

How do Stimulus Policies Move Firms' Expectations?

Evidence from Chinese Micro and Small Enterprises

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Introduction

- A central issue in macro: how do firms respond to stimulus policies?
 - CEE (2005), Nakamura and Steinsson (2018), Coibion et al (2022), Bauer and Swanson (2023)
- Many open questions: does announcement of stimulus policies . . .
 - improve firms' expectations about aggregate economic conditions?
 - affect firms' expectations about their idiosyncratic conditions?
 - induce heterogeneous responses across firms depending on their characteristics?
 - move firms' beliefs closer to, or further away from, rational benchmarks?
 - change firms' actual decision patterns?
 - .
 - .
 - .
- This project: a unique policy event in China to shed light on these questions

Setting

- **Micro and small enterprises (MSE) make and receive payments via Alipay**
 - Alipay: $\approx$ 50% share of China's mobile payments in 2025
- **Construct an online survey for MSE via Alipay**
 - contain questions on firms' expectations of macro and individual conditions
 - questionnaires are sent out sequentially each quarter over a two-week window
 - can be linked with transaction history of sales and order
- **Chinese government announced an unexpected stimulating package**
 - announcement period (September 26, 2024) overlaps with survey window
 - natural experiment to explore effects of announcement on firms' expectations

Findings

1

Policy announcement improves both macro and micro expectations

- stronger incentive to expand business, less likely to shut down
- partial equilibrium thinking: expect own prices to increase, but not input prices

2

Policy announcement enhances role of common component in firms' expectation

- firms exhibit less over-reaction with respect to individual variables, but not to aggregate variables
- strengthened synchronization between macro and micro expectations

