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

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Abstract

This paper investigates the unintended consequences of size-dependent regulations in small and medium-sized enterprise (SME) promotion policies. We use data from all registered Thai firms to analyze the effects of an introduction of a revenue cap for the SME tax incentive program qualification. Our study shows a marked bunching of firms just below the cap, illustrating its tax salience. We provide suggestive evidence that a significant of the observed bunching could be due to real operation responses. A difference-in-differences analysis indicates that eligible firms just under the threshold exhibit a significant decline in revenue growth compared to those just above it. This adverse effect is more pronounced among firms with lower pre-policy profitability. We further document substantial negative effects on investment and profitability. In addition, our findings indicate a marked reduction in the presence of large firms, suggesting the broader implications on the firm size distribution in the economy. We highlight the paradox within size-based SME policies: while intended to help smaller businesses, the measures might inadvertently suppress growth and create resource misallocation. This study underscores the need for a careful policy design that supports SMEs without impeding their potential for growth.

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 recognize the vital role that small and medium-sized enterprises (SMEs) play in economic growth, job creation, and innovation. As such, there is a concerted effort to implement supportive policies that bolster the vitality and sustainability of SMEs. However, the practical execution of these policies presents a complex challenge, primarily due to the necessity of defining what constitutes an SME (Bergner et al., 2017). This definition, while seemingly straightforward, is crucial as it influences eligibility for support programs but also inherently ad hoc. It introduces incentives that may not only shape firms' behavior in unexpected ways (Benedek et al., 2017; Tsuruta, 2020; Hosono, Hotei, and Miyakawa, 2023) but also potentially impact the distribution of firms across the economy and lead to resource misallocation, as suggested by Hsieh and Olken (2014) and Bachas, Fattal Jaef and Jensen (2019).

Crafting SME criteria requires a delicate balancing act. On the one hand, the criteria must be sufficiently inclusive to ensure broad access to the intended supports, making sure assistance is not overly burdensome to obtain. On the other hand, they must be specific enough to ensure that the assistance genuinely benefits small businesses, targeting the support to those firms that need it most. Achieving this balance is fundamental to fostering an environment conducive to SME growth without inadvertently prompting adverse structural transformations.

This study examines the implications of Thailand's implementation of a revenue-based threshold for SME tax incentives. We use administrative data containing annual financial statements from 2004 to 2017 encompassing the universe of registered firms in Thailand. Our analysis focuses on the introduction of the 30-million-baht revenue cap as a criterion for the SME tax scheme in 2011.[1] This policy's distinct requirement—that firms must never exceed this revenue threshold in the past—along with its unanticipated nature, provides an exogenous policy shift. It facilitates the identification of the impacts of size-based regulation on SME growth and explores its broader implications on firm size distribution within the economy.

We first employ the bunching method developed by Kleven and Waseem (2013) to examine the salience of the tax regulation. We then utilize the difference-in-differences (DID) approach to investigate its effects on growth, investment, profitability, and

[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.

survival. In addition, we examine the broader influence of the SME tax incentive on the presence of large firms.

For the DID analysis of the growth implications, the treatment group consists of firms slightly below the threshold in the year preceding the policy announcement (2010), specifically those with revenue between 20 and 30 million baht. In contrast, the control group includes firms just above this range, with revenue between 30 and 40 million baht. To ensure comparability between the treatment and the control groups, we focus only on firms whose revenues remained under the 30-million-baht threshold in all preceding years (2004–2009). The key distinction between the two groups is their revenue position relative to the threshold in the year of the policy announcement (2011), despite having similar past revenue.

It is crucial to underscore that the categorization of firms into treatment and control groups in our analysis is exogenous, based on whether a firm's revenue was above or below the threshold in the year before the policy was announced. To support our identification strategy, we conduct an event-study estimation around the cap introduction. The results indicate that the estimated effects are much larger than the pre-trend coefficients and lie outside their 95% confidence intervals, supporting our identification strategy. Additionally, we include firm-, year-, and sector-year fixed effects to account for any unobserved factors that might influence the outcome variables.

