

The Double-Edged Sword: Unintended Consequences of SME Promotion Policy*

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December 26, 2023

Abstract

This paper investigates the unintended consequences of size-dependent regulations in SME promotion policies, focusing on Thailand's 2011 introduction of a revenue cap for corporate income tax exemptions. This unique regulation stipulates that firms must not have exceeded this revenue threshold historically. Utilizing administrative data from all registered Thai firms, we analyze how this policy affects bunching and growth decisions. Our findings indicate a strong response to the cap, with significant bunching of firms just below the threshold. Following the cap introduction, eligible firms under the threshold exhibit a marked decline in revenue growth compared to those above it. This adverse effect is more pronounced among firms with lower pre-policy profitability. Further, we document significantly negative impacts on investment and profitability, though the impact on survival is negligible. Our findings underscore the counterproductive nature of size-based SME regulations: aimed at nurturing small entities, they may inadvertently discourage growth by instilling a fear of losing SME status and the associated tax benefits. This study highlights the need for careful consideration in policy design to truly support and not inadvertently hinder SMEs.

Keywords: size-dependent policy, SMEs, bunching, tax incentives, corporate tax

JEL Classifications: G38, H25, K34, L25, L26, L53, M42

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1. Introduction

Governments around the world implement support programs specifically designed for small- and medium-size enterprises (SMEs). These initiatives typically come with qualification criteria, often reliant on the size of the businesses (Bergner et al., 2017). The criteria, in turn, may create an incentive for firms to maintain their size to remain eligible. Such size-dependent regulations could have far-reaching implications on firms' behaviors, such as their decisions related to growth and investment (Benedick et al., 2017; Tsuruta 2020). Furthermore, the impact may extend beyond SMEs, potentially affecting larger firms as well.

This study examines the effects of a size-dependent regulation on SMEs' growth decisions. We use administrative data containing annual financial statements from 2004 to 2017 encompassing the universe of registered firms in Thailand. Our identification strategy is based on Thailand's introduction of the 30-million-baht revenue cap as a criterion for its SME tax scheme in 2011.¹ This tax regulation uniquely requires that firms must not have exceeded this revenue threshold in the past. Given the unanticipated nature of this requirement and its reliance on historical data, it provides us with an exogenous basis to differentiate between treatment and control groups. Using the bunching method, we first demonstrate that this cap introduction created a salient tax notch for SMEs. We then employ a difference-in-differences approach to explore the impact of the revenue cap on growth, investment, profitability and survival.

We document three sets of empirical findings. First, using the bunching framework (Kleven and Waseem, 2013), we identify a strong response to the revenue cap, as indicated by a significant bunching just below the threshold that did not exist before the cap introduction. This bunching is mainly driven by firms with positive EBIT, while there is no bunching among firms with negative or zero EBIT, which have no incentive to bunch. We also note a smooth distribution of the revenue-variable cost ratio around the notch, suggesting that a significant part of the observed effect might be attributed to the real operation response.

Second, our difference-in-differences analyses illustrate that the size-dependent regulation negatively affects the decision to grow. Following the 2011 introduction of the revenue cap, we observe a significant decline in the revenue growth among firms eligible

¹ The threshold is around 0.9 million USD using the average exchange rate during 2004–2017 (1 USD = 34.3 THB). Note that the exchange rate for THB ranged between 26.8 and 41.6 baht per USD during that time.

firms below the threshold, relative to ineligible firms above the threshold. We also show that these adverse effects on revenue growth are more pronounced among firms with low potential, as proxied by pre-policy return on assets (ROA).

Third, our analysis further suggests broader implications of the revenue cap beyond curtailing revenue growth. Following the 2011 policy introduction, we find a significant decline in the growth rate of fixed assets for eligible firms, compared to ineligible firms. We also document a significant impact on profitability, while the impact on firm survival appears to be negligible.

This study is directly related to two strands of literature. The first one consists of the studies on how regulations that depend on firm size affect growth and productivity. Garicano, Lelarge, and van Reenen (2016), for instance, shows that France's size-dependent labor regulations have important effects on productivity distribution. Benedek et al. (2017) finds that size-related tax incentives that do not specifically target R&D investment have a significant negative relationship with firm productivity and growth.

A pivotal contribution in this field is Tsuruta (2020), which investigates how the increase of the capital-based SME threshold in Japan affects the decision of firms to increase their capital stock. It is crucial to recognize that Japan's approach contrasts with that of many EU and OECD countries, which typically employ thresholds based on turnover or income (OECD, 2015; Bergner, 2017). This difference in the basis for determining SME status—capital versus turnover/income—could lead to varying impacts on firm behavior and decision-making processes.

We extend this body of literature by offering clear identification strategies that indicate the impact of a revenue cap introduction on growth and investment. Our findings highlight the complex dynamics of turnover-based thresholds and their distortionary effects. We demonstrate that these thresholds, though seemingly straightforward, can have profound implications on both the revenue growth and investment behaviors of firms. This enhances our understanding of the consequences of size-dependent tax policies, offering vital insights for future policy formulation and implementation.

