

Tournament-Style Political Competition and Local Protectionism: Theory and Evidence from China

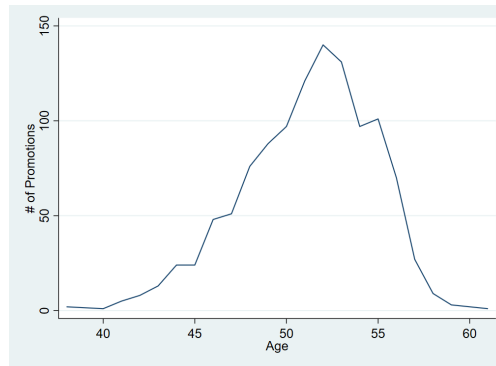
ONLINE APPENDIX

(Not Intended for Publication)

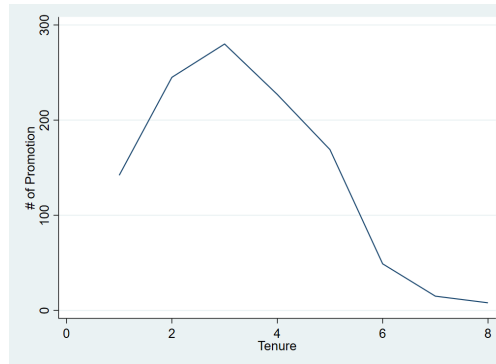
Hanming Fang* Ming Li† Zenan Wu‡

In this online appendix, we collect figures and tables omitted from the main text.¹

Figure A1: Non-linearity of Mayor's Promotion Probability



(a) Promotion and Mayor Age



(b) Promotion and Mayor Tenure

Notes: This figure plots the distribution of the mayor's promotion age and promotion tenure. The sample covers all mayors for the period between 2003 and 2019.

*Department of Economics, University of Pennsylvania, Ronald O. Perelman Center for Political Science and Economics, 133 S. 36th Street, Philadelphia, PA, 19104, USA; and the NBER. Email: hanming.fang@econ.upenn.edu.

†Chinese University of Hong Kong, Shenzhen, China, 518172. Email: liming2020@cuhk.edu.cn.

‡School of Economics, Sustainability Research Institute, Peking University, Beijing, China, 100871. Email: zenan@pku.edu.cn.

¹This note is not self-contained; it is the online appendix of the paper "Tournament-Style Political Competition and Local Protectionism: Theory and Evidence from China."

Table A1: Estimating Party Secretaries' Ex Ante Promotion Probability

	2003-2012	2013-2019
Age	-0.251 (0.480)	2.961*** (1.132)
Age ²	0.00244 (0.00465)	-0.0274*** (0.0106)
Male	-0.812** (0.402)	-2.210*** (0.677)
Bachelor	0.208 (0.497)	1.007 (1.454)
Ph.D.	0.646 (0.498)	1.040 (1.450)
Tenure	0.598*** (0.167)	1.263*** (0.223)
Tenure ²	0.00153 (0.0221)	-0.123*** (0.0323)
Party School	0.0576 (0.204)	-0.121 (0.251)
Secretary Gang	0.0767 (0.241)	-0.408 (0.304)
Central experience	0.234 (0.431)	0.586 (0.435)
Provincial experience	0.0812 (0.199)	0.127 (0.272)
CYL	0.544** (0.226)	-0.776*** (0.300)
Governor connection	0.166 (0.274)	-0.697 (0.441)
Secretary connection	-0.307 (0.338)	0.665 (0.412)
GDP per capita	-0.138*** (0.0525)	-0.0126 (0.102)
GDP growth ranking	0.0307 (0.0222)	-0.0333 (0.0280)
City FE	Yes	Yes
Year FE	Yes	Yes
Observations	2,065	1,281

Note: This table reports the results of estimating Equation (6) for the sample of city party secretaries, separately for the time period 2003-2012 and 2013-2019. Standard errors are clustered at city level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table A2: Political Competition and Allocation of Procurement Contract

