

Implicit corruption with subsidiaries: Evidence from land sales in China

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Motivation

- **Open secret: Political sources can be translated into pecuniary benefits**

Politically connected firm have

- ✓ Better access to bank credit (Khwaja and Mian, 2005 *QJE*),
- ✓ Better access to government bailouts (Faccio et al., 2006 *JF*),
- ✓ Better access to regulated industries (Feng et al., 2015 *JBFI*),
- ✓ Lower cost of capital (Boubakri et al., 2012 *JCF*), and
- ✓ Higher market valuations (Goldman et al., 2009 *RFS*)

- **Political favoritism is exposed to public scrutiny and regulatory pressure**

Using social network to **hide** political connections

- ✓ Firms linked to the **relatives of top political elites** get a land price discount of 55.4% (Chen and Kung, 2019 *QJE*)
- ✓ Firms hiring **colleagues** of former political officials **outperform** firms directly hiring former political officials (Broadstock et al., 2020 *JJAR*)

How these firms hide their rent-seeking activities, when their political ties are overt

Research Question

- How do connected firms use their **corporate structure** to **hide political favoritism** when their **connections are overt**?
- Firms can **strategically manage subsidiary disclosures**, even the basic location information (Dyreng et al., 2020 *JAR*). Firms use subsidiaries to hide
 - ✓ tax avoidance (Dyreng et al., 2013 *JFE*)
 - ✓ shareholder expropriation (O'Donovan et al., 2019 *RFS*)
 - ✓ pollution-intensive activities (Lee and Bansal, 2024 *SMJ*)
- Headquarter-subsidiary relationship is our identification
 - ✓ Although the **headquarters** and **subsidiaries** of listed firms **share similar political connections**, **subsidiaries** are **more covert** than **their headquarters**
 - ✓ Explicit political connection (headquarters of politically connected listed firms)
 - ✓ Implicit political connection (subsidiaries of politically connected listed firms)

Institutional Background

- The **Chinese land market** is an ideal context to study the **impact of political connection**
- Detail information on land auction results is **public available**
 - ✓ Sell all land for business use through an auction-based system since 2004
 - ✓ Land bidders are required to report their unique registered names
- Local officials can **alter land prices** (e.g., Cai et al., 2013 *Rand*)
 - ✓ **(Government subsidy hypothesis)** Local officials are motivated to suppress industrial land price to lure manufacturing investments (e.g., Tu et al., 2014 *HI*)
 - ✓ **(Corruption hypothesis)** Local officials affect land price to extract private benefits (e.g., Cai et al., 2017 *JUE*; Chen and Kung 2019 *QJE*)
 - Former vice major of Hangzhou accumulated \$27.7M up to 2009
- The anti-corruption Campaign launched in late 2012 disrupts political ties, but has little impact on firm fundamentals (**Identify causality relationship**)

Hypotheses

- *H1*: Politically connected firms pay less when they purchase land parcels through their subsidiaries than through their headquarters.
- *H2*: The price discount obtained by politically connected firms' subsidiaries is larger when land parcels are disposed of through informationally opaque supply methods.
- *H3a* (Government subsidy hypothesis): The price discount obtained by subsidiaries of politically connected firms is larger for highly subsidized industrial land parcels.
- *H3b* (Corruption hypothesis): The price discount obtained by subsidiaries of politically connected firms has been significantly reduced after the anti-corruption campaign, while the discount for industrial land parcels persist.

Major Findings

- **Political connections indeed penetrate through headquarter-subsidary relationships**
 - ✓ **Headquarters** of politically connected listed firms pay **similar land prices** as other firms, while their **subsidiaries** pay 12.1-13.2% **less** than other firms
 - ✓ **Larger charitable donations** are followed by **greater price discounts**, suggesting a reciprocal relationship with government officials
 - ✓ The price discount is **mostly driven by corruption**, and has been **mitigated** by anti-corruption campaign
 - ✓ Minor price **distortions due to subsidies** become **more pronounced** afterward

Data & Key Variables

CSMAR: Executives' resume, subsidiary names, and financial information

- A listed firm is defined as **politically connected** if its CEO or board chairperson is/was (Fan et al., 2007 *JFE*; Wang and Wu, 2020 *JCF*)
 - i. a county head or higher-level government official,
 - ii. member of People's Congress (CPC), or
 - iii. member of the People's Political Consultative Conference (CPPCC)
- **Headquarter-subsidiary relationship**
 - i. Use Subsidiaries to denote both subsidiaries or local branches for brevity
 - ii. List of subsidiaries (CSMAR)
 - iii. Identify local branches (Tan et al., 2020 *JCF*; Arora et al., 2021 *RP*)