The second strand of related literature focuses on firm responses to thresholds or notches created by tax systems. Examples include bunching to avoid complying with value added tax regulations (Harju, Matikka and Rauhanen, 2016; Liu et al., 2019; Muthitachoen et al., 2021), to benefit from lower tax rates in the corporate income tax system (Bachas and Soto, 2018), and to stay below the enforcement radar (Almunia and

Lopez-Rodriguez, 2018). Our study adds to this field by demonstrating strong firm responses to the SME threshold introduction.

Overall, our findings highlight the critical need for carefully designed policies aimed at supporting SMEs. Recognizing the inherent challenges these entities face in competing with larger firms, government interventions may be necessary to establish a level playing field. However, SME promotion policies can carry unintended consequences. Our research reveals that size-dependent regulations, particularly those penalizing surpassing a threshold in the past, might inadvertently lead SMEs to curb their growth to maintain eligibility for tax privileges. This fear of losing their SME status could unintentionally inhibit their expansion and development.

The remainder of this paper is organized as follows. Section 2 provides an institutional background of the policy. We describe the data used in the analysis of this study in Section 3. Sections 4 and 5 discuss the empirical strategy and the results for each of the bunching and growth analyses. Section 6 concludes and discusses policy implications.

2. Policy Background

All registered Thai firms are subject to corporate income taxation, generally levied as a flat-rate tax on net profit. In 2008, the government initiated a preferential tax scheme targeted at small- and medium-size enterprises (SMEs). To be eligible, a firm's registered capital must not exceed 5 million baht. Designed to ease financial burdens and improve competitiveness, this scheme offers SMEs reduced tax rates applied progressively on their net profit (taxable income).

In 2011, the SME tax scheme underwent a significant revision in its qualification criteria. The government introduced an annual revenue cap of 30 million baht, coupled with the requirement that a firm's revenue must not have exceeded this limit in any previous year. This created an important tax notch within the corporate income tax system. It marks a departure from the earlier criteria based solely on registered capital levels, which were relatively easier to fulfill. Announced late in 2011 and set to take effect in 2012, the policy's timing was crucial. Given that the tax return for 2011 was not due until mid-2012, it's likely that firms began adjusting their behaviors in anticipation as early as 2011.

Table 1 shows corporate income tax rates for general firms in Thailand, compared with those applicable to SMEs.

It should be noted that although there were some adjustments to the tax rates after 2012, these changes were relatively minor. For instance, from 2013-2018, the tax rate for net profits ranging from 150,000 to 300,000 baht was reduced from 15% to 0%. However, these tax rate changes are minor compared to the more substantial impact of the revenue cap introduced in 2012.

Table 1 Corporate income tax rates: General and SMEs (%)

General tax rate		SMEs scheme						
		Registered capital requirement (5 mil. Baht)	Revenue requirement (30 mil. Baht)	Tax rate by size of Net Profit				
				0– 150,000	150,000– 300,000	300,000 –1M	1M– 3M	>3M
2004	30	-	-	30	30	30	30	30
2005	30	-	-	30	30	30	30	30
2006	30	-	-	30	30	30	30	30
2007	30	-	-	30	30	30	30	30
2008	30	Yes	No	0	15	15	25	30
2009	30	Yes	No	0	15	15	25	30
2010	30	Yes	No	0	15	15	25	30
2011	30	Yes	No	0	15	15	25	30
2012	23	Yes	Yes	0	15	15	23	23
2013	20	Yes	Yes	0	0	15	20	20
2014	20	Yes	Yes	0	0	15	20	20
2015	20	Yes	Yes	0	0	10	10	10
2016	20	Yes	Yes	0	0	10	10	10
2017	20	Yes	Yes	0	0	15	15	20
2018	20	Yes	Yes	0	0	15	15	20

Note: This table describes Thailand's corporate tax rate structure from 2004 to 2018. During 2008–2011, firms were considered SMEs and qualified for the reduced tax rates if they had registered capital not over 5 million baht. Since 2012, SMEs must have registered capital not over 5 million baht and have revenue not over 30 million baht. The introduction of the 30-million-baht revenue requirement was announced on 21 December 2011.

3. Data

This study analyses corporate profile and financial statements (CPFS) data of registered Thai firms from 2004 to 2017. Every registered firm in Thailand is legally required to

submit its annual financial statements to the Department of Business Development (DBD). The CPFS database has various financial information including assets, liabilities, revenues, and expenses. It also contains additional firm information such as registration year, registration type, operation status, and primary industry. We exclude holding companies from our analysis as they do not directly engage in production activities.²

Table 2 shows summary statistics for each analysis performed later in this study: the main bunching analysis (Panel A), and the difference-in-differences analyses for revenue growth, fixed assets growth, profitability and survival likelihood (Panels B-E).

