative data to examine these behavioural responses to taxation.

3.1 Small business taxation in Canada

In Canada, incorporated small businesses are structured as Canadian-controlled private corporations (CCPCs), which are eligible for a reduced corporate income tax rate on active business income up to a specified threshold. CCPCs comprise a small share of total investment, less than 15%, and the largest CCPCs represent a substantial portion of this investment.

The tax reduction for eligible CCPCs is provided through the small business deduction (SBD) mechanism. For instance, in 2019, the final year covered by the data, a CCPC reporting taxable income (TXI) below the SBD threshold of $500,000 was subject to a small business tax rate of approximately 14%. TXI exceeding this limit was taxed at the general corporate rate, which was approximately 26% in 2019.[5] Eligibility for the SBD is further restricted by an asset test: the preferential tax rate is phased out linearly when a CCPC's taxable capital employed in Canada exceeds $10 million, and is fully eliminated at $15 million. In addition, SBD eligibility is determined based on the combined income and assets of all associated corporations, effectively treating related entities as a single firm. This provision prevents the creation of multiple corporations solely to claim the SBD multiple times. For a detailed discussion of small business taxation in Canada, see Lesica (Forthcoming).

Similar to the United Kingdom's setting, as outlined by Brockmeyer (2014), and South Africa's, as presented by Boonzaaier et al. (2019), the CIT system in Canada presents a particular context for studying the investment responsiveness of small businesses to tax policy changes. During the 2001-to-2019 period, the Canadian CIT structure changed in two major dimensions.

First, both the small business and general corporate tax rates in Canada have been reduced by the government since 2001. While the gap between these rates narrowed from approximately 22 percentage points in 2001 to 13 points in 2019[6], the difference still provides an incentive not to cross the SBD limit and maintain access to the preferential small business tax rate.[7] The discrete increase in the tax rate at the SBD threshold creates a distinct kink, which provides a basis for identifying firms' investment responses.

Second, the federal SBD TXI limit to which the lower CCPC tax rate applies has changed five times and more than doubled in nominal value, from $200,000 in 2001 to $500,000 in 2019, or about 70% in real terms. This expansion has extended eligibility for the lower tax rate to a broader range of small businesses, including larger CCPCs. Table 1 summarizes changes in tax rates and SBD limits, while Figure 1 illustrates these adjustments. The years 2001 to 2019 are grouped into four periods based on the prevailing SBD kink: 2001 to 2002 for the $200,000 kink, 2005 to 2006 for $300,000, 2007 to 2008 for $400,000 and lastly 2009 to 2019 for $500,000.[8]

5. The approximation reflects average tax rates across the 10 provinces
6. The narrowing of the gap is primarily attributable to a large drop in the federal portion of the general rate. The gap between the two tax rates has widened at the provincial level.
7. For a study that examines whether the SBD mechanism keeps capital assets from growing, see Dachis and Lester (2015).
8. The years 2003 and 2004 are not included because the limit increase was relatively small and did not stay for more than a year.

Table 1
Federal corporate tax kinks and rates

	(1) Tax kink	(2) Tax rate (t_{SB})	(3) Tax rate (t_{GC})	(4) Tax rate change
	dollars		percent	
2001	200,000	19.6	40.5	30.1
2002	200,000	19.3	38.0	26.3
2003	225,000	19.0	35.9	23.4
2004	250,000	18.7	34.4	21.4
2005	300,000	18.6	34.2	21.2
2006	300,000	18.3	33.9	21.1
2007	400,000	18.3	33.9	21.3
2008	400,000	15.7	31.4	20.6
2009	500,000	15.8	30.9	19.7
2010	500,000	15.5	29.4	17.9
2011	500,000	15.3	27.7	15.8
2012	500,000	15.2	26.1	13.7
2013	500,000	15.2	26.2	13.9
2014	500,000	15.2	26.2	13.9
2015	500,000	15.2	26.7	14.5
2016	500,000	14.7	26.7	15.1
2017	500,000	14.4	26.7	15.5
2018	500,000	14.1	26.8	16.0
2019	500,000	13.9	26.7	16.1

Notes: Column (1) indicates the federal small business deduction (SBD) limit at which the preferential small business tax rate (t_{SB}) increases to the general corporate rate (t_{GC}), i.e., the tax kink. Columns (2) and (3) show those respective tax rates, calculated as a weighted average of combined federal and provincial marginal corporate tax rates, across the 10 provinces, weighted by taxable income. Column (4), "Tax rate change," is the (log) change in the net-of-tax rates at the SBD kink point during the 2001-to-2016 period, calculated as $ln\left[\frac{1-t_{SB}}{1-t_{GC}}\right]$

Sources: Statistics Canada and author's calculations.

Another important source of variation for the investment bunching of Canadian small businesses is the differential treatment of capital assets by the allowed fiscal depreciation rates. These tax deductions, designed to encourage the acquisition of new capital and stimulate economic activity, vary by asset class. Consequently, some types of capital are more suitable than others for reducing TXI through depreciation claims, resulting in variation in the effectiveness of different assets for investment bunching.

In summary, CCPCs with TXI slightly above the tax kink have a strong incentive to lower their TXI to remain eligible for preferential tax treatment, resulting in bunching at the kink[9]. This reduction in TXI can be achieved through increased capital investment, higher capital depreciation claims, or by reporting greater operating, sales, or labor expenses. Accordingly, bunching at the TXI kink should be reflected in spikes in reported investment or costs.

9. In theory, the optimal position is to be at the kink point itself because that is where the indifference curve and the budget constraint are tangent. However, because of various frictions and adjustment costs, firms might find themselves somewhat below the kink.

3.2 Data

The data used to examine investment and cost bunching is the universe of T2 returns filed by Canadian firms for the years 2001 to 2019. The specific focus is on incorporated small businesses, CCPCs, that are active and report a TXI.[10]

The T2 includes several accompanying schedules for calculating a firm's net income for tax purposes. The most relevant for this study is Schedule 8 Capital Cost Allowance. When a firm acquires depreciable capital, it is allowed to deduct part of the capital cost from TXI it earned in that year. This deduction is known as the capital cost allowance (CCA), which is calculated and recorded on Schedule 8. The schedule reports firms' opening balance, new acquisitions, proceeds of dispositions and tax depreciation claim.[11] This is the primary data source for measuring the two main capital investment variables analyzed for bunching: the direct capital acquisition cost, defined as the total cost of depreciable capital acquired each year, and the associated annual depreciation claim, the CCA.

Different CCA rates are available across various capital asset classes, such as machinery, computers, vehicles and buildings. Around 36 different CCA classes are present in the data over the study period. Table 2 summarizes the top 10 CCA classes, together with their description, their depreciation rate in column (3), and the mean values of acquisition and CCA claim in columns (4) and (5), sorted by the share of the total value of claims made in column (7). The top 10 classes make up 95% of all CCA claims made in any given year and during the entire 2001-to-2019 period. Class 8 (machinery, appliances, tools, furniture, etc.) and Class 10 (vehicles) dominate, with close to 50% of the aggregate CCA claims.

10. A small business can also be a non-incorporated entity, in which case the owner files the income tax through the personal T1 return and does not file the T2 corporate return.
11. Schedule 8 does not report information on the date of capital acquisition in a given fiscal year or when it started to be used, as it is intended for yearly tax reporting. This timing information would enable exploration of the hypothesis that bunching firms acquire new assets when they know their TXI will be above the kink.

Table 2

Top capital cost allowance class depreciation rates, acquisitions and claims

(1) CCA class	(2) CCA description	(3) CCA rate	(4) Mean acquisition	(5) Mean CCA claim	(6) Claim share	(7) Value share
		percent	dollars		percent	
10	Vehicles	30	44,000	13,000	21.6	25.8
8	Machinery and equipment	20	23,000	8,000	26.8	19.9
1	Non-residential buildings	4	258,000	26,000	7.5	15.5
13	Leasehold improvements	23	63,000	17,000	5.6	8.0
43	Machinery and equipment	30	118,000	42,000	1.1	4.3
12	Small tools, instruments	99	24,000	13,000	2.7	3.1
50	Electronic equipment	55	8,000	3,000	9.3	3.0
16	Vehicles	40	125,000	34,000	0.9	2.8
38	Machinery and equipment	30	143,000	42,000	0.6	2.5
6	Buildings	10	59,000	9,000	2.8	2.3

Notes: CCA = capital cost allowance. The top 10 CCA classes are shown with their depreciation rates for the years from 2001 to 2019. The claim share in column (6) indicates the percentage of the number of claims submitted for that CCA class. Classes are sorted by the share of CCA dollar value claims made by firms in Canada during the 2001-to-2019 period, in the last column. The percentage shares in the last two columns are rounded up. Before March 2004, Class 10 was used for both vehicles and computers. Dollar values are in real 2019 dollars, deflated using investment prices by type of asset and province (Table 36-10-0098-01).

Sources: Statistics Canada and author's calculations.