We document three sets of empirical findings. First, we find that the cap introduction created a salient tax notch for SMEs. Specifically, 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 earnings before interest and taxes (EBIT). In contrast, there is no bunching among firms with negative or zero EBIT, which have a weaker 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 DID analysis indicates that the size-dependent policy significantly hampers the growth of eligible firms below the threshold compared to the growth of their counterparts above the threshold. We also demonstrate that these adverse effects on revenue growth are more pronounced among firms with low growth potential. This result implies that for the firms with high-growth potential, the benefit from growing outweighs

the foregone tax benefit from remaining small. Additionally, the SME policy not only curtails revenue growth but also negatively impacts investment, profitability, and firm survival. This finding indicates the policy's limited success in achieving its intended objectives.

Finally, we illustrate the broader implications of the SME tax incentive. We find that the SME tax incentive regulation acts as a barrier against the transition of SMEs into large enterprises. Our sector-province analysis indicates a marked reduction in the presence of large firms after the policy introduction. This suggests a potentially significant impact on the economy's firm size distribution.

Overall, our findings highlight the critical need for a careful design of policies that intend to support SMEs. With the inherent challenges these entities face in competing with larger firms, government interventions may be necessary to establish a level playing field for fair competition. However, SME promotion policies can bring unintended consequences. Our research reveals that size-dependent supports might inadvertently lead SMEs to significantly curb their growth to maintain eligibility for tax privileges. It might also cause a meaningful distortion in the structural composition of firms in the economy.

The remainder of this paper is organized as follows. Section 2 discusses related studies. Section 3 provides an institutional background of the policy. We describe the data used in the analysis of this study in Section 4. Sections 5, 6 and 7 discuss the empirical strategy and the results for each of the bunching and difference-in-differences analyses. Section 8 concludes and discusses policy implications.

2. Related Studies

This study is directly related to the literature that studies how size-dependent regulations influence firm size. Theoretical contributions include Keen and Mintz (2004), Gourio and Roys (2014), and Garicano, Lelarge, and van Reenen (2016). For instance, Garicano, Lelarge, and Van Reenen (2016) shows that France's size-dependent labor regulations have significant effects on the productivity distribution.

Empirically, much focus has been 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, 2019; Liu et al., 2021; Muthitacharoen, Wanichthaworn, and Burong, 2021), to benefit from lower tax rates in the corporate income tax system (Bachas and Soto, 2021), and to stay below the enforcement radar (Almunia and Lopez-Rodriguez, 2018). Within this domain, studies pertinent to our work

include Tsuruta (2020) and Hosono et al. (2023), both investigating responses to changes in Japan's capital-based threshold for SMEs. Tsuruta (2020) investigates how Japanese firms increase capital in response to relaxed capital-based SME thresholds. The study is particularly significant for its finding that firms tend to restrain their capital increase—a strategic decision to maintain their SME status. In a similar Japanese context, Hosono et al. (2023) examines firms downsizing to benefit from tax exemptions under specific thresholds. Its findings provide pivotal insights, indicating that size-dependent tax policies can significantly influence firm growth, not only through direct incentives to preserve SME status but also via the financial constraint channel.

While these studies provide valuable insights, there remains a significant gap in understanding the effects of SME promotion policies, especially those based on revenue or turnover, a regulation commonly observed in EU and OECD countries (OECD, 2015; Bergner et al., 2017). There are at least two reasons why firms may react to the turnover-based SME policy in a different manner from the capital-based thresholds considered in Tsuruta (2020) and Hosono et al. (2023). First, adjustments in capital stock are typically associated with strategic planning and structural changes, whereas revenue responses are more immediate. Consequently, turnover-based SME regulations might prompt more pronounced responses than those influenced by capital-based criteria. Second, under turnover-based thresholds, particularly those accounting for historical revenue, firms face the challenge of balancing growth aspirations with the risk of permanently losing SME benefits. This complex scenario calls for a focus on long-term sustainability and careful progression, rather than immediate reactions to policy shifts. The goal of this paper is to address this gap in the literature by studying the impacts of a turnover-based SME policy on firms' growth.

