

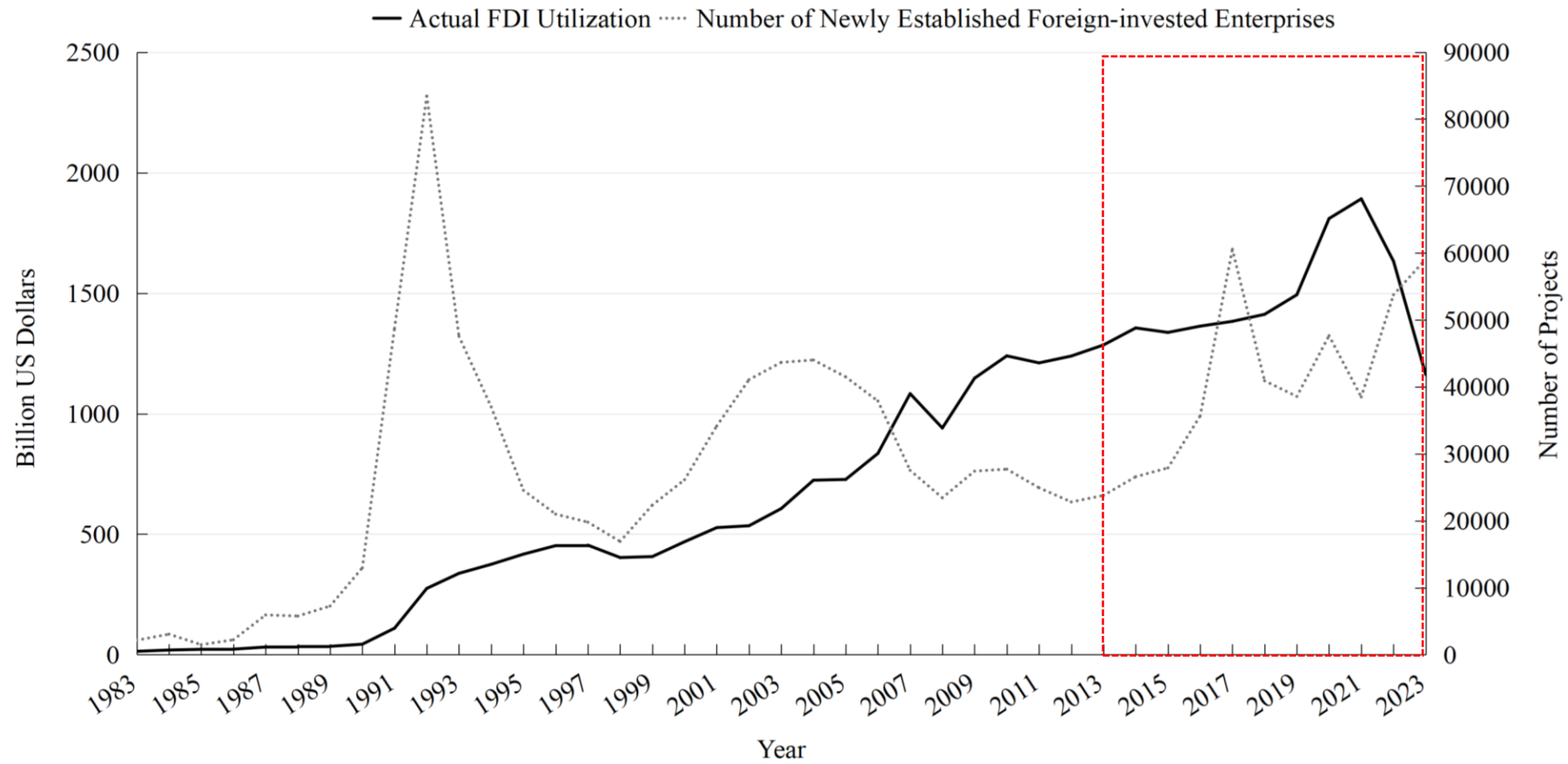
How China's Evolving Competitive Environment Shapes Foreign Firms' Expansion Decisions

Jianwei Xu Yaqi Wang Ruihan Chen Jie Gao

October 12, 2025

Shifting Trend of Foreign Direct Investment in China

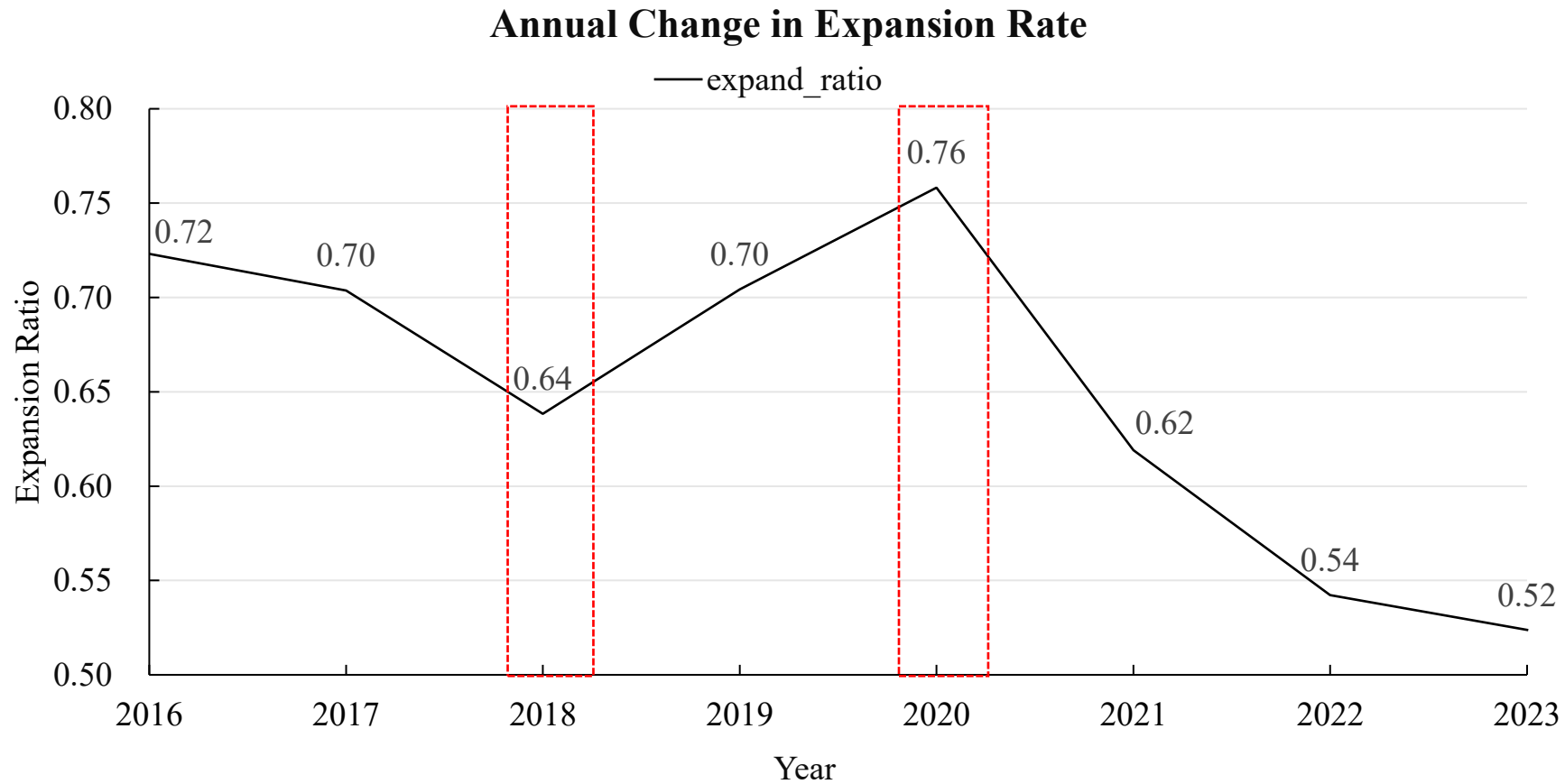
The Shifting Trends of Foreign Direct Investment in China