For the purposes of this study, CCA classes are combined into four broad capital asset categories: vehicles, M&E, buildings and intangibles. Following Brockmeyer (2014), capital investment is measured by CCAs, as well as acquisition cost, for these four asset groups.

Table 3 presents the summary values of acquisitions, CCA claims and claim shares across the four capital asset categories and four kinks from 2001 to 2019. Each asset's fiscal depreciation rate in column (3) is calculated as the weighted average of the corresponding CCA rates, where the weights are firms' end-of-year capital stock of each CCA class.

Vehicles provide the highest depreciation allowance rate across all four kink periods, followed closely by M&E, which accounts for the largest share of both depreciation claims and total value. Both classes have a relatively stable fiscal depreciation rate over time. In contrast, building class allows firms to deduct the lowest depreciation expense, approximately 6%. While intangibles allow for higher deductions, there is a notable decline in their depreciation allowance in the last kink period. This variation in depreciation rates suggests that firms seeking to bunch at the kink by increasing investment are more likely to acquire assets with accelerated depreciation schedules and higher allowance rates, such as vehicles and M&E.

A particular benefit of using Schedule 8 CCA classes for examining the investment response around the kink is that they capture investment decisions affected by tax incentives, i.e., capital investments that lower TXI through depreciation allowances. Because of these direct tax benefits, and assuming that firms complete their Schedule 8 accurately the claimed CCA values are a more accurate reflection of capital investment costs than income statements or anonymous surveys.

However, CCA claims also reflect past capital purchases, as deductions can be carried forward and reported in years following the initial acquisition. For example, a positive CCA claim in 2015 may correspond to a capital asset acquired in 2012, since CCA is claimed on a declining balance basis. Consequently, a firm can report positive CCA even in years without new capital acquisitions, artificially inflating the amount invested. To address this, in addition to CCA claims, this analysis also employs data on direct capital acquisitions to measure investment across the

four asset groups. The acquisition cost for any property purchased or made available for use during the fiscal year is likewise reported on T2 Schedule 8.

Total recurrent cost is measured as the sum of total operating expenses and total cost of sales, as reported on T2 Schedule 125 Income Statement Information. The income statement records income generated and expenses incurred by the corporation during the tax year. [12] Both operating expenses and cost of sales can be further disaggregated into salaries and wages, and direct wages, respectively. Salaries and wages primarily capture management-related labour costs, such as administrative salaries, casual labour, cost of living allowances, severance pay, supervision, and vacation pay. Direct wages reflect production-oriented compensation, such as commissions, labour, and production wages. [13]

Lastly, in addition to direct labour expenses, firms can also change their payroll and employment margins, affecting the recurrent cost and contributing to overall bunching. Payroll and employment levels are measured from the firms' deduction filings, the PD7, which is the payroll remittance form for the Canada Revenue Agency (CRA). Firms are required to report employment insurance premiums, Canada Pension Plan contributions and federal income tax deductions to the CRA for their employees. This information is generally reported monthly and provides a more accurate picture of the firms' employee turnover and payroll for a given year.

12. Alternative measures were calculated as the difference between total revenue and net income, and the value is always very close to the initial total recurrent cost calculation.
13. Technically, there should be no overlap between the two measures, but in a small business operated by an owner–manager, the management and production functions can sometimes overlap.

Table 3

Capital asset depreciation rates, acquisitions and claims

(1) Capital asset	(2) Kink period	(3) Mean rate	(4) Mean acquisition	(5) Mean CCA claim	(6) Claim share	(7) Value share
		percent	dollars		percent	
M&E	2001 to 2002	26	74,300	29,700	41.3	46.5
Vehicles	2001 to 2002	31	34,400	13,300	33.1	29.6
Buildings	2001 to 2002	7	137,800	16,500	24.7	23.1
Intangibles	2001 to 2002	21	103,200	18,100	0.8	0.8
M&E	2005 to 2006	27	44,900	16,200	47.6	39.9
Vehicles	2005 to 2006	31	37,200	11,000	29.8	30.8
Buildings	2005 to 2006	7	180,000	17,100	21.9	28.5
Intangibles	2005 to 2006	24	83,300	16,300	0.7	0.9
M&E	2007 to 2008	28	37,700	14,500	52.6	40.6
Vehicles	2007 to 2008	31	36,400	10,200	26.7	28.5
Buildings	2007 to 2008	6	200,800	18,500	20.1	30.0
Intangibles	2007 to 2008	20	102,000	19,400	0.7	1.0
M&E	2009 to 2019	28	37,700	14,500	52.6	40.6
Vehicles	2009 to 2019	31	36,400	10,200	26.7	28.5
Buildings	2009 to 2019	6	200,800	18,500	20.1	30.0
Intangibles	2009 to 2019	10	64,900	5,400	5.9	1.8

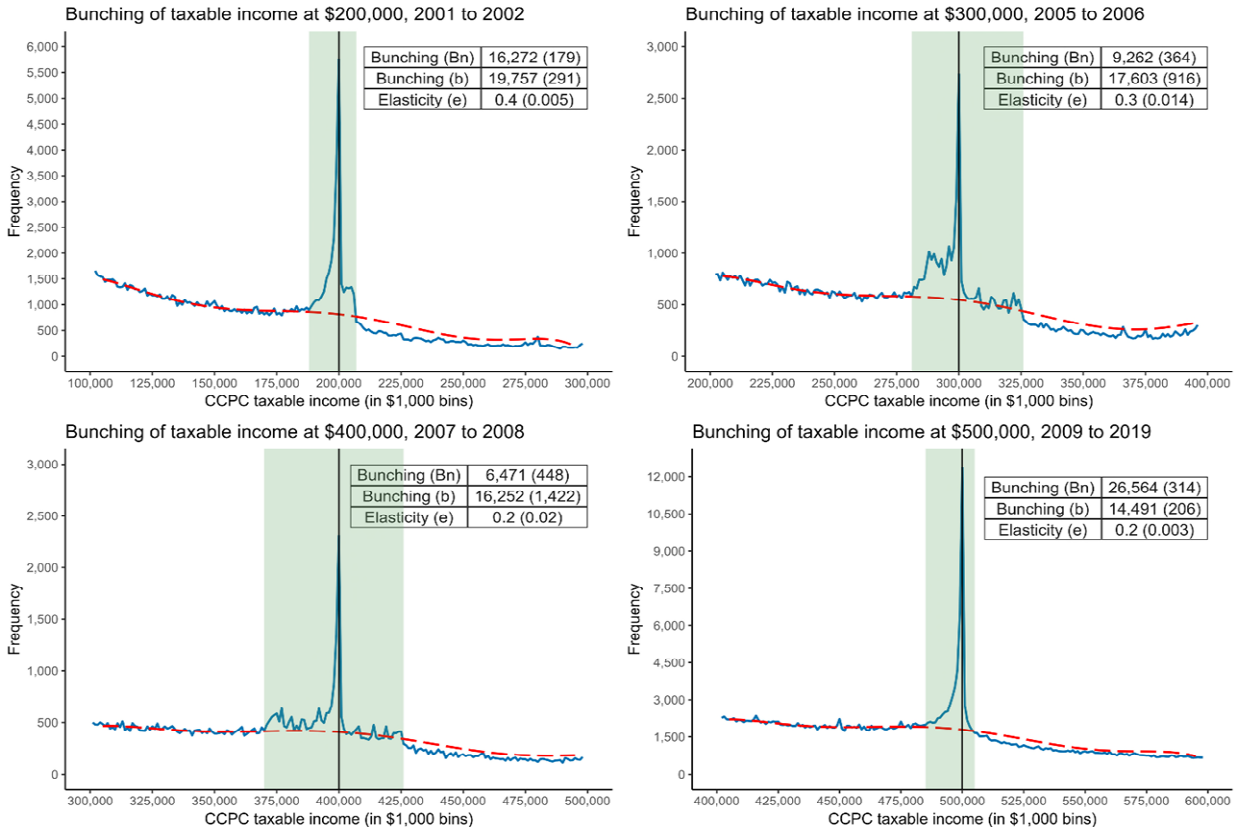
Notes: M&E = machinery and equipment; CCA = capital cost allowance. The four capital asset categories are aggregated from individual CCA classes as vehicles and computers (10, 10.1, 16), M&E (7, 8, 9, 12, 26, 29, 41-49, 50-53), buildings (1, 3, 5, 6, 13, 17, 51), and intangibles (14, 14.1, 44). The average depreciation (CCA) rate in column (3) is calculated as the weighted mean of CCA depreciation rates, where the weight is the undepreciated capital cost for each CCA class in the kink period. Dollar values are in real 2019 dollars, deflated using investment prices by type of asset and province (Table 36-10-0098-01).

Sources: Statistics Canada and author's calculations.

