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FOR ECONOMIC RESEARCH

UC San Diego

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

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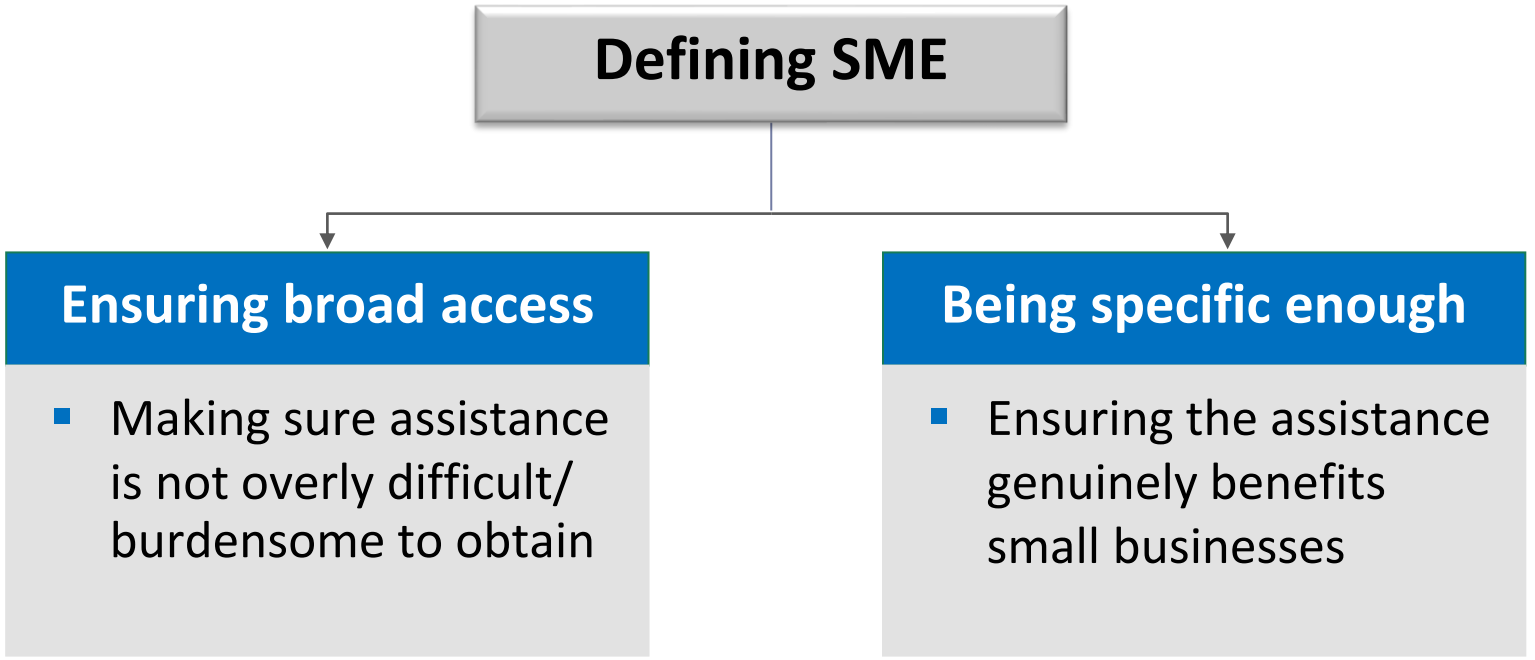
Why focus on SME definitions?

- SMEs tax incentives are widely used globally to promote small business growth
- 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)
- While seemingly straightforward, the definition is crucial:
  - Introduces incentives that may shape firms' behavior in unexpected ways (Benedek et al., 2017; Tsuruta, 2020; Hosono, Hotei, and Miyakawa, 2023)
  - It may also lead to resource misallocation (Hsieh and Olken, 2014; Bachas, Fattal, Jaef and Jensen, 2019).
- Thailand provides a sharp case study: 30 million revenue cap introduced in 2011

Crafting SME criteria requires a delicate balancing act



Thailand's 2011 change in SME policy

- Before 2011, the SME preferential tax scheme was based solely on a registered capital requirement of ≤ 5 million baht (approximately USD 137,000).

- In 2011, the Thai government revised the SME definition to include:
  - **A revenue cap of ≤ 30 million baht (USD 900,000) for the current and all previous years**.
  - The registered capital requirement remained unchanged.
  - This policy was announced in 2011 and implemented in 2012.

- The revenue requirement and its unanticipated nature provide an exogenous policy shift and enables identification of the impacts of size-based regulation

Development of the SME Tax Incentive Scheme

	General tax rate (%)	SME scheme		
		Registered capital requirement (5 mil. baht)	Revenue requirement (30 mil. baht)	Illustrative Tax liability for a hypothetical firm with sample-mean profit (Baht)
2004	30	-	-	540,000
2005	30	-	-	540,000
2006	30	-	-	540,000
2007	30	-	-	540,000
2008	30	Yes	**No**	327,500
2009	30	Yes	**No**	327,500
2010	30	Yes	**No**	327,500
2011	30	Yes	**No (Announced)**	327,500
2012	23	Yes	**Yes**	311,500
2013	20	Yes	**Yes**	265,000
2014	20	Yes	**Yes**	265,000
2015	20	Yes	**Yes**	150,000
2016	20	Yes	**Yes**	150,000
2017	20	Yes	**Yes**	225,000
2018	20	Yes	**Yes**	225,000

Previous SME definition requires only registered capital <= 5 mil THB

Announcement of the revenue cap

New SMEs definition

- **Total revenue <= 30 million THB**
- **Registered capital <= 5 million THB**

Tax schedules remain unchanged from 2018 till now

This study…

Research Questions	Research Design	Key findings
How do firms respond to size-based tax incentives?	▪ Thailand's introduction of tax incentives for SMEs in 2011 ▪ Panel data containing the universe of Thai firms: 2004-2017 ▪ Bunching framework ▪ Difference-in-Difference approach	1 Sharp bunching reflects tax salience
What are the effects on growth, investment, profitability, and firm survival?		2 Adverse growth impacts, esp. on those with lower pre-policy potential
Do such policies influence the broader structure of the economy—especially the presence of large firms?		3 Broader implications on firm-size distribution

