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*),
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  - ✓ Lower cost of capital (Boubakri et al., 2012 *JCF*), and
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  - ✓ 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 *JIAR*)

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  - ✓ **Networks other than social network?**

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  - ✓ tax avoidance (Dyreng et al., 2013 *JFE*)
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- 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)

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  - ✓ **(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*)
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    - 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**)

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- 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

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  - ✓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
  - ✓Before the campaign, connected firms deliberately extract rent by purchasing more land parcels through their subsidiaries

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)

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- 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)
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- 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 (≤ 1,500 Meters)	
	Mean	S. D.	Mean	S. D.	Mean	S. D.
Panel A: Full Sample						
Land price (*yuan*/ 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

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Baseline Model

- Baseline regression model

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

$Price_{i,b,j,s,t}$ 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* × *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.

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- 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	Full	≤ 1500M	≤ 500M	≤ 1500M	≤ 1500M
	(1)	(2)	(3)	(4)	(5)	(6)
Connected	-0.022	0.097**	-0.019	-0.014	0.009	0.033
	(-0.886)	(2.105)	(-0.332)	(-0.209)	(0.165)	(0.285)
Connected × Subsidiary		-0.128***	-0.113***	-0.107***	-0.141***	-0.258***
		(-2.910)	(-2.915)	(-2.778)	(-3.046)	(-4.371)
Wald tests: Coef. of *Connected* + Coef. of *Connected* × *Subsidiary*						
		-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

Different Land Supply Method – Table 5

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

Low	Medium	High
Negotiation	Sealed Bid Auctions Two-Stage Auctions	English Auction

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Connected	-0.136	0.968**	0.025	-0.039	-0.231	1.021*	0.047	-0.013
	(-0.574)	(2.154)	(0.550)	(-0.232)	(-0.844)	(1.885)	(1.038)	(-0.075)
Connected × Subsidiary	-0.142	-0.951**	-0.110***	0.002	-0.148	-0.867*	-0.109***	-0.005
	(-0.696)	(-2.286)	(-2.628)	(0.009)	(-0.661)	(-1.684)	(-2.655)	(-0.032)
Wald tests: Coef. of *Connected* + Coef. of *Connected* × *Subsidiary*								
	-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

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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 6

- 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
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	(-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 *Connected* + Coef. of *Connected* × *Subsidiary*						
	-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

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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 7

	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	-0.015	0.025	-0.119	-0.014	0.002	0.259**	0.344**
	(-0.551)	(-0.378)	(0.259)	(-1.141)	(-0.408)	(0.053)	(2.084)	(2.400)
Connected × Subsidiary	-0.172***	-0.165***	-0.283***	-0.211**	-0.022	-0.037	-0.534***	-0.581***
	(-5.045)	(-4.566)	(-3.148)	(-2.324)	(-0.753)	(-1.262)	(-4.437)	(-4.210)
Connected × Post-2013	-0.001	-0.009	-0.235	-0.176	0.048	0.056	-0.336**	-0.361*
	(-0.022)	(-0.167)	(-1.251)	(-0.959)	(1.213)	(1.397)	(-1.998)	(-1.947)
Connected × Subsidiary × Post-2013	0.109**	0.106**	0.367*	0.314*	-0.081*	-0.086**	0.530***	0.520***
	(2.061)	(1.972)	(1.950)	(1.699)	(-1.936)	(-2.078)	(3.135)	(2.796)
Wald tests: Coef. of *Connected* × *Subsidiary* + Coef. of *Connected* × *Subsidiary* × *Post*-2013								
	-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