3

Policy announcement alters firms' actual behavior

- pricing decisions shift from myopic to forward-looking

SECTION 1

Survey Description

Basic Information

2020Q3–present

Quarterly survey frequency

≈ 6,000

Participants per wave

Redrawn sample

New firms each period

Linked data

Transactions and future footprints

Question blocks

Firm characteristics

Region, industry, registered type, age, gender

Operations

Orders, costs, employment, sales, and revenue changes

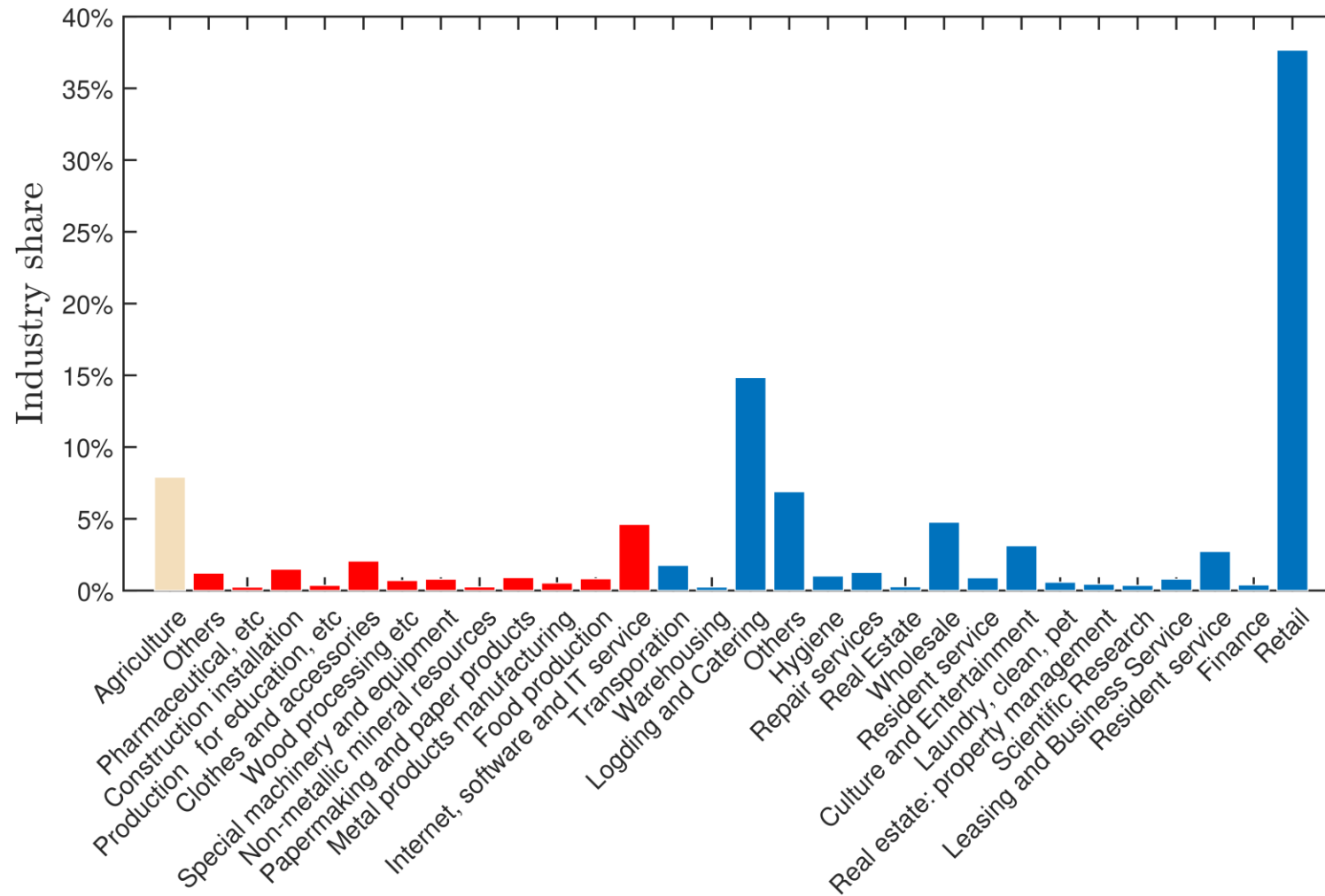
Financing

Financing channels, borrowing costs, credit limit, constraints

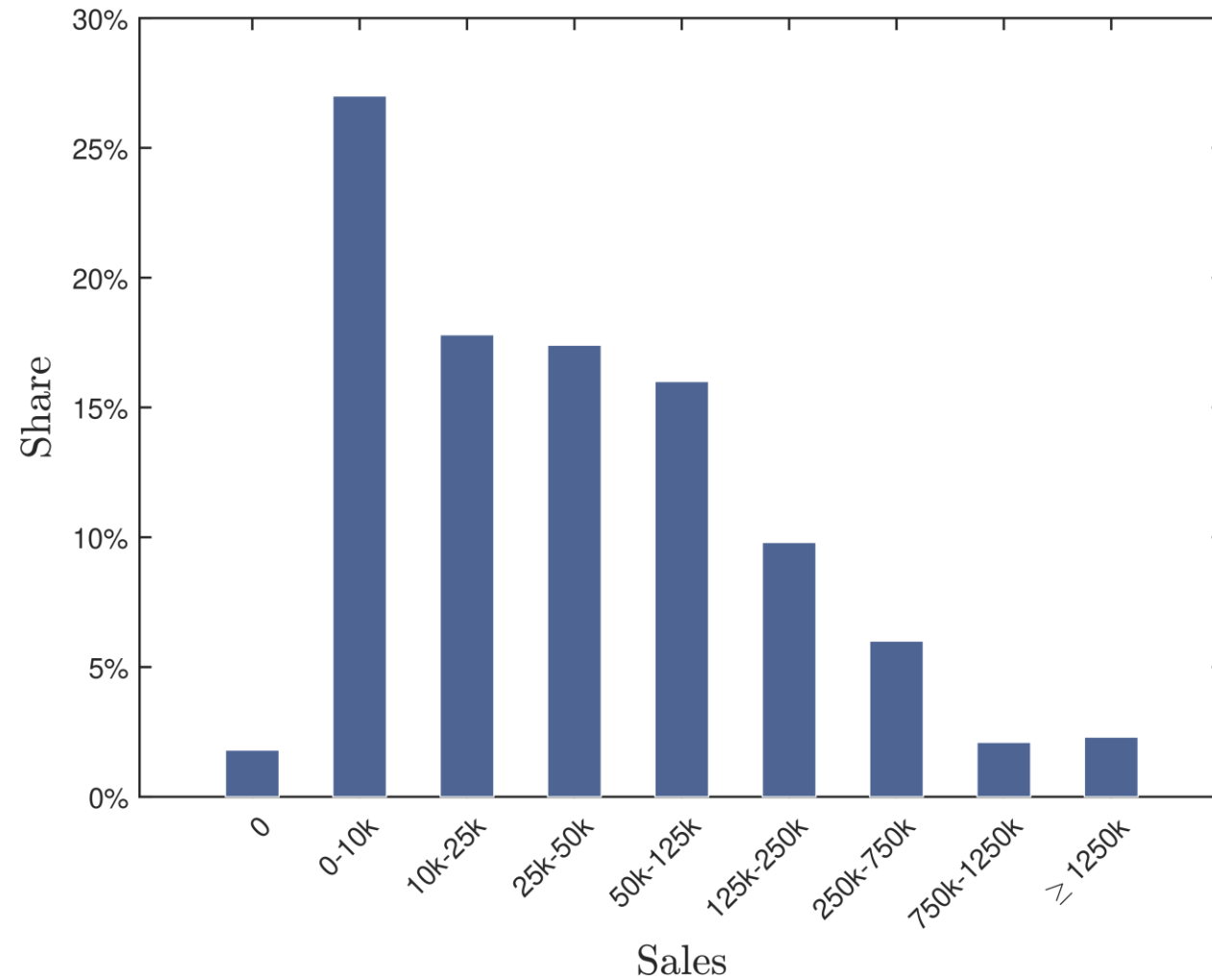
Expectations

New module from 2023Q4 on individual and aggregate expectations

MSE Distribution: Industry



MSE Distribution: Sales



Soliciting Firms' Expectations I

Business conditions

Relative to the current quarter, how do you expect the following items to change in the next quarter?

Item	decrease > 10%	decrease < 10%	unchanged	increase < 10%	increase > 10%	uncertain
New orders						
Sales						
Operation cost						
Employment						

Prices and wages

Relative to the current quarter, how do you expect the following items to change in the next quarter?

Item	decrease > 5%	decrease < 5%	unchanged	increase < 5%	increase > 5%	uncertain
Product price						
Average wage						
Raw material price						

Soliciting Firms' Expectations II

China's GDP growth rate

What is your expectation in the next 12 months?

< -3

[-3,0]

[0,3]

[3,4]

[4,5]

[5,6]

[6,8]

> 8

uncertain

China's CPI growth rate

What is your expectation in the next 12 months?

< -3

[-3,-2]

[-2,-1]

[-1,0]

[0,1]

[1,2]

[2,3]

> 3

uncertain

China's house price growth rate

What is your expectation in the next 12 months?

< -15

[-15,-10]

[-10,-5]

[-5,0]

[0,5]

[5,10]

[10,15]

> 15

uncertain

Shanghai Stock Exchange Composite (SSC) Index

What is your expectation in the next 12 months?

<2200

[2200,2400]

[2400,2600]

[2600,2800]

[2800,3000]

[3000,3300]

[3300,3600]