We extend this body of literature in two ways. First, our analysis provides clear identification strategies that indicate the impact of an introduction of a turnover-based cap on growth and investment. Our study demonstrates that turnover-based thresholds, while seemingly straightforward, can have profound implications on both growth and investment. To provide a context, Tsuruta (2020) finds that relaxing capital stock criteria for SMEs led to a 0.15% increase in asset growth, against the average asset growth of 1.9% during their study period. In contrast, our findings indicate that introducing a revenue cap triggers a substantial 6.0 percentage point reduction in fixed asset growth,

representing 73.4% of the treated pre-policy mean. This stark divergence underscores the profound effects that turnover-based thresholds can have on firm behavior.

Second, our study expands upon the insights of Hsieh and Olken (2014), which observed that size-dependent regulations in India, Indonesia, and Mexico did not lead to economically meaningful bunching around thresholds, while acknowledging that the impact might vary across firms. We contribute to this discourse by illustrating that, in Thailand, the size-dependent tax regulation profoundly affects firm growth, especially for those with lower growth potential. This consequently influences the presence of large firms in the economy. Our findings underscore the potential of size-dependent tax policy to significantly shape the structural composition of the business landscape and to cause resource misallocation (Bachas et al., 2019).

3. 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 SMEs. To be eligible, a firm's registered capital must not exceed 5 million baht. This scheme, aimed at alleviating financial strains and enhancing survival and competitiveness, provides SMEs with reduced tax rates on their taxable income. The structure of this preferential tax scheme is progressive, with tax rates starting at 0% and gradually increasing to the standard corporate income tax rate, varying according to the size of net profit.

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 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 is likely that firms began adjusting their behaviors as early as 2011.

From the government's perspective, the revised policy, by including both current and historical revenue considerations, enables them to more accurately target and ensure that benefits are directed towards those firms genuinely in need. However, for SMEs, this policy shift compels them to strike a critical balance between growth potential and the

risk of permanently losing the benefits of SME status. This poses significant challenges and potentially contradicts the government's initial intentions.

4. Data

This study analyses corporate profile and financial statements (CPFS) data of the universe 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 1 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, survival likelihood, and presence of large firms (Panels B–F).

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

Table 1 Descriptive statistics

Variables	N	Mean	Median	S.D.
Panel A: Bunching analysis				
Revenue	599,627	26,160,208	24,442,722	8,322,355
Panel B: Difference-in-differences analysis for revenue growth				
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
Panel C: Difference-in-differences analysis for fixed assets growth				
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
Panel D: Difference-in-differences analysis for profitability				
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
Panel E: Difference-in-differences analysis for survival probability				
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
Panel F: Difference-in-differences analysis for presence of large firms				
# firms > 35 mil. baht (log)	17,540	1.723	1.386	1.571
# firms > 40 mil. baht (log)	16,950	1.703	1.386	1.558
# firms > 45 mil. baht (log)	16,441	1.684	1.386	1.547
# firms > 50 mil. baht (log)	15,942	1.671	1.386	1.536
Exposure	18,174	0.830	1.000	0.251
Post (0/1)	18,174	0.691	1.000	0.462

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.

5. Bunching Analysis

5.1 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 the actual number of firms in each revenue bin j (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