This study

Research Questions	Research Design	Key findings
How does the introduction of the revenue-based threshold for SMEs influence firm behavior?	▪ Thailand's introduction of tax incentives for SMEs in 2011 ▪ Panel data containing the universe of Thai firms: 2004-2017 ▪ Bunching framework ▪ Difference-in-Difference approach	1 Sharp bunching reflects tax salience 2 Adverse growth impacts, esp. on those with lower pre-policy potential 3 Broader implications on firm-size distribution

Presentation Outline

1. Introduction
2. Related Studies
3. Data
4. Bunching Analysis
5. Implications on Growth

Our main contributions to the literature (1)

Directly related to the literature on how size-dependent regulations influence firm size

Theoretical studies

- **Examples**: Keen and Mintz (2004), Gourio and Roys (2014), and Garicano, Lelarge, and van Reenen (2016)

Empirical-Bunching

- Avoid complying with VAT regulations (Harju, Matikka, and Rauhanen, 2019; Liu et al., 2021; Muthitacharoen et al., 2021),
- Benefit from lower tax rates in the corporate income tax system (Bachas and Soto, 2018), and
- Stay below the enforcement radar (Almunia and Lopez-Rodriguez, 2018)

Empirical-SME thresholds

- **Tsuruta (2020):**
  - Japanese firms were more likely to increase capital following the policy that raised the threshold
- **Hosono et al. (2023):**
  - Firms downsized to benefit from tax exemptions
  - Highlight the influence via fin constraint channel.

Our main contributions to the literature (2)

- 1) Provides clear identification strategies that indicate the strong impact of an introduction of a turnover-based cap on growth and investment

- 2) Highlights the potential of size-dependent tax policy to significantly shape the structural composition of the business landscape and to cause resource misallocation

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Data

- **Universe of Thai firms from 2004-2017**
  - Corporate profile and financial statement (CPFS) data
    - Financial information including assets, liabilities, revenues, and expenses
    - Firm information such as registration year, registration type, operation status, and primary industry
  - Panel structure

Summary 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	74,321	0.035	0.013	1.059
Treat (0/1)	74,321	0.412	0.000	0.492
Post (0/1)	74,321	0.679	1.000	0.467
Age	74,321	14.101	12.000	9.122
Panel C: Difference-in-differences analysis for fixed assets growth				
Fixed assets growth	71,440	-0.037	-0.076	1.295
Treat (0/1)	71,440	0.408	0.000	0.491
Post (0/1)	71,440	0.686	1.000	0.464
Age	71,440	14.306	12.000	9.117
Panel D: Difference-in-differences analysis for profitability				
ROA	65,592	0.081	0.067	0.243
Treat (0/1)	65,592	0.409	0.000	0.492
Post (0/1)	65,592	0.663	1.000	0.473
Age	65,592	13.850	12.000	9.146
Panel E: Difference-in-differences analysis for tax burden				
Tax burden	72,303	0.024	0.010	0.131
Treat (0/1)	72,303	0.414	0.000	0.492
Post (0/1)	72,303	0.667	1.000	0.471
Age	72,303	14.132	12.000	9.142
Panel F: Difference-in-differences analysis for survival				
Survival	76,726	0.886	1.000	0.318
Treat (0/1)	76,726	0.413	0.000	0.492
Post (0/1)	76,726	0.679	1.000	0.467
Age	76,726	14.013	12.000	9.174
Panel G: 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

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Bunching estimates: Introduction

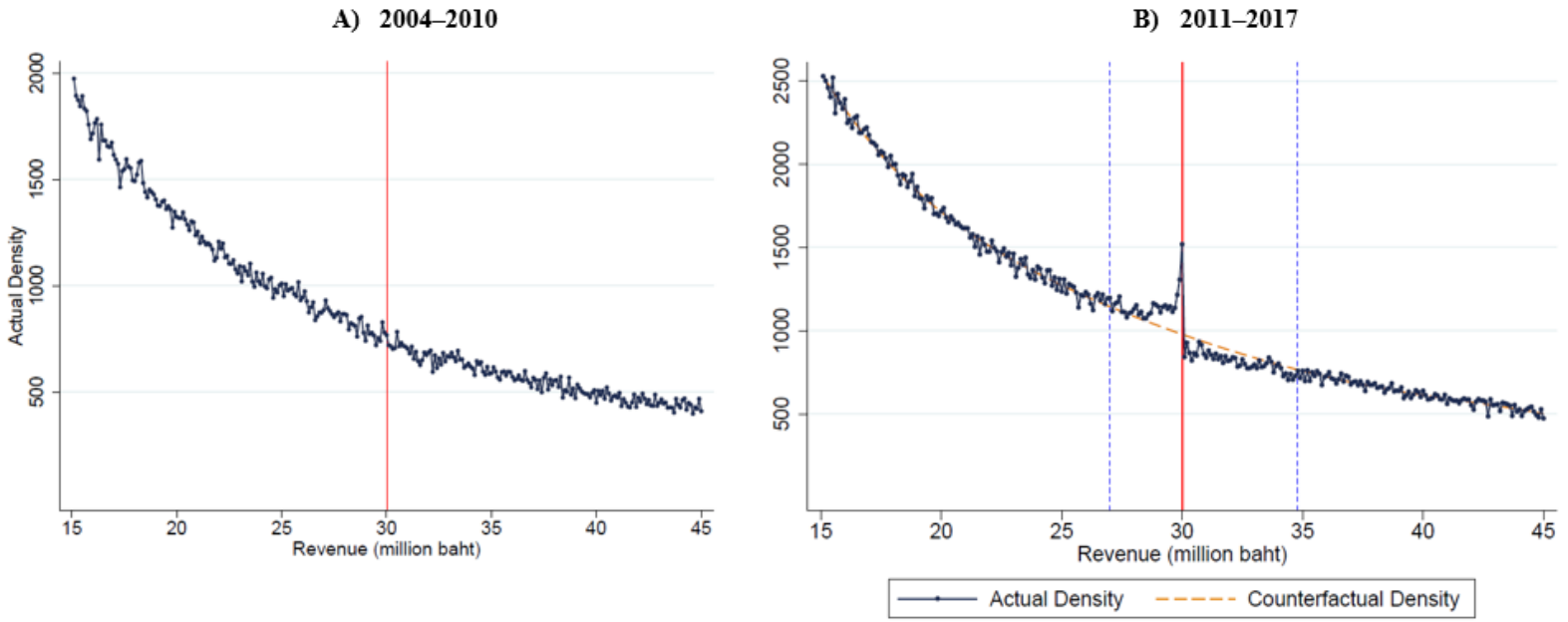
- Our empirical estimate of bunching (at the tax notch) follows Kleven and Waseem (2013):