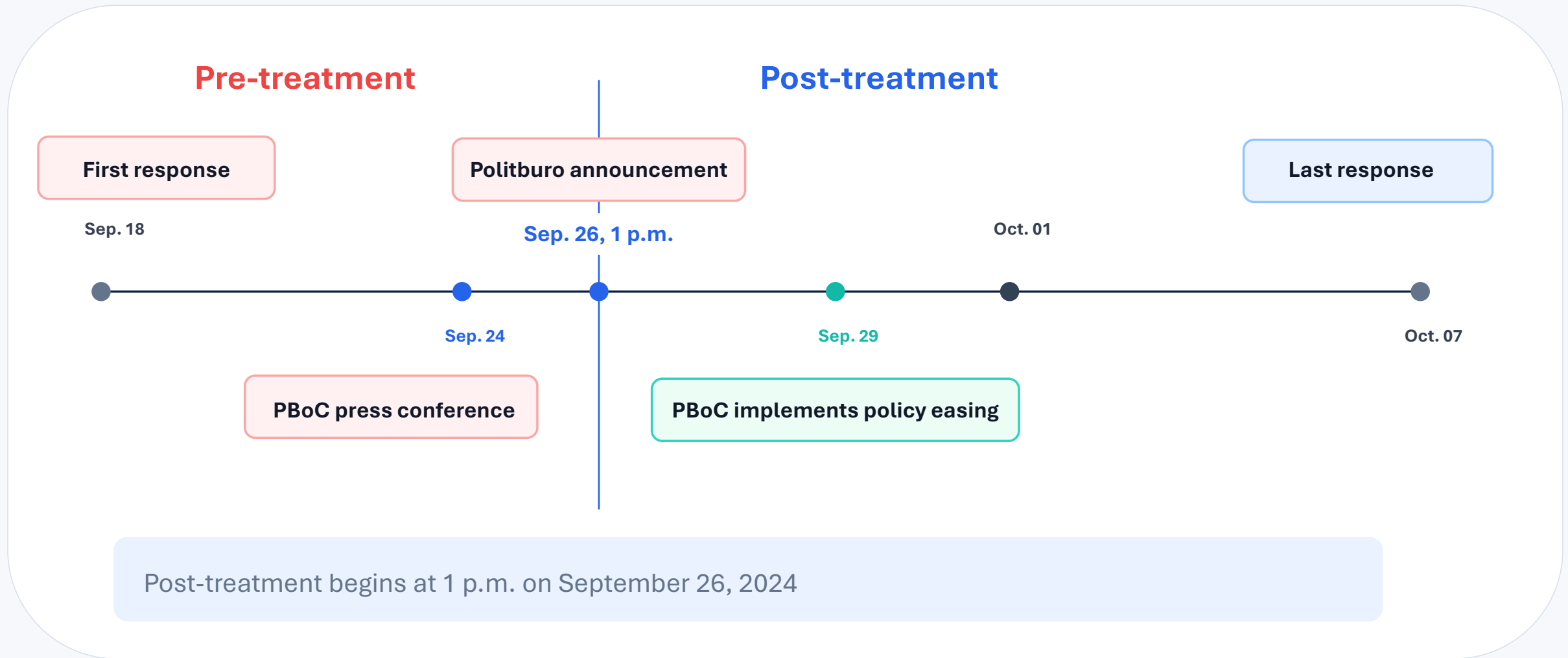
>3600

uncertain

SECTION 2

Policy Announcement

Timing



Sept. 26 Politburo Announcement

Broad pro-growth, stimulating-demand signal

- **Urgency:** face problems; meet 2024 targets.
- **Fiscal/monetary:** use special bonds; cut RRR and rates.
- **Property/markets:** ease purchases; lower mortgages; support stocks.
- **Firms/jobs:** support private firms, employment and incomes.

China specific: announcement from Politburo, strong signal for large scale stimulating package

Public Perception

- **The Wall Street Journal** — “China Is Assembling an Economic Bazooka, Piece by Piece.”
- **Reuters** — “from piecemeal policies to a highly orchestrated package in the right direction.”
- **Reuters exclusive** — “China to issue \$284 billion of sovereign debt this year to help revive economy.”

Part 1: Macro and Micro Expectations

General specification

$$\mathbb{E}_i[Y] = \beta \cdot \mathbf{1}\{\text{post}\} + \gamma X_i + \text{FE}_i + \mu_i$$

