

Firm-Politician Nexus and Local Public Finance under Trade Shocks: Evidence from China's Primary Land Market

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Motivation

- Global economy confronts heightened trade shocks, after decades of globalization
- Trade openness increases the exposure to external economic shocks and risk
 - The decline of jobs and wage (Autor et al. 2013; Pierce and Schott 2016; Caliendo et al. 2019)
 - Political and social consequences: populism, political polarization, crime, and protests (Dippel et al. 2022; Autor et al. 2020; Dix-Carneiro et al. 2018; Campante et al. 2024)
- **Government** plays a crucial **risk-mitigating role** under globalization (Rodrik 1998)
 - Trade shocks are *uneven* across *localities* with different industry compositions
 - Entails the active role of *local government* in *fiscal stimulus* response to shocks
- Less is known about the local government's response to trade shocks

Funding problem for fiscal stimulus

- Active local fiscal response is challenging in economic downturns
 - 1 Tax revenues are **procyclical**: negative shocks ↓ revenues (Feler and Senses, 2017)
 - 2 Spending/deficit is subject to the predetermined budget → cannot adjust timely
→ Require countervailing adjustments *beyond* regular revenue sources
- One of such strategies: **selling land to the private sector** — “*land finance*”
 - In developing countries (e.g., China, Vietnam, India, Africa) and 19th–20th-century US
 - Recent proposal (alive debate) of massive federal land sale-off in US [▶ detail](#)
- Yet, land finance also involves the firm buyers’ decision
 - **Firm-gov’t/politician connections** may play a crucial role
 - Politicians may exert influence on connected firms and sell land to them
 - Connected firms grant favor to gov’ts (Faccio & Hsu, 2017; Bertrand et al., 2018; Lei, 2021)

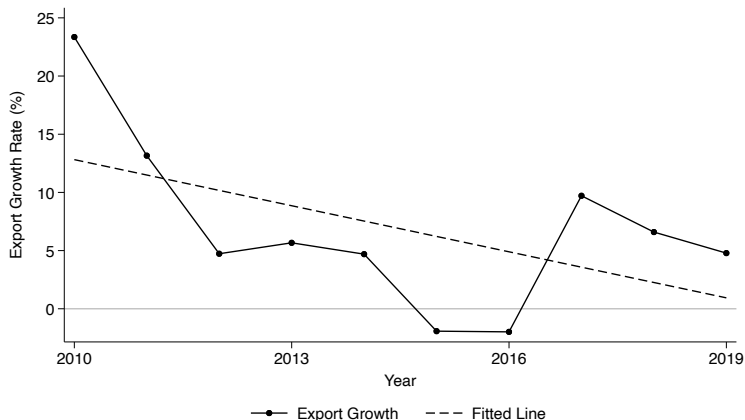
This paper

Studies the fiscal impacts of trade shocks, provides evidence on the [existence](#) and [implications](#) of a novel firm-politician connection channel of land sale revenues

- **Context:** China's marked export slowdown during mid-2010s
 - **Export-led development; but experiencing a rapid export slowdown recently**

Background: China's export slowdown

- Striking decline from the average annual export growth rate of 18% from 1992-2008
 - The ongoing trade war with the US in 2025 further underscores the heightened risks



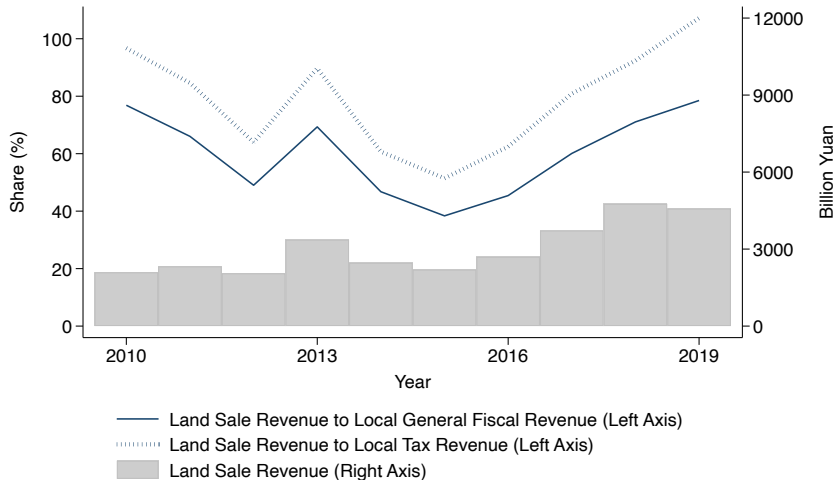
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 - **Local gov'ts rely on land sales to fund infrastructure investment** (Han & Kung 2015)