Table 2 Descriptive statistics

Variables	N	Mean	Median	S.D.
<i>Panel A: Bunching analysis</i>				
Revenue	599,627	26,160,208	24,442,722	8,322,355
<i>Panel B: Difference-in-differences analysis for revenue growth</i>				
Revenue growth	161,689	0.034	0.012	1.042
Treat (0/1)	161,689	0.504	1.000	0.500
Post (0/1)	161,689	0.680	1.000	0.467
Age	161,689	14.100	12.000	9.144
<i>Panel C: Difference-in-differences analysis for fixed assets growth</i>				
Fixed assets growth	155,032	-0.041	-0.078	1.303
Treat (0/1)	155,032	0.501	1.000	0.500
Post (0/1)	155,032	0.687	1.000	0.464
Age	155,032	14.317	12.000	9.135
<i>Panel D: Difference-in-differences analysis for profitability</i>				
ROA	142,849	0.084	0.069	0.242
Treat (0/1)	142,849	0.503	1.000	0.500
Post (0/1)	142,849	0.663	1.000	0.473
Age	142,849	13.838	12.000	9.171
<i>Panel E: Difference-in-differences analysis for survival probability</i>				
Survival	166,836	0.886	1.000	0.318
Treat (0/1)	166,836	0.506	1.000	0.500
Post (0/1)	166,836	0.679	1.000	0.467
Age	166,836	14.009	12.000	9.199

Note: The table describes summary statistics of data used in this paper. Return on assets (ROA) is winsorized at the 1% level.

Source: Authors' estimate.

² For more details, see Banternghansa, Paweenawat, and Samphantharak (2019).

4. Bunching Analysis

4.1 Measuring Bunching

Following Kleven and Waseem (2013), we measure bunching at the SME tax notch by comparing the actual distribution to the counterfactual distribution in the absence of the tax notch. This can be written as

$$b = \frac{\sum_{j=y_L}^{y^*} (c_j - \hat{c}_j)}{\frac{\sum_{j=y_L}^{y^*} \hat{c}_j}{N_j}}, \quad (1)$$

where y^* is the SME threshold, y_L is the lower limit of the excluded region, c_j is actual number of firms in each revenue bin (width of 100,000 baht), \hat{c}_j is the counterfactual number in each revenue bin in the absence of the tax notch, and N_j is the number of bins within the interval $[y_L, y^*]$. The bunching parameter b reflects the size of excess bunching relative to the average height of the counterfactual distribution to the left of the notch.

The counterfactual distribution of reported revenue is estimated by fitting a 5th degree polynomial equation and excluding the areas around the notch where bunching occurs.³ The equation can be written as

$$c_j = \sum_{i=0}^p \beta_i (z_j)^i + \sum_{i=z_L}^{z_U} \gamma_i 1[z_j = i] + v_j, \quad (2)$$

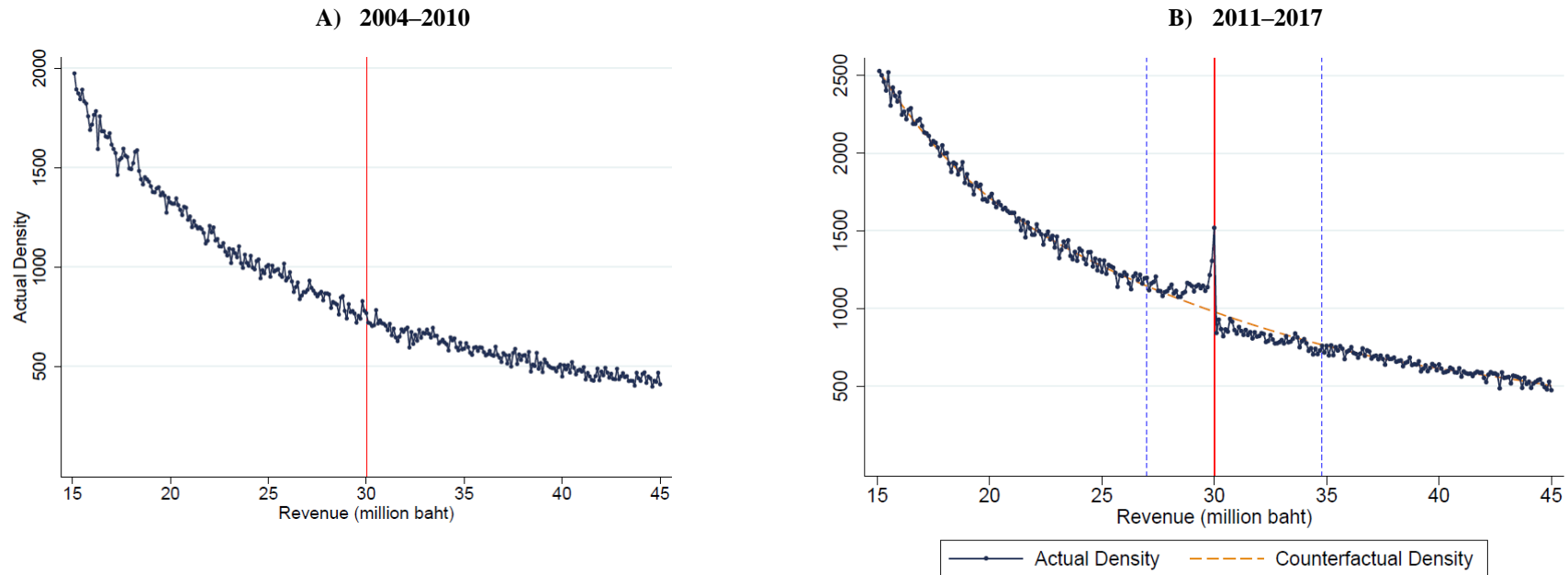
where c_j denotes number of firms in bin j , z_j denotes revenue level of bin j , p denotes polynomial order, $[z_L, z_U]$ denotes the excluded region, and v_j denotes the error term. The predicted value (\hat{c}_j) from this equation represents the counterfactual distribution that is used in equation (1). Note that the lower limit of the excluded region (y_L) is set where the bunching begins, and the upper limit is estimated in an iterative procedure to ensure that the excess mass below the notch equals the missing mass above.