The Impact of Anti-Corruption Campaign – Table 7

	Log of land price							
	Full Sample		Residential Land		Industrial Land		Commercial Land	
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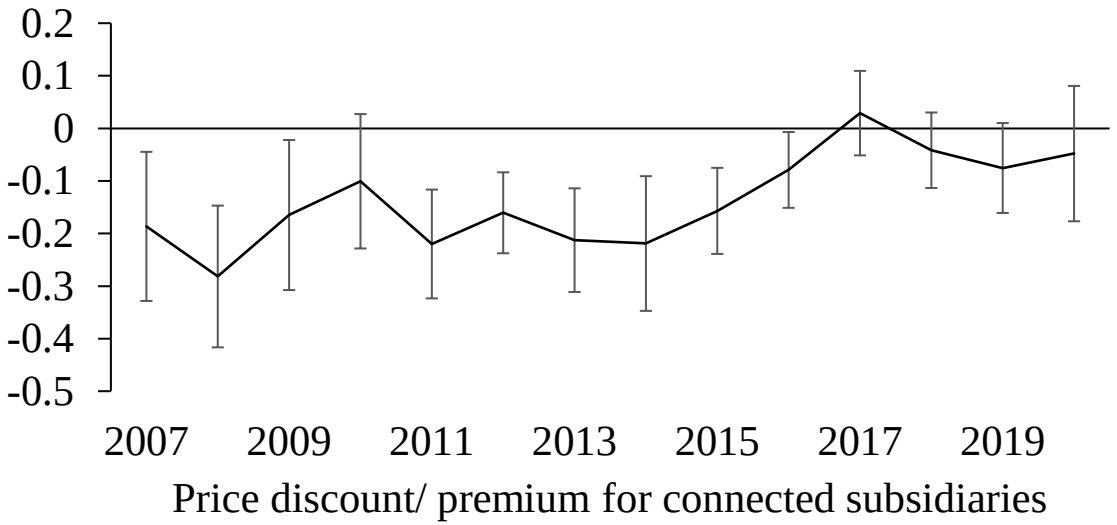
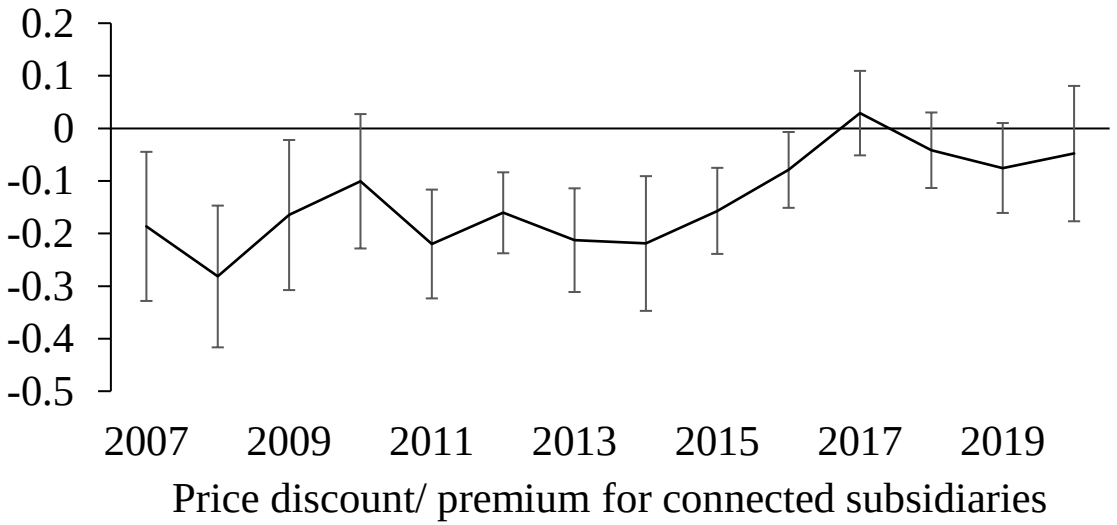
Wald test shows that the connected firm's discount disappear after 2013. However, subsidized Industrial land (due to GPD related reason) only enjoy around 8% significant discount afterward