Data & Key Variables

- China Land Market website: Land price data (2007:Jan – 2020:Aug)
 - **Exclude** land parcels purchased by individuals, public institutions, and government agencies (as in Wang and Yang, 2021 *REE*)
 - **Delete** land parcels sold through administrative allocation and with **zero-transaction prices**
- Adopt the spatial matching approach (Chen and Kung, 2019 *QJE*) to mitigate the impact of unobserved control variables
 - Match each land parcels purchased by politically connected (PC) listed firms with land parcels purchased **in the same year** and **within a 1,500-meter radius**
 - **Land by PC listed firms** (Treated Group); **Land by other firms** (Control Group)
Land by **subsidiaries** of PC listed firms (Treated); Land by **headquarters** (Control)
 - 904,476 land transaction in total, 95,085 land transaction for matched sample

Summary Statistics

	Politically Connected Listed Firms		Other Firms (Full Sample)		Other Firms ($\leq 1,500$ Meters)	
	Mean	S. D.	Mean	S. D.	Mean	S. D.
Panel A: Full Sample						
Land price (<i>yuan</i> / sq. m)	2,605.464	9,845.661	2,044.499	512,688.927	1,895.177	7,738.050
Land size (sq. m)	48,856.851	147,582.885	34,238.875	478,747.556	38,170.560	89,222.116
Land quality	4.869	4.381	5.011	4.498	5.019	4.442
Listed	1.000	0.000	0.027	0.162	0.033	0.179
Subsidiary	0.931	0.254	0.025	0.156	0.030	0.171
Land usage type						
Residential	0.209	0.407	0.322	0.467	0.310	0.463
Industrial	0.342	0.474	0.442	0.497	0.440	0.496
Commercial	0.340	0.474	0.198	0.398	0.211	0.408
Other	0.109	0.312	0.039	0.192	0.039	0.195
Supply method						
Negotiation	0.202	0.402	0.136	0.343	0.127	0.332
Sealed bid	0.012	0.107	0.007	0.084	0.007	0.086
Two-stage auction	0.697	0.460	0.755	0.430	0.777	0.416
English auction	0.089	0.285	0.101	0.302	0.089	0.285
# of transactions		22,463		882,013		72,585

Baseline Model

- Baseline regression model

$$\begin{aligned} Price_{i,b,j,s,t} = & \beta_0 + \beta_1 Connected_{b,t} + \beta_2 Connected_{b,t} \times Subsidiary_{b,t} \\ & + \gamma X_{i,t} + \omega_{s,t} + \varphi_{j,t} + v_{i,b,j,s,t} \end{aligned} \quad (1)$$

$Price_{i,b,j,s,t}$ denotes the natural logarithm of the price (*yuan* per square meter) for land parcel i purchased by land buyer b in city j for usage s in year t

$X_{i,t}$ is a vector of transaction-level control variables including the log of land size (square meters), land quality dummies, land sales method dummies, firm size, firm ownership, firm listed status, and industry dummies (Chen and Kung, 2019 *QJE*). $Subsidiary$ and $Connected \times Subsidiary$ are highly correlated (correlation coefficient of 0.9358) in the matched sample, we therefore drop $Subsidiary$ in the main regressions to avoid multicollinearity problem.

- β_1 captures the average land price discount due to explicit political ties
- β_2 reflects the impact difference between implicit and explicit political ties, and $\beta_1 + \beta_2$ for implicit ties

Baseline Model: Headquarters vs Subsidiaries – Table 3

	Log of land price					
	Full (1)	Full (2)	$\leq 1500M$ (3)	$\leq 500M$ (4)	$\leq 1500M$ (5)	$\leq 1500M$ (6)
Connected	-0.022 (-0.886)	0.097** (2.105)	-0.019 (-0.332)	-0.014 (-0.209)	0.009 (0.165)	0.033 (0.285)
Connected \times Subsidiary		-0.128*** (-2.910)	-0.113*** (-2.915)	-0.107*** (-2.778)	-0.141*** (-3.046)	-0.258*** (-4.371)
Wald tests: Coef. of <i>Connected</i> + Coef. of <i>Connected</i> \times <i>Subsidiary</i>						
		-0.031	-0.132***	-0.121**	-0.132***	-0.225**
Control variables	Y	Y	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y	Y	Y
City fixed effects	Y	Y	Y	Y	Y	-
Usage fixed effects	Y	Y	Y	Y	Y	-
Year fixed effects	Y	Y	Y	Y	Y	-
City-year fixed effects	Y	Y	Y	Y	-	-
Usage-year fixed effects	Y	Y	Y	Y	-	-
Observations	904,353	904,353	95,085	73,566	95,085	95,200
Adjusted R-squared	0.619	0.619	0.695	0.709	0.650	0.427