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

- y^* = SME threshold,
- y_L = Lower limit of the excluded region,
- c_j = Actual number of firms in each revenue bin (width of 100,000 baht)
- $\hat{c}_j$ = Counter-factual number in each revenue bin in absence of the tax notch
- N_j= Number of bins within the interval $[y_L, y^*]$

Evidence on responses to the SME tax notch

Histogram of revenue around the SME threshold



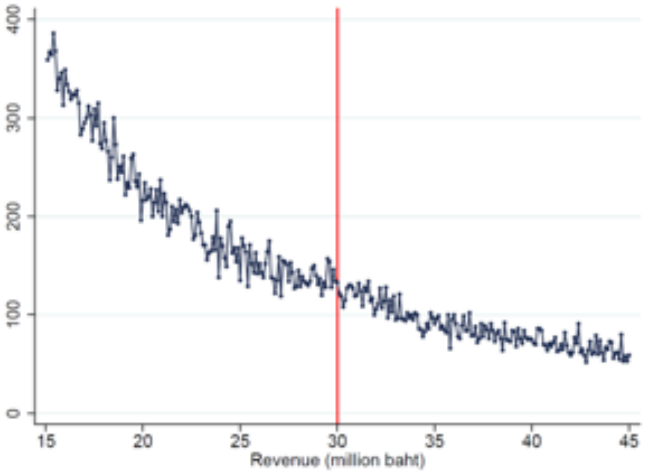
Note: This figure shows the histograms of firms' revenue by pooling data of all firms from 2004 to 2010 (panel A) and from 2011 to 2017 (panel B). The bin width is 100,000 baht. The red vertical line denotes the SME threshold of 30 million baht. The blue vertical dashed line denotes the lower bound and 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.

Sharp bunching just below the 30-million-baht threshold after the 2011 introduction of the SMEs tax incentives

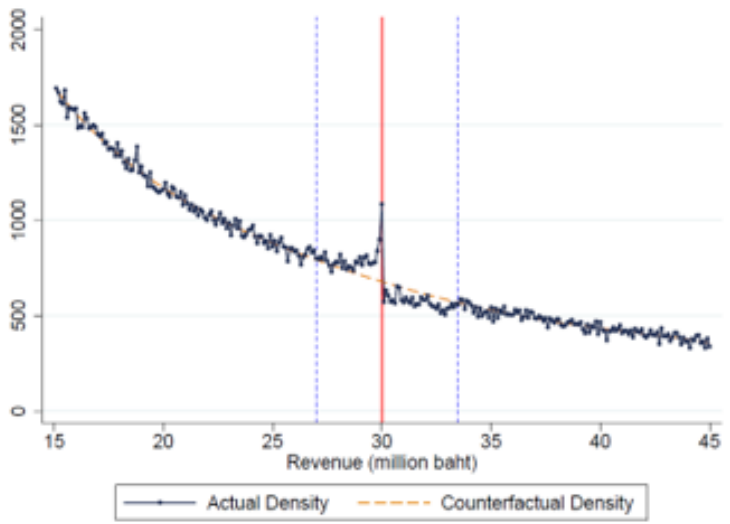
The bunching response is mainly driven by firms with positive EBIT

Histogram of revenue around the SME threshold by profitability (2011-2017)