Data source: Ministry of Commerce of the People's Republic of China

More and More Firms are Hesitant to Expand in China

- Annual change in expansion rate (2016-2024)



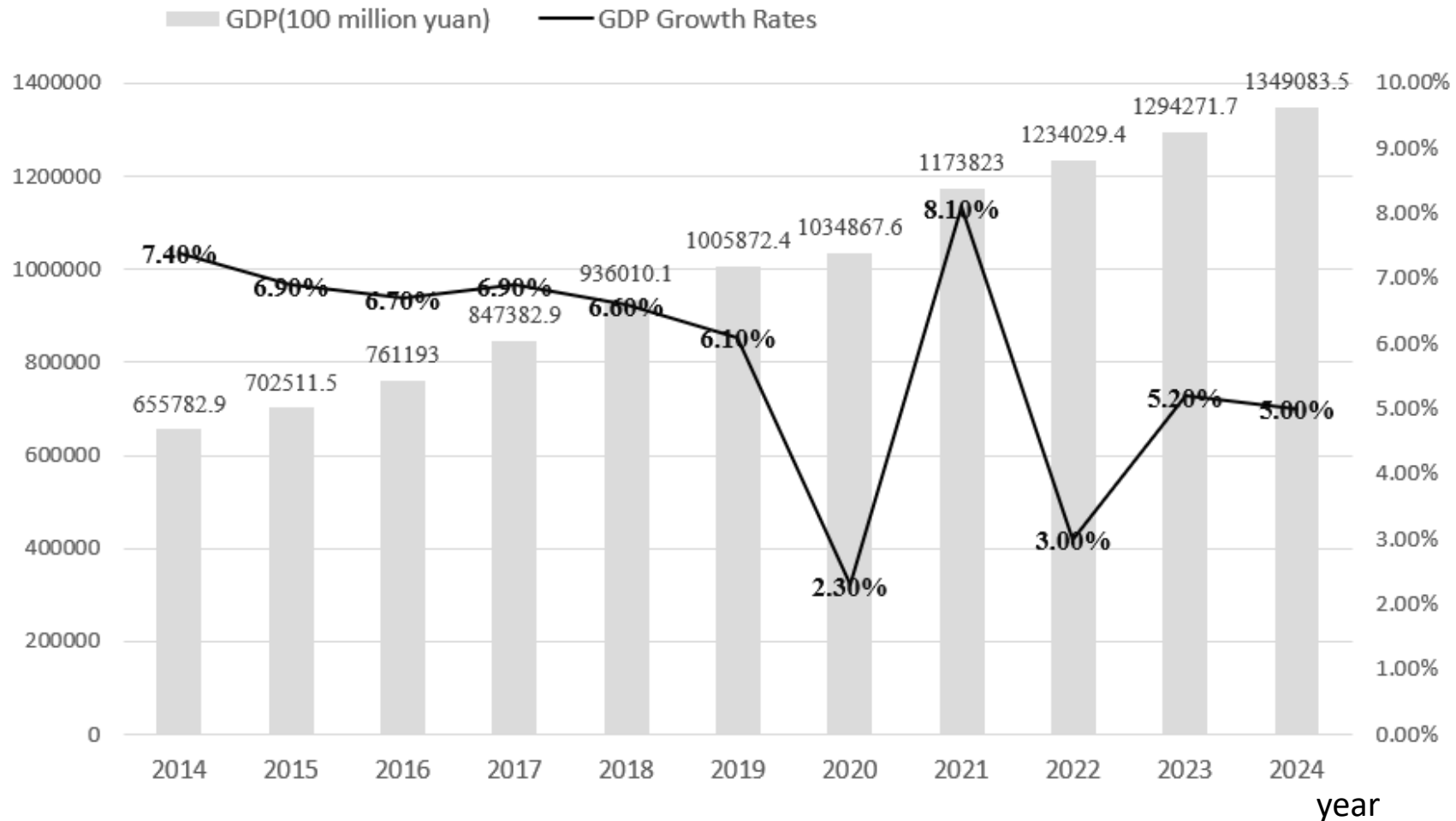
Data source: Survey of Foreign-Invested Enterprises (2016–2024)

China's Policies to Retain Foreign Firms and Ease Bottlenecks

Release time	Policy Name	Content
2019/03	<i>Foreign Investment Law of the People's Republic of China</i>	The state implements high-level policies on investment liberalization and facilitation, establishes and improves mechanisms for promoting foreign investment, and fosters a stable, transparent, predictable, and fair competitive market environment.
2021/10	<i>14th Five-Year Plan for the Utilization of Foreign Investment</i>	It is required that policy documents closely related to the operation of foreign-invested enterprises should have reasonably set implementation timelines to “ enhance policy predictability, ” and that policy consultation windows be established to provide in-depth explanations of policies and respond to enterprises' concerns.
2023/10	<i>Opinions of the State Council on Further Optimizing the Foreign Investment Environment and Increasing Efforts to Attract Foreign Investment</i>	Strengthen the protection of foreign investment and ensure national treatment for foreign-invested enterprises; formulate foreign-related economic and trade policies with “ enhanced transparency and predictability, ” and set reasonable transition periods for newly introduced policies.
2024/02	<i>Action Plan for Advancing High-level Opening-up and Making Greater Efforts to Attract and Utilize Foreign Investment</i>	Increase policy support to enhance the attractiveness of foreign investment; optimize the fair competition environment and improve services for foreign-invested enterprises.
2024/09	<i>Special Administrative Measures for Foreign Investment Access (Negative List)</i>	The number of restrictive measures on the foreign investment negative list was reduced from 31 to 29, and restrictions on foreign investment in the manufacturing sector were lifted.
2025/02	<i>Action Plan for Stabilizing Foreign Investment in 2025</i>	Implement the requirement of fully lifting restrictions on foreign investment access in the manufacturing sector. Continue to optimize the business environment and effectively ensure that foreign-invested enterprises receive national treatment.