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

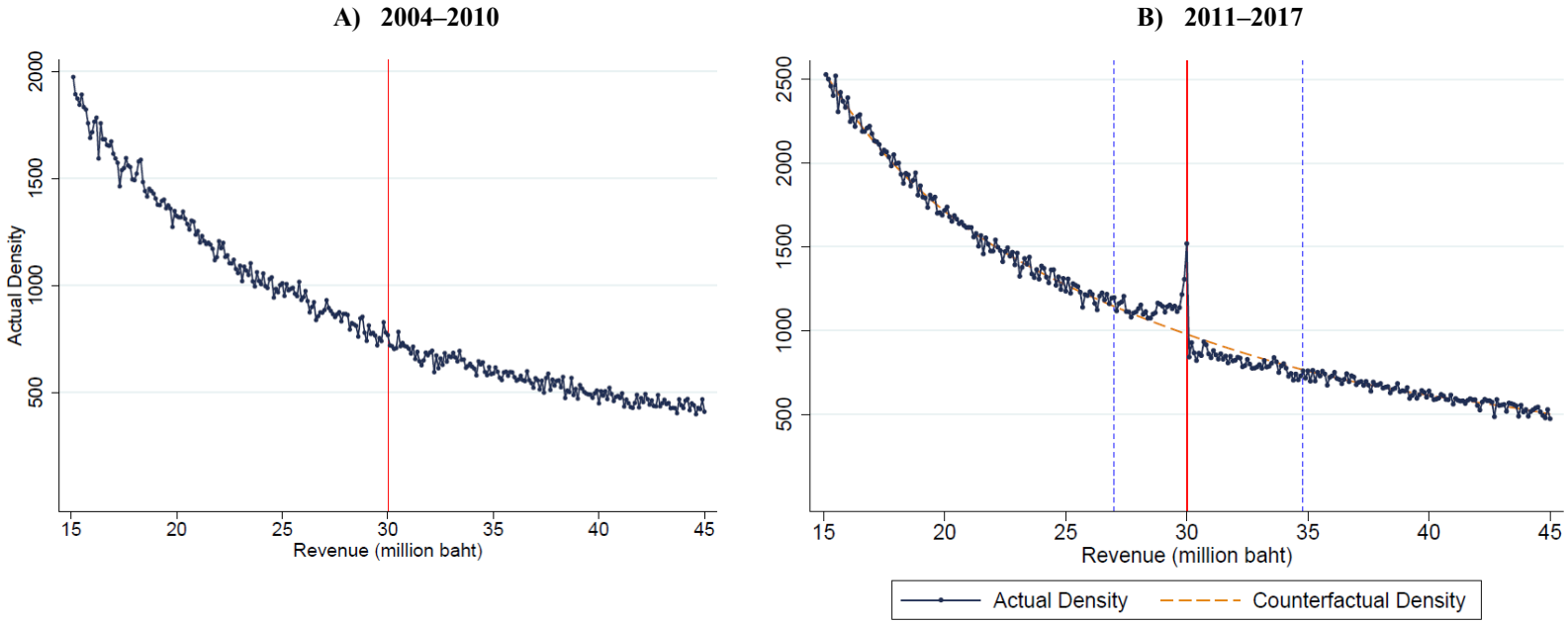
where c_j denotes the number of firms in bin j, z_j denotes the revenue level of bin j, p denotes the polynomial order, $[z_L, z_U]$ denotes the excluded region, and v_j denotes the error term. The predicted value ($\hat{c}_j$) from this equation represents the counterfactual distribution that is used 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.

5.2 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 2 reports the bunching estimates. The overall bunching estimate is 2.62, i.e., the total excess bunching mass is approximately 2.62 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 2 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).

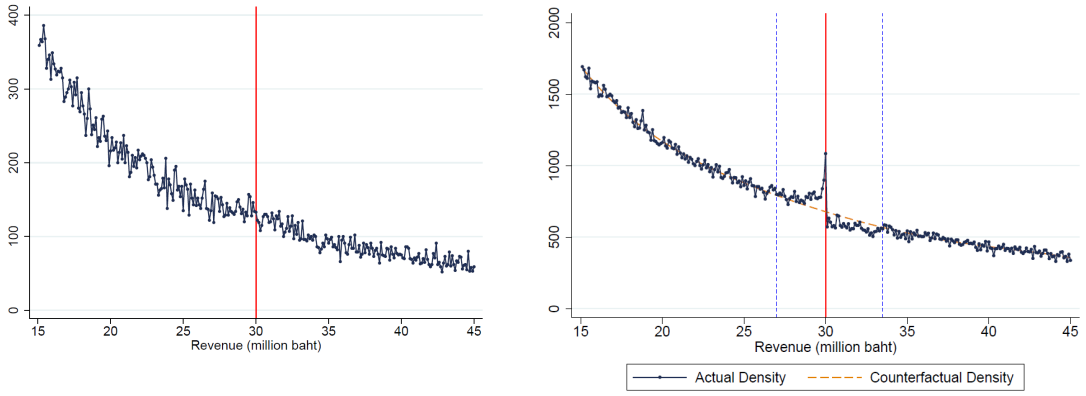
Source: Authors' estimate.