A) Zero or Negative EBIT



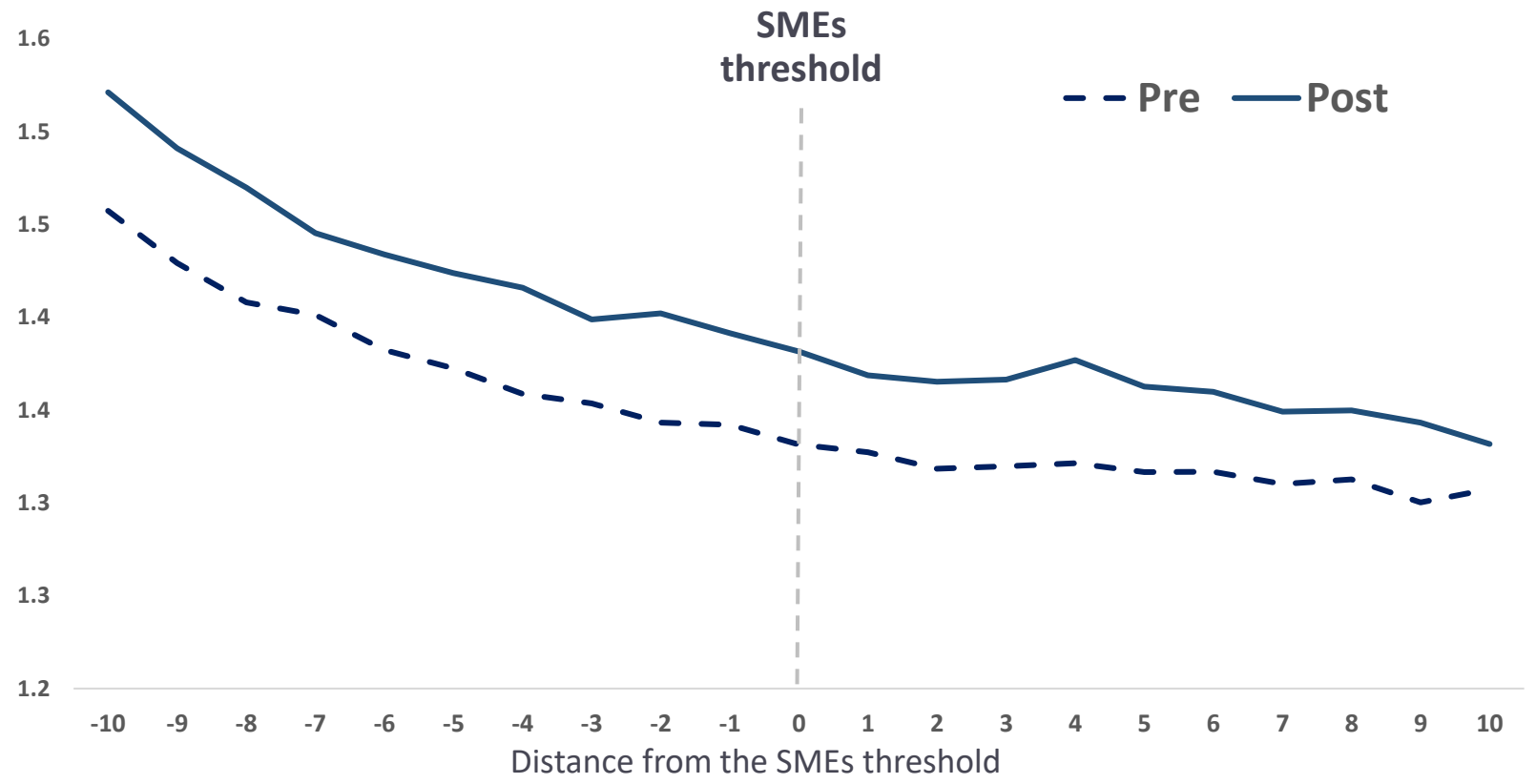
B) Positive EBIT



Real vs. Under-reporting response

Revenue-cost ratio around the SMEs threshold

Average values of revenue-cost ratios of firms in revenue bins of 2 million baht



Note: The revenue-cost ratio is defined as total revenue divided by costs of all goods and services.

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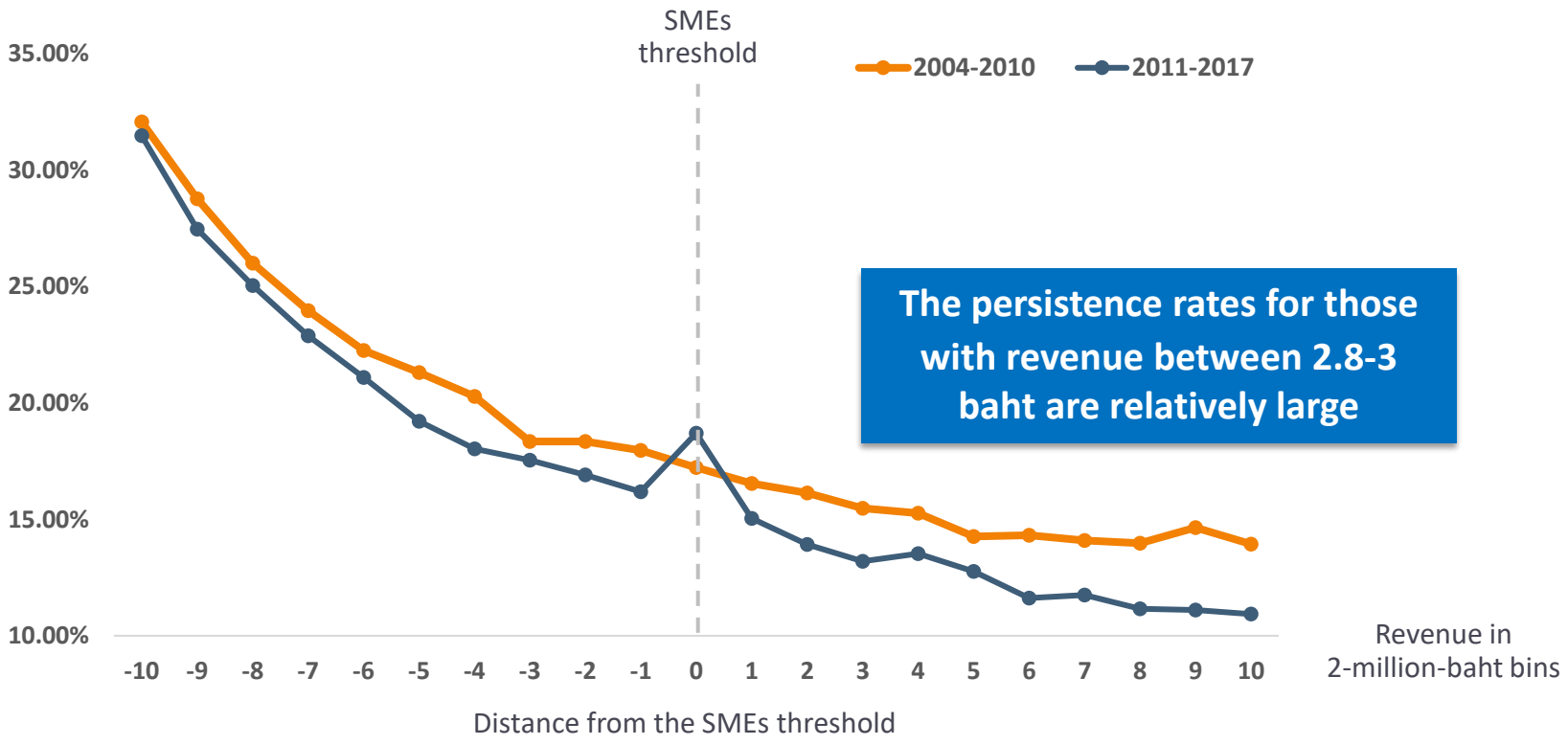
Dynamic implications of the SMEs threshold