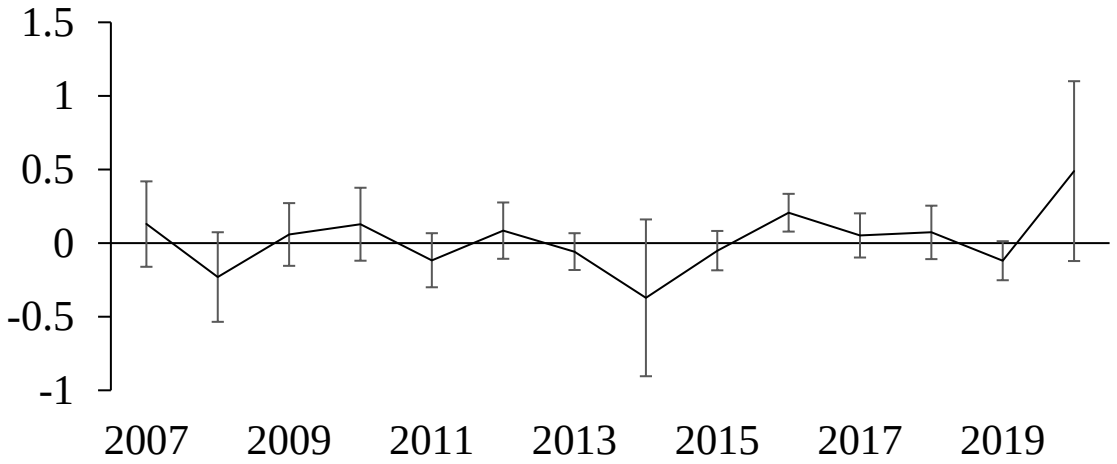
The Impact of Anti-Corruption Campaign



The Impact of Anti-Corruption Campaign

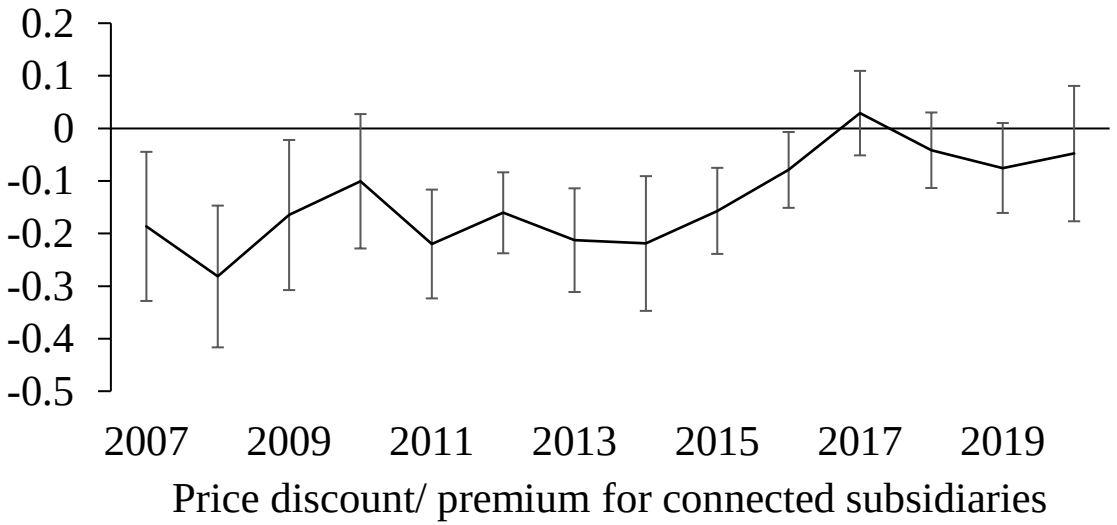


Price discount/ premium for connected subsidiaries



Price discount/ premium for connected headquarters

The Impact of Anti-Corruption Campaign



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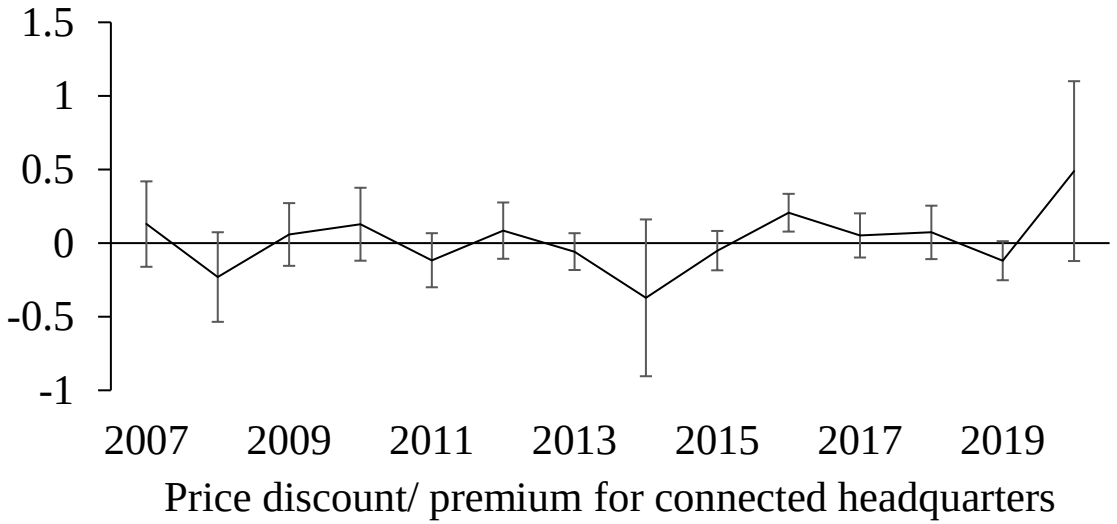