4 Empirical results

Lesica (Forthcoming) demonstrates that small businesses in Canada exhibit significant behavioral responses to discontinuities in the CIT schedule. As shown in Figure 1, there is substantial and statistically significant bunching of corporate TXI from 2001 to 2019, with the data grouped into four distinct kink periods (2001 to 2002; 2005 to 2006; 2007 to 2008; and, the longest stable period, 2009 to 2019), each corresponding to four different kinks, at $200,000, $300,000, $400,000 and $500,000, respectively. To investigate the underlying mechanisms behind this bunching, this section analyzes firms' investment behavior and recurrent cost patterns around each of these kinks, focusing on both the extensive and intensive margins. If small businesses actively use recurrent costs and capital investments to reduce TXI to the kink, it is expected that the share of investors, declared cost of capital, operating expenses, costs of sales and labour costs around the kink would be higher.

Figure 1
Taxable income bunching of small businesses in Canada



Notes: Small businesses in Canada respond strongly to tax incentives and show significant bunching at the corporate income tax kink point, a taxable income threshold at which the marginal tax rate changes discontinuously. Shown are the empirical and estimated counterfactual distributions of firms around four different corporate taxable income kinks, grouped in $1,000 bins. The shaded region marks the bunching window, and the kink is marked by a vertical black line. The counterfactual distribution is estimated by fitting a seventh-degree polynomial to the empirical distribution. Bn represents the excess mass, while b is the normalized level of bunching. Standard errors in parentheses are calculated with a bootstrap procedure.
Sources: Statistics Canada and author's calculations.

The empirical results are presented in three parts. First, evidence of bunching via recurrent costs around the kink is reported, focusing on the intensive margin for total costs and their subcategories. The extensive margin is uninformative as virtually all active firms report positive total costs. Second, bunching in capital investment is analyzed along both the intensive and extensive margins, disaggregated by asset type: vehicles, M&E, buildings and intangibles. The role of capital investment in bunching is assessed using both direct acquisition costs and depreciation allowances. Finally, the relative contributions of cost and investment to overall bunching, as quantified in equations (5) and (8), are discussed.

4.1 Bunching through recurrent costs

One way CCPCs can bunch at the kink to retain preferential tax treatment is by increasing reported recurrent costs, defined as the difference between revenue and net income for each CCPC. To facilitate a more detailed analysis, these total costs are further disaggregated into operating expenses, cost of sales, and wages and salaries. At the firm level, recurrent costs are substantially larger than capital investment costs in dollar terms. Crucially, each additional dollar of recurrent cost directly reduces TXI on a one-to-one basis.

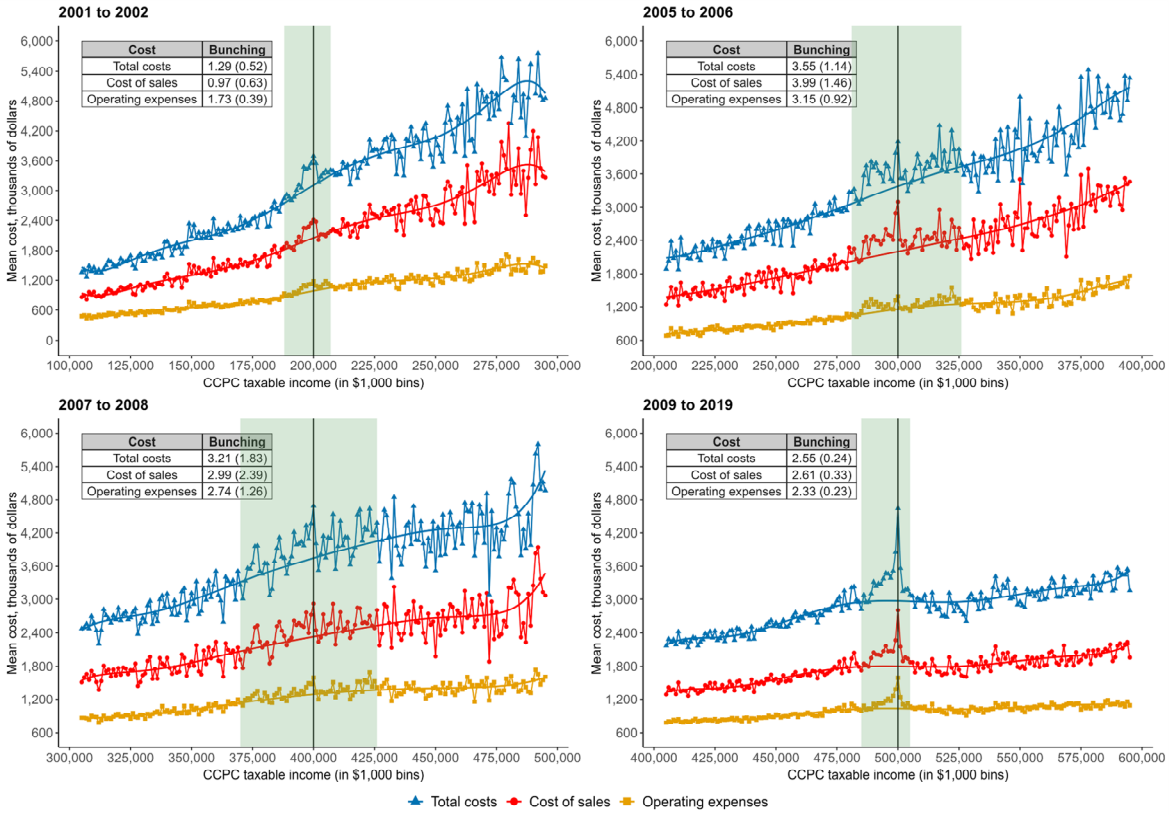
Figure 2 shows the distribution of the mean recurrent cost by TXI, in $1,000 bins, and its estimated counterfactual distribution for four different kinks. Total cost is then broken down into its two largest components—costs of sales (60% to 68% of total costs) and operating expenses (32% to 40%)—displayed by the lines directly below the total cost distribution. Each plot marks the

corresponding kink with a vertical black line, the bunching window with a shaded area and the estimated excess mass b with the standard error for each of the cost variables. Note that the shaded bunching windows are the same as in Figure 1.

Relatively small but statistically significant bunching is observed around the initial $200,000 SBD kink. The excess mass increases substantially, exceeding three times the estimated cost within the bunching window, during the 2005 to 2008 period, when the kink was raised first to $300,000 and then to $400,000. In 2009, following an additional increase in the kink to $500,000, the degree of bunching declined but remained approximately 250% above the estimated cost.[14] Although statistically significant across all four periods, the spikes in total recurrent costs attributable to bunching are comparable to, or slightly smaller than, similarly sized spikes observed at random TXI levels during the first three periods.

Visual evidence suggests that bunching in costs occurs at multiple TXI levels. Only in the final period (2009 to 2019) is the bunching notably large and statistically significant. Furthermore, cost bunching appears to be asymmetric, with higher average cost levels concentrated in the bins just below the kink. This pattern is indicative of strategic tax planning behavior, consistent with findings of Lesica (Forthcoming) and Best et al. (2015).

Figure 2
Bunching in recurrent costs of small businesses in Canada



Notes: CCPC = Canadian-controlled private corporation. The figure shows the mean recurrent total cost by taxable income bin, in $1,000 bins. The counterfactual cost is estimated by fitting a seventh-degree polynomial to the empirical cost distribution based on equation (6). The shaded region indicates the excluded bunching window, and the kink is marked by a vertical black line. Standard errors for the estimated bunching (b) are calculated with a bootstrap procedure.
Sources: Statistics Canada and author's calculations.