4.2 Bunching at the Tax Notch

To determine whether firms responded to the SME tax notch, Figure 1 shows histograms of revenue around the SME threshold with a bin width of 100,000 baht. There is a sharp bunching just below the 30-million-baht threshold during the post-policy period (2012–2017), which did not exist before the introduction of the tax incentive in 2012. These findings suggest that firms responded strongly to the SME tax incentives.

³ We also estimate the polynomial equations of the 4th, 6th and 7th degree. The results are consistent and are available upon request.

Figure 1 Histogram of revenue around the SME threshold



Note: This figure shows the histograms of firms' revenue by pooling data of all firms from 2004 to 2010 (panel A) and from 2011 to 2017 (panel B). The bin width is 100,000 baht. The red vertical line denotes the SME threshold of 30 million baht. The blue vertical dashed line denotes the lower bound and the upper bound of the excluded region (27-34.8 million baht). The orange dashed line is the counterfactual density fitted by excluding bins around the SME notch.
Source: Authors' estimate.

Table 3 reports the bunching estimates. The overall bunching estimate is 2.84, i.e., the total excess bunching mass is approximately 2.84 times the average height of the counterfactual over the excluded range. While the bunching is large and statistically significant across all major sectors, it appears to be most pronounced in the retail trade sector. One explanation is that the self-enforcement mechanism in the value-added tax system becomes less effective at the retail stage, providing a chance to manipulate reported sales.⁴

Table 3 Bunching estimates by major sectors (2011-2017)

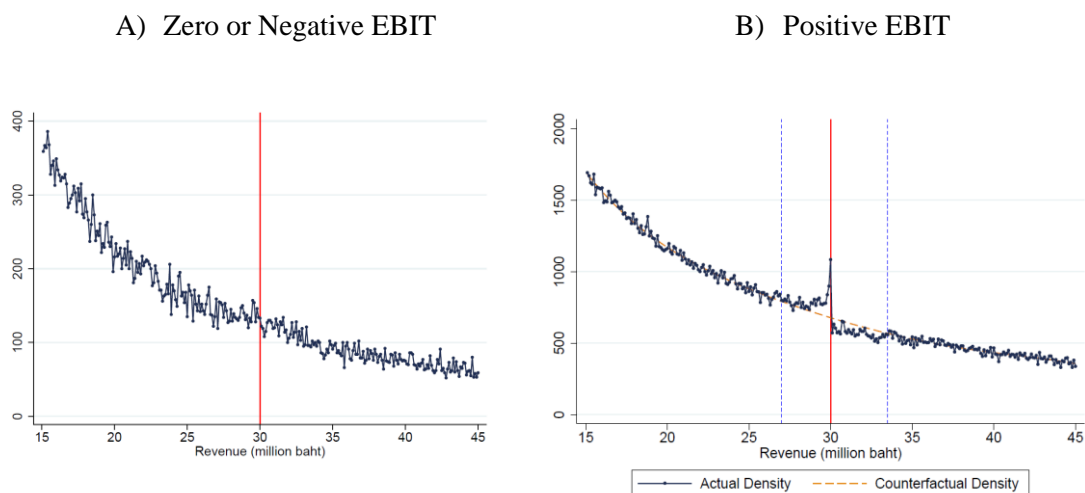
	N	Bunching estimate	SE
All sectors	340,837	2.622	0.015
Manufacturing	108,139	2.747	0.032
Services	89,802	2.102	0.021
Wholesale	87,765	2.363	0.029
Retail	54,988	3.669	0.076

Note: This table shows the bunching estimates around the SME threshold for 2011-2017. The estimation methodology is based on Kleven and Waseem (2013).

We also find that the bunching response is mainly driven by firms with positive EBIT, as shown in Figure 2. There is no bunching among firms with negative or zero EBIT, which have no incentive to bunch. This result suggests that the response is consistent with the monetary incentive for firms to respond to the new tax scheme.

⁴ See, for example, Pomeranz (2015) and Naritomi (2017).

Figure 2 Histogram of revenue around the SME threshold by profitability (2011–2017: All sectors)



Note: This figure shows the histogram of firms' revenue by pooling annual data from 2011 to 2017 by profitability. The bin width is 100,000 baht. The red vertical line denotes the SME threshold of 30 million baht. The blue vertical dashed line denotes the lower bound and the upper bound of the excluded region. The orange dashed line is the counterfactual density fitted by excluding bins around the SME notch.

Source: Authors' estimate.