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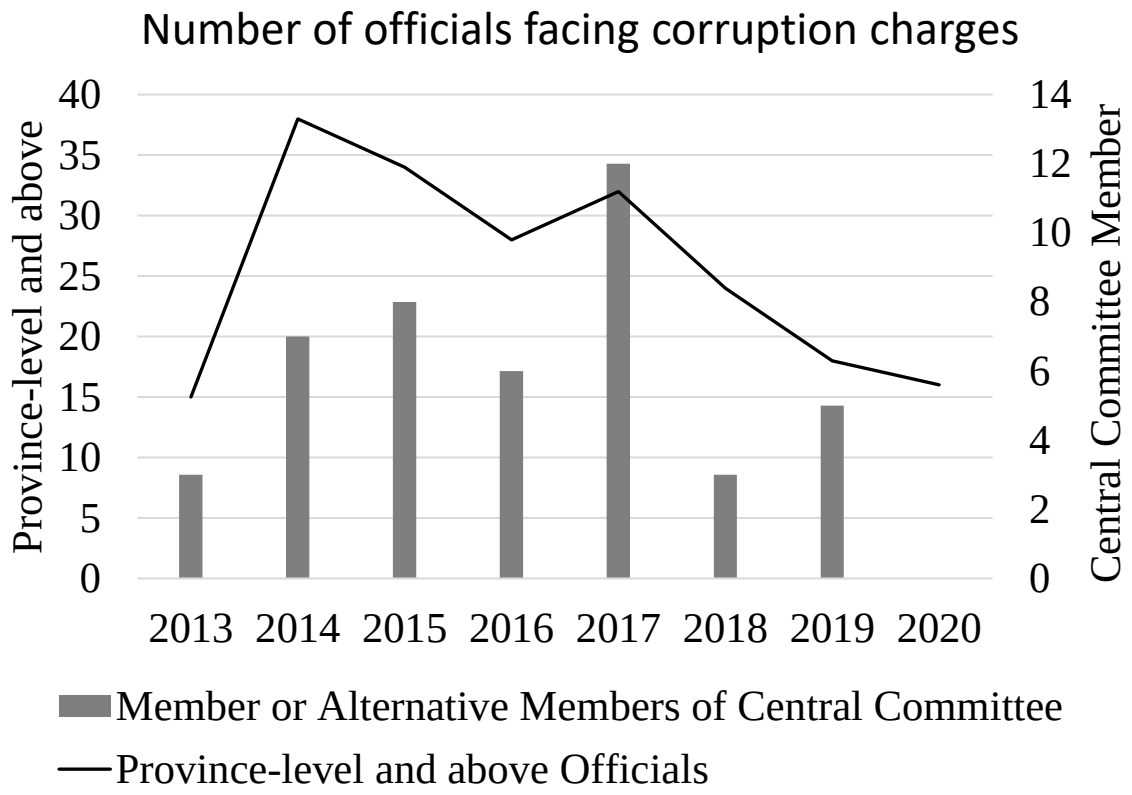
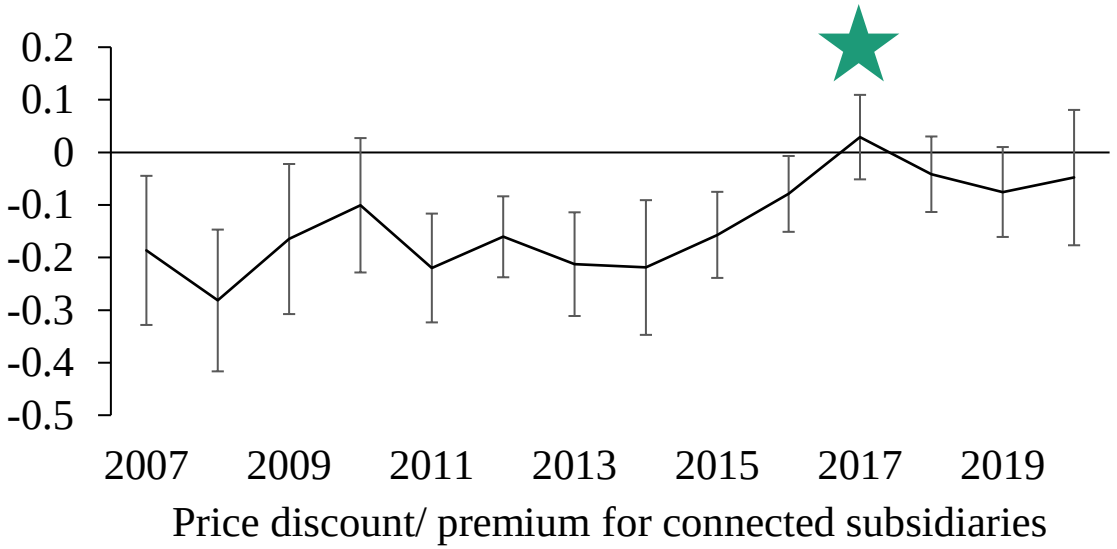