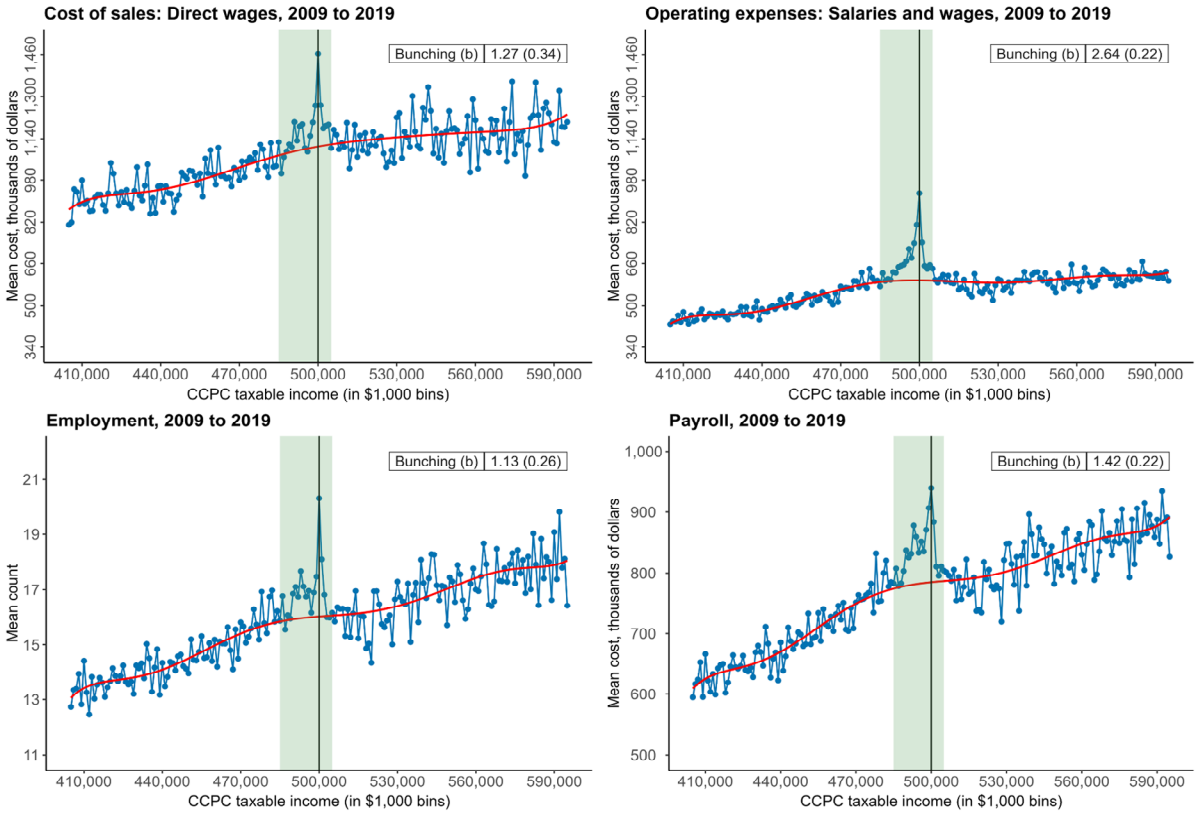
14. The bunching window in the shaded area, which also influences the estimated degree of bunching, is narrower in the last period, 2009 to 2019.

4.1.1 Labour cost and size

Given that the 2009–to-2019 period exhibits the most pronounced and statistically robust evidence of bunching in total recurrent costs, the top two panels of Figure 3 provide a breakdown of this across two major cost components, cost of sales and operating expenses, by labour category. Labour expenses are deductible under the CIT and represent a substantial share of firms' total costs, motivating the hypothesis that wages and salaries may play a central role in firms' strategic cost adjustment near the kink.

As noted in Section 3.2, direct wages, more closely associated with production activities, account for an average of 11% of cost of sales and 7% of total costs over the 2009–to–2019 period. The top-left panel of Figure 3 shows significant bunching in average direct wages at the kink, with observed values 127% above the estimated counterfactual within the bunching window. Salaries and wages, which correspond to management-related labour costs, comprise approximately 40% of operating expenses and 15% of total costs, on average. The top-right panel of Figure 3 indicates even more pronounced bunching in this category, with observed salaries and wages reaching 260% of the predicted level in the bunching region during the 2009–to–2019 period.

Figure 3
Bunching in labour cost and employment, 2009 to 2019



Notes: CCPC = Canadian-controlled private corporation. The figure shows plots of the mean cost and mean count of firms' labour cost and employment across taxable income, in $1,000 bins, and the estimated counterfactual values, for the years 2009 to 2019. The top two panels come from the T2 income tax returns, while the bottom two measures of firms' employment and payroll come from payroll deduction remittance records, the PD7. Bunching estimation is as described in Figure 1 for consistency.
Sources: Statistics Canada and author's calculations.

Lastly, in addition to examining the distribution of firms' labour costs around the kink, the bottom two panels of Figure 3 show employment and payroll distributions based on firms' PD7 filings. The bottom-left panel reveals a large and statistically significant spike in the average number of employees at the $500,000 kink, indicating that small businesses at the threshold employ more workers than predicted. However, this result does not distinguish whether firms maintain a higher-

than-expected employment level or hire additional workers to increase deductible wage expenses. If the goal is to reduce TXI through higher labour deductions, a CCPC need not hire more workers but could raise wages or salaries of existing staff. To explore this, the bottom-right panel reports the distribution of average payroll costs. Again, significant excess mass is observed in the bunching window, indicating that average payroll costs exceed predicted levels for bunching firms.

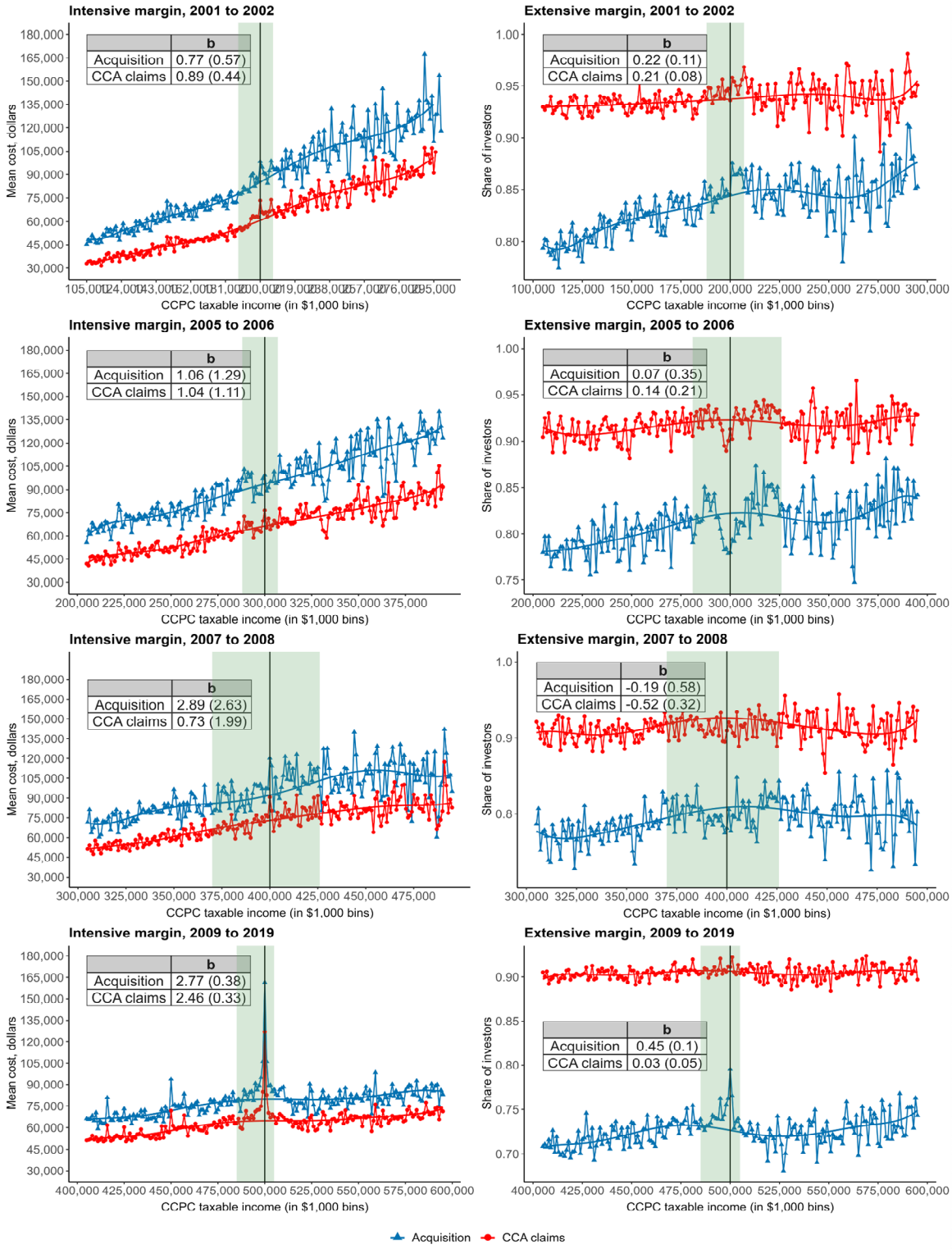
4.2 Bunching through capital investment

CCPC firms can also bunch at the kink by making capital investments that they would otherwise not have made, but that allow them to reduce TXI by deducting capital depreciation allowances.

Figure 4 presents the distributions of capital investment expenditure and the share of investor firms by TXI across the four kink points. The left panels show intensive margin estimates, measured by the mean value of total capital acquisition (top blue line) and corresponding CCA claims (bottom red line), based on equation (6). The right panels display the extensive margin estimates, the share of firms reporting positive capital acquisition (blue) and CCA claims (red), estimated from equation (3). While the intensive margin reflects the level of investment among participants, the extensive margin captures changes in participation. Both measures are derived from T2 Schedule 8 data, as detailed in Section 3.2. This structure of reporting intensive and extensive margins is maintained in subsequent figures.