Persistence rate at the SMEs threshold – one year

Persistence rate of firms in revenue bins of 2 million baht on both sides of the SMEs threshold

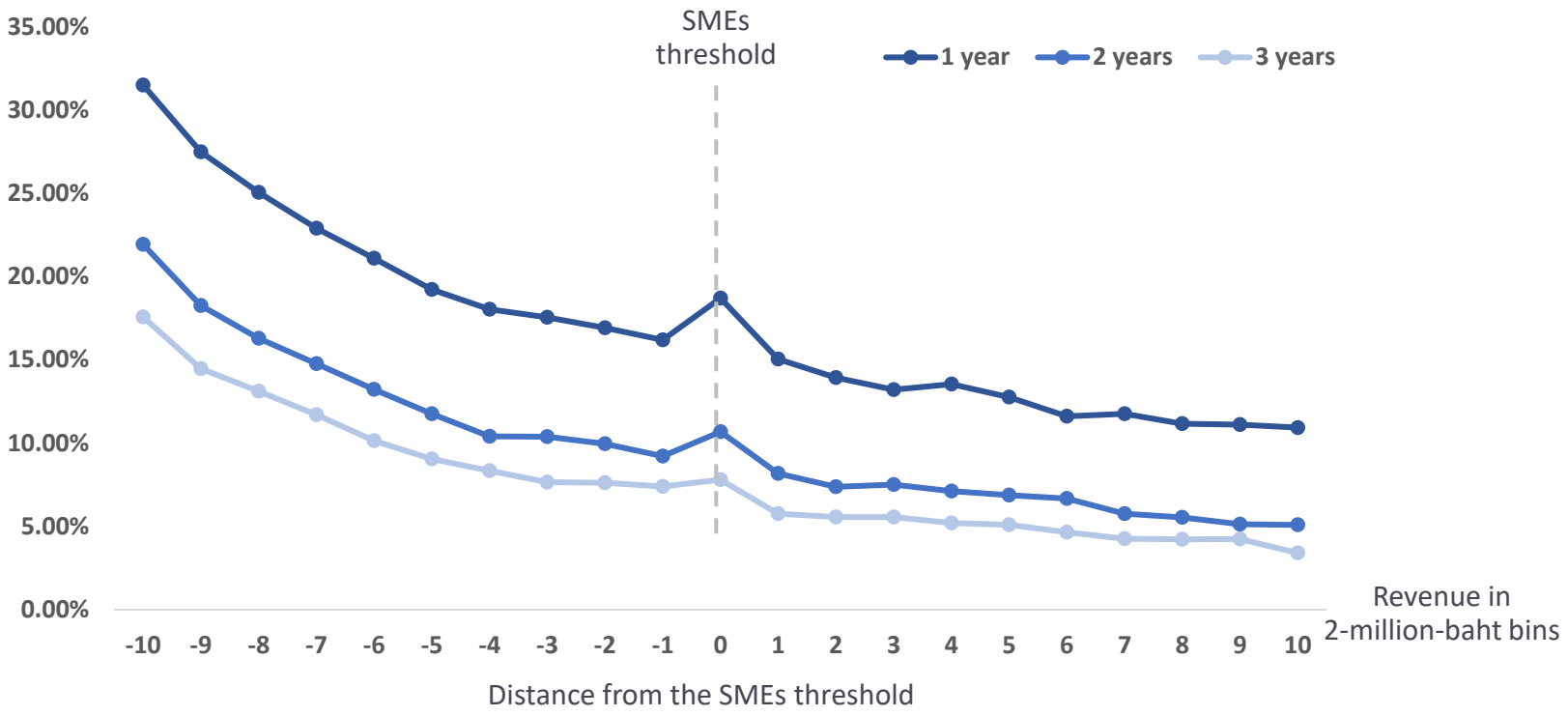


Note: Persistence rate = probability that a firm remains in the same revenue bin from one year to the next

The threshold also affects entrepreneurial activity for several years

Persistence rate at the SMEs threshold – 1, 2 and 3 years

Persistence rate of firms in revenue bins of 2 million baht on both sides of the SMEs threshold



Note: Persistence rate = probability that a firm remains in the same revenue bin from one year to another

DID: Evaluating impacts of the revenue threshold introduction

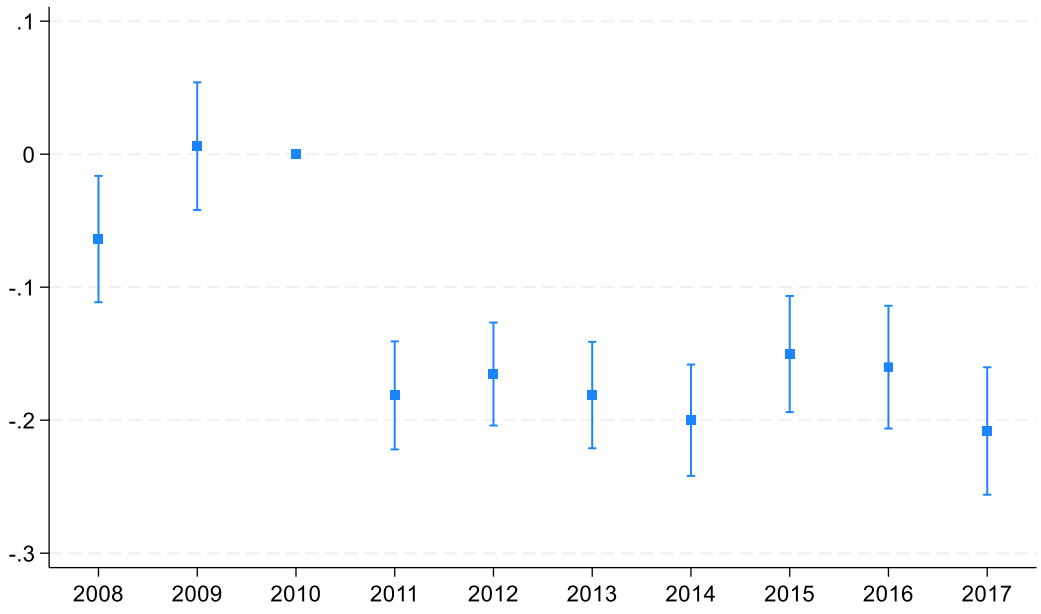
$$y_{it} = \alpha_0 + \alpha_1 post_t + \alpha_2 post_t \cdot treat_i + \alpha_3 Age_{it} + FirmFE + YearFE + YearxSectorFE + \varepsilon_{it}$$