Macro outcomes

- GDP, stock prices, CPI, house prices
- Interest rates

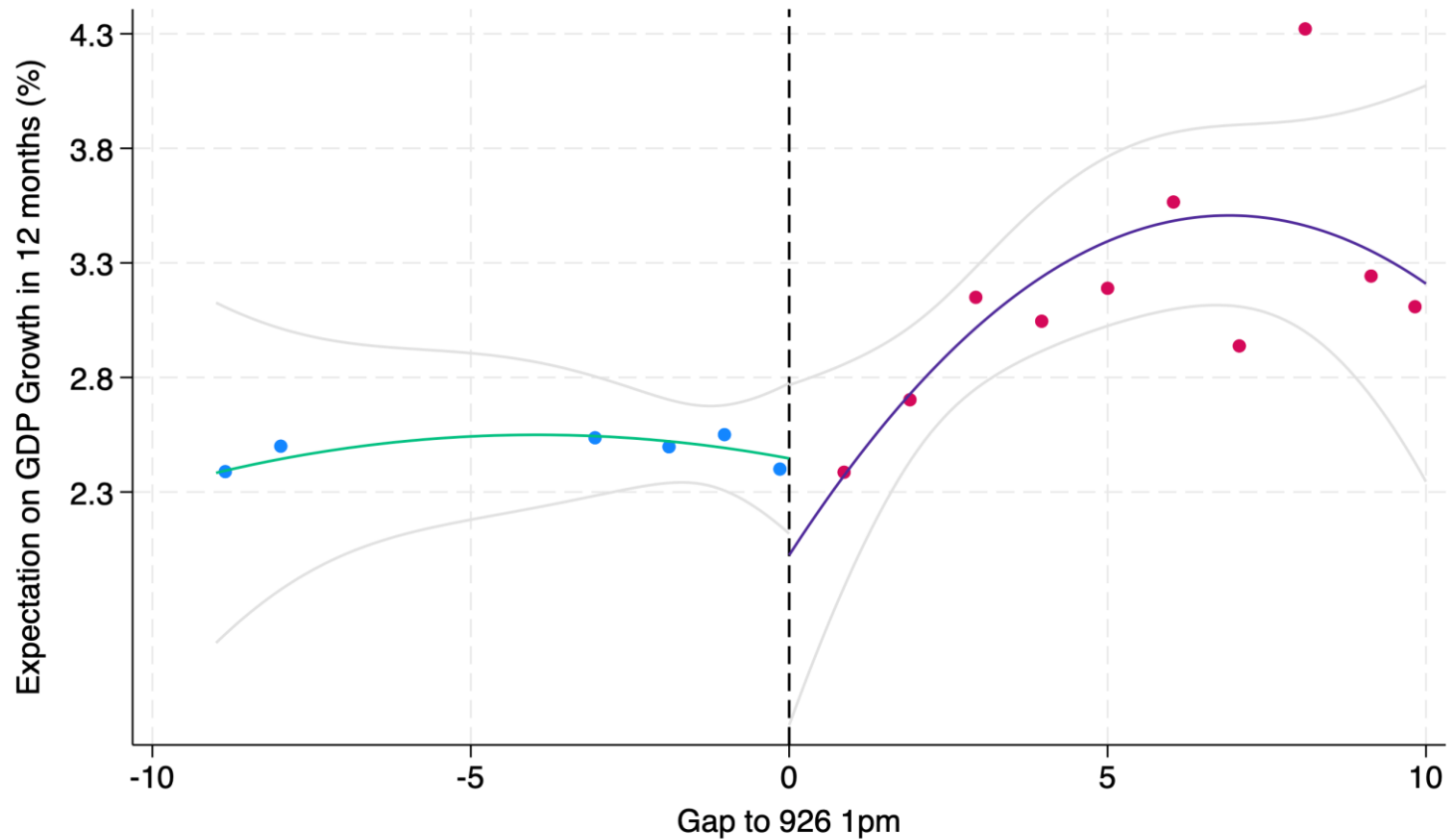
Micro outcomes

- Orders, revenue, employment, prices, costs
- Future plans, cash flow, financing demand

Improved Macro Expectations

	(1)	(2)	(3)	(4)	(5)
Outcome	Stock %	GDP	CPI	House price	Interest rate
Post	5.857***	0.309**	0.267**	1.486*	-0.074
	(1.489)	(0.116)	(0.112)	(0.755)	(0.066)
SHC return (t-1, %)	0.625***	0.081**	-0.003	0.184	0.001
	(0.200)	(0.035)	(0.023)	(0.176)	(0.009)
SHIBOR	-2.758	0.373	0.278	3.208	-0.324
	(5.111)	(0.911)	(0.714)	(2.666)	(0.233)
Controls	Y	Y	Y	Y	Y
Fixed effects	Y	Y	Y	Y	Y
Observations	1,872	2,078	2,249	2,192	2,380
Adjusted R ²	0.078	0.002	0.016	0.023	0.009

Consensus Expectations



Interpretation

In contrast with slow-moving consensus forecasts in prior work, the survey reveals a fast upward adjustment in GDP-growth expectations after the announcement.

Micro Expectations on Business Conditions Improve

	(1)	(2)	(3)
Outcome	Orders	Revenue	Employment
Post	0.909*	1.045*	0.302**
	(0.497)	(0.493)	(0.119)
Controls	Y	Y	Y
Fixed effects	Y	Y	Y
Observations	4,849	4,990	5,270
Adjusted R ²	0.041	0.056	0.022