Bunching in mean cost and investor share around the SBD kink suggests that more small businesses increase capital investment above the predicted levels near the kink, an indication that capital investment is used to reduce TXI in response to the kink. As shown in Figure 4, this bunching is both pronounced and statistically significant only during the 2009–to–2019 period, particularly along the intensive margin. This pattern mirrors the findings in Section 4.1 regarding total cost bunching. On the extensive margin, no significant bunching is observed in the CCA claim; however, it is evident in the capital acquisition cost (bottom blue line). As discussed below, the absence of strong bunching in the share of firms with positive CCA claims masks important variation across capital types.

Figure 4
Bunching in capital investment, 2001 to 2019

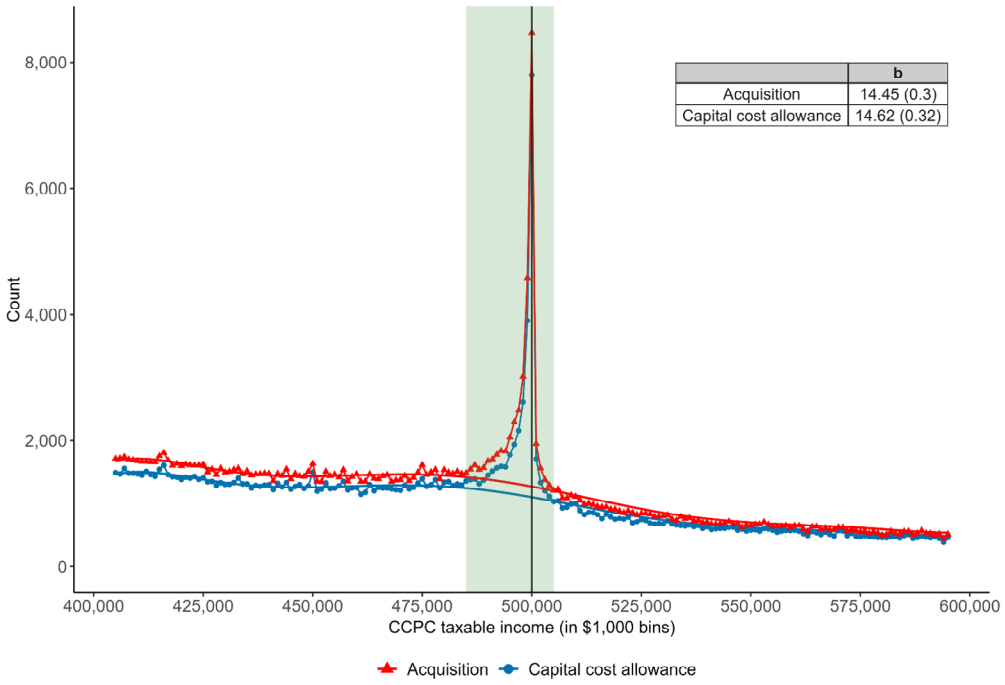


Notes: CCA = capital cost allowance; CCPC = Canadian-controlled private corporation. The figure shows CCPCs' investment bunching along the intensive margin (left column) and the extensive margin (right column) of capital investment. Both margins are estimated by the direct acquisition cost and the corresponding CCA claim, binned in $1,000 taxable income bins. Bunching estimation is as described in Figure 1. Bunching is significant only in the bottom row at the $500,000 kink for the last period, 2009 to 2019.
Sources: Statistics Canada and author's calculations.

Further to the last point, and as discussed in Section 3.2, more CCA claims are reported in a given year than new capital acquisitions, since many claims reflect depreciation on prior investments under the declining balance method, while not all firms acquire new capital annually. As most firms report positive CCA claims, the extensive margin may be less informative than changes in CCA claims around the kink. To assess this, Figure 5 plots the number of investing CCPCs with year-over-year increases in capital acquisition costs and CCA claims during the 2009–to–2019 period. The sharp and statistically significant bunching in the number of small businesses increasing their CCA claims suggests that firms near the kink actively adjust capital reporting to reduce TXI.

This finding contrasts somewhat with that of Brockmeyer (2014), who finds no investment bunching among larger small businesses at the £300,000 TXI kink in the UK, but significant bunching at the lower £10,000 kink. In the Canadian CIT system, there is only one TXI kink, which increased over this period from $200,000 to $500,000, providing a single point at which investment bunching may be observed.[15]

Figure 5
Bunching of Canadian-controlled private corporations with capital acquisitions and capital cost allowance growth, 2009 to 2019



Notes: CCPC = Canadian-controlled private corporation. This figure plots the number of small businesses with growth in year-over-year capital acquisitions and CCA claims across taxable income, in $1,000 bins. Bunching estimation is as described in Figure 1.
Sources: Statistics Canada and author's calculations.

4.2.1 Variation across different capital types

As with recurrent costs in Section 4.1, investment bunching is most pronounced during the 2009–to–2019 period. Accordingly, the remainder of this section focuses on that period, examining capital investment bunching around the $500,000 kink in greater detail. This interval corresponds to the longest stretch with a constant SBD threshold and relatively stable corporate tax policy. To further investigate bunching-induced investment behavior, variation is examined across four capital asset types: vehicles, M&E, buildings, and intangibles.

15. As of the writing of this paper, £300,000 corresponds to approximately CAN$500,000.

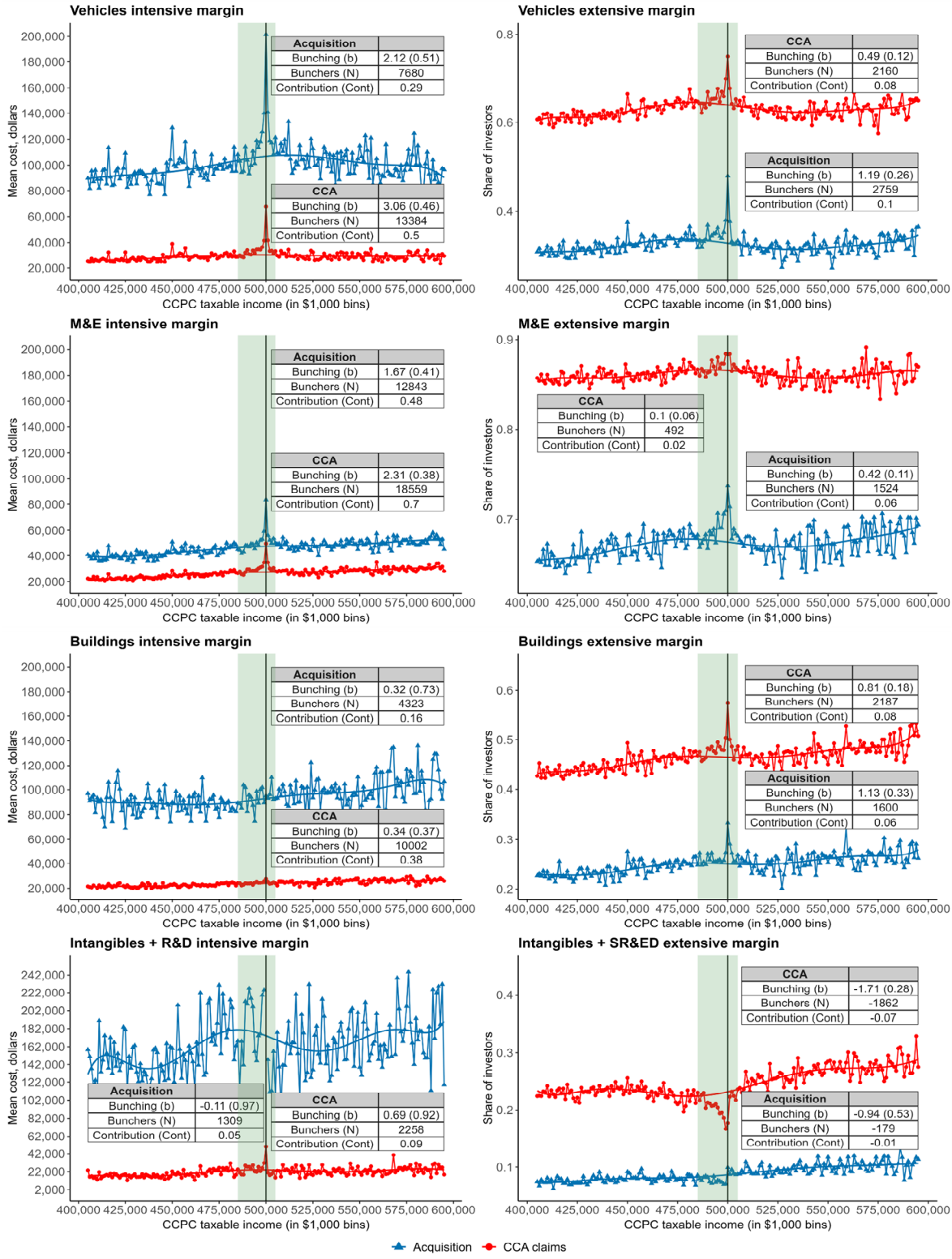
Given the fiscal depreciation rates reported in Table 3, these asset types differ in their effectiveness for reducing TXI. If firms invest strategically to reduce TXI, bunching in both the share of investors and investment cost is expected to be most pronounced for assets with faster depreciation, such as M&E and vehicles. Figure 6 illustrates this variation across capital types, disaggregated by intensive (left column) and extensive (right column) margins, using mean acquisition costs and CCA claims. The y-axis for the intensive margin is held constant across all panels to facilitate visual comparison of bunching magnitudes.