Connected VS Nonconnected Subsidiaries – Table 4

- Can all subsidiaries get land price discount?

	Log of land price					
	≤ 1500M				≤ 500M	
	(1)	(2)	(3)	(4)	(5)	(6)
Subsidiary	-0.113 (-1.685)		-0.115 (-1.408)		-0.092 (-1.231)	
Connected × Subsidiary	-0.016 (-0.785)	-0.129** (-2.090)	-0.055 (-1.301)	-0.170*** (-2.826)	-0.056 (-1.455)	-0.148** (-2.652)
Unconnected × Subsidiary		-0.113 (-1.687)		-0.115 (-1.409)		-0.092 (-1.232)
Subsidiary × Post-2013			0.003 (0.099)		-0.018 (-0.486)	
Connected × Subsidiary × Post-2013			0.074* (1.723)	0.077*** (2.849)	0.097** (2.418)	0.079*** (3.389)
Non-Connected × Subsidiary × Post-2013				0.003 (0.099)		-0.018 (-0.486)
Control variables	Y	Y	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y	Y	Y
City-year fixed effects	Y	Y	Y	Y	Y	Y
Usage-year fixed effects	Y	Y	Y	Y	Y	Y
Observations	148,241	148,241	148,241	148,241	106,634	106,634
Adjusted R-squared	0.700	0.700	0.700	0.700	0.723	0.723

Different Land Supply Method – Table 6

Transparency of different supply methods
(e.g., Qin et al.; 2016 *RSUE*, Cai et al., 2013
Rand; Chow and Ooi, 2014 *REE*)

Transparency of different supply methods (e.g., Qin et al.; 2016 <i>RSUE</i> , Cai et al., 2013 <i>and</i> ; Chow and Ooi, 2014 <i>REE</i>)	Low				Medium			High
	Negotiation				Sealed Bid Auctions Two-Stage Auctions			English Auction
	Log of land price							
	≤ 1500M				≤ 500M			
	Negotiation	Sealed Bid	Two-stage	English	Negotiation	Sealed Bid	Two-stage	English
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Connected	-0.136 (-0.574)	0.968** (2.154)	0.025 (0.550)	-0.039 (-0.232)	-0.231 (-0.844)	1.021* (1.885)	0.047 (1.038)	-0.013 (-0.075)
Connected × Subsidiary	-0.142 (-0.696)	-0.951** (-2.286)	-0.110*** (-2.628)	0.002 (0.009)	-0.148 (-0.661)	-0.867* (-1.684)	-0.109*** (-2.655)	-0.005 (-0.032)
Wald tests: Coef. of <i>Connected</i> + Coef. of <i>Connected</i> × <i>Subsidiary</i>	-0.278**	0.017	-0.085***	-0.037	-0.379**	0.154	-0.062**	-0.018
Control variables	Y	Y	Y	Y	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
City-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Usage-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	18,735	1,264	73,188	9,327	13,764	1,057	57,990	7,072
Adjusted R-squared	0.571	0.866	0.743	0.782	0.548	0.890	0.762	0.799

H2: The *price discount* obtained by politically connected firms' subsidiaries is *larger* when land parcels are disposed of through *informationally opaque supply* methods.