	(1)	(2)	(3)	(4)
$ a_i - a_j $	0.0388*** (0.00634)	0.0524*** (0.0104)	0.0524*** (0.0104)	0.0527*** (0.00947)
a_i		0.00380 (0.00968)	0.00426 (0.00968)	0.0158 (0.0178)
a_j		-0.0290*** (0.00602)	-0.0294*** (0.00605)	-0.0285*** (0.00557)
$\log(\text{Population}_i)$			0.0237** (0.0114)	0.0256** (0.0119)
$\log(\text{Population}_j)$			-0.0216** (0.0103)	-0.0210** (0.0105)
$\log(\text{GDP}_i)$			0.00203 (0.0135)	-0.00925 (0.0147)
$\log(\text{GDP}_j)$			-0.00265 (0.00890)	0.00413 (0.00790)
Constant	0.0755*** (0.000593)	0.0757*** (0.000599)	0.0687* (0.0386)	0.0871 (0.0959)
City pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	No	No	Yes
Observations	24,576	24,576	24,576	24,532
R-squared	0.535	0.536	0.536	0.597

Note: This table reports the results of estimating Equation (7) with the share of the number of procurement contracts allocated to firms in city i in that to firms in all other cities being the dependent variable. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table A3: Political Competition and Allocation of Resources to Home Firms: Shares

	Procurement		Investment	
	(1)	(2)	(3)	(4)
$\min_{j \neq i} a_{jt} - a_{it} $	-0.216*	-0.219*	-0.113	-0.115*
	(0.120)	(0.120)	(0.0710)	(0.0583)
a_i	0.0632*	0.0631*	0.0292	0.0290
	(0.0374)	(0.0374)	(0.0245)	(0.0258)
$\log(\text{Population}_i)$		-0.0353		-0.0348**
		(0.0347)		(0.0149)
$\log(\text{GDP}_{j1})$		0.0108		0.0175
		(0.0413)		(0.0218)
Constant	0.651***	0.776**	0.796***	0.879***
	(0.00629)	(0.340)	(0.00319)	(0.152)
City FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	2,060	2,060	5,055	5,055
R-squared	0.603	0.604	0.401	0.402

Note: This table reports the results of estimating Equation 9 with the share of contracts awarded to home firms (in logs) or the share of equity investment from firms to home cities (in logs) being the dependent variable. The data sample includes all cities, and the level of observation is city-year. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table A4: Political Connection and Resource Allocation— Faction

	Procurement			Investment		
	(1)	(2)	(3)	(4)	(5)	(6)
Party School	0.0789** (0.0341)			0.0382 (0.0599)		
Secretary Gang		0.118*** (0.0351)			0.202** (0.0840)	
CYL			0.145*** (0.0264)			0.00222 (0.0724)
a_i	0.357** (0.165)	0.356** (0.165)	0.355** (0.166)	0.363 (0.250)	0.364 (0.250)	0.362 (0.250)
a_j	0.258*** (0.0704)	0.265*** (0.0703)	0.267*** (0.0702)	0.142 (0.139)	0.144 (0.140)	0.144 (0.140)
$\log(\text{Population}_i)$	0.0552 (0.209)	0.0562 (0.209)	0.0570 (0.209)	0.190 (0.270)	0.190 (0.270)	0.190 (0.270)
$\log(\text{Population}_j)$	0.160 (0.184)	0.161 (0.184)	0.159 (0.184)	-0.253 (0.226)	-0.252 (0.226)	-0.252 (0.227)
$\log(\text{GDP}_i)$	-0.235 (0.218)	-0.235 (0.217)	-0.232 (0.218)	0.911** (0.357)	0.912** (0.357)	0.911** (0.357)
$\log(\text{GDP}_j)$	-0.00146 (0.122)	0.00222 (0.121)	-0.00881 (0.121)	0.0486 (0.164)	0.0468 (0.164)	0.0482 (0.164)
Constant	2.251 (1.866)	2.218 (1.866)	2.281 (1.863)	-0.695 (3.071)	-0.696 (3.072)	-0.693 (3.071)
City pair FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,228	27,228	27,228	62,274	62,274	62,274
R-squared	0.909	0.909	0.909	0.706	0.706	0.706