The Impact of Anti-Corruption Campaign



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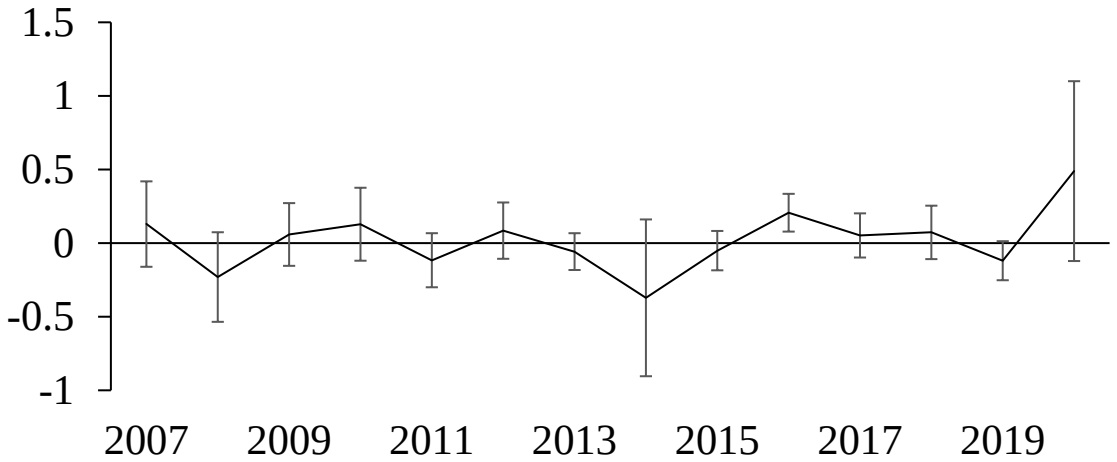