Background: the prominent role of land revenues in municipal budget

- Land revenues amount to 70%–100% of all other tax revenues



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- Identification similar to Autor, Dorn, & Hanson (2013)
 - **Instrument for the export shock:** a Bartik-style variable, constructed from
 - (i) a city's initial product-level export shares; (ii) rest-of-world product-level trade shocks

Finding preview

- Negative export shock → active land finance response by local governments
 - Cities exposed to export slowdowns ↑ land sale revenues
 - Driven by (non-local) connected firm buyers
- **Connected firm's favoring/contributive motives**, rather than bottom fishing
 - Connected firms *buy more land at higher prices*
 - Heterogeneous effects consistent with politicians building ties with firms
- Fiscal implications: export shock associated with
 - Stimulus spending ↑, mild effect on overall revenue and expenditure, null effect on GDP
- Suggestive evidence on returns to connected firms (*quid pro quo*)

Related literature

1 Social and economic impacts of trade shocks

- local labor market effects (Autor, et al. 2013; Acemoglu et al., 2016; Pierce and Schott, 2016; Dix-Carneiro & Kovak, 2017); social consequences, strikes, and crime (Dix-Carneiro et al. 2018; Dell et al., 2019; Campante et al. 2023; Ma et al., 2024); political effects (Feigenbaum & Hall, 2015; Autor et al., 2020; Rodrik, 2021; Dippel et al., 2022)

2 Economic shocks and local public finance

- Natural disasters (Deryugina, 2017; Jerch, Khan, and Lin, 2023), climate change (Painter, 2020), pandemics (Green and Loualiche, 2021), pension deficits (Novy-Marx and Rauh, 2012), municipal credit constraints (Adelino, Cunha, and Ferreira, 2017)

3 Political economy of fiscal spending

- Electoral motives (Huet-Vaughn, 2019; Slattery, 2024; Vannutelli, 2024) and corporate political connections (Duchin and Sosyura, 2012; Choi et al., 2024) affect stimulus measures

4 Connections between firm and government

- Firms receive benefits from governments
- Politicians receive benefits from firms (Faccio and Hsu, 2017; Bertrand et al., 2018; Lei, 2021; Chen et al., 2023)

Data and method

Empirical specification [▶ data source](#)

City-year level **first difference regression**:

$$\Delta Y_{ct} = \beta \text{ExpShock}_{ct} + \lambda_c + \delta_{prov,t} + \varepsilon_{ct} \quad (1)$$

- **Export shock** (Per worker in 1,000 USD) measure for $t = 2010, 2011, \dots, 2019$

$$\text{ExpShock}_{ct} = \sum_k \frac{\Delta X_{ckt}}{L_c}$$

- X_{ckt} : export value of HS 6-digit product k by city c in year t
- L_c : working-age population in 2005
- λ_c and $\delta_{prov,t}$: city, province-year fixed effects
- Weight by prefecture working age population in 2010
- Standard errors are clustered at the city level

Shift-share IV strategy

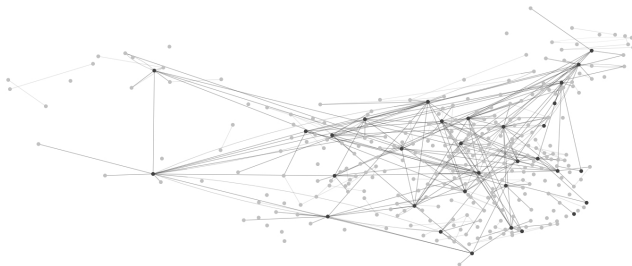
- **Shift-share instrumental variable** (Autor et al., 2013; Campante, Chor & Li, 2023)

$$ExpShockROW_{ct} = \sum_k \frac{X_{ck,2009}}{\sum_c X_{ck,2009}} \frac{\Delta X_{kt}^{ROW}}{L_c}$$