Chinese economy has been slowing over the past few years

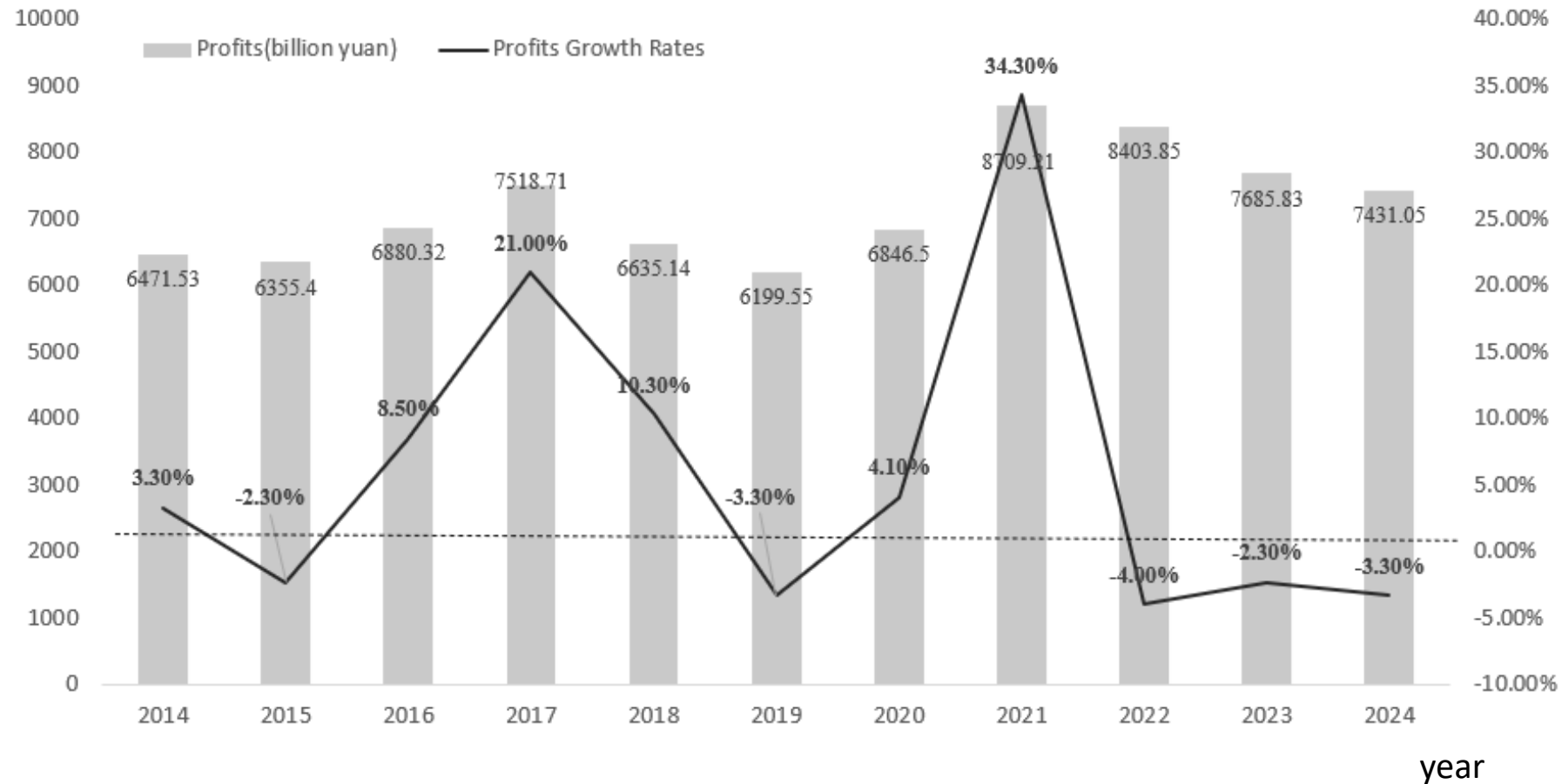
Gross Domestic Product and Growth Rates 2014-2024



Data source: National Bureau of Statistics of China

Evolving Profit Environment in China

Profits and Growth Rates of Industrial Enterprises Above Designated Size, 2014–2024



Data source: National Bureau of Statistics of China

Research Question

- This study asks: How does rising domestic competitiveness affect foreign firms in China? how domestic competitiveness translates into pressure on the foreign firms operating in China?
- On top of quantitatively measure the effect, we also propose a model with empirical verification to show that the prospect of expansion relies on the “top firms” within an industry – a higher percentile of the markup distribution, which is slowing rapidly and leads to foreign firms more hesitant to opt for expansionary strategy.
- This paper sheds light on the current strategy for policy makers to attract foreign investment: not to subsidize everyone but make sure there is a potential to gain benefits for the winners.

Study Roadmap

1. Does involution affect the FIEs expansion decisions?
2. Industry and Firm Heterogeneity
3. Mechanism

Literature Review

Impact of Market Competition on Firm Performance

- **Positive: Innovation** (Aghion et al., 2014; Fan et al., 2020); **Productivity** (Javorcik et al., 2012);

Operating costs (Driffield and Kambhampati, 2003).

- **Negative: Firm performance** ↓ (Beiner et al., 2011).

- **Geographical perspective: Industrial Clustering**

- **Positive: Marshallian externalities**—knowledge spillovers, shared inputs, and lower transaction costs (Hu and Xu, 2015; Rodríguez-Castelán et al., 2018; Prudencio-Vázquez et al., 2022).

- **Negative: Congestion and cut-throat rivalry** (Gao and Yuan, 2021).

Research gap:

- Existing literature has **limited attention to FIEs**. → **We provide new insights** to examine FIEs.

Literature Review

Markup Measurement Methods

- **Accounting-based methods:**

Use accounting indicators. (Lerner, 1934 ; Domowitz et al., 1986).

Limitation: valid only under constant returns to scale and fixed capital cost.

- **Production-function-based methods:**

Originated from Hall (1986, 1988, 1989). Refined by De Loecker and Warzynski (2012, DLW).

Widely adopted.

This paper: Follows De Loecker (2016) to compute firm-level markups.

Literature Review

Determinants of Foreign-invested Enterprises' Operations

- **Market size, GDP** (Sharma and Bandara, 2010).
- **Labor costs** (Cheng and Kwan, 2000; Akinlo, 2004; Xu and Chen, 2008; Ma and Lai, 2020).
- **Tax policies** (Jia, 2014; Gao and Shi, 2024; Luo et al., 2022).
- **Institutions** (Acemoglu and Johnson, 2005; Meyer, 2001; Chen and Zhang, 2023).
- **Business environment** (Li et al., 2024).

Research gap:

- Few examines how the **market competition** affect FDI.
 - Competition environment may play a “**stabilizing FDI**” role.

Model: Core Idea & Mechanism

- **Core Idea of the model**

- Firms look to the **industry leaders' markups** as a signal of long-term profitability.

- **Key Mechanism**

- **Market share channel:** High-ranked firms have a larger market share, so it works as the most important model to amplify the expected value of the whole industry
- **Top-end persistence effect:** when high-ranked firms' markups are more durable, the perceived value of entering the industry rises (low-ranked firms are more easily to be forgotten by the market).
- Thus, expansion is not uniform across the distribution — **followers condition their entry on the profitability of the leading companies.**

Theoretical Model

1) Setup and notation

- Time $t = 0, 1, 2 \dots$; discount factor $\beta \in (0, 1)$.
- Addressable market size $Q > 0$; common unit cost scale $c > 0$.
- At each t , the **industry markup distribution** is $H_t(\mu)$ with **quantile function** $\mu_0^{env}(p) = H_t^{-1}(p)$ i.e., the markup at industry quantile μ .

2) Firm's quantity choice, market share, and rank mapping

- At $t = 0$, the firm chooses output $q \geq 0$. Market share: $s(q) = \frac{q}{Q} \in [0, 1]$.
- Let G be the **CDF of industry output** (cross-section across firms): $G(x) = \Pr\{\text{an incumbent's output} \leq x\} \in [0, 1]$. Assume G is continuous and differentiable with density $g(q) = G'(q) \geq 0$.
- The **rank (percentile) induced by q** is the CDF evaluated at q : $p^*(q) = G(q) \in [0, 1]$.
- Interpretation: if $G(q) = 0.85$, the firm's target output sits at the 85th percentile.