Different Land Use Type – Table 7

- Government subsidy hypothesis (e.g., Tu et al., 2014 *HI*): Suppress industrial land prices
- Corruption hypothesis (e.g., Cai et al., 2017 *Rand*; Chen and Kung 2019 *QJE*)

	Log of land price							
	Residential Land		□	Industrial Land		□	Commercial Land	
	≤1,500M	≤500M		≤1,500M	≤500M		≤1,500M	≤500M
	(1)	(2)		(3)	(4)		(5)	(6)
Connected	-0.113	-0.226		0.013	0.034		0.106	0.179
	(-0.610)	(-1.203)		(0.297)	(0.779)		(0.903)	(1.351)
Connected × Subsidiary	-0.072	-0.025		-0.069**	-0.087***		-0.295***	-0.344***
	(-0.426)	(-0.151)		(-1.988)	(-2.742)		(-2.609)	(-2.749)
Wald tests: Coef. of <i>Connected</i> + Coef. of <i>Connected</i> × <i>Subsidiary</i>								
	-0.185***	-0.251***		-0.056**	-0.053*		-0.189***	-0.165***
Control variables	Y	Y		Y	Y		Y	Y
Month fixed effects	Y	Y		Y	Y		Y	Y
City-year fixed effects	Y	Y		Y	Y		Y	Y
Usage-year fixed effects	Y	Y		Y	Y		Y	Y
Observations	20,356	14,251		42,463	34,811		36,905	27,753
Adjusted R-squared	0.709	0.731		0.728	0.733		0.711	0.726