- X_{kt}^{ROW} : total exports of product k by the rest of the world (ROW) except China
- $\frac{X_{ck,2009}}{\sum_c X_{ck,2009}}$: importance of city c in exporting product k in the pre-sample year
- Validity of shift-share IV for $ExpShock_{ct}$
 - Balance tests: Shifts in product-level trade shocks are as good as randomly assigned to prefectures (Borusyak et al., 2022)
 - Pre-trend test: $ExpShockROW_{c,t+1}$ has no impact on the current outcomes

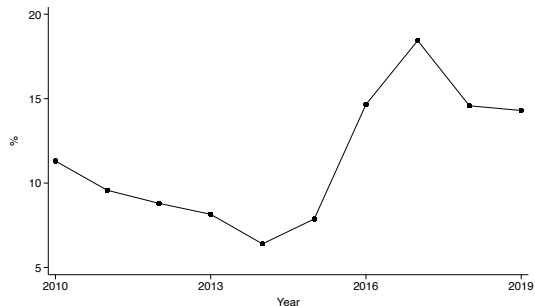
Measure firm-politician/local gov't connections

- Leveraging a rotation policy in China's political system
 - We consider a **firm X** located in **city A** as (likely) connected with the gov't of **city B**, if **leaders** transfer from **city A** → **city B** [▶ detail](#)
 - Defined by dynamic directed networks between cities by rotation of city leaders
 - Granular **firm-city pairs level spatial + time variation in the connection status**
 - Has been shown to have substantial impacts on firms' cross-city investments and land purchase (Shi et al., 2021; Nian and Wang, 2023)

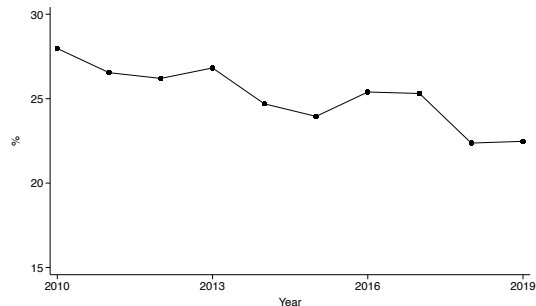


Share of residential land revenues from connected firms

Share of land revenue from connected firms



Share of land revenue from non-local firms



Empirical results

Effect on land sale revenues

	Δ Land sale revenues			
	log	log	log	Billion RMB
	IV	IV	IV	IV
	(1)	(2)	(3)	(4)
Export shock	-0.192*** (0.062)	-0.165*** (0.050)	-0.142*** (0.035)	-2.284*** (0.785)
City FE	Yes	Yes	Yes	Yes
Year FE	Yes			
Province-year FE		Yes	Yes	Yes
Weighted			Yes	Yes
Outcome Mean	.173	.173	.184	2.565
First Stage F	20.371	18.932	21.350	21.351
Observations	3,127	3,127	3,127	3,129

- \$1,000 larger negative export shock ($\approx$ one s.d.) $\rightarrow$ 2.280 billion RMB more land sale revenues (mean=9.985 billion), or a 14% increase

The role of firm-gov't connections: effect by firm types

	Δ Land sale revenues			
	billion RMB	billion RMB	billion RMB	log
Buyer types:	Local firms IV (1)	Non-local firms IV (2)	Connected firms IV (3)	Connected firms IV (4)
Export shock	0.199 (0.858)	-1.342*** (0.449)	-0.934*** (0.303)	-0.860** (0.434)
City FE	Yes	Yes	Yes	Yes
Province-year FE	Yes	Yes	Yes	Yes
First Stage F	21.351	21.351	21.351	26.201
Observations	3,129	3,129	3,129	2,615