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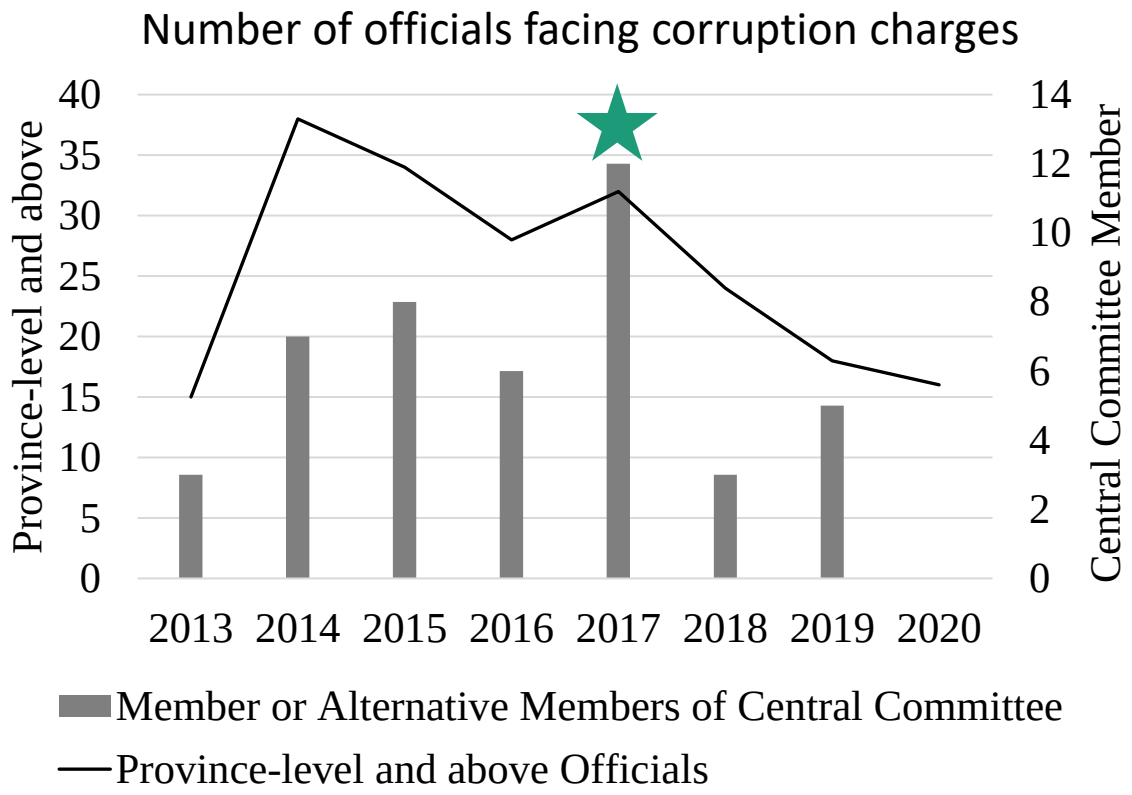