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 financial incentive for firms to respond to the new tax scheme.

[4] See, for example, Pomeranz (2015) and Naritomi (2019).

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

A) Zero or Negative EBIT B) Positive EBIT



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.

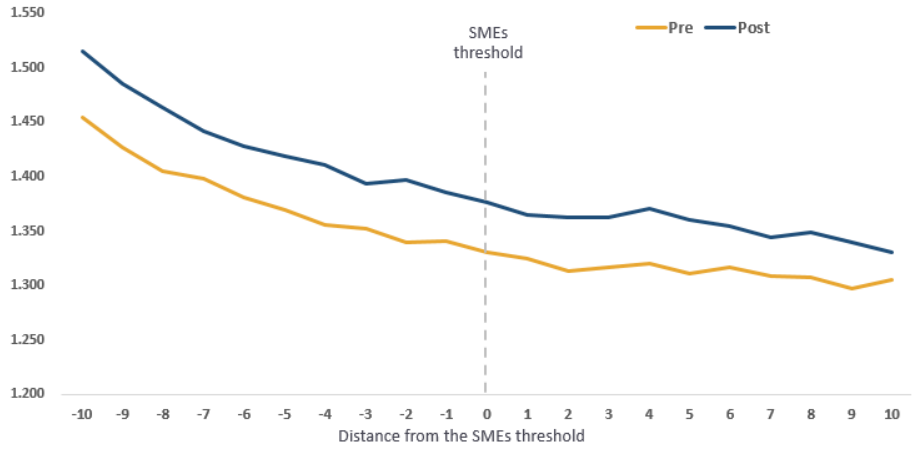
It is relevant to understand whether the bunching is due to real operation or under-reporting responses. Although we are not able to identify the contribution of each mechanism precisely, we provide some suggestive evidence that a significant part of the observed bunching could be attributed to the real 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 under-reported 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 audit from the tax authority.

Figure 3 Revenue-cost ratio around the SMEs threshold



Note: This figure shows 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 all goods and services.
Source: Authors' estimate.

6. Implications on Growth

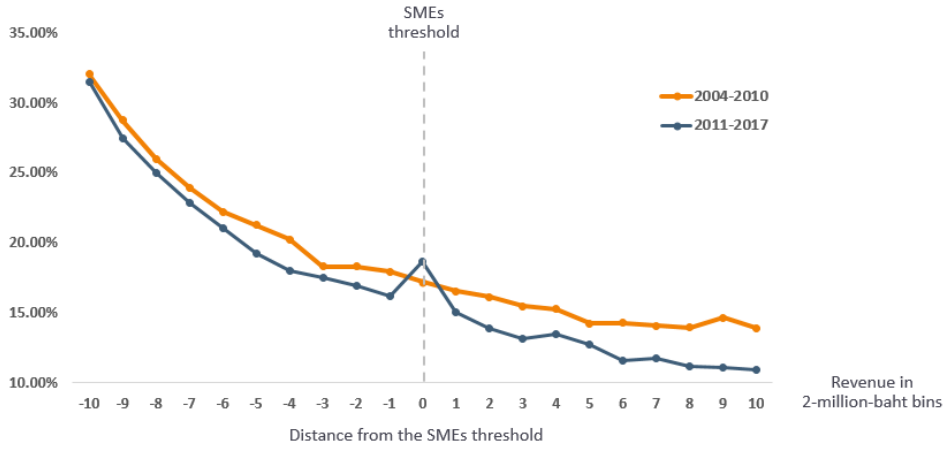
Having established the salience of the SME tax incentive and its potential real response, we further analyze how the size-dependent policy has affected firm growth. This section first illustrates the persistence of firm behavior around the threshold. It then uses a more-robust framework to demonstrate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