Theoretical Model

3) Costs

- One-time fixed entry cost $F(\psi)$.
- **Rank-up cost** $C(p, \psi)$ evaluated at the induced rank $p = (p^*, q)$.
- ψ collects firm traits (efficiency, capital strength, localization experience, etc.).
- Assumptions: $C_p(p, \psi) > 0$, $C_{pp}(p, \psi) \geq 0$, i.e., moving toward higher ranks is costlier and marginal costs are (weakly) increasing.

4) Profit flow and value

- Given q (hence $p^*(q)$), period- profit is

$$\pi_t(q) = (\mu_t(p^*(q)) - 1) c q = (\mu_t(p^*(q)) - 1) c s(q) Q.$$

- With risk neutrality and deterministic, the expected NPV is

$$V(q, \psi | I_0) = \mathbb{E}[\sum_{t=1}^{\infty} \beta^t \pi_t(q) | I_0] - C(p^*; (q)\psi) - F(\psi).$$

Theoretical Model

5) Industry markup dynamics

- For each industry quantile $\mu \in (0,1)$, it follows AR(1) process,

$$\mu_t(u) - \bar{\mu}(u) = \rho(u)[\mu_{t-1}(u) - \bar{\mu}(u)] + \varepsilon_t, |\rho(u)| < 1, \mathbb{E}[\varepsilon_t | I_0] = 0.$$

- Hence (given $\mu_0(u)$),
- $\mathbb{E}[\mu_t(u) | I_0] = \bar{\mu}(u) + \rho(u)^t(\mu_0(u) - \bar{\mu}(u)), t \geq 1.$
- Discounting and summing yields the **discount-equivalent expected markup** at quantile u :

$$\tilde{\mu}(u) = \bar{\mu}(u) + \alpha(u)(\mu_0(u) - \bar{\mu}(u)), \alpha(u) = \frac{(1 - \beta)\rho(u)}{1 - \beta\rho(u)} \in [0,1).$$

- Properties:

$$\partial\alpha/\partial\rho > 0, \partial\alpha/\partial\beta > 0; \rho \rightarrow 0 \Rightarrow \alpha \rightarrow 0; \rho \rightarrow 1^- \Rightarrow \alpha \rightarrow 1.$$

Theoretical Model

6) Firm-level planning

- A firm **equally weights** the entire industry curve $\tilde{\mu}(u)$ (neutral aggregation):

$$\tilde{\mu}^{\text{agg}} = \int_0^1 \tilde{\mu}(u) du = \int_0^1 \bar{\mu}(u) du + \int_0^1 \alpha(u)(\mu_0(u) - \bar{\mu}(u)) du.$$

- This $\tilde{\mu}^{\text{agg}}$ is the sole markup term we plug into profits/NPV.

7) Closed-form NPV and marginal expansion value

- Using $\tilde{\mu}^{\text{agg}}$ as the planning markup,

$$V(q) = \frac{\beta}{1-\beta} c q (\tilde{\mu}^{\text{agg}} - 1) - C(p^*; (q)\psi) - F(\psi), p^*(q) = G(q), g(q) = G'(q).$$

- Differentiating w.r.t. q (note $dp^*(q)/dq = g(q)$):

$$V'(q) = \frac{\beta}{1-\beta} c (\tilde{\mu}^{\text{agg}} - 1) - C_p(p^*; (q)\psi) g(q).$$

- Since aggregation is equal-weight, $\tilde{\mu}^{\text{agg}}$ is constant in q ; the information term doesn't shift with q in this baseline.

Theoretical Model

8) Upper-tail sensitivity

Consider a marginal “good news” at industry quantile u , i.e. a Gateaux variation in $\mu_0(u)$. Then

$$\frac{\partial V'(q)}{\partial \mu_0(u)} = \frac{\beta}{1 - \beta} c \alpha(u) > 0.$$

In other words,

$$\frac{\partial V'(q)}{\partial \mu_0(u_1)} > \frac{\partial V'(q)}{\partial \mu_0(u_2)} \text{ if } u_1 > u_2 ,$$

i.e., **marginal expansion value** puts more weight on **upper-tail markups**, even without imposing any attention bias.

Data Source

Survey of Foreign-Invested Enterprises (2016–2024)

- Questionnaire data: firm info, decisions, expectations and so on
- Measure operational performance

CSMAR (2014–2024)

- Financials, stock, macro indicators of listed firms
- Construct firm-level markup

Wind (2016–2024)

- Industry value-added growth (industrial sector)

National Bureau of Statistics (2016–2024)

- Supplement industry value-added growth

Main Advantage:

- First integration of **survey (motivation and expectations) + financial + industry data**
→ capture competition impact on FIEs operations

Data Cleaning

CSMAR

- Drop obs. with invalid input cost shares (<0 or >1)
- Drop obs. with missing/negative values (revenue, costs, employees, assets)

Survey Data

- Remove firms missing industry markup
- Exclude industries <5 firms
- Drop firms missing EBIT/expansion answers
- Merge professional & legal into “Non-financial Services”

Adjust Industry Changes (Survey)

- If inconsistent 1 year \rightarrow adjust code
- Multiple changes \rightarrow drop firm

Key References

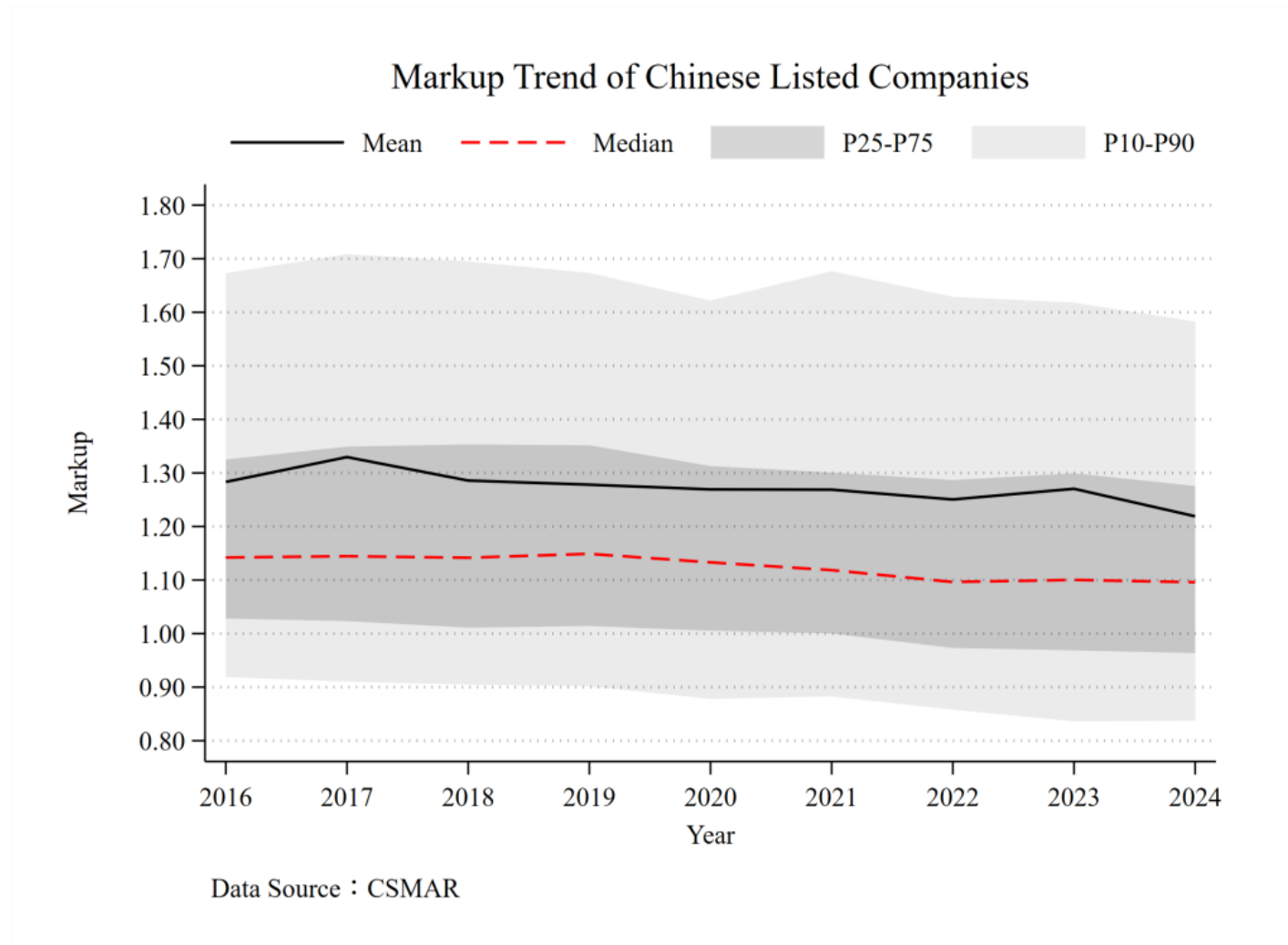
- De Loecker, Goldberg, Khandelwal and Pavcnik (2016), *Econometrica*