- Setting:
  - Treatment = Firm with revenue 25-30m in the year prior to threshold introduction (2010)
  - Control = Firm with revenue 30-35m in 2010
  - Pre = 2008-2010 and Post = 2011-2017
  - To enhance comparability: Restrict sample to firms with revenue <=30m in all years before 2010 (2004-2009)

- Outcome: Revenue growth, investment, ROA, tax, and survival probability

Event study around the revenue cap introduction

Event study estimation for the effects of the revenue cap introduction on the revenue growth



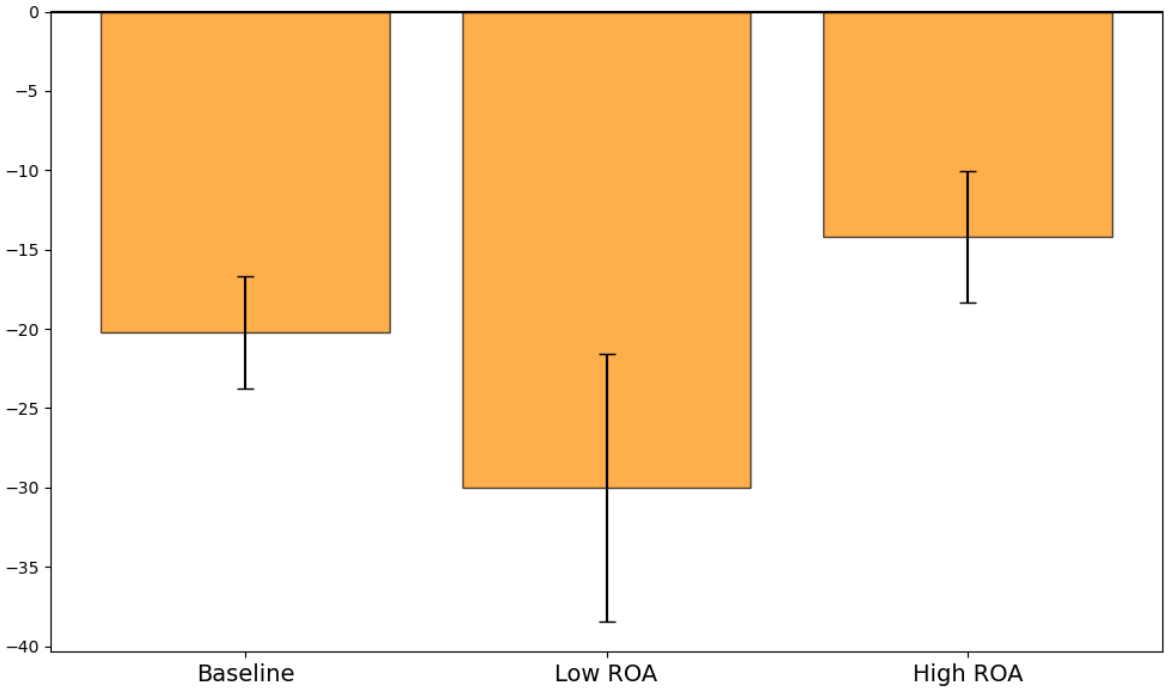
Note: This figure shows the event study estimate of the revenue cap introduction. The year immediately before the policy change (2010) is omitted to serve as the base year. Error bars indicate 95% confidence intervals.
Source: Authors' estimate.

- Pre-trend coefficient for 2009 is not significantly different from zero
- Although the 2008 coefficient is significant, its magnitude is small
- Crucially, all estimated effects are much larger than the pre-trend coefficients and fall outside the 95% confidence intervals of these pre-trends

Effects of the revenue cap on revenue growth

Effects of the revenue cap

Percentage points change relative to control firms



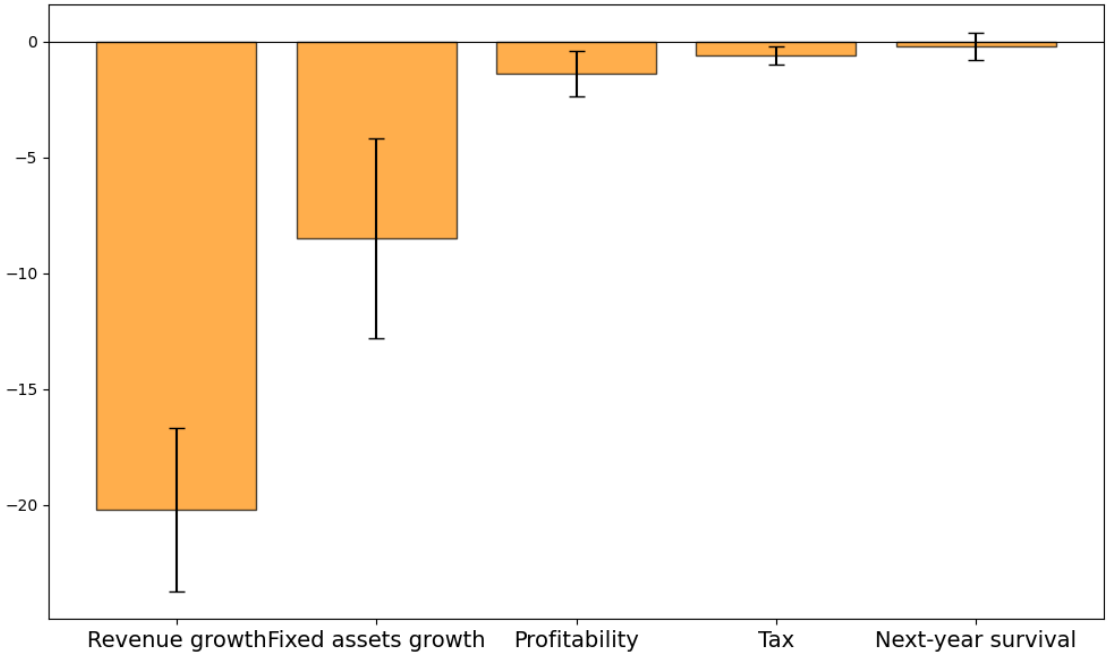
Note: Error bars indicate 95% confidence interval.