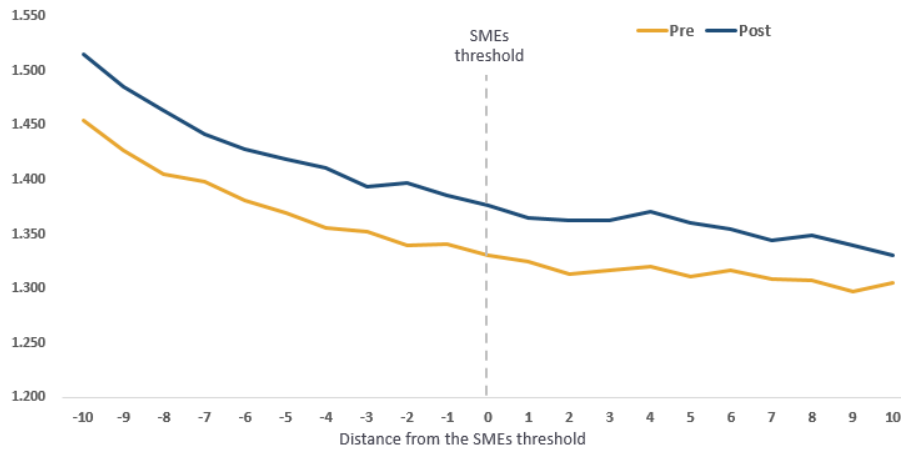
It is relevant to understand whether the bunching is due to the real operation response and the under-reporting response. We are not able to identify the contribution of each mechanism precisely. However, using information on the firm's input costs, we provide some suggestive evidence that a significant part of the observed bunching could be attributed to the real operation response.

Our investigation is based on the notion that, when revenue bunching is due to the real operation response, we expect firms to lower their variable inputs proportionally. Consequently, the distribution of the ratio between revenue and variable costs is likely to be smooth around the SME notch. On the other hand, if the bunching is not from changes in the real operation, the ratio may not be smooth because input costs are generally deductible for corporate income tax, making firms reluctant to reduce their reported costs. If most firms underreported revenue but did not adjust their reported costs accordingly, we would expect to see a drop in the average revenue-cost ratio just below the tax notch relative to that above the notch.

Figure 3 illustrates the average revenue-cost ratio of SMEs in bins of 2 million baht on both sides of the threshold. The revenue-cost ratio is defined as total revenue divided by costs of goods and services sold (COGS). Such costs include salary expense which is relatively difficult to misreport due to withholding taxes. The evidence of smooth distribution of the revenue-cost ratio around the notch suggests that a significant part of the effect could be attributed to the real operation response.

It is important to note that this finding is only suggestive evidence since some firms may reduce their reported cost in proportion to their under-reported revenue. Although the cost is tax-deductible, lowering the cost in proportion to the sale may help avoid potential scrutiny from the tax authority.

Figure 3 Revenue-cost ratio around the SMEs threshold



Note: This figure shows the average revenue-input ratio of SMEs in bins of 2 million baht on both sides of the threshold. The revenue-input ratio is defined as total revenue divided by costs of all goods and services.
Source: Authors' estimate.

5. Implications on Growth

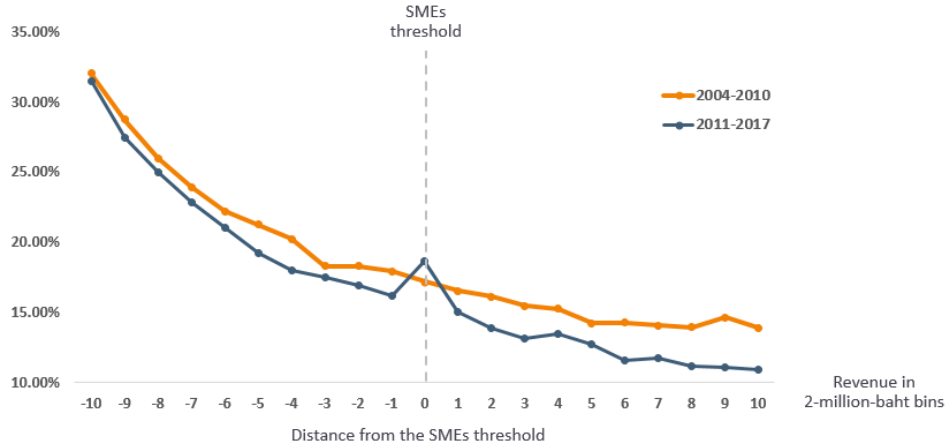
Having established the salience of the SME tax incentive and its potential real response, we further analyze how the size-dependent policy has affected firm growth. This section first illustrates the persistence of firm behavior around the threshold. It then uses a more-robust framework to demonstrate the effects of the SME promotion policy on revenue growth, investment, profitability and survival.

5.1 Persistence

Figure 4 shows the one-year persistence rates of firm size on both sides of the threshold, comparing before and after the revenue cap introduction. The persistence rate is defined as the proportion of firms that remain in the same revenue bin from one year to the next, where the width of each bin is 2 million baht. As illustrated in the figure, during 2012–2017, the persistence rate in the bin just below the threshold (2.8–3 million baht) is noticeably larger than that in the other bins around the threshold. This pattern is not observed before the SME tax incentive introduction. We also find that this pattern of persistence rate remains even after a few years, as shown in Figure 5. This finding implies

that firms attempted to stay below the tax notch for multiple years.