Note: This table provides a further breakdown of the results of estimating Equation (10) with detailed measures of each type of political connection. The dependant variable is $\log(\text{Total number of procurement contracts} + 1)$. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table A5: Political Connection and Resource Allocation— Work Experience

	Procurement		Investment	
	(1)	(2)	(3)	(4)
Central work	-0.0457 (0.0611)		0.227 (0.186)	
Province work		0.0130 (0.0195)		0.0404 (0.0423)
a_i	0.354** (0.165)	0.355** (0.165)	0.363 (0.250)	0.362 (0.250)
a_j	0.264*** (0.0706)	0.264*** (0.0703)	0.144 (0.140)	0.146 (0.140)
$\log(\text{Population}_i)$	0.0536 (0.210)	0.0560 (0.209)	0.189 (0.270)	0.193 (0.269)
$\log(\text{Population}_j)$	0.164 (0.185)	0.162 (0.184)	-0.252 (0.226)	-0.253 (0.226)
$\log(\text{GDP}_i)$	-0.235 (0.218)	-0.234 (0.217)	0.912** (0.357)	0.912** (0.357)
$\log(\text{GDP}_j)$	-0.000849 (0.121)	-0.000321 (0.121)	0.0487 (0.164)	0.0481 (0.164)
Constant	2.239 (1.863)	2.226 (1.863)	-0.700 (3.072)	-0.714 (3.072)
City pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes	Yes
Observations	27,228	27,228	62,274	62,274
R-squared	0.909	0.909	0.706	0.706

Note: This table provides a further breakdown of the results of estimating Equation (10) with detailed measures of each type of political connection. The dependant variable is $\log(\text{Total number of procurement contracts} + 1)$. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table A6: Political Connection and Resource Allocation–Provincial Connection

	Procurement		Investment	
	(1)	(2)	(3)	(4)
Governor connection	0.0205 (0.0489)		0.171* (0.0996)	
Secretary connection		0.102 (0.0663)		0.179 (0.201)
a_i	0.354** (0.165)	0.355** (0.165)	0.361 (0.250)	0.365 (0.250)
a_j	0.263*** (0.0705)	0.265*** (0.0705)	0.144 (0.140)	0.146 (0.140)
$\log(\text{Population}_i)$	0.0528 (0.210)	0.0534 (0.210)	0.191 (0.270)	0.190 (0.270)
$\log(\text{Population}_j)$	0.164 (0.185)	0.164 (0.185)	-0.252 (0.226)	-0.253 (0.226)
$\log(\text{GDP}_i)$	-0.234 (0.217)	-0.236 (0.217)	0.913** (0.357)	0.911** (0.357)
$\log(\text{GDP}_j)$	-0.000579 (0.121)	-0.000261 (0.121)	0.0481 (0.164)	0.0500 (0.164)
Constant	2.234 (1.863)	2.240 (1.863)	-0.709 (3.072)	-0.706 (3.073)
City pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes	Yes
Observations	27,228	27,228	62,274	62,274
R-squared	0.909	0.909	0.706	0.706

Note: This table provides a further breakdown of the results of estimating Equation (10) with detailed measures of political connection. The dependant variable is $\log(\text{Total number of procurement contracts} + 1)$. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table A7: Tenure and Political Competition

	Procurement		Investment	
	(1)	(2)	(3)	(4)
Tenure _i	0.0177 (0.0182)	-0.0656*** (0.0215)	0.00683 (0.0348)	-0.147*** (0.0390)
Tenure _i ²	-0.00174 (0.00271)	0.0155*** (0.00353)	0.00263 (0.00510)	0.0293*** (0.00585)
Tenure _j	-0.0981 (0.0646)	-0.155** (0.0624)	-0.642*** (0.126)	-0.750*** (0.137)
Tenure _j ²	0.0214 (0.0163)	0.0326** (0.0157)	0.128*** (0.0318)	0.153*** (0.0346)
log(Population _i)		2.395*** (0.114)		0.343*** (0.0832)
log(Population _j)		2.083*** (0.114)		0.0309 (0.0833)
log(GDP _i)		-0.601*** (0.0143)		0.0361 (0.0242)
log(GDP _j)		0.535*** (0.0142)		0.615*** (0.0239)
Constant	1.880*** (0.0612)	-23.26*** (1.348)	5.813*** (0.118)	-5.989*** (0.916)
City pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	No	Yes	No	Yes
Observations	22,953	19,482	50,295	44,766
R-squared	0.672	0.748	0.507	0.619