Markup Estimation

- We measure firm-level markups following the production-function approach of De Loecker and Warzynski (2012). The central idea is that a firm's markup can be expressed as the ratio between the output elasticity of a variable input and the observed cost share of that input.
- To obtain output elasticities, we estimate sector-specific production functions using panel data of listed companies. Cobb–Douglas specification is applied, with value-added as output and intermediate inputs as the key factor. We implement the Levinsohn–Petrin method to control for simultaneity and obtain consistent estimates of input elasticities.
- These elasticities are then smoothed across rolling windows to account for variation over time and ensure stability.

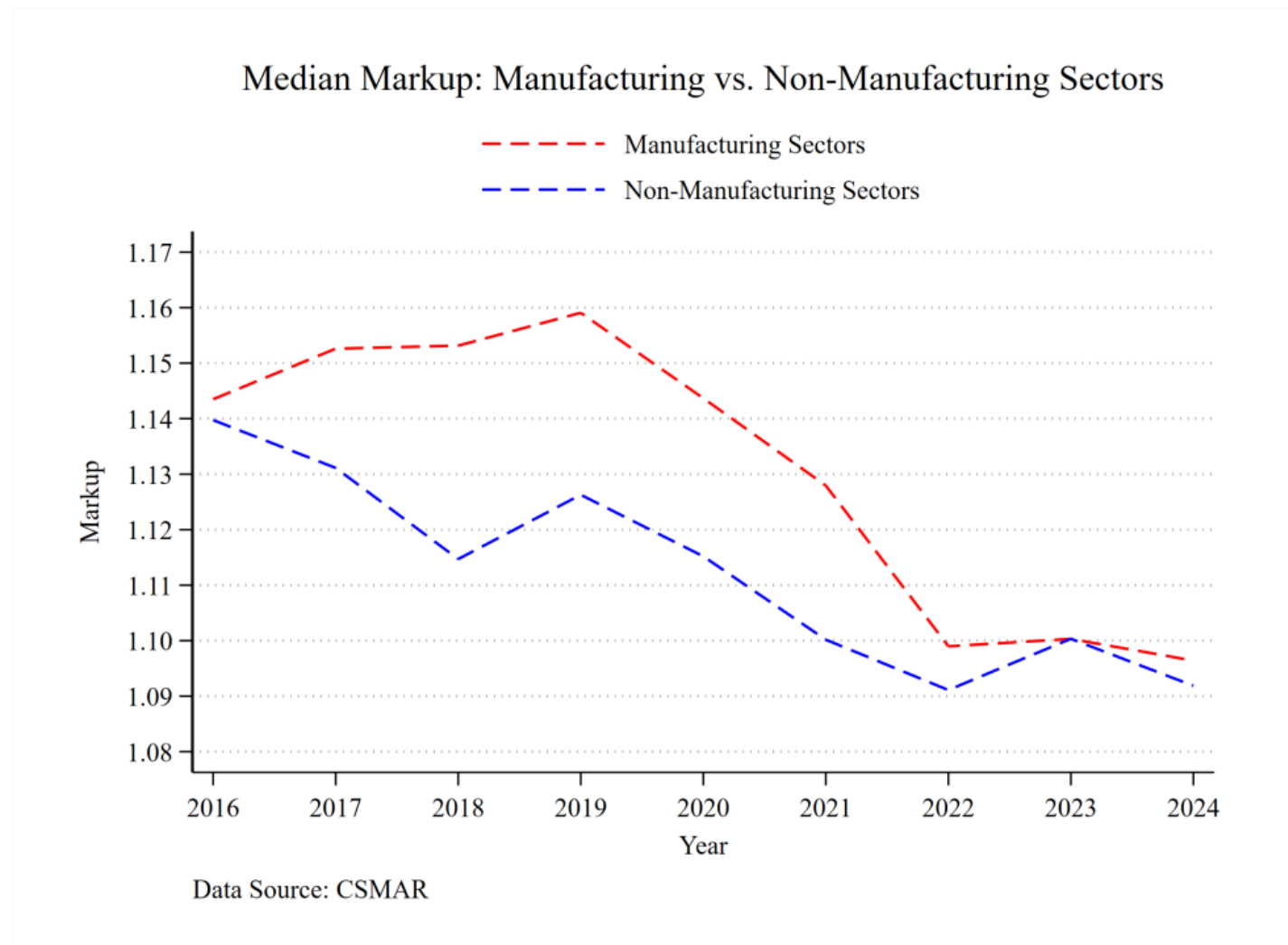
Descriptive Statistics

- Cross-industry temporal patterns of involution (2016-2024)