Micro Expectations on Future Plans Improve

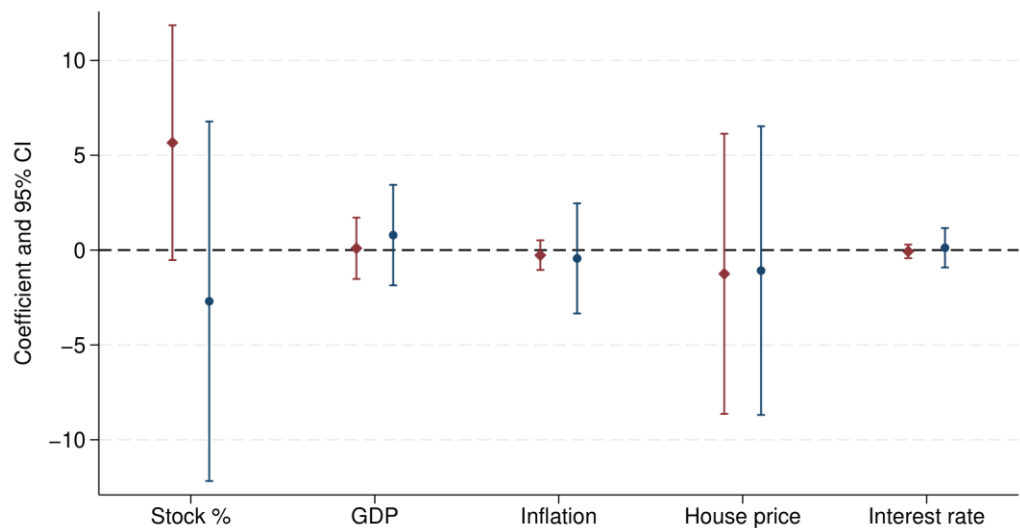
	(1)	(2)	(3)	(4)	(5)	(6)
Outcome	Shutdown	Cashflow	Fin. demand (log)	Financial purpose		
				Expand	Repay	Estate
Post	-0.038***	0.288***	0.157**	0.053**	-0.063***	0.002
	(0.008)	(0.050)	(0.056)	(0.024)	(0.016)	(0.006)
Controls	Y	Y	Y	Y	Y	Y
Fixed effects	Y	Y	Y	Y	Y	Y
Observations	6,141	6,141	2,822	1,526	1,526	1,526
Adjusted R ²	0.080	0.079	0.192	0.081	-0.004	0.031

Partial Equilibrium Thinking

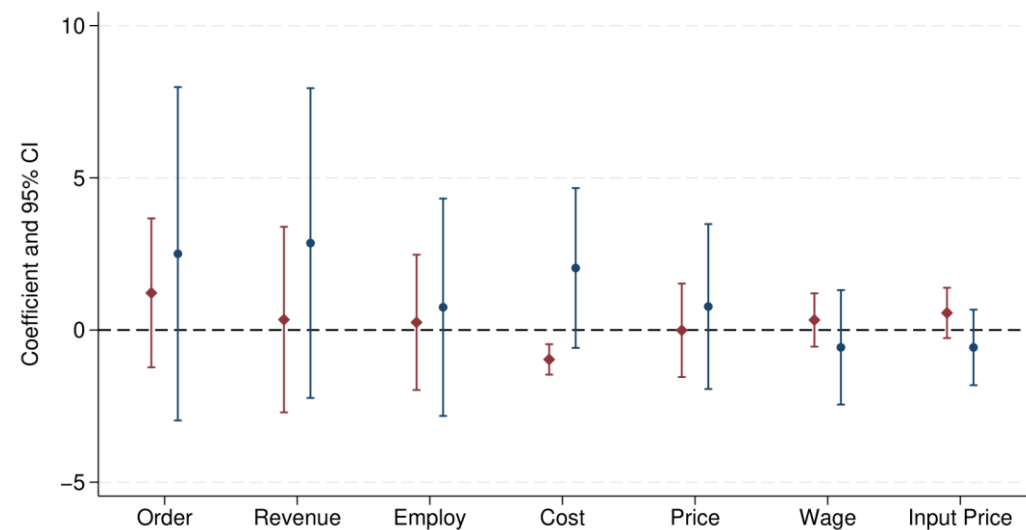
	(1)	(2)	(3)	(4)
Outcome	Price	Wage	Input price	Cost
Post	0.234*	0.323***	-0.036	-0.081
	(0.132)	(0.076)	(0.171)	(0.217)
Controls	Y	Y	Y	Y
Fixed effects	Y	Y	Y	Y
Observations	2,625	2,748	2,675	5,117
Adjusted R ²	0.009	0.006	0.006	0.003

Placebo Test on Expectations

Macro expectations



Micro expectations



◆ Sep. 24-25

● Sep. 26, before 1 p.m.