- Adverse export shock $\rightarrow$ $\downarrow$ sales from local firms, but more revenues from non-local firms
- Particularly strong for firms connected to city leaders ($\uparrow$ 88 % or 0.93 billion RMB)

Connected firms' favoring motives: land characteristics

	Δ Land characteristics:				
	log Area IV (1)	log Price IV (2)	Rank IV (3)	Dist. city centroid IV (4)	Dist. county centroid IV (5)
Export shock	-0.230** (0.102)	-0.669* (0.394)	0.090 (0.059)	0.009 (0.011)	0.039 (0.031)
City FE	Yes	Yes	Yes	Yes	Yes
Province-year FE	Yes	Yes	Yes	Yes	Yes
Outcome Mean	.047	.152	.02	.001	.016
First Stage F	26.385	26.201	26.037	17.909	17.914
Observations	2,641	2,615	2,601	2,563	2,569

- Land transaction details (area-weighted city-level average) ► local polynomial
 - Under local economic **downturns**, connected firms buy **more land** at a **higher price**
 - No evidence on change in land quality → **not bottom fishing in the land market**

Connected firms' favoring motives: heterogeneity in connection building

- Exploit variation in the leader's last serving experiences when she formed ties with firms
- Stronger effects if **leaders' last serving cities**: [▶ table](#)
 - Have more locally promoted leaders → deeper relationship with firms
 - High frequency of visiting firms → more opportunity to build ties with local firms
 - Real estate sector is dominated by private firms → larger pool of connected firms

Effects on stimulus measures and fiscal outcomes

	$\Delta \log$ Infrastructure investment (1)	$\Delta \log$ Real estate investment (2)	$\Delta \log$ GDP (3)	$\Delta \log$ Night Light (4)	$\Delta \log$ Fiscal spending (5)	$\Delta \log$ Fiscal revenue (6)
Export shock	-0.045* (0.026)	-0.029*** (0.010)	-0.001 (0.003)	0.004 (0.006)	-0.003 (0.004)	-0.013*** (0.004)
City FE	Yes	Yes	Yes	Yes	Yes	Yes
Prov-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
First Stage F	21.713	20.000	21.351	21.588	20.325	21.351
Observations	2,751	2,488	3,129	3,110	3,081	3,129

- Increased land revenues fund stimulus measures under negative shocks

→ Mild effect on GDP, night light, and fiscal outcome

- Consistent with $\uparrow$ firm entry in the construction and real estate sector [▶ table](#)
- Firm level evidence: $\uparrow$ in sales, investment, tax payment [▶ table](#)

Consequences on firm's real outcomes

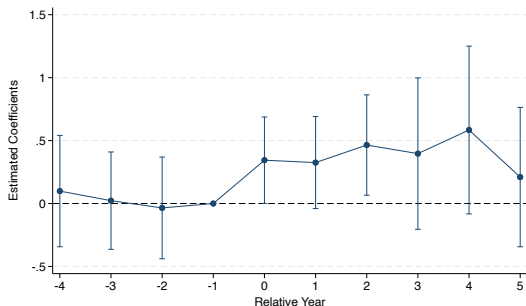
Firm-level event study around favoring land purchase, using National Tax Survey Data (2009-2015):

$$Y_{it} = \alpha + \sum_k \beta_k \text{Post}_{it}^k + \delta_i + \theta_{pt} + \zeta_{jt} + \epsilon_{i(pj)t} \quad (2)$$

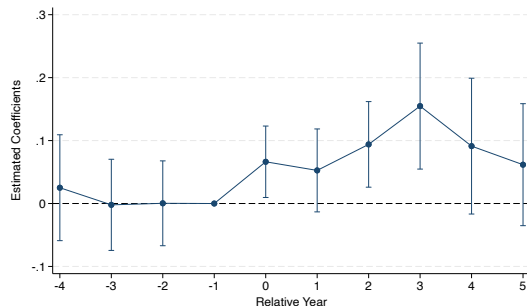
- **Favoring land purchase:** firm's first land purchase in a politically connected city when the city was experiencing a negative export shock
- Post_{it}^k : relative event-time dummies (k year before or after favoring land purchase)
- $\delta_i, \theta_{pt}, \zeta_{jt}$: firm, province-year, and industry-year fixed effects
- Restrict sample to firms having ever purchased land parcels