Vehicles show large and statistically significant bunching in both mean acquisition costs and CCA claims (left column), as well as in the share of investing firms (right column). M&E displays comparatively smaller but statistically significant bunching at the intensive margin. The extensive margin for M&E also shows statistically significant bunching for acquisitions, while the corresponding CCA measure is only weakly significant, with a modest spike relative to other random TXI levels.

Conversely, buildings exhibit higher average acquisition costs but relatively low mean CCA claims, reflecting the low 6% depreciation rate. Bunching is observed only at the extensive margin, and the share of investment bunchers near the kink is lower than for vehicles or M&E.

Intangible capital exhibits the weakest response. At the intensive margin, acquisition costs and CCA claims are the lowest across all asset types and show no bunching. Interestingly, at the extensive margin, a statistically significant decline in the share of firms reporting intangible acquisitions is observed, while no significant change is found in the share of CCA claims. This suggests that firms seeking to bunch by adjusting capital investment tend to avoid intangibles as a margin of adjustment.

Figure 6
Bunching by capital asset type, 2009 to 2019



Notes: CCA = capital cost allowance; SR&ED = scientific research and experimental development; CCPC = Canadian-controlled private corporation. This figure expands Figure 4 by capital asset type in the last period, 2009 to 2019. Each plot includes the number of bunchers and their contribution to total bunching. The left column shows the intensive margin, while the right shows the corresponding extensive margin of investor bunching. Both margins and bunching contribution estimates are based on capital acquisition cost and CCA claims, in $1,000 taxable income bins. Bunching estimation is as described in Figure 1.
Sources: Statistics Canada and author's calculations.

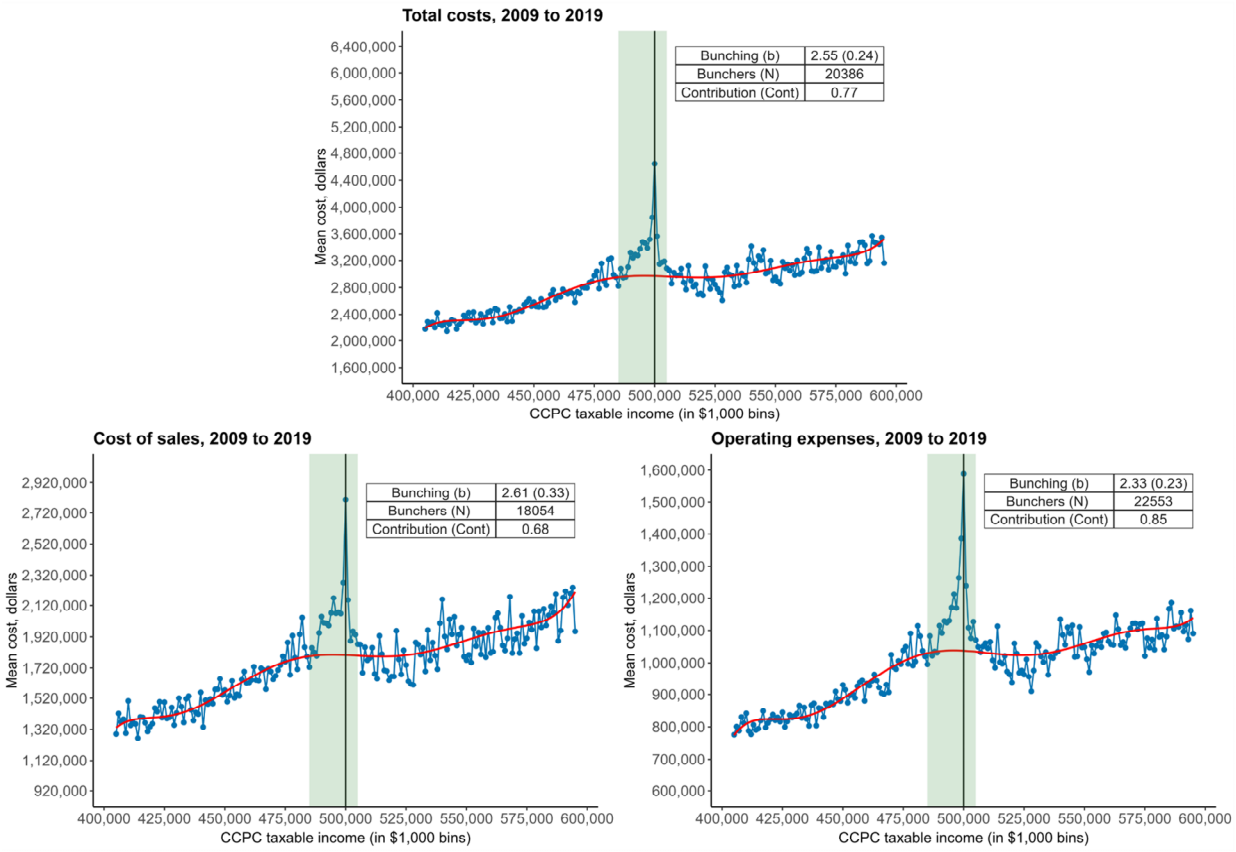
Having established that small businesses bunch in both recurrent costs and capital investments, the next two sections quantify their contributions to total bunching, focusing on the 2009–to–2019 period. During this time, Canadian small businesses consistently reported higher operating expenses, cost of sales, and labour costs, along with increased investment in select capital assets. The analysis will estimate the number of firms engaging in bunching across these categories and assess their aggregate contribution to the overall bunching observed.

4.3 Contribution of cost bunching

The contribution of recurrent cost bunching to total bunching is estimated as the share of cost bunchers among all bunchers along the intensive margin, defined as, $Cont^I = N^I / B$, as defined in Section 2. Recall that the number of intensive bunchers (N^I from equation [7]) captures firms whose actual costs exceed the predicted (counterfactual) values. In contrast, the number of extensive bunchers (N^E from equation [4]) reflects the difference between the observed and predicted number of firms within the bunching window reporting a positive cost, whether recurrent or investment-related. The contribution of recurrent costs is evaluated solely along the intensive margin, as nearly all firms report some positive recurrent cost, making the extensive margin uninformative.

Figure 7 illustrates the intensive cost bunching, the number of bunchers (N^I) and the estimated contribution to total bunching from intensive bunchers ($Cont^I$) during the period from 2009 to 2019. The results indicate that recurrent cost bunchers account for 77% of total bunchers. Notably, a larger share of these firms rely on operating expenses (85%) than on cost of sales (68%) to reduce TXI.

Figure 7
Recurrent cost intensive bunchers, 2009 to 2019



Notes: CCPC = Canadian-controlled private corporation. The figure plots bunching in total costs and their two largest components, costs of sales and operating expenses, for the years 2009 to 2019, as illustrated in the bottom-right panel of Figure 2. Each plot includes the number of bunchers (N) and their contribution to total bunching (Cont) along the intensive margin. Bunching estimation is as described in Figure 1.
Sources: Statistics Canada and author's calculations.

4.4 Contribution of capital investment bunching

As in the previous section, the contribution of investment bunching is measured as the share of investment bunchers in the total number of bunchers. This contribution is estimated along both the intensive and extensive margins. Figure 6 reports these contributions by capital asset type, with intensive margin results on the left and extensive margin results on the right. Both margins are calculated using mean CCA claims and mean direct acquisition costs. Since CCA claims reflect cumulative capital purchases under the declining balance method, they tend to exceed new acquisitions in any given year. As a result, estimates of intensive investment bunching based on CCA claims may be upward biased, reflecting an upper bound for the investment bunching contribution.

Importantly, firms observed within the bunching window include both firms that acquire new capital regardless of their proximity to the kink and those intentionally adjusting investment behavior to remain close to the kink, defined here as extensive investment bunchers. In other words, some firms may occasionally find themselves near the kink and engage in investment bunching strategies, while others are more purposeful, repeatedly pursuing bunching-induced investments.

To shed some light on these two groups, the contribution of investment bunching is estimated specifically for one-time bunchers, defined as firms that do not appear in the bunching window for two or more consecutive years.

Additionally, as noted by Brockmeyer (2014), if extensive investment bunchers have below-average investment costs, their presence could skew the costs downward for other investors within the bunching window. This implies that the estimate of the bunching contribution along the intensive margin may be considered a lower bound.[16]

Consider first the estimates of intensive investment bunching presented in Figure 6. For vehicles, intensive bunchers represent 29% of all bunchers based on mean acquisition costs and 50% based on CCA claims. For M&E, this share ranges from 48% to 70%, while for buildings, it ranges from 16% to 38%, depending on whether acquisition costs or CCA claims are used.