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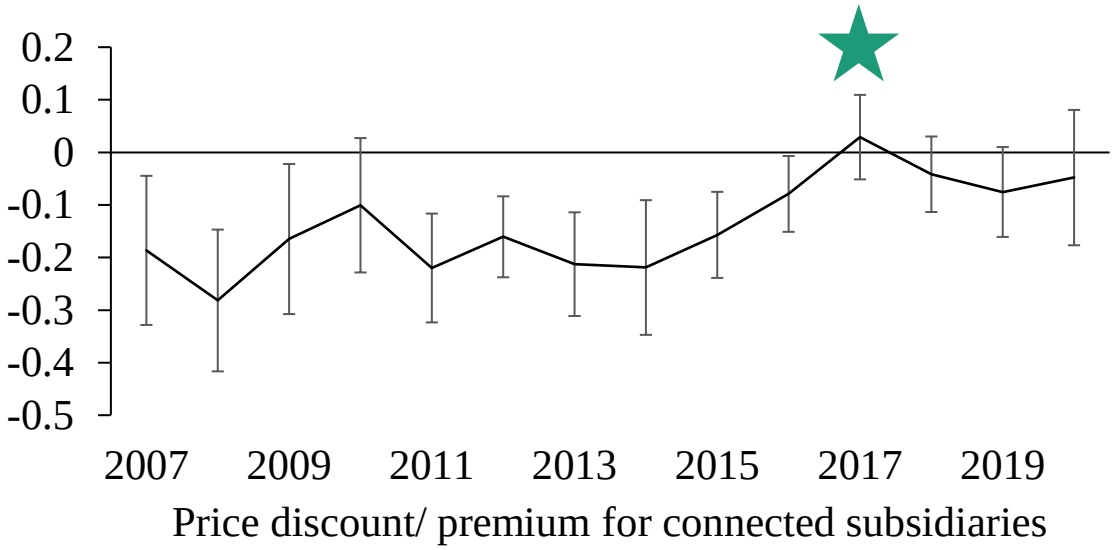

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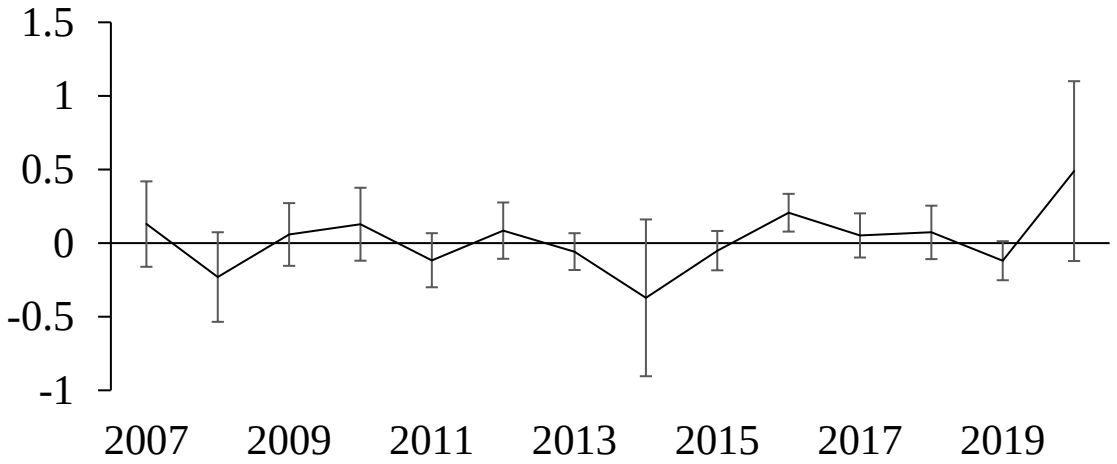