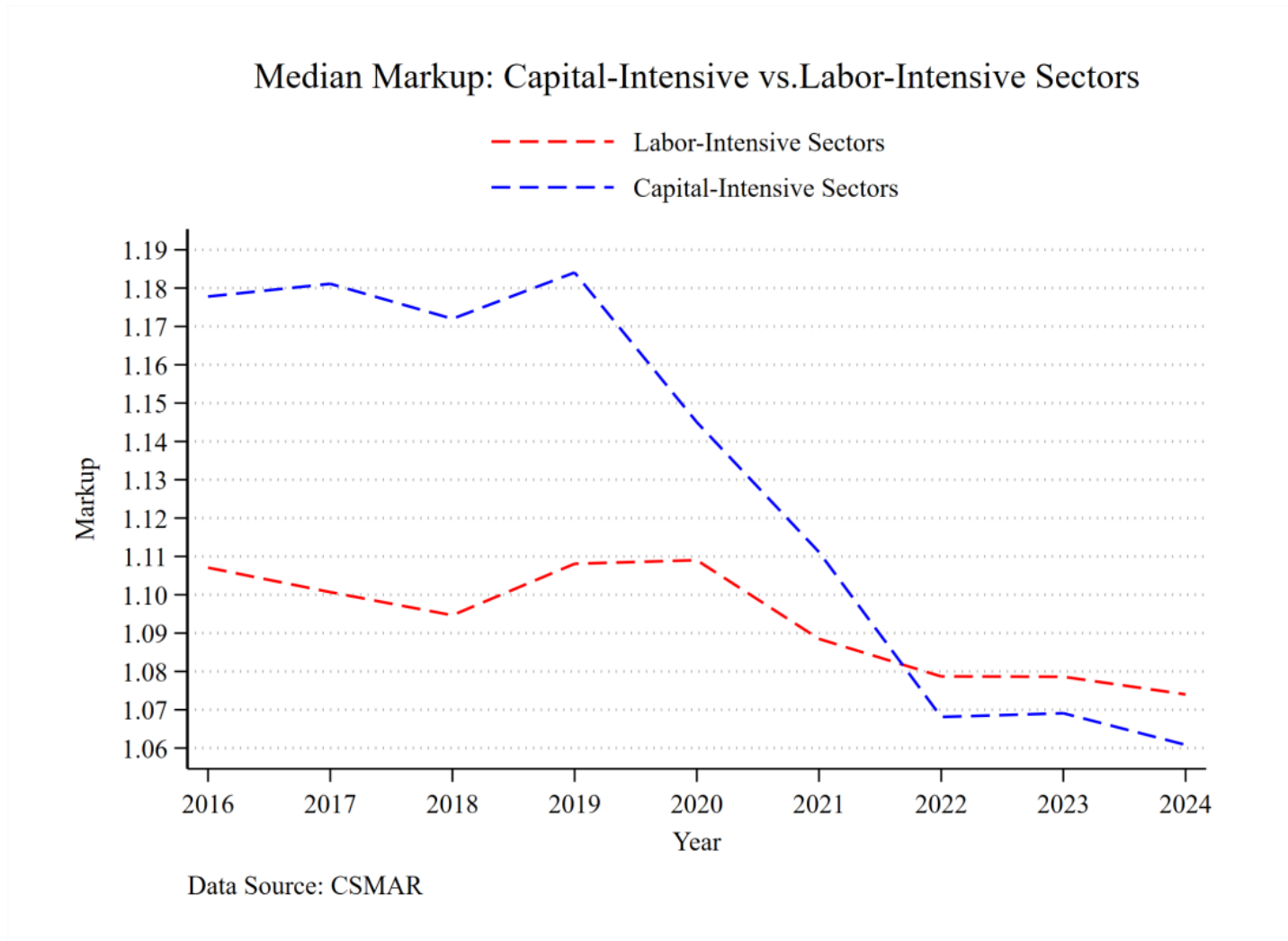
Zooming into manufacturing versus non-manufacturing markup

- Markup trends for manufacturing vs. non-manufacturing sectors (2016-2024)



Descriptive Statistics

- Markup trends for capital-intensive vs. labor-intensive sectors (2016-2024)



Variable Description

Table 3 Variable Description

Variable	N	Mean	SD	Min	Max
mu mean	1670	1.175	0.0700	0.986	1.413
mu wmean	1670	1.139	0.100	0.916	1.440
mu p10	1670	0.965	0.115	0.595	1.197
mu p25	1670	1.020	0.105	0.690	1.253
mu p50	1670	1.119	0.0850	0.868	1.393
mu p75	1670	1.270	0.104	1.003	1.629
mu p90	1670	1.474	0.217	1.123	2.281
IQR	1670	0.250	0.140	0.062	0.774
growthrate	1670	8.111	5.133	-9.00	30.20
expand china	1670	0.656	0.475	0	1
size	1670	3.116	1.437	1	5
yop_cn	1670	3.816	1.185	1	5
revenue	1670	3.663	1.584	1	6
rev_chg	1670	3.460	1.096	0	5
ebit	1670	0.780	0.414	0	1
ebitchange	1670	0.830	0.376	0	1
olk pressure	1661	0.114	0.318	0	1
olk growth	1668	0.535	0.499	0	1
olk labour	1661	0.069	0.253	0	1
olk profit	1666	0.220	0.414	0	1
olk product	1647	0.328	0.470	0	1
olk input	1541	0.119	0.324	0	1

Note:even one-time surveyed enterprises answer revenue change questions

Correlation Matrix

Table 4 Correlation Matrix

	mu_mean	mu_wmean	mu_p10	mu_p25	mu_p50	mu_p75	mu_p90
mu_mean	1						
mu_wmean	0.798***	1					
mu_p10	0.401***	0.311***	1				
mu_p25	0.517***	0.416***	1. 0.974***	1			
mu_p50	3. 0.781***	0.621***	0.810***	0.885***	1		
mu_p75	0.855***	0.682***	2. -0.022	0.109***	0.464***	1	
mu_p90	0.390***	0.356***	-0.614***	-0.528***	-0.216***	0.674***	1

Synergy at Low–Medium Quantiles

- P10–P25: strong correlation (0.97)

Divergence in Competition

- P25–P75: weak correlation
- P90: negative correlation with P10, P25, P50

Baseline Model

$$\text{logit} (ExpandChina_{it}) = \beta_0 + \beta_1 markup_{st} + \beta_2 controls + \gamma_s + \gamma_t + \varepsilon_{it}$$

- **Baseline:** logit model.
- **The subscripts s , i , and t** represent industry, firm, and year, respectively.
- **ExpandChina:** dependent variable. Indicates whether foreign-funded enterprises in China choose to expand their business (1 = Yes, 0 = No).
- **Markup:** core explanatory variable. A lower value reflects higher intra-industry competition.
- **Controls:** firm size; years of operation in China; revenue; annual change in revenue; industry value-added growth rate.
- **Fixed Effects:** Industry & year (γ)
- **SEs:** Firm-level cluster-robust

Baseline

Table 5 The Impact of Markup on Firms' Investment in China

	(1)	(2)	(3)	(4)	(5)
mu_p10	2.716 (1.671)				
mu_p25		2.545 (1.549)			
mu_p50			2.050 (1.318)		
mu_p75				1.939** (0.859)	
mu_p90					1.960*** (0.676)
size	0.185** (0.074)	0.184** (0.074)	0.189** (0.074)	0.198*** (0.074)	0.195*** (0.074)
yop_cn	0.048 (0.070)	0.049 (0.070)	0.047 (0.070)	0.043 (0.071)	0.047 (0.071)
revenue	0.008 (0.065)	0.008 (0.065)	0.006 (0.065)	0.002 (0.065)	0.004 (0.065)
rev_chg	0.381*** (0.057)	0.381*** (0.057)	0.381*** (0.057)	0.378*** (0.057)	0.384*** (0.057)
growthrate	0.038** (0.015)	0.037** (0.015)	0.037** (0.015)	0.036** (0.015)	0.040*** (0.015)
ind.fe	yes	yes	yes	yes	yes
year.fe	yes	yes	yes	yes	yes
<i>N</i>	1670	1670	1670	1670	1670
Pseudo R ²	0.103	0.103	0.103	0.104	0.106

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Key Findings

- High-ranked firms (high markup): Significant positive spillover on FDI.
- Low/medium ranks: Positive but not statistically significant.