As expected, intangibles contribute the least to total bunching, with single-digit percentages across both measures. The estimated bunching parameter b^I is statistically significant for vehicles and M&E, but not for buildings or intangibles.

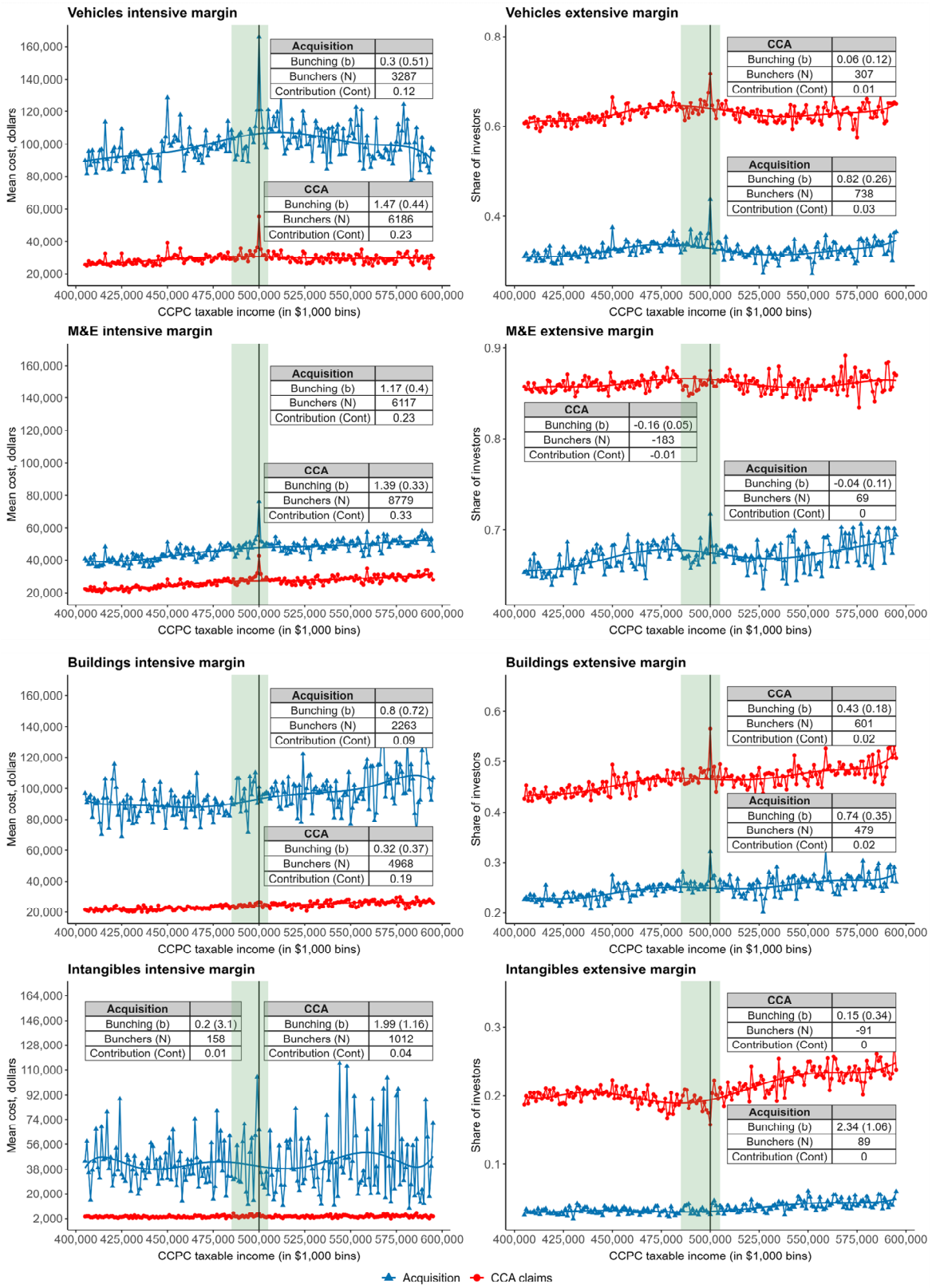
Across all asset types, the contribution of intensive bunchers is consistently higher when measured by CCA claims than by acquisition costs. This suggests that more firms report CCA claims above predicted levels within the bunching window than report acquisition expenditures above predicted values. Additionally, contribution estimates are generally larger for recurrent costs (Figure 7) than for capital investment across all asset types.

The share of extensive investment bunchers in total bunching shows similar variation across asset types but tends to be smaller, typically in single digits. Only vehicles exceed 10% when measured by acquisition costs. For M&E and buildings, the contribution of extensive investors ranges from 2% to 8%.

As indicated above, the negative contribution of intangibles implies that firms are less likely to use these assets for bunching. Moreover, the contribution measured by acquisition cost now exceeds that based on CCA claims, likely reflecting the lower depreciation rates applied to intangibles during the 2009–to–2019 period.[17]

16. Brockmeyer (2014) discusses this in terms of the median cost. The results here are not changed in a significant way by relying on the mean estimates.
17. The investment bunching contribution shares are not necessarily expected to add to a 100% share across the four capital assets, since the same firm can be found investing in more than one capital type in any given year.

Figure 8
Bunching by capital asset type for first time bunchers, 2009 to 2019



Notes: CCA = capital cost allowance; M&E = machinery and equipment; CCPC = Canadian-controlled private corporation. The figure replicates Figure 6, but on the sample of one-time bunchers only. Each subplot includes the number of bunchers and their contribution to total bunching by capital asset type in the last period, 2009 to 2019. The left column shows the intensive margin, while the right shows the corresponding extensive margin of investor bunching. Both margins and bunching contribution estimates are based on capital acquisition cost and CCA claims, in $1,000 taxable income bins. Bunching estimation is as described in Figure 1.
Sources: Statistics Canada and author's calculations.

To account for the possibility that not all firms in the bunching window are intending to bunch, Figure 8 replicates the analysis from Figure 6 using a restricted sample of one-time bunchers. This sample excludes firms appearing in the bunching window, defined as TXI between $485,000 and $505,000, for at least two consecutive years during the 2009–to–2019 period. These excluded firms represent 46% of observations in the bunching window and less than 10% of the overall sample during those years. Accordingly, approximately 54% of firms in the bunching window, and 11% of the full sample, are classified as one-time bunchers.

With nearly half of investment bunchers identified as repeat bunchers, excluding them from the bunching window substantially lowers the estimated contribution to total bunching. Intensive margin estimates remain highest for vehicles and M&E, with smaller effects for buildings and intangibles. On the extensive margin, estimates are largely economically insignificant, with investment bunching contributing less than 2% across all capital types and measures, except for vehicles, where the contribution is higher based on mean acquisition cost.

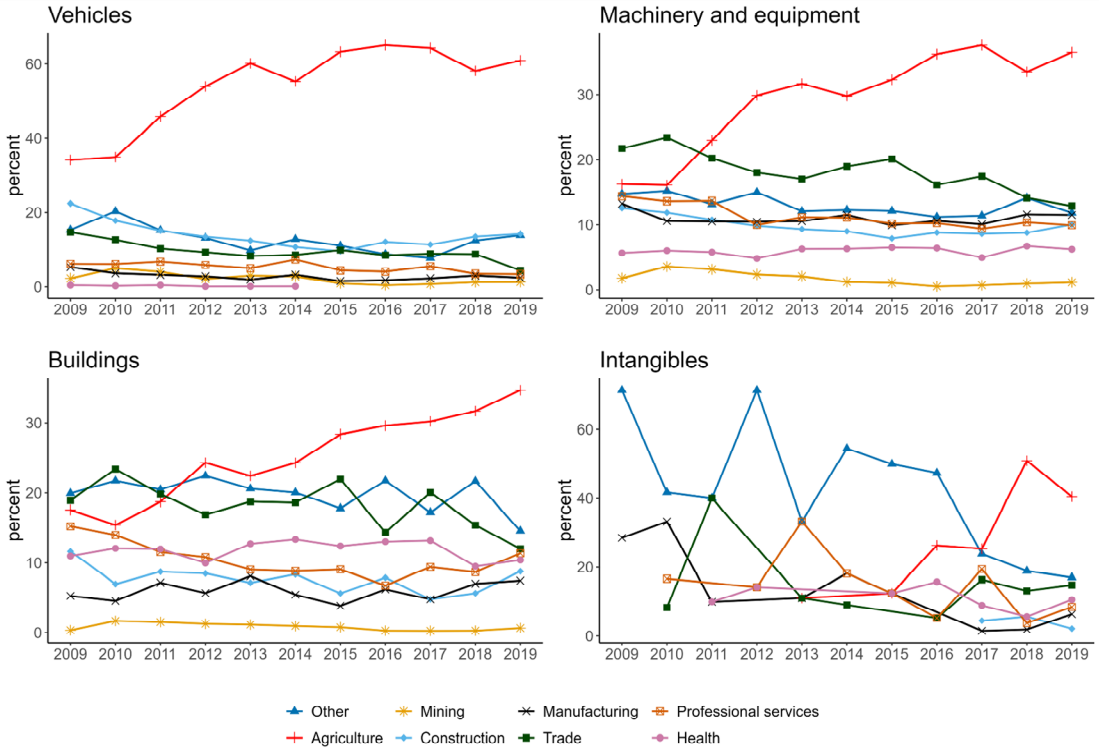
While recurrent costs and capital investment are key channels for small firms intending to bunch, the incremental capital invested by bunchers comprises only a small share of total investment. Figure 9 presents bunchers' share of total investment by CCPCs and by asset type from 2009 to 2019. In most years, bunchers account for less than 1% of total CCPC investment, with the exception of vehicle investment in 2012. Although the bunchers' share of specific asset investment is somewhat higher, it remains below 3% for all capital types.