Note: This table reports the results of estimating Equation (11) controlling for the quadratic form of the city mayors' tenure. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table A8: Competition Intensity and Procurement Contract Allocation

	Investment from SOE				Investment from POE			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$ a_i - a_j $	1.393*** (0.219)	1.421*** (0.231)	1.591*** (0.216)	1.491*** (0.244)	0.280 (0.183)	0.199 (0.182)	0.287 (0.177)	0.169 (0.198)
$ a_i - a_j \times \text{Faction}$	1.620*** (0.338)				0.219 (0.263)			
$ a_i - a_j \times \text{Work}$		0.873*** (0.313)				0.533** (0.257)		
$ a_i - a_j \times \text{Connection}$			0.621 (0.932)				1.065 (0.863)	
$ a_i - a_j \times BC_j$				-0.215* (0.119)				-0.160 (0.101)
Faction	0.109* (0.0581)				0.0373 (0.0494)			
Work		-0.0425 (0.0551)				-0.00808 (0.0440)		
Connection			0.193* (0.113)				0.0294 (0.102)	
BC_i				0.0110 (0.0165)				0.00903 (0.0142)
BC_j				-0.0160 (0.0152)				-0.0120 (0.0127)
a_i	0.271 (0.292)	0.297 (0.295)	0.297 (0.295)	0.162 (0.280)	-0.113 (0.266)	-0.111 (0.265)	-0.108 (0.266)	-0.212 (0.241)
a_j	0.0724 (0.183)	0.119 (0.185)	0.119 (0.186)	0.0517 (0.182)	-0.0922 (0.151)	-0.0844 (0.151)	-0.0857 (0.151)	-0.126 (0.142)
$\log(\text{Population}_i)$	0.398 (0.265)	0.405 (0.266)	0.404 (0.267)	0.268* (0.145)	0.191 (0.266)	0.195 (0.266)	0.193 (0.267)	0.142 (0.204)
$\log(\text{Population}_j)$	-0.228 (0.245)	-0.232 (0.241)	-0.231 (0.242)	0.151 (0.0937)	-0.212 (0.198)	-0.213 (0.197)	-0.213 (0.197)	0.00755 (0.0958)
$\log(\text{GDP}_i)$	0.698* (0.384)	0.689* (0.385)	0.692* (0.384)	0.406 (0.312)	0.733** (0.334)	0.732** (0.335)	0.733** (0.334)	0.457* (0.247)
$\log(\text{GDP}_j)$	0.0440 (0.186)	0.0386 (0.186)	0.0424 (0.187)	0.113 (0.169)	-0.0408 (0.145)	-0.0429 (0.145)	-0.0415 (0.145)	-0.109 (0.125)
Constant	-2.633 (2.782)	-2.546 (2.798)	-2.595 (2.801)	-2.842 (2.152)	-0.167 (2.468)	-0.158 (2.473)	-0.165 (2.470)	0.783 (1.792)
City pair FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	59,092	59,092	59,092	50,034	62,212	62,212	62,212	52,255
R-squared	0.674	0.673	0.673	0.681	0.708	0.708	0.708	0.709

Note: This table reports the results of estimating Equations (12) and (13) with $\log(\text{Number of procurement contracts} + 1)$ being the dependent variable, separately for the SOE sample and the POE sample. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table A9: Political Competition and Procurement Contract Allocation

	(1)	(2)	(3)
$ a_i - a_j $	0.454*	0.408	0.585**
	(0.243)	(0.281)	(0.233)
a_i		0.0230	-0.0541
		(0.213)	(0.373)
a_j		0.0648	0.0573
		(0.240)	(0.240)
$\log(\text{Population}_i)$		0.253	0.728**
		(0.255)	(0.337)
$\log(\text{Population}_j)$		-0.531**	-0.404
		(0.228)	(0.322)
$\log(\text{GDP}_i)$		0.255	-0.462
		(0.347)	(0.514)
$\log(\text{GDP}_j)$		-0.408	-0.629**
		(0.270)	(0.272)
Constant	2.498***	5.161	8.303**
	(0.221)	(3.211)	(4.088)
City pair FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes
Observations	27,502	27,502	27,228
R-squared	0.710	0.710	0.751