Favoring land purchase and firm's outcome: benefits from government

Government subsidy (in million yuan)



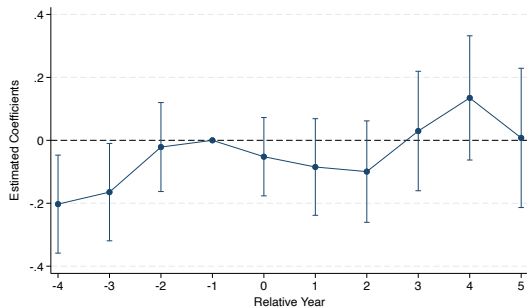
Government subsidy (0/1)



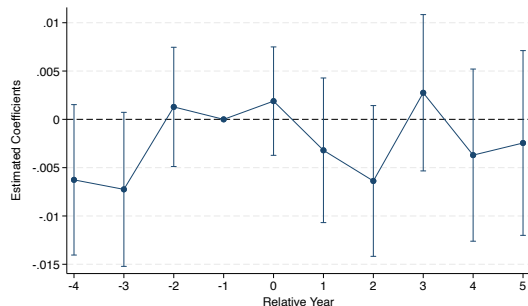
- Suggestive evidence that firms receive reciprocal exchange from gov't
 - Favoring land purchase is associated with more subsidies afterwards

Favoring land purchase and firm's outcome: overall performance

log Operating revenue



ROA



- Favoring land purchase does NOT improve firm's overall performance

Conclusions

- We study the fiscal response to export shocks in Chinese cities from 2009-2019
- We find that:
 - China's export slowdown leads to increased land sale revenues
 - A novel **firm-politician connection channel in land finance**: local politicians raise land revenues from connected (non-local) firms to fund proactive stimulus
 - As a result, export slowdown is associated with (i) increased stimulus investment; (ii) increased firm investment; (iii) mild impacts on economy and municipal budget
- Sheds light on **the nuance of firm-government relationship** in China
 - Far from “arm's length relationships” with a complete formal institution
 - Not pure “*quo-pro quid*” for private profit (Bai, Hsieh & Song 2020; Zhou 2021)
 - “*Private firms, public interests*” (Pearson, Rithmire, and Tsai, 2023)

Appendix Slides

The (Ongoing) Return of Land Finance in the US? [▶ back](#)

- Land finance played a crucial role in US during the early 20th century (Feller 1984)
 - *“Federal lands and resources have played a significant role in American history, adding to the strength and stature of the federal government . . . and providing a source of revenue for schools, transportation, national defense, and other national, state, and local needs. ”*
(US Congressional Research Service Report, 2020)
- The federal government now owns 640 million acres (28% of the nation's land)
- House Republicans have approved the sale of 10,000 acres of federal land in Nevada and Utah on May 7, 2025
- DOI Secretary Doug Burgum: “Lands are an incredible asset on America's balance sheet.”
 - Intended to fund the One Big Beautiful Bill Act and the sovereign wealth fund