Despite recurrent costs exceeding capital investments in both dollar terms and as a bunching channel for small businesses, a similar pattern holds: the share of cost bunchers in total recurrent costs peaked in 2010 and has declined since.[18]

Overall, these findings suggest that the (unintended) positive effects of tax incentives on small business investment and cost reporting might be only locally important for specific firms near the TXI kink. Further investigation would be required to establish whether investment bunching represents real investments in productive capital assets or purchases for personal use.

18. Detailed figures with these results are available upon request.

Figure 9
Industry composition of capital investment bunchers, 2009 to 2019



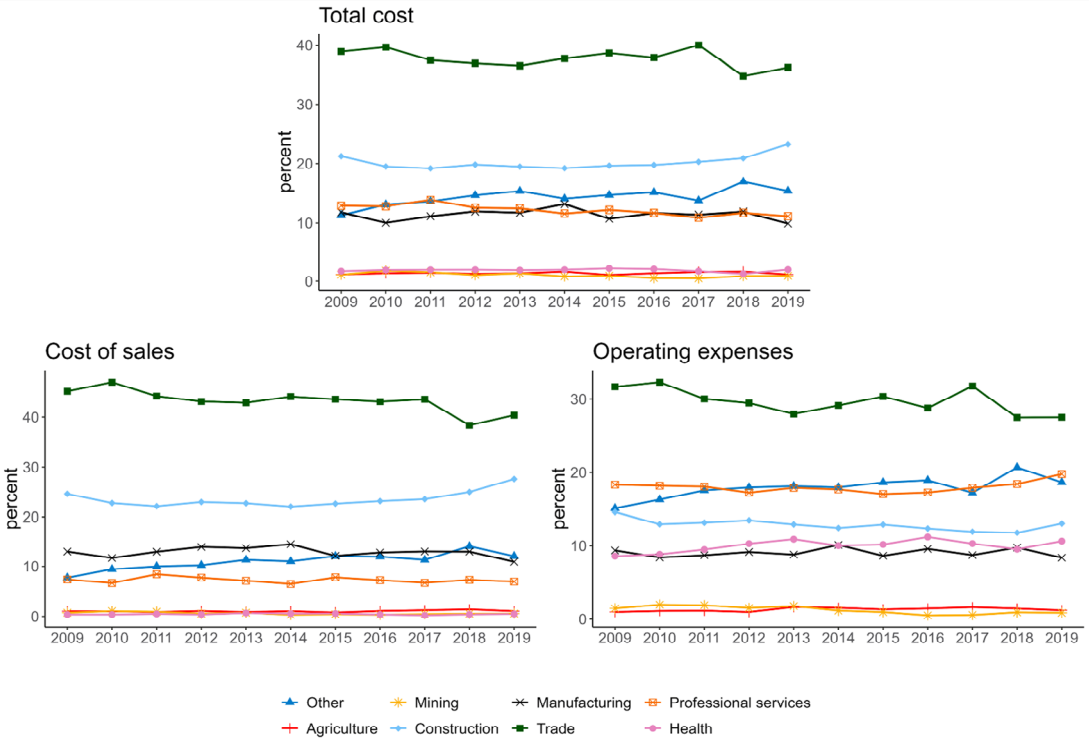
Notes: This figure shows the industry composition of small business intensive investment bunchers for four different capital assets—vehicles, machinery and equipment, intangibles, and buildings—clockwise from the top left. It indicates which industry small business investment bunchers come from by investment capital type. Industries are combined from North American Industry Classification System codes as follows: agriculture (11), construction (23), health (62), manufacturing (31, 32, 33), mining (31), other (61, 22, 48, 49, 51, 53, 71, 72, 81), professional (54, 55, 56) and trade (41, 44, 45).
Sources: Statistics Canada and author's calculations.

Lastly, to shed some light on the heterogeneity of bunching behaviour through capital investments and costs, Figure 9 examines the industry composition of intensive investment bunchers, focusing on four capital types from 2009 to 2019. Specifically, intensive investment bunchers are categorized into eight industries based on their North American Industry Classification System (NAICS) codes. This indicates the industries from which small business investment bunchers originate, categorized by investment capital type.

The agriculture sector dominates in three of the four capital categories. For vehicles, agriculture accounts for nearly 60% of investment bunchers, likely due to the centrality of vehicles in farming and fishing operations. For M&E and buildings, agriculture also holds a substantial share, approaching 40%. Manufacturing, mining, and construction are also represented, each with shares exceeding 10%.

Figure 10 illustrates the industry composition of cost bunchers, small businesses that report mean costs greater than the predicted value within the bunching window around the $500,000 TXI threshold. Notably, there are significant differences compared with the industry composition of investment bunchers. The trade and construction industries dominate the cost bunching among small businesses, representing the highest percentage, while agriculture and mining account for the lowest shares of cost bunchers.

Figure 10
Industry composition of cost bunchers, 2009 to 2019



Notes: This figure shows the industry composition of small business cost bunchers, total cost, cost of sales, and operating expenses, clockwise from the top left. It indicates from which industries small business recurrent cost bunchers come. Cost of sales and operating expenses in the bottom two panels are a break down of the total cost.
Sources: Statistics Canada and author's calculations.

5 Concluding remarks

Small businesses in Canada respond strongly to tax incentives, leading to a significant excess mass of CCPCs at the CIT kink point. This paper examines the channels through which CCPCs bunch their TXI and how the CIT kink affects capital investment and cost reporting. The central proposition is that firms bunch at the kink by increasing capital investment and reporting higher operating expenses, costs of sales, and labour costs. Capital investment enables firms to claim depreciation allowances (CCA), which are deductible from TXI.

While recurrent costs directly reduce TXI, the extent to which capital investment lowers TXI depends on applicable CCA rates and the timing of fiscal depreciation. In both cases, bunching should be associated with a spike in capital investment and recurrent cost reporting around the kink.

Using the empirical framework of Brockmeyer (2014) and administrative tax return data from Canadian corporations between 2001 and 2019, this study estimates the distribution of firms around the kink, focusing on excess capital investment and total costs relative to predicted counterfactual levels, across both the intensive and extensive margins. This allows to quantify the share of bunching firms that use capital investment and costs to reduce TXI.

Although TXI bunching is apparent at four distinct kinks over the 2001 to 2019 period, investment and recurrent cost bunching are most pronounced during the 2009 to 2019 years, corresponding to the longest stable kink at $500,000. Bunching at this threshold coincides with increased reporting of total costs and their components—operating expenses, costs of sales, and labour

costs—as well as higher shares of capital investors and investment values, measured by both mean capital acquisitions and CCA claims.

Overall, the level and persistence of investment bunching over time and across specific capital types support the hypothesis that CCPCs respond to the CIT kink by increasing both capital expenditures and total costs. Firms disproportionately invest in asset classes with high statutory depreciation rates, such as vehicles and M&E, while avoiding less tax-beneficial categories like intangibles.

While revealing, the analysis does not provide causal evidence on firm behavior, nor does it estimate a structural parameter such as the elasticity of investment with respect to the tax kink. Rather, it offers descriptive evidence of the mechanisms underlying bunching behavior. The findings do not clearly distinguish between new investment in productive capital and tax-motivated purchases for personal consumption, which may contribute to capital misallocation.

Firms may increase capital investments merely to replace old equipment while simultaneously claiming deductions to lower their tax liability. Although higher investments can facilitate expansion, leading firms to cross the small business income tax threshold and incur higher taxes, the increased depreciation deductions from these investments could also offset additional labour costs and higher corporate taxes associated with capital accumulation. A dynamic analysis would improve the assessment of small business investment strategies under preferential tax treatment.

Another potential margin of firm response is income shifting between corporate and personal tax bases. Owners may prefer withdrawing income through the corporation—taxed at a lower rate up to the kink—rather than increasing personal salaries. Linking corporate tax returns with owner-level data represents a key avenue for future research.

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