6.1 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 (28–30 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

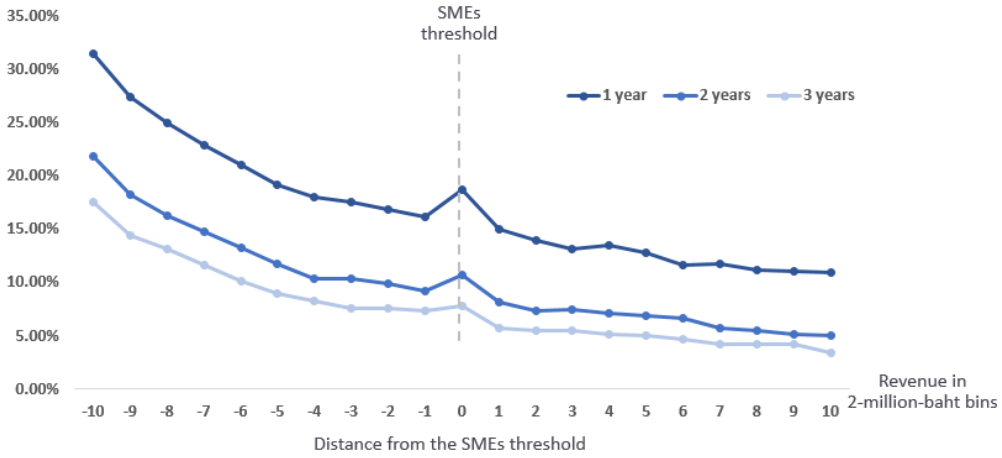
that firms attempted to stay below the tax notch for multiple years.

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.

6.2 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 firms' revenue growth. We designate 2008–2010 as the pre-policy period and 2011–2017 as the post-policy period. We categorize firms into treatment and control groups based on their revenue proximity to the threshold in 2010, the year preceding the policy announcement. 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 enhance comparability between these two groups, 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 prior to 2010 (2004–2009). We also 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:

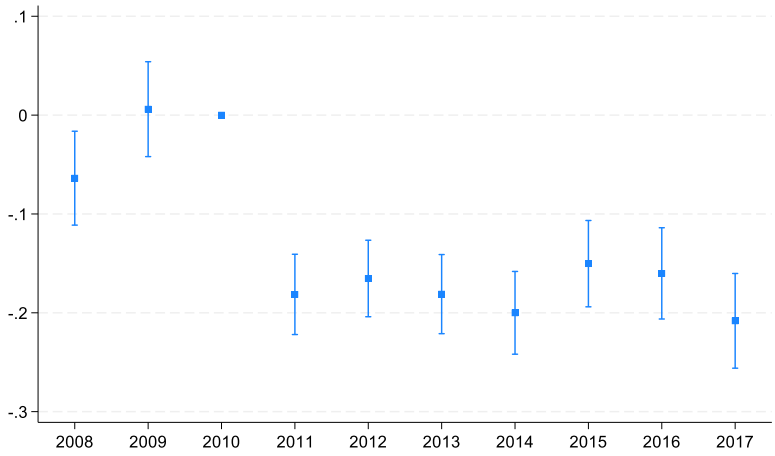
$$y_{it} = \alpha_0 + \alpha_1 post_t + \alpha_2 post_t \cdot treat_i + \alpha_3 Age_{it} + FirmFE + YearFE + YearxSectorFE + \varepsilon_{it}, \quad (3)$$

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 control 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 represents 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 group 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 for the effects of the revenue cap introduction (Figure 6) on the revenue growth. The year immediately before the policy change (2010) is omitted to serve as the base year. Notably, the pre-trend coefficient for 2009 is not significantly different from zero. Although the 2008 pre-trend coefficient is statistically significant, its magnitude is relatively modest. Crucially, all estimated effects are much larger than the pre-trend coefficients and fall outside the 95% confidence intervals of these pre-trends. This supports our identification strategy, suggesting that any potential bias from pre-trends is likely small (de Chaisemartin and D'Haultfoeuille, 2023).