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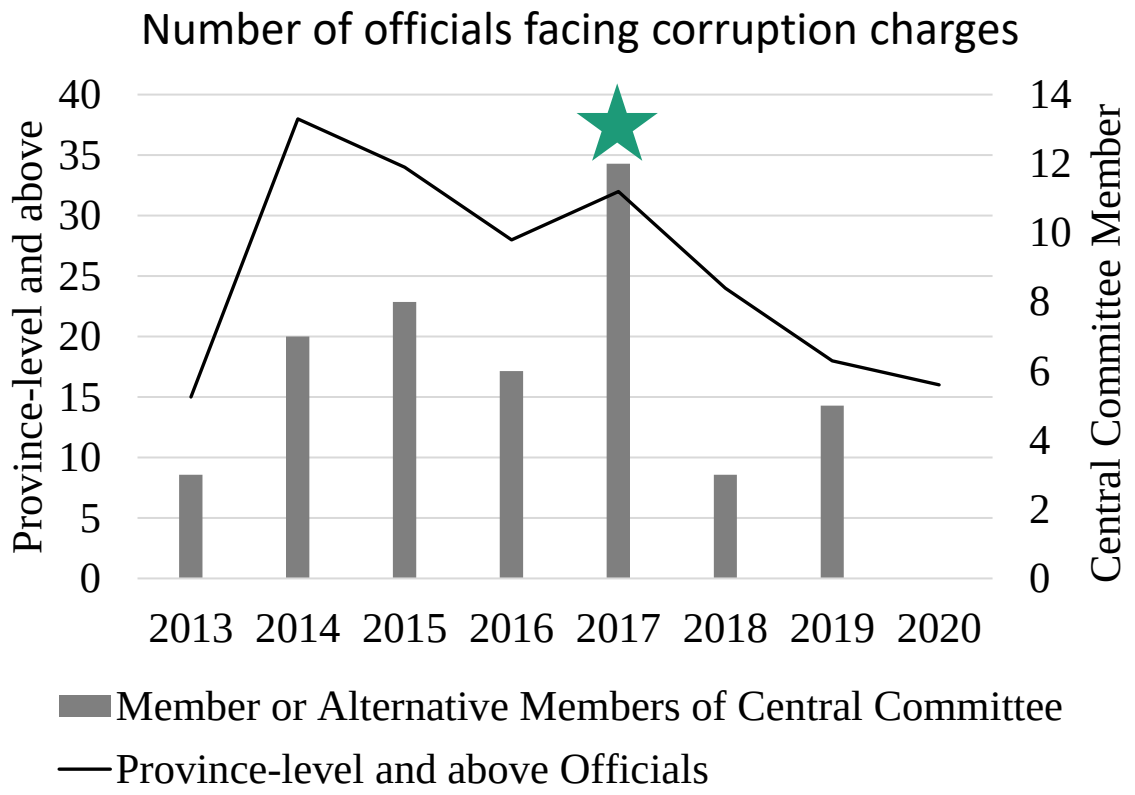

The land price discount decreases after the anti-corruption campaign, and is negatively correlated with the intensity of anticorruption campaign.

Alternative Political Connection Measure – Table 8

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

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- Larger donation followed by cheaper land prices
- Mitigate by anti-corruption campaign

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

Connected VS Nonconnected Subsidiaries – Table 11

- Can all subsidiaries get land price discount?

Connected VS Nonconnected Subsidiaries – Table 11

- Can all subsidiaries get land price discount?

	Log of land price					
	≤ 1500M				≤ 500M	
	(1)	(2)	(3)	(4)	(5)	(6)
Subsidiary	-0.113		-0.115		-0.092	
	(-1.685)		(-1.408)		(-1.231)	
Connected × Subsidiary	-0.016	-0.129**	-0.055	-0.170***	-0.056	-0.148**
	(-0.785)	(-2.090)	(-1.301)	(-2.826)	(-1.455)	(-2.652)
Unconnected × Subsidiary		-0.113		-0.115		-0.092
		(-1.687)		(-1.409)		(-1.232)
Subsidiary × Post-2013			0.003		-0.018	
			(0.099)		(-0.486)	
Connected × Subsidiary × Post-2013			0.074*	0.077***	0.097**	0.079***
			(1.723)	(2.849)	(2.418)	(3.389)
Non-Connected × Subsidiary × Post-2013				0.003		-0.018
				(0.099)		(-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

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			(1.723)	(2.849)	(2.418)	(3.389)
Non-Connected × Subsidiary × Post-2013				0.003		-0.018
				(0.099)		(-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

Conclusion

- Identify a new form of implicit political connection
- 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

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- To the best of our knowledge, there is little empirical evidence about how connected firms hide political favors through networks other than 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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