Baseline Model (Markup p90)

Table 6 Baseline Regression (Markup p90)

	(1)	(2)	(3)	(4)
mu_p90	1.322** (0.647)	1.472** (0.655)	1.813*** (0.654)	1.960*** (0.676)
size		0.021 (0.061)		0.195*** (0.074)
yop_cn		0.181*** (0.061)		0.047 (0.071)
revenue		0.041 (0.063)		0.004 (0.065)
rev_chg		0.383*** (0.056)		0.384*** (0.057)
growthrate		0.038*** (0.013)		0.040*** (0.015)
controls	no	yes	no	yes
ind.fe	yes	yes	yes	yes
year.fe	no	no	yes	yes
<i>N</i>	1670	1670	1670	1670
Pseudo R ²	0.040	0.083	0.059	0.098

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Coefficient Interpretation:

Effect of 1 SD \uparrow in mu_p90

- **Baseline** : $P_0 = 65.6\% \rightarrow \log\text{-odds} \approx 0.646$
- **Change** : $\Delta \ell = 1.960 \times 0.217 \approx 0.425$
- **New prob**: $\log\text{-odds} = 1.071 \rightarrow P_1 \approx 74.5\%$

Economic Interpretation:

- 1 SD \uparrow in mu_p90 : Expansion 65.6% \rightarrow 74.5%
- Reduced competition significantly boosts foreign enterprises' expansion probability.

Baseline Model (Markup p75)

Table 7 Baseline Regression (Markup p75)

	(1)	(2)	(3)	(4)
mu_p75	2.195*** (0.777)	1.748** (0.808)	2.144*** (0.831)	1.939** (0.859)
siz		0.038 (0.061)		0.198*** (0.074)
yop_cn		0.170*** (0.061)		0.043 (0.071)
revenue		0.034 (0.063)		0.002 (0.065)
rev_chg		0.379*** (0.056)		0.378*** (0.057)
growthrate		0.034*** (0.013)		0.036** (0.015)
controls	no	yes	no	yes
ind.fe	yes	yes	yes	yes
year.fe	yes	yes	yes	yes
<i>N</i>	1670	1670	1670	1670
Pseudo R ²	0.042	0.083	0.059	0.097

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Coefficient Interpretation:

Effect of 1 SD \uparrow in mu_p75

- **Baseline** : $P_0 = 65.6\% \rightarrow \log\text{-odds} \approx 0.646$
- **Change** : $\Delta \ell = 1.939 \times 0.104 \approx 0.202$
- **New prob** : $\log\text{-odds} = 0.848 \rightarrow P_1 \approx 70.0\%$

Economic Interpretation:

- 1 SD \uparrow in mu_p75 \rightarrow Expansion 65.6% \rightarrow 70.0%
- In low-competition settings, expansion probability remains similar.

Robustness Tests

Table 8 Robustness Test

	(1) xtlogit	(2) ols	(3) logit	(4) markup lag
mu_p90	3.691*** (1.150)	0.389*** (0.125)	3.824** (1.737)	
l3avg_ind_mu				0.130 (0.347)
size	0.292** (0.136)	0.036*** (0.013)	0.541 (0.343)	0.014 (0.020)
yop_cn	-0.001 (0.127)	0.012 (0.013)	-0.086 (0.351)	0.033* (0.018)
revenue	0.040 (0.114)	0.001 (0.011)	0.301 (0.251)	-0.007 (0.017)
rev_chg	0.581*** (0.099)	0.081*** (0.011)	0.632*** (0.184)	0.066*** (0.014)
growthrate	0.068*** (0.025)	0.007** (0.003)	0.055 (0.047)	0.002 (0.003)
ind.fe	yes	yes	no	yes
Company.fe	no	no	yes	no
year.fe	yes	yes	yes	yes
<i>N</i>	1670	1670	448	1054
<i>R</i> ²		0.120		
Pseudo <i>R</i> ²			0.259	

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Robustness Checks:

- Replace logit model with xtlogit model
- Replace logit model with OLS model
- Change industry + year fixed effects → firm + year fixed effects
- Replace markup p90 with three-period lagged average markup

Heterogeneity Analysis: Capital- v.s. Labor Intensive Firms

Table 9 Sectoral Heterogeneity: Labor-Intensive vs. Capital-Intensive

	Labor-Intensive Sectors			Capital-Intensive Sectors		
	(1)	(2)	(3)	(4)	(5)	(6)
mu_p50	4.413*			0.407		
	(2.259)			(1.917)		
mu_p75		2.712**			1.187	
		(1.115)			(1.746)	
mu_p90			2.124**			1.278
			(0.860)			(1.219)
size	0.057	0.066	0.051	0.272***	0.275***	0.276***
	(0.118)	(0.119)	(0.117)	(0.094)	(0.094)	(0.094)
yop_cn	0.007	0.003	-0.000	0.044	0.043	0.045
	(0.119)	(0.121)	(0.121)	(0.086)	(0.086)	(0.086)
revenue	0.103	0.104	0.113	-0.046	-0.046	-0.047
	(0.111)	(0.111)	(0.111)	(0.083)	(0.084)	(0.084)
rev_chg	0.352***	0.346***	0.341***	0.414***	0.413***	0.417***
	(0.103)	(0.104)	(0.104)	(0.069)	(0.069)	(0.070)
growthrate	0.053*	0.054*	0.052*	0.037**	0.037**	0.040**
	(0.029)	(0.029)	(0.029)	(0.018)	(0.018)	(0.018)
ind.fe	yes	yes	yes	yes	yes	yes
year.fe	yes	yes	yes	yes	yes	yes
N	505	505	505	1165	1165	1165
Pseudo R ²	0.091	0.095	0.094	0.108	0.108	0.109

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Main Conclusions:

- **Labor-intensive:** Significant expansion effects.
- **Capital-intensive:** Insignificant effects.
- **Possible Reasons:** Labor-intensive profits convert faster into expansion capacity.

In Labor-intensive Sectors:

- 1 SD rise in mu_p50 → $\Delta P + 0.296$ (0.640 - 0.936)
- 1 SD rise in mu_p75 → $\Delta P + 0.225$ (0.640 - 0.865)
- 1 SD rise in mu_p90 → $\Delta P + 0.189$ (0.640 - 0.829)

Heterogeneity Analysis: Manufacturing v.s. Non-Manufacturing

Table 10 Sectoral Heterogeneity: Manufacturing vs. Non-manufacturing Industries

	Manufacturing Sectors			Non-Manufacturing Sectors		
	(1)	(2)	(3)	(4)	(5)	(6)
mu_p50	1.626 (1.888)			1.813 (2.602)		
mu_p75		1.352 (1.111)			2.985* (1.650)	
mu_p90			2.073** (0.964)			1.568 (1.083)
size	0.372*** (0.098)	0.376*** (0.098)	0.385*** (0.099)	-0.039 (0.110)	-0.024 (0.111)	-0.040 (0.111)
yop_cn	0.038 (0.089)	0.037 (0.090)	0.039 (0.090)	0.009 (0.109)	0.003 (0.110)	0.007 (0.110)
revenue	-0.006 (0.086)	-0.008 (0.086)	-0.015 (0.087)	0.055 (0.104)	0.045 (0.104)	0.059 (0.104)
rev_chg	0.417*** (0.073)	0.415*** (0.074)	0.418*** (0.074)	0.348*** (0.093)	0.349*** (0.093)	0.348*** (0.093)
growthrate	0.038** (0.019)	0.038** (0.019)	0.042** (0.019)	0.068** (0.029)	0.064** (0.030)	0.061** (0.028)
ind.fe	yes	yes	yes	yes	yes	yes
year.fe	yes	yes	yes	yes	yes	yes
N	1106	1106	1106	564	564	564
Pseudo R ²	0.113	0.114	0.117	0.091	0.095	0.093

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

In Manufacturing Sectors:

- 1 SD rise in mu_p90 → $\Delta P + 0.165$ (0.683 - 0.848)

In Non-Manufacturing Sectors:

- 1 SD rise in mu_p75 → $\Delta P + 0.248$ (0.605 - 0.853)

Economic Interpretation:

- Manufacturing Sectors are expected to benefit if their targeted higher rank competitors face less competition.
- Non-Manufacturing Sectors' expansion responds to improvements at the upper-middle tier, and the markup-expansion effect can induce an exceptionally large ΔP swing once it materializes.