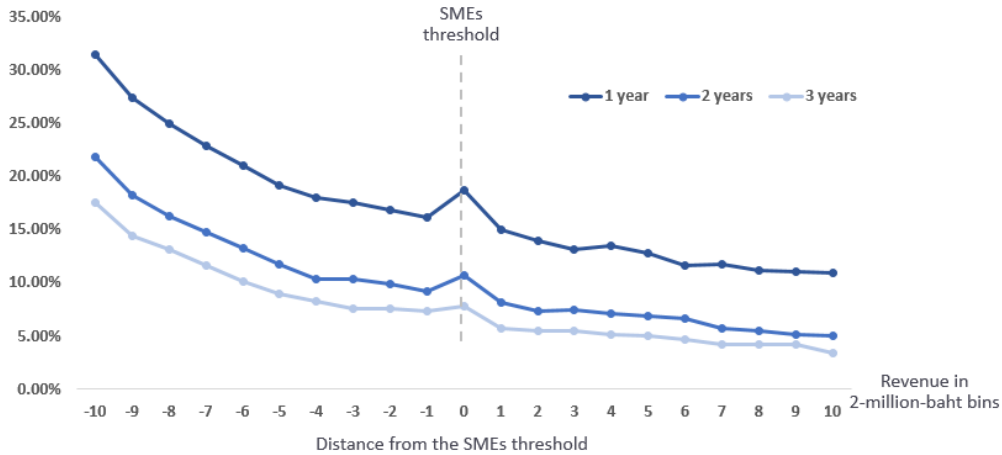
Figure 4 Persistence rate at the SMEs threshold: 1 year (2004-2010 vs. 2011-2017)



Note: This figure shows the persistence rate, defined as the probability that a firm remains in the same 2-million-baht revenue bin from one year to another.

Source: Authors' estimate.

Figure 5 Persistence rate at the SMEs threshold: 1, 2, and 3 years (2011-2017)



Note: This figure shows the persistence rate, defined as the probability that a firm remains in the same 2-million-baht revenue bin from one year to another.

Source: Authors' estimate.

5.2 Revenue Growth, Investment, Profitability and Survival

Next, we employ the difference-in-differences framework to evaluate the impacts of the size-dependent promotion policy on the revenue growth. Given that the policy announcement occurred in 2011 and tax filings for that year were not due until the middle of 2012, it is likely that the revenue cap began influencing small business behavior

starting in 2011. Consequently, we designate 2008–2010 as the pre-policy period and 2011–2017 as the post-policy period.

We confine our analysis to firms that 1) existed throughout the entire pre-policy period and 2) consistently reported revenues not exceeding the 30-million-baht threshold during all observed years leading up to 2010 (2004-2009). We categorize firms into treatment and control groups based on their revenue proximity to the threshold in 2010, the year preceding the policy's introduction. Specifically, in our baseline analysis, the treatment group includes firms with revenues between 20-30 million baht in 2010, while the control group comprises those with revenues between 30-40 million baht. To ensure the robustness of our findings, we conduct sensitivity analyses by adjusting this revenue range to 25-35 million baht and 27-33 million baht, examining the effects within these narrower bands.⁵

The estimation equation can be written as:

$$y_{it} = \alpha_0 + \alpha_1 post_t + \alpha_2 post_t \cdot treat_i + \alpha_3 Age_{it} + FirmFE + YearFE + YearxSectorFE + \varepsilon_{it}, \quad (3)$$

where y_{it} denotes revenue growth defined as $\log(Revenue_{it}) - \log(Revenue_{i,t-1})$, $post_t$ denotes a dummy variable that equals one for the years including and after 2011 and equals zero otherwise, $treat_i$ denotes a dummy variable that equals one for treated firms and zero for controlled firms, and Age_{it} denotes firm age. We use robust standard errors clustered at the firm level. Under the identification assumption that unobserved determinants of revenue growth (ε_{it}) do not change differentially on average across the treatment and control groups around the reform, the coefficient α_2 represent the causal effect of the SME revenue cap on the revenue growth. The estimation period ranges from 2008 to 2017.

It is crucial to emphasize that our treatment and control group assignments are exogenous, determined by whether a firm's revenue was above or below the threshold in the year preceding the threshold policy announcement. To support our identification strategy, we conduct an event study estimation based on the following equation:

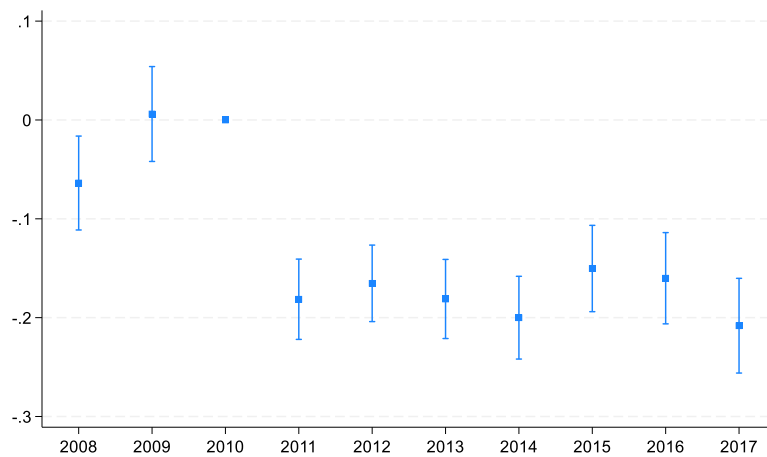
$$y_{it} = \alpha_0 + \sum_t \beta_t Year_t \cdot treat_i + \alpha_1 Age_{it} + FirmFE + YearFE + YearxSectorFE + \varepsilon_{it}, \quad (3)$$

⁵ Note that we do not set criteria based on registered capital as this information is only available for 2017. Nonetheless, in that year, over 90% of firms with revenue of 30 million baht or less had registered capital of 5 million baht or less.

where all variable and coefficients are defined in equation (2). The year immediately before the policy change (2010) is omitted to serve as the base year.