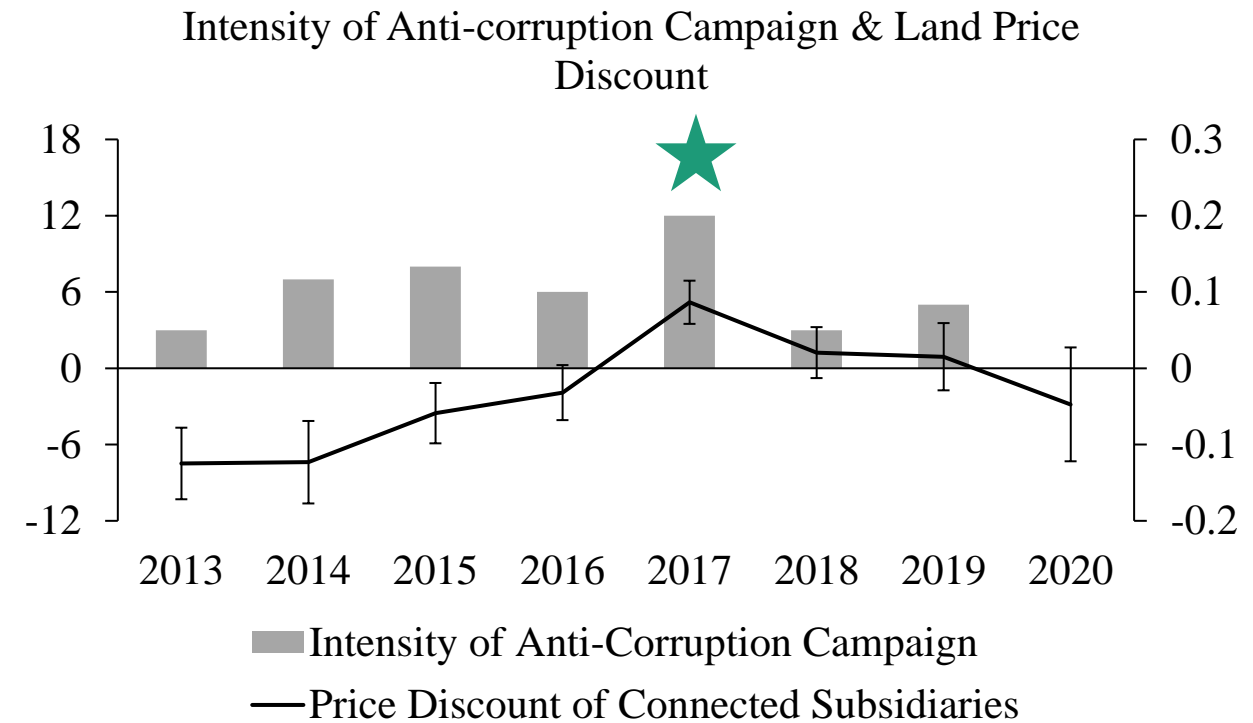
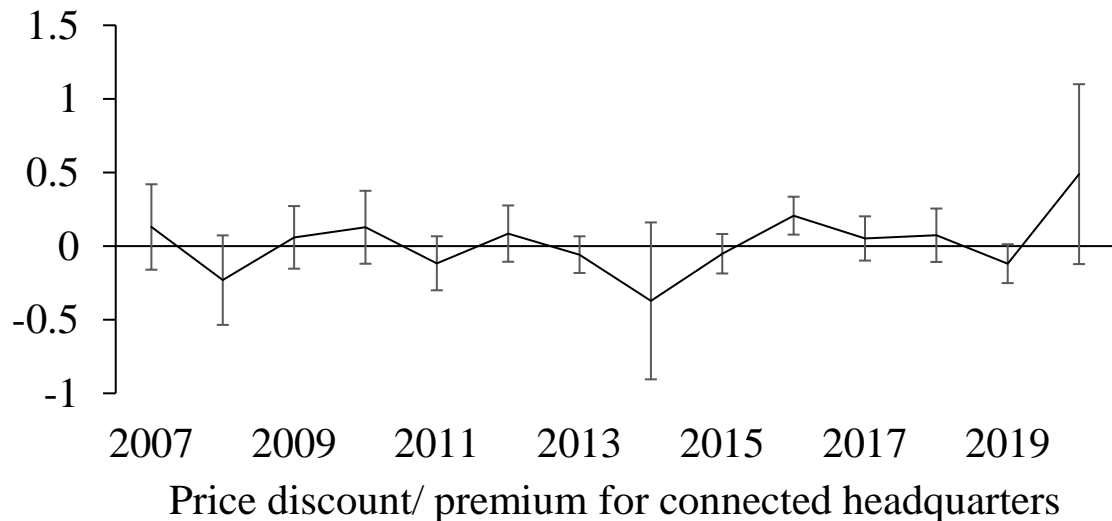
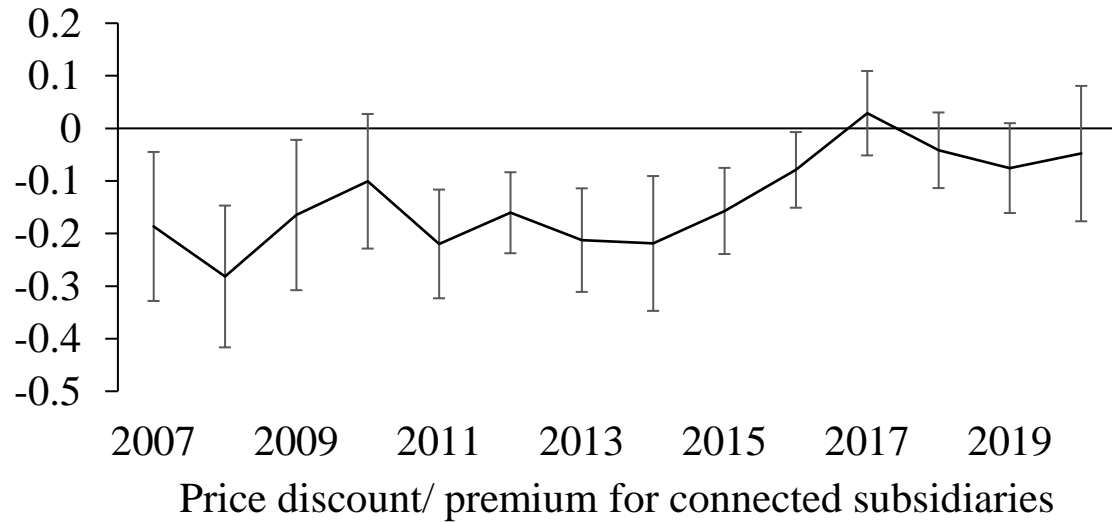
The results provide evidence **against government subsidy hypothesis** H3a. The price discounts obtained by subsidiaries of politically connected firms are mostly driven by **less subsidized residential land and commercial land**, and **not as incentives for local economic growth**.