[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.

Figure 6 Event study estimation for the effects of the size-dependent SME promotion policy on the revenue growth



Note: This figure shows the event study estimation for the effects of the size-dependent SME promotion policy on the revenue growth. The year immediately before the policy change (2010) is omitted to serve as the base year. 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 3, following the cap introduction, the revenue growth for treated firms declined by 15.9 percentage points relative to control firms (Columns 4 of Table 3). 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 3).

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 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 3). On the other hand, this effect is substantially smaller, at 10.4 percentage points, for the high-ROA firms.

Table 3: Effects of the size-dependent SME promotion policy on revenue growth (Dep var = Revenue growth)

	(1)	(2)	(3)	(4)	(5)	(6)
	Adding fixed effects incrementally			Baseline	Low ROA	High ROA
$Post_t$	-0.306***	-0.369***	-0.542*	-0.413	-1.007	-0.729
	(0.008)	(0.015)	(0.312)	(0.685)	(1.086)	(0.774)
$Post_t \cdot Treat_i$	-0.157***	-0.157***	-0.159***	-0.159***	-0.216***	-0.104***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.025)	(0.013)
Age				-0.014	0.020	0.028
				(0.079)	(0.107)	(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). $Post_t$ 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. $Post_t \cdot Treat_i$ is the interaction variable between $Post_t$ and $Treat_i$. 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. After 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 4). This is consistent with the real operation response of revenue growth discussed earlier.

Table 4: Effects of the size-dependent SME promotion policy on investment, profitability, and survival

	(1) Fixed assets growth	(2) Return on assets	(3) Next-year survival
$Post_t$	0.013	-0.017	6.744***
	(0.665)	(0.112)	(0.433)
$Post_t \cdot Treat_i$	-0.060***	-0.011***	-0.003*
	(0.015)	(0.003)	(0.002)
Age_{it}	-0.007	0.013	-0.864***
	(0.070)	(0.013)	(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). $Post_t$ is a dummy variable that equals one for 2011–2017, and zero for 2008–2010. $Treat_i$ 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. $Post_t \cdot Treat_i$ is the interaction variable between $Post_t$ and $Treat_i$. 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 (Column 2 of Table 4). This effect is significant at the 1% 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 negative 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 4). 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 5 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, as shown in Columns 5–8.

Table 5: Effects of the size-dependent tax policy for SMEs 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
$Post_t$	-1.043	0.414	-0.206	7.506***	-1.397	1.634	0.030	-0.227
	(1.446)	(1.186)	(0.198)	(0.470)	(2.233)	(1.870)	(0.207)	(1,598.636)
$Post_t \cdot Treat_i$	-0.202***	-0.085***	-0.014***	-0.002	-0.233***	-0.101***	-0.010	-0.002
	(0.018)	(0.022)	(0.005)	(0.003)	(0.025)	(0.029)	(0.007)	(0.004)
Age_{it}	0.006	0.028	0.029	-0.948***	-0.047	-0.017	-0.001	-0.091
	(0.155)	(0.101)	(0.026)	(0.052)	(0.236)	(0.083)	(0.028)	(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 tax policy for SMEs 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). $Post_t$ is a dummy variable that equals one for 2011–2017, and zero for 2008–2010. $Treat_i$ 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. $Post_t \cdot Treat_i$ is the interaction variable between $Post_t$ and $Treat_i$. 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.