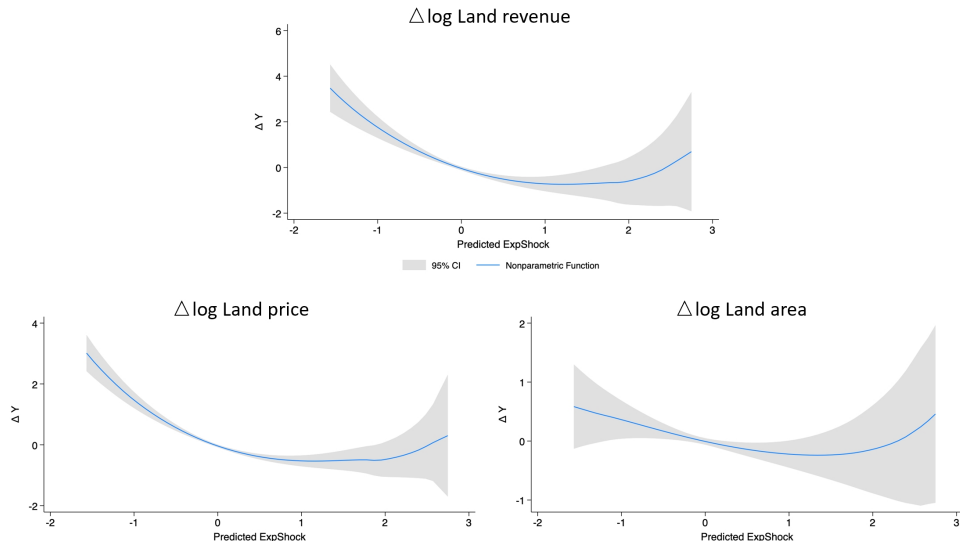
Key data source [▶ back](#)

- Unit of observations: Chinese cities (prefectures) from 2009 to 2019
- Trade data
 - Annual exports data at HS6 product level from China's Customs
 - World trade data at the country-HS6 product level from CEPII-BACI database
- Administrative data on the universe of primary market land parcel transactions from the Ministry of Land and Resources
 - Matched with Business Registration data
- Other city-level economic and fiscal variables from several City Statistical Yearbooks
 - Local annual budget data
 - Firm-level data from National Tax Survey Database (2009–2015)

Firm-politician connection: details [▶ back](#)

- Focus on five types of politicians
 - City mayor and party secretary — prefectural rank
 - Members of provincial party standing committee — sub-provincial rank
 - Provincial governor / party secretary — provincial rank
- Connection definition:
 - Rotation from city gov A to B: firms in city A $\rightarrow$ city B
 - Rotation from provincial position M to N: firms in province M $\rightarrow$ all cities in province N
 - Rotation from provincial position M to city B: firms in province M $\rightarrow$ city B
- Subsidiary firms
 - If **firm X** located in **city A** is connected with the **city B** $\rightarrow$ *local firm Y (in city B)* whose largest shareholder is **firm X** is also connected with **city B**

Connected firms' favoring motives: local polynomial regressions [▶ back](#)



Firms' favoring motives: heterogeneity in leader's last serving cities [▶ back](#)

Group	$\Delta \log$ Land revenues from connected firms					
	Share of leaders		Interaction intensity		Share of land rev.	
	locally promoted from		with firms		from private firms	
	the last term city		in last term city		in last term city	
	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Export shock	-1.171*** (0.421)	-0.535*** (0.188)	-1.123** (0.505)	-0.638** (0.305)	-1.420** (0.697)	-0.346* (0.194)
City FE	Yes	Yes	Yes	Yes	Yes	Yes
Prov-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Outcome Mean	.323	.383	.321	.122	.444	-.065
First Stage F	6.997	20.503	10.220	10.291	13.345	21.264
Observations	994	1,028	1,157	1,381	1,251	1,265

Stimulus measure: evidence on firm entry [▶ back](#)

Industry:	$\Delta \log$ number of firms		$\Delta \log$ registered capital	
	All	Construction or real estate	All	Construction or real estate
	(1)	(2)	(3)	(4)
Export shock	-0.037** (0.017)	-0.136*** (0.039)	-0.043 (0.052)	-0.173** (0.073)
Observations	3,129	3,126	3,129	3,123
Outcome Mean	.162	.23	.17	.221
First Stage F	21.351	21.349	21.351	21.347

Stimulus measure: firm level evidence [▶ back](#)

Outcome	Δ Sales IV (1)	Δ Fixed Investment IV (2)	Δ Total Taxes IV (3)	Δ Urban Land Use Tax IV (4)	Δ Business Tax IV (5)
Export shock	-0.012* (0.007)	-0.050*** (0.019)	-0.013 (0.010)	-0.040** (0.015)	-0.031*** (0.008)
First Stage F	22.057	23.935	25.026	17.669	22.210
Observations	77,122	139,014	142,159	119,086	128,582