Heterogeneity Analysis: Firm Size

Table 10 Company Size Heterogeneity: Small, Medium vs. Large-Scale

	Small-Scale (1)	Medium-Scale (2)	Large-Scale (3)
mu_p90	1.669** (0.819)	5.939** (2.380)	0.061 (1.641)
yop_cn	-0.133 (0.083)	0.365 (0.236)	0.411** (0.204)
revenue	0.042 (0.077)	-0.037 (0.174)	-0.019 (0.164)
rev_chg	0.356*** (0.064)	0.344** (0.155)	0.483*** (0.172)
growthrate	0.035* (0.020)	0.118*** (0.043)	0.020 (0.031)
ind.fe	yes	yes	yes
year.fe	yes	yes	yes
<i>N</i>	928	333	386
Pseudo R ²	0.072	0.226	0.193

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Firm size classification:

- Large enterprises: 5,000+ employees.
- Medium enterprises: 1,000–5,000 employees.
- Small enterprises: <1,000 employees.

Coefficient Interpretation:

- Large: 1 SD rise in mu_p90 → $\Delta P + 0.002$ (0.689 - 0.690)
- Medium: 1 SD rise in mu_p90 → $\Delta P + 0.260$ (0.679 - 0.939)
- Small: 1 SD rise in mu_p90 → $\Delta P + 0.143$ (0.634 - 0.777)

Notes: For scale heterogeneity analysis, variables were dropped where entire industries had uniform expansion decisions, yielding a final sample of 1,647 observations.

Further Discussion: EBIT

Table 11 Mechanism Test1: EBIT as a Mediator

	Y-M		M-X	
	(1)	(2)	(3)	(4)
	expand_china	ebit	ebit	ebit
ebit	0.415*** (0.152)			
mu_p50		3.079** (1.517)		
mu_p75			1.510* (0.877)	
mu_p90				0.714 (0.705)
size	0.175** (0.073)	0.151* (0.085)	0.153* (0.086)	0.143* (0.086)
yop_cn	0.030 (0.070)	0.226*** (0.081)	0.222*** (0.081)	0.223*** (0.081)
revenue	0.001 (0.065)	0.147** (0.070)	0.148** (0.069)	0.153** (0.070)
rev_chg	0.343*** (0.058)	0.645*** (0.071)	0.645*** (0.071)	0.650*** (0.071)
growthrat	0.038** (0.015)	-0.001 (0.018)	-0.003 (0.018)	-0.001 (0.018)
ind.fe	yes	yes	yes	yes
year.fe	yes	yes	yes	yes
N	1670	1670	1670	1670
Pseudo R ²	0.098	0.165	0.165	0.163

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Mediating Variable:

- EBIT status in Mainland China:
- 1=Positive,
- 0=Negative, Broke Even

Key Findings:

- Profit partially mediates the markup–expansion relationship
- Mediating effect diminishes at higher markup quantiles

Further Discussion: EBIT Change

Table 12 Mechanism Test2: EBIT Change as a Mediator

	Y-M		M-X	
	(1)	(2)	(3)	(4)
	expand china	ebitchange	ebitchange	ebitchange
ebitchange	0.666*** (0.192)			
mu_p50		0.857 (1.688)		
mu_p75			0.234 (1.100)	
mu_p90				0.783 (0.954)
size	0.173** (0.074)	0.122 (0.102)	0.121 (0.102)	0.124 (0.102)
yop_cn	0.027 (0.071)	0.180 (0.115)	0.179 (0.116)	0.180 (0.115)
revenue	0.024 (0.065)	-0.174* (0.100)	-0.173* (0.099)	-0.176* (0.099)
rev_chg	0.271*** (0.065)	1.397*** (0.120)	1.398*** (0.120)	1.399*** (0.120)
growthrate	0.037** (0.015)	0.002 (0.024)	0.002 (0.024)	0.003 (0.025)
ind.fe	yes	yes	yes	yes
year.fe	yes	yes	yes	yes
N	1670	1670	1670	1670
Pseudo R ²	0.101	0.314	0.314	0.315

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Mediating Variable:

- Company EBIT change (YoY%):
- 3=Higher
- 2=Same
- 1=Lower

Key Findings:

- EBIT mediates expansion decisions in contemporaneous models
- No mediation in annual-change specifications
- Growth current profitability > Profit growth

Further Discussion: Future Expectations

Table 13 Moderation Effect Test: Expectation Effect

	profit	growth	labour	product	input	pressure
	(1)	(2)	(3)	(4)	(5)	(6)
mu_p90	1.688** (0.737)	1.129 (0.794)	1.937*** (0.712)	1.876** (0.752)	1.874** (0.751)	1.756** (0.716)
profit_mup90	0.831 (0.789)					
olk_profit	-0.283 (1.155)					
growth_mup90		1.483** (0.686)				
olk_growth		-1.003 (1.012)				
labour_mup90			0.004 (1.133)			
olk_labour			0.397 (1.710)			
product_mup90				0.421 (0.660)		
olk_product				0.075 (0.977)		
input_mup90					1.081 (0.916)	
olk_input					-1.039 (1.356)	
pressure_mup90						0.904 (0.978)
olk_pressure						-0.574 (1.442)
controls	yes	yes	yes	yes	yes	yes
ind.fe	yes	yes	yes	yes	yes	yes
year.fe	yes	yes	yes	yes	yes	yes
<i>N</i>	1524	1524	1524	1524	1524	1524
Pseudo R ²	0.116	0.151	0.107	0.119	0.110	0.125

Moderating Variable:

- 2-year sector outlook: Competitive pressure, Growth, Labour costs, Profitability, Productivity, Access to inputs
- 1 = Optimistic/Neutral, 0 = Pessimistic

Key Findings:

- Industry growth confidence offsets competition's negative effect

Suggestions:

- Ensure policy stability — provide long-term predictability
- Send timely signals — foster a sound business climate
- Stabilize growth expectations— enhance China's global capital appeal

- The industry model (higher ranked firms) provides the strongest indicative power for foreign investors considering expansion in China.
- In particular, the positive impact of relaxed competition is most pronounced in labor-intensive sectors, manufacturing industries, and among small and medium-sized enterprises.
- Profitability mediates expansion decisions, with diminishing marginal effects in looser markets.

Thank you!

We highlight how competitive dynamics shape FDI expansion — focusing on industry leaders can guide effective policy.