Part 2: Effects on Expectation Formation

Specification

$$\underbrace{\Delta y_{i,t+1} - \mathbb{E}_i[\Delta y_{i,t+1}]}_{\text{forecast error}} = \beta^{\text{indi}} \Delta y_{i,t} + \delta^{\text{indi}} \times \text{Post} \times \Delta y_{i,t}$$

$$+ \beta^{\text{agg}} \mathbb{E}_i[\Delta \text{GDP}_{t+1}] + \delta^{\text{agg}} \times \text{Post} \times \mathbb{E}_i[\Delta \text{GDP}_{t+1}] + \text{FE} + \varepsilon_{i,t+1}$$

Outcome y

- Revenue or orders
- Forecast errors after the survey

Interpretation

- $\beta < (>) 0$ Over-reaction / under-reaction
- $\text{sign}(\delta) \neq \text{sign}(\beta)$ Announcement reduces behavioral bias

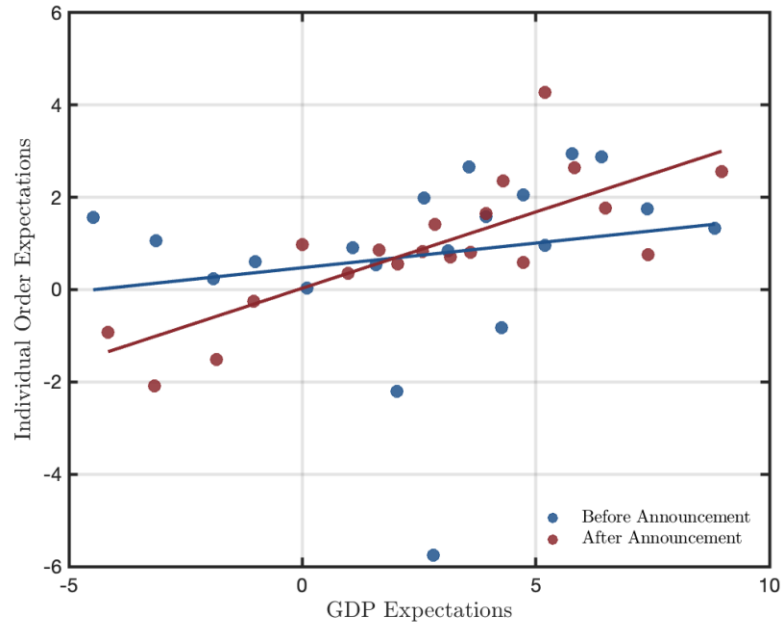
Effects on Expectation Formation

Outcome	Forecast error: Revenue	Forecast error: Orders
$\Delta[\text{Revenue}]_{24Q_3}$	-0.405*** (0.024)	
$\Delta[\text{Revenue}]_{24Q_3} \times \text{Post}$	0.083** (0.037)	
$\Delta[\text{Orders}]_{24Q_3}$		-0.219*** (0.041)
$\Delta[\text{Orders}]_{24Q_3} \times \text{Post}$		0.014 (0.044)
$E_i[\Delta\text{GDP}]$	-0.225 (0.674)	-0.726** (0.311)
$E_i[\Delta\text{GDP}] \times \text{Post}$	-0.572 (0.931)	-0.055 (0.664)
Controls	Y	Y
Fixed effects	Y	Y
Adjusted R ²	0.061	0.021
Observations	1,597	1,545

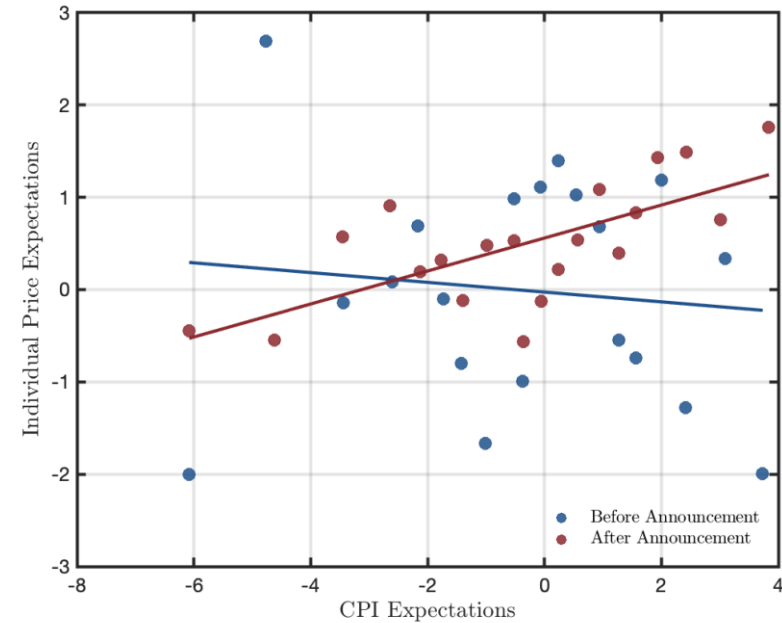
Enhanced Synchronization of Macro and Micro Expectations