Note: This table reports the results of estimating Equation (7) with $\log(\text{Total value of procurement contracts} + 1)$ being the dependent variable. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table A10: Political Connection, Career Incentive and Procurement Contract Allocation

	(1)	(2)	(3)	(4)
Faction	0.0992* (0.0509)			
Work		0.0563 (0.0456)		
Connection			0.237** (0.111)	
BC_i				0.0483 (0.0446)
BC_j				-0.122*** (0.0239)
a_i	0.377 (0.366)	0.372 (0.366)	0.372 (0.366)	0.425 (0.526)
a_j	0.381* (0.195)	0.387** (0.195)	0.388** (0.195)	0.389* (0.205)
$\log(\text{Population}_i)$	0.743** (0.337)	0.749** (0.336)	0.741** (0.335)	0.362 (0.360)
$\log(\text{Population}_j)$	-0.423 (0.322)	-0.422 (0.321)	-0.416 (0.320)	-0.0963 (0.339)
$\log(\text{GDP}_i)$	-0.460 (0.515)	-0.459 (0.514)	-0.464 (0.514)	1.360** (0.580)
$\log(\text{GDP}_j)$	-0.626** (0.272)	-0.621** (0.271)	-0.616** (0.271)	-0.497 (0.319)
Constant	9.647** (4.211)	9.574** (4.202)	9.586** (4.208)	-4.541 (4.495)
City pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes	Yes
Observations	27,228	27,228	27,228	18,248
R-squared	0.751	0.751	0.751	0.781

Note: This table reports the results of estimating Equations 10 and (11) with $\log(\text{Total value of procurement contracts} + 1)$ being the dependent variable. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

Table A11: Competition Intensity and Procurement Contract Allocation

	(1)	(2)	(3)	(4)
$ a_i - a_j $	0.561** (0.245)	0.586** (0.253)	0.583** (0.236)	0.498 (0.301)
$ a_i - a_j \times \text{Faction}$	0.266 (0.309)			
$ a_i - a_j \times \text{Work}$		0.0291 (0.295)		
$ a_i - a_j \times \text{Connection}$			0.270 (0.688)	
$ a_i - a_j \times BC_j$				-0.129 (0.183)
Faction	0.0753 (0.0623)			
Work		0.0577 (0.0551)		
Connection			0.216* (0.126)	
BC_i				0.0488 (0.0446)
BC_j				-0.118*** (0.0249)
a_i	-0.0596 (0.372)	-0.0572 (0.373)	-0.0553 (0.373)	-0.0317 (0.516)
a_j	0.0457 (0.240)	0.0576 (0.240)	0.0594 (0.240)	0.0453 (0.260)
$\log(\text{Population}_i)$	0.734** (0.338)	0.742** (0.337)	0.734** (0.336)	0.339 (0.362)
$\log(\text{Population}_j)$	-0.415 (0.324)	-0.415 (0.323)	-0.408 (0.322)	-0.0706 (0.341)
$\log(\text{GDP}_i)$	-0.463 (0.515)	-0.463 (0.514)	-0.468 (0.514)	1.360** (0.584)
$\log(\text{GDP}_j)$	-0.632** (0.273)	-0.625** (0.272)	-0.621** (0.272)	-0.510 (0.319)
Constant	8.350** (4.086)	8.250** (4.081)	8.263** (4.089)	-5.270 (4.467)
City pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Mayor FE	Yes	Yes	Yes	Yes
Observations	27,228	27,228	27,228	18,248
R-squared	0.751	0.751	0.751	0.781

Note: This table reports the results of estimating Equations (12) and (13) with $\log(\text{Total value of procurement contracts} + 1)$ being the dependent variable. The data sample includes city pairs from the same province. Standard errors are estimated using cluster-bootstrap at the province-year level. ***, **, and * represent significance at 1%, 5% and 10%, respectively.