- **Following the cap introduction, revenue growth for treated firms fall by 20.2 pp relative to control firms**
- **This adverse effect is more pronounced for firms with relatively limited potential (proxied by pre-policy pre-tax ROA)**

We find broader implications of the policy beyond merely curtailing revenue growth

Effects of the revenue cap on growth, investment, profitability, tax, and survival

Percentage points change relative to control firms



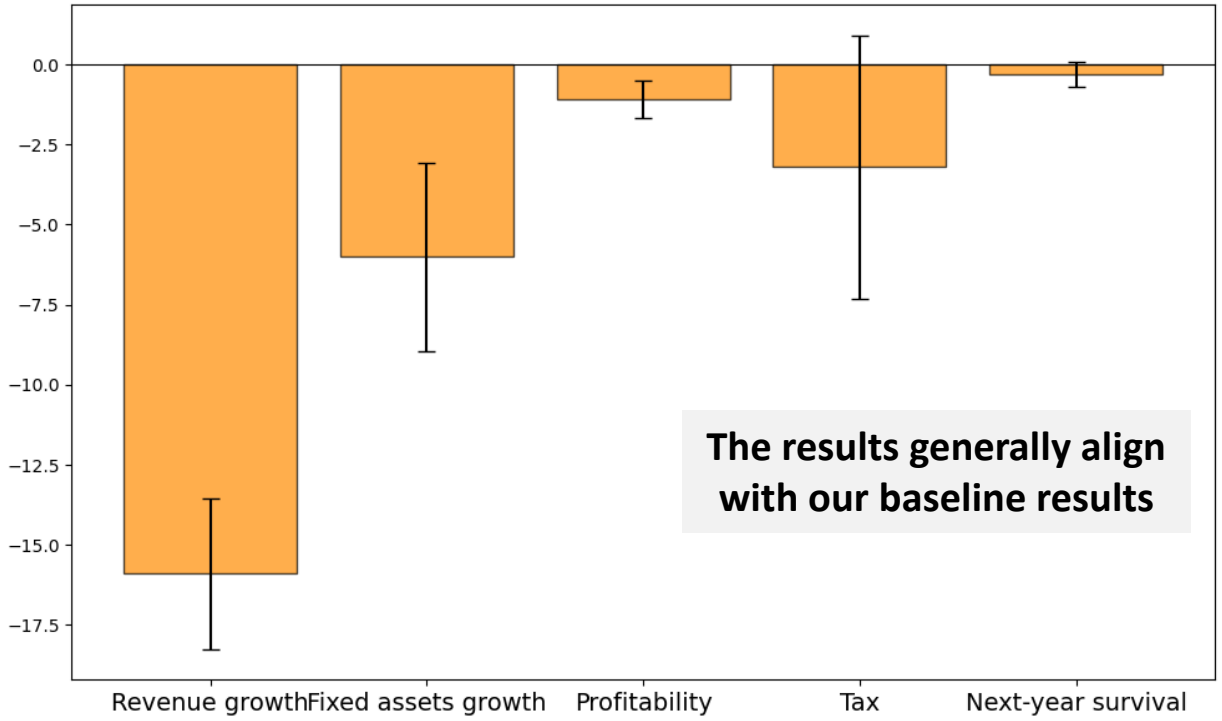
- **Following the revenue cap introduction:**
  - **Investment falls by 8.5 pp**
  - **ROA decreases by 1.4 pp (around 11% of the treated pre-policy mean)**
  - **Tax (divided by lagged asset) falls by 0.6 pp**
  - **Survival not significant**

Note: Error bars indicate 95% confidence interval.

Robustness exercises: Proximity to the threshold

Effects of the revenue cap on growth, investment, profitability, tax, and survival (Revenue range 20-40 million baht)