Figure 6 illustrates the coefficients for the interaction between 'treat' and each year from the estimation of equation 3. Notably, the coefficient for Treat-x-2009 is not significantly different from zero. Although the Treat-x-2008 coefficient is statistically significant, its magnitude is relatively small. The consistently small and near-zero coefficients for all years prior to the cap introduction reinforce our identification strategy and suggest that any bias resulting from potential endogenous selection is likely to be minimal.

Figure 6 Event study estimation for the effects of the revenue cap introduction



Note: This figure shows the coefficients of the interaction between treat and year from the estimation of equation 3. Error bars indicate 95% confidence intervals.
Source: Authors' estimate.

Our difference-in-differences analyses illustrate that the revenue cap adversely affected firm growth. As shown in Table 4, following the cap introduction, the revenue growth for treated firms declined by 15.9 percentage points relative to control firms (Columns 4 of Table 4). The adverse impacts on revenue growth are observed across all major sectors (Figure 6).

Our findings are generally robust to alternative model specifications. The coefficient for the interaction term, $post_t \cdot treat_i$, is negative and statistically significant throughout the model specifications where we progressively add firm fixed effects, year fixed effects, and sector-year fixed effects to the model (Columns 1–3 of Table 4).

The growth impact may differ across firms, depending on their business potential. Firms with limited potential might rely heavily on the SME tax incentives to survive, which could in turn limit their ambition for growth as they would like to remain eligible for the tax benefit. Conversely, firms with a high potential to grow far beyond the threshold are less likely to constrain their growth as the benefit from the incentive is less than the opportunity cost of not growing.

We investigate this hypothesis by categorizing firms into two groups based on their pre-policy pre-tax return on assets (ROA). Specifically, we compute the average pre-tax ROA during the pre-policy period (2008-2010), defined as the ratio of earnings before interest and tax (EBIT) to total assets. We then classify firms into low- and high-ROA groups based on the industry-level median value of the average pre-tax ROA.

Our findings indicate that the detrimental growth effects associated with the SME promotion policy are more pronounced among firms within the low-ROA category. The revenue growth of low-ROA firms in the treatment group declines by 21.6 percentage points compared to their counterparts in the control group (Columns 5-6 of Table 4). On the other hand, this effect is substantially smaller, at 10.4 percentage points, for the high-ROA firms.

Table 4: Effects of the SME tax incentive on revenue growth (Dep var = Revenue growth)

	(1)	(2)	(3)	(4)	(5)	(6)
	Adding fixed effects incrementally			Baseline	Low ROA	High ROA
Post	-0.306*** (0.008)	-0.369*** (0.015)	-0.542* (0.312)	-0.413 (0.685)	-1.007 (1.086)	-0.729 (0.774)
Treat x Post	-0.157*** (0.012)	-0.157*** (0.012)	-0.159*** (0.012)	-0.159*** (0.012)	-0.216*** (0.025)	-0.104*** (0.013)
Age				-0.014 (0.079)	0.020 (0.107)	0.028 (0.092)
Observations	161,690	161,690	161,689	161,689	37,425	87,896
R-squared	0.033	0.036	0.050	0.050	0.069	0.054
Number of firms	17,846	17,846	17,846	17,846	4,087	9,546
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	NO	YES	YES	YES	YES	YES
Sector x Year FE	NO	NO	YES	YES	YES	YES

Note: This table presents the estimated impacts of the size-dependent SME promotion policy on revenue growth. Sample include firms that 1) existed throughout the entire pre-policy period and 2) consistently reported revenues not exceeding the 30-million-baht threshold during all observed years leading up to 2010 (2004-2009). Post is a dummy variable that equals one for 2011–2017, and zero for 2008–2010. Treat is a dummy variable that equals one for firms with revenues between 20-30 million baht in 2010, and zero for those with revenues between 30-40 million baht in 2010. Treat x Post is the interaction variable between Treat and Post. Columns (5)-(6) presents the heterogeneity effects of the size-dependent SME promotion policy by pre-period ROA. Standard errors are heteroscedasticity-robust and clustered at firm level. Numbers in parentheses indicate standard error. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively.

Source: Authors' estimate.

In addition, our analysis suggests broader implications of the policy beyond merely curtailing revenue growth. Post the 2011 policy introduction, we find a decline in the growth rate of fixed assets by 6.0 percentage points for firms in the treatment group, compared to those in the control group (Columns 1 of Table 5).