The Impact of Anti-Corruption Campaign – Table 8

	Log of land price										
	Full Sample		□	Residential Land		□	Industrial Land		□	Commercial Land	
	≤ 1500M	≤ 500M		≤ 1500M	≤ 500M		≤ 1500M	≤ 500M		≤ 1500M	≤ 500M
	(1)	(2)		(3)	(4)		(5)	(6)		(7)	(8)
Connected	-0.021 (-0.551)	-0.015 (-0.378)		0.025 (0.259)	-0.119 (-1.141)		-0.014 (-0.408)	0.002 (0.053)		0.259** (2.084)	0.344** (2.400)
Connected × Subsidiary	-0.172*** (-5.045)	-0.165*** (-4.566)		-0.283*** (-3.148)	-0.211** (-2.324)		-0.022 (-0.753)	-0.037 (-1.262)		-0.534*** (-4.437)	-0.581*** (-4.210)
Connected × Post-2013	-0.001 (-0.022)	-0.009 (-0.167)		-0.235 (-1.251)	-0.176 (-0.959)		0.048 (1.213)	0.056 (1.397)		-0.336** (-1.998)	-0.361* (-1.947)
Connected × Subsidiary × Post-2013	0.109** (2.061)	0.106** (1.972)		0.367* (1.950)	0.314* (1.699)		-0.081* (-1.936)	-0.086** (-2.078)		0.530*** (3.135)	0.520*** (2.796)
Wald tests: Coef. of <i>Connected</i> × <i>Subsidiary</i> + Coef. of <i>Connected</i> × <i>Subsidiary</i> × <i>Post-2013</i>											
	-0.063	-0.059		0.084	0.103		-0.103***	-0.123***		-0.004	-0.061
Control variables	Y	Y		Y	Y		Y	Y		Y	Y
Observations	94,932	73,417		20,356	14,251		42,463	34,811		36,905	27,753
Adjusted R-squared	0.695	0.709		0.709	0.732		0.728	0.733		0.711	0.726

Wald test shows that the connected firm's discount **disappear after 2013**. However, **subsidized Industrial land** (due to GPD related reason) only enjoy around 8% significant discount **afterward**

The Impact of Anti-Corruption Campaign



The **land price discount** decreases after the anti-corruption campaign, and is **negatively correlated** with the **intensity of anticorruption campaign**.

Alternative Political Connection Measure – Table 9

	Log of land price			
	≤ 1500M (1)	≤ 500M (2)	≤ 1500M (3)	≤ 500M (4)
Donations /Assets	1.638* (1.700)	1.967* (1.813)		
Donations/Assets × Subsidiary	-2.663** (-2.685)	-2.790** (-2.470)		
Donations /Assets × Post-2013	-1.488 (-0.985)	-1.943 (-1.128)		
Donations /Assets × Subsidiary × Post-2013	1.927 (1.197)	2.251 (1.243)		
Subsidies/Assets			0.021 (0.657)	0.023 (0.771)
Subsidies/Assets × Subsidiary			-0.067* (-1.876)	-0.065* (-1.897)
Subsidies/Assets × Post-2013			0.056 (0.913)	0.032 (0.525)
Subsidies/Assets × Subsidiary × Post-2013			-0.088 (-1.557)	-0.082 (-1.421)
Constant	6.342*** (32.088)	5.523*** (19.767)	6.309*** (30.879)	5.508*** (19.676)
Wald Test: Coef. of Donations/Assets × Subsidiary + Coef. of Donations/Assets × Subsidiary × Post-2013	-0.736	-0.539		
Coef. of Subsidies /Assets × Subsidiary + Coef. of Subsidies /Assets × Subsidiary × Post-2013			-0.155**	-0.147**

- Larger donation followed by cheaper land prices
- Mitigate by anti-corruption campaign
- Larger subsidies followed by cheaper land prices
- More pronounced after the campaign

Alternative Explanations & Robustness

- **Alt 1: Do connected firms assign cheap land to subsidiaries?**

Not Supported. Robust 2SLS results using **land-to-headquarters distance** as an **instrumental variable**.

- **Alt 2: Are results due to government ownership?**

Not supported. **Private firms**, not SOEs, **drive results**.

- **Alt 3: Are results driven by unobserved heterogeneities?**

Not supported. **Non-connected subsidiaries** lack price discounts and **aren't impacted by anti-corruption efforts**.

- **Robustness Checks:** Results hold across (i) model specifications, (ii) matching methods, (iii) institutional environments, and (iv) firm-level regressions.

Conclusion

- Identify the **mechanism** of how firms **hide their political favoritism**
- Connected firms use subsidiaries to hide their political favors
 - ✓ Headquarters of politically connected listed firms pay similar land prices as other firms, while their **subsidiaries pay 12.1% - 13.2% less** than other firms
 - ✓ There exists a **reciprocal relationship** between connected firms and local officials
 - ✓ The **price discount** is primarily driven **by corruption**, and has been **mitigated** by the **anti-corruption campaign**
- There is little empirical evidence on how connected firms **use corporate structures to hide political favors** compared to hiding political ties through social networks
- Future work: Whether **politically connected firms** can **hide** their rent-seeking behaviors through other **“seemingly unrelated”** inter- and intra-organizational networks?

Thank you

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