Percentage points change relative to control firms

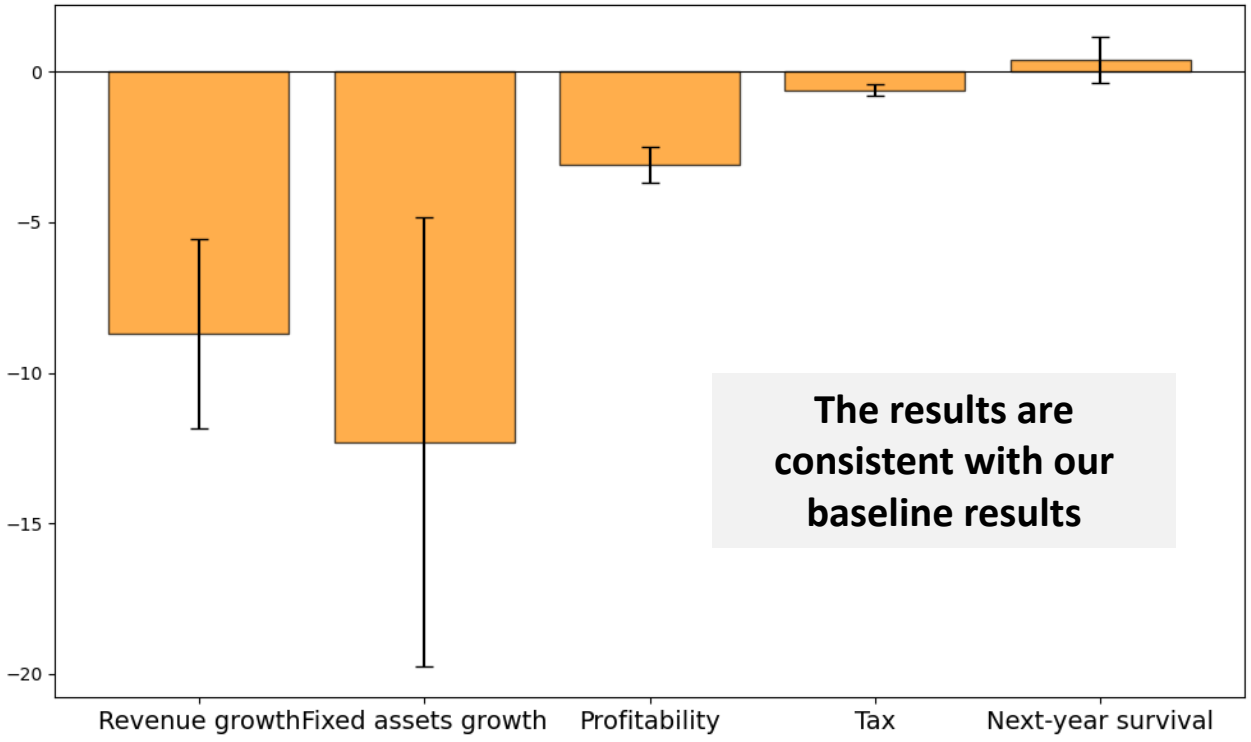


Note: Error bars indicate 95% confidence interval.

Robustness exercises: Control group's pre-policy revenue history

Effects of the revenue cap on growth, investment, profitability, tax, and survival (Alternative assumption on the control group's pre-policy revenue history)

Percentage points change relative to control firms



Note: Error bars indicate 95% confidence interval.

Model specification: Implications on the presence of large firms

- Difference in Difference method at the ISIC2-x-Province level:

$$y_{it} = \alpha_0 + \alpha_1 post_t + \alpha_2 exposure_i + \alpha_3 post_t exposure_i + UnitFE + YearFE + YearxSectorFE + \varepsilon_{it}$$

- where

y_{it} = Number of large firms (log)

$exposure_i$ = Revenue share of firms eligible for the SME scheme in the pre-announcement year

$post_{it}$ = 1 if year>=2011 and 0 if <2017

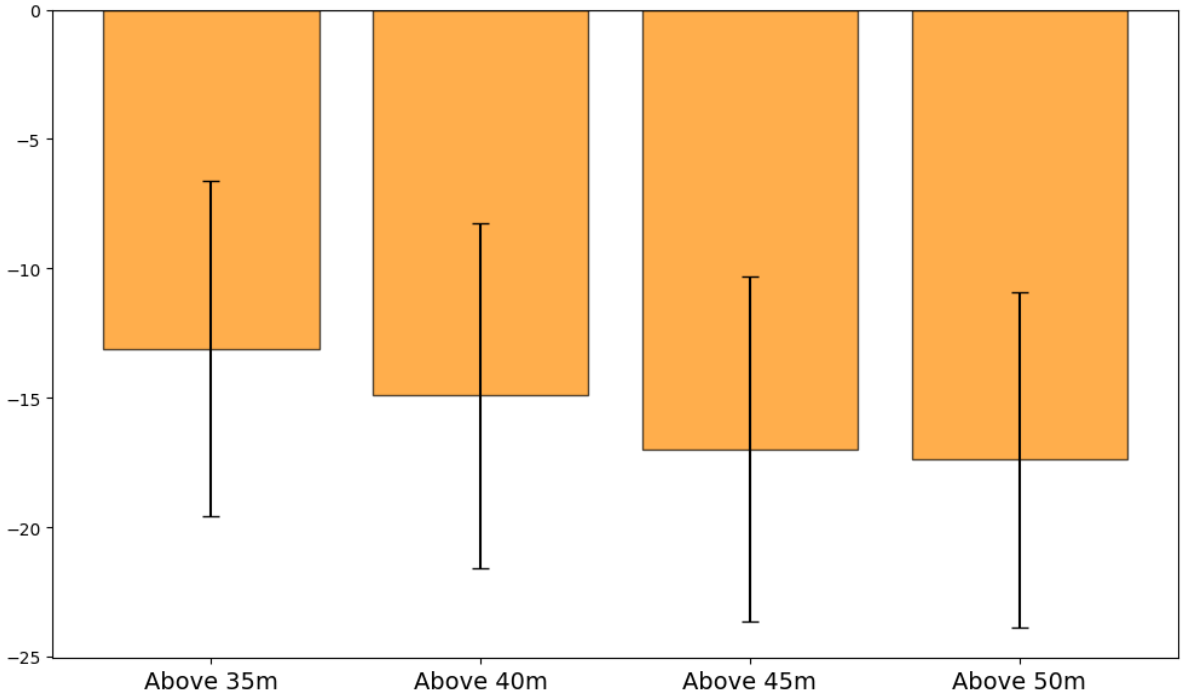
$treat_{it}$ = 1 if treatment

X_{it} denotes a control variable

The SME threshold introduction reshapes the firm size distribution

Effects of the revenue cap on the presence of large firms

Percentage change



- **Following the revenue cap introduction, a 1-pp increase in the pre-policy SME share results in 13.1% fall in # firms > 35m**
- **Effect amplifies for higher revenue levels (40, 45, and 50 million baht)**
- **Suggesting a consistent and monotonically increasing impact**

Key takeaways

1. **The size-dependent policy significantly hampers the growth of SMEs, with effects more pronounced among firms with limited potential**

2. **We also find broader implications on the firm-size distribution**

3. **This underscores the need for careful policy design that supports SMEs without impeding their potential for growth.**

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