Table 5: Effects of the revenue cap introduction on growth, investment, profitability and survival

	(1)	(2)	(3)
	Fixed assets growth	Return on assets	Next-year survival
$Post_t$	0.013 (0.665)	-0.017 (0.112)	6.744*** (0.433)
$Post_t \cdot Treat_i$	-0.060*** (0.015)	-0.011*** (0.003)	-0.003* (0.002)
Age_{it}	-0.007 (0.070)	0.013 (0.013)	-0.864*** (0.047)
Observations	155,032	142,849	166,836
R-squared	0.011	0.034	0.731
Number of firms	17,319	17,856	17,858
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Sector x Year FE	YES	YES	YES

Note: This table presents the estimated impacts of the size-dependent SME promotion policy on fixed assets growth, profitability and survival. Sample include firms that 1) existed throughout the entire pre-policy period and 2) consistently reported revenues not exceeding the 30-million-baht threshold during all observed years leading up to 2010 (2004-2009). Post is a dummy variable that equals one for 2011–2017, and zero for 2008–2010. Treat is a dummy variable that equals one for firms with revenues between 20-30 million baht in 2010, and zero for those with revenues between 30-40 million baht in 2010. Treat x Post is the interaction variable between Treat and Post. Standard errors are heteroscedasticity-robust and clustered at firm level. Numbers in parentheses indicate standard error. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively.

In addition to the effects on growth, we also explore the impact of the revenue cap on profitability and firm survival. We apply the same difference-in-differences framework and use the return on assets (defined as earnings before tax and interest divided by lagged total assets) as the outcome variable. Our finding indicates that, after the introduction of the policy, there is a 1.1 percentage point decline in ROA for treated firms relative to those in the control group (Columns 2 of Table 5). This effect is significant at the 0.01 level. From an economic standpoint, this 1.1 percentage point decrease is noteworthy; considering the pre-policy ROA mean of 12.7% for treated firms, this effect represents an approximately 8.7% decline.

Similarly, for firm survival, we use the same difference-in-differences framework and consider a firm's likelihood of surviving into the subsequent year. Our findings suggest a marginal and not particularly substantial impact of the revenue cap on survival. After the introduction of the cap, we observe a 0.3 percentage point decrease in survival probability for treated firms compared to the control group (Column 3 of Table 5). This effect is significant at the 0.1 level.

Finally, we illustrate the robustness of our findings against variations in the threshold proximity. Columns 1-4 of Table 6 display regression result where the treatment group comprises of firms with 2010 revenue of 25-30 million baht, while the control group consists of those with revenue 30-35 million baht. The results align with our baseline results. Following the revenue cap introduction, the treatment group shows a significant decline in revenue growth investment, and profitability, relative to the control group. The effect on survival is small and not significantly different from zero. This consistency also generally holds when we tighten the range around the threshold to 27-33 million baht (Columns 5-8 of Table 6).

Table 6: Effects of the SME tax incentive under different assumptions about the distance proximity to the threshold

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Revenue: 25-35 million baht				Revenue: 27-33 million baht			
	Revenue growth	Fixed assets growth	ROA	Survival probability	Revenue growth	Fixed assets growth	ROA	Survival probability
Post	-1.043 (1.446)	0.414 (1.186)	-0.206 (0.198)	7.506*** (0.470)	-1.397 (2.233)	1.634 (1.870)	0.030 (0.207)	-0.227 (1,598.636)
Treat x Post	-0.202*** (0.018)	-0.085*** (0.022)	-0.014*** (0.005)	-0.002 (0.003)	-0.233*** (0.025)	-0.101*** (0.029)	-0.010 (0.007)	-0.002 (0.004)
Age	0.006 (0.155)	0.028 (0.101)	0.029 (0.026)	-0.948*** (0.052)	-0.047 (0.236)	-0.017 (0.083)	-0.001 (0.028)	-0.091 (179.269)
Observations	74,321	71,440	65,592	76,726	42,615	41,011	37,624	44,021
R-squared	0.058	0.016	0.041	0.734	0.070	0.022	0.057	0.736
Number of firms	8,207	7,973	8,213	8,215	4,716	4,587	4,719	4,721
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Sector x Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Note: This table presents the estimated impacts of the size-dependent SME promotion policy on revenue growth, fixed assets growth, return on assets and survival probability. Sample include firms that 1) existed throughout the entire pre-policy period and 2) consistently reported revenues not exceeding the 30-million-baht threshold during all observed years leading up to 2010 (2004-2009). Post is a dummy variable that equals one for 2011–2017, and zero for 2008–2010. Treat is a dummy variable that equals one for firms with revenues below 30 million baht in 2010, and zero for those with revenues above 30 million baht in 2010. Treat x Post is the interaction variable between Treat and Post. Standard errors are heteroscedasticity-robust and clustered at firm level. Numbers in parentheses indicate standard error. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively.

Source: Authors' estimate.

6. Conclusion

This study examines the implications of size-dependent regulations within SME support programs, focusing on Thailand's introduction of a 30-million-baht revenue cap for SMEs in 2011. We have illustrated how this policy, while designed to bolster SMEs, has led to unintended outcomes with broader implications on growth. Our first key findings highlight the pronounced responses of firms to the revenue cap. We find a significant bunching of firms just below the threshold, primarily driven by those with positive EBIT. This suggests that the cap serves as a salient regulation, leading firms to adjust their behaviors accordingly. The impact is also persistent and remains for multiple years. Second, our study identified the adverse effects of the size-dependent tax regulation on firms' decisions to grow and invest. Following the cap introduction, eligible firms below the threshold experience a decline in revenue growth, relative to those above. These negative effects are relatively pronounced for those with lower pre-policy profitability. We further document negative impacts on investment and profitability. Altogether, our findings emphasize the critical role of well-designed policy in the context of SME promotion. It is important not only to extend necessary support but also to avoid introducing potential growth disincentives.

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