$$\Delta \mathbb{E}_i[\text{Order}_{i,t+1}] = \beta \cdot \mathbb{E}_i[\Delta \text{GDP}_{t+1}] + \gamma X_i + \text{FE} + \mu_i$$

$$\Delta \mathbb{E}_i[\text{Price}_{i,t+1}] = \beta \cdot \mathbb{E}_i[\Delta \text{CPI}_{t+1}] + \gamma X_i + \text{FE} + \mu_i$$



Orders vs. GDP expectations



Prices vs. CPI expectations

Part 3: Effects on Decisions

Specification

$$\Delta p_{it} = \beta \mathbb{E}_{it}[\Delta p_{i,t+1}] + \alpha_1 \Delta \text{Micro}_{it} + \alpha_2 \Delta \text{Macro}_{\text{province},t} + \varepsilon_{it}$$

β

Forward-looking consideration

α_1, α_2

Dependence on micro and macro conditions

Effects on Pricing Decisions

Outcome: Δp_{it}	(1)	(2)	(3)	(4)	(5)
Post $\times E_{it}[\Delta p_{i,t+1}]$	0.179*** (0.051)	0.180*** (0.051)	0.180*** (0.051)	0.180*** (0.056)	0.183*** (0.056)
Post	-0.260 (0.299)	-0.261 (0.299)	-0.249 (0.299)	-0.158 (0.326)	-0.153 (0.326)
$E_{it}[\Delta p_{i,t+1}]$	0.064* (0.037)	0.064* (0.037)	0.064* (0.037)	0.077* (0.040)	0.074* (0.041)
$E_{it}[\Delta GDP_{t+1}]$			-0.027 (0.028)		-0.015 (0.031)
$E_{it}[\Delta CPI_{t+1}]$			0.055 (0.035)		0.049 (0.039)
$\Delta[\text{cost}]_{it}$	0.063*** (0.019)	0.063*** (0.019)	0.063*** (0.019)	0.064*** (0.021)	0.065*** (0.021)
$\Delta[\text{own wage}]_{it}$	0.464*** (0.037)	0.464*** (0.037)	0.467*** (0.037)	0.452*** (0.040)	0.452*** (0.040)
$\Delta[\text{new orders}]_{it}$	0.061*** (0.016)	0.061*** (0.016)	0.062*** (0.017)	0.052*** (0.018)	0.052*** (0.019)
ΔCPI province,t		-0.087 (0.264)	-0.103 (0.264)	—	—
ΔGDP province,t		0.032 (0.077)	0.039 (0.077)	—	—
City FE	N	N	N	Y	Y
Observations	1,334	1,334	1,334	1,334	1,334
Adjusted R ²	0.208	0.207	0.207	0.213	0.213

Loan Usage After the Announcement

Outcome	Loan usage	
	Dummy	log(Amount)
2024 indicator × September	0.014*	0.151*
	(0.008)	(0.081)
2024 indicator × October	0.001	−0.009
	(0.009)	(0.088)
2024 indicator × November–December	0.002	0.034
	(0.010)	(0.101)
Monthly revenue control	Y	Y
Year FE (treatment)	Y	Y
Month FE	Y	Y
Firm FE	Y	Y
Year-specific linear trends	Y	Y
Adjusted R ²	0.408	0.411
Observations	89,420	89,420

Conclusion

Takeaways: a natural experiment to study stimulating policies at high frequency

- Announcements are effective in improving macro and micro expectations
 - ‘shallow’ reasoning of GE provides an additional amplification channel
- Announcements modify firms' expectation formation and decision processes
 - more rational and more forward-looking
 - aggregate demand condition becomes more important in shaping beliefs
- Persistent policy effects require subsequent validation of announcement