7. Implications on the Presence of Large Firms

A crucial aspect of the SME tax regulation is its potential effect on the distribution of firm sizes in the economy. Our investigation extends to examining whether this regulation acts as a deterrent against the presence of large firms. We conduct our analysis at the ISIC2-province level. Our identification is based on the policy exposure, defined as the revenue share of firms that were eligible for the SME scheme in the year preceding the policy announcement (2010). We consider four outcome variables: (log of) number of firms larger than 35, 40, 45 and 50 million baht. The equation can be written as:

$$y_{it} = \alpha_0 + \alpha_1 post_t + \alpha_2 exposure_i + \alpha_3 post_t exposure_i + UnitFE + YearFE + YearxSectorFE + \varepsilon_{it}, \quad (4)$$

where y_{it} denotes the outcome variable defined above at the ISIC2-province level, $post_t$ denotes a dummy variable that equals one for the years including and after 2011 and equals zero otherwise, and $exposure_i$ denotes the policy exposure variable computed in the year prior to the policy announcement. The estimation period ranges from 2004 to 2017. We incorporate fixed effects for ISIC2-province units, years, and year-sector interactions.

Our findings indicate a pronounced negative effect of the SME policy on the proliferation of large firms. Specifically, a one-percentage point increase in the pre-policy SME share results in 13.1% decline in the number of firms exceeding 35 million baht in revenue (Column 1 of Table 6). This effect amplifies for higher revenue levels (40, 45, and 50 million baht), suggesting a consistent and monotonically increasing impact (Columns 2–4 of Table 6). This pattern of findings persists across both the manufacturing and service sectors (Columns 5–6 of Table 6) and is also observed when analyzing the share of the number of firms with revenue over 50 million baht compared to all firms above 10 million baht (Column 7 of Table 6). These results underscore the unintended consequence of the SME policy, potentially reshaping the firm size distribution and, by extension, the structural composition of firms in the economy.

Table 6: Effects of the size-dependent SME promotion policy on the revenue growth on the presence of large firms

	(1) Above 35m baht	(2) Above 40m baht	(3) Above 45m baht	(4) Above 50m baht	(5) Above 50 m baht (Manuf.)	(6) Above 50 m baht (Service)	(7) Share of firms above 50m
Post	0.456***	0.438***	0.436***	0.391***	0.391***	0.505***	0.003
	(0.112)	(0.122)	(0.128)	(0.112)	(0.113)	(0.104)	(0.055)
Post x Exposure	-0.131***	-0.149***	-0.170***	-0.174***	-0.174***	-0.192**	-0.042**
	(0.033)	(0.034)	(0.034)	(0.033)	(0.040)	(0.084)	(0.019)
Observations	17,540	16,950	16,441	15,942	9,013	4,862	23,237
R-squared	0.268	0.267	0.272	0.273	0.236	0.316	0.056
Unit FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Sector x Year FE	YES	YES	YES	YES	YES	YES	YES

Note: This table presents the estimated impacts of the size-dependent SME promotion policy on the presence of large firms. The analysis is at sector-x-province level. Post is a dummy variable that equals one for 2011–2017, and 0 for 2008–2010. Exposure is the policy exposure variable computed in the year prior to the policy introduction. Exposure x Post is the interaction variable between Exposure and Post. Standard errors are heteroscedasticity-robust and clustered at the unit level (sector-x-province). Numbers in parentheses indicate standard error. ***, **, * denotes significance at the 1%, 5%, and 10% levels, respectively.
Source: Authors' estimate.

8. Conclusion

This study examines the implications of size-dependent government regulation, 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 support SMEs, has led to unintended outcomes with broader implications on growth and firm-size distribution. 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, the regulation considerably impeded the growth and investment of firms below the threshold, with more pronounced effects on those with lower potential. Finally, and perhaps most critically, our findings suggest that the SME tax incentive may have reshaped the firm size distribution within the Thai economy, notably by diminishing the emergence of large enterprises after the policy's introduction. Altogether, our research sheds light on the critical implications of turnover-based SME regulations. It underscores the necessity of crafting policies that not only provide critical support to SMEs but also carefully avoid creating growth disincentives.

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