Internet Appendix of Factions in Nondemocracies: Theory and Evidence from the Chinese Communist Party

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November 30, 2022

This internet appendix provides (i) a microfoundation of the relationship between c and θ_f; (ii) detailed derivation of the model; (iii) a decription of the formal procedure of promotion in the CCP; (iv) estimation details; (v) additional figures and tables.

Appendix I: Microfounding relationship between c and θ_f

In the body of the paper it is assumed that $c_{i,j} = \theta_f = c_{j,i}$ if and only if i and j belong to group f, otherwise $c_{i,j} = c_{j,i} = 0$. Though it is reasonable to suppose that θ_f, or the degree of inherent primordial connectivity (for example if they were part of the CYLC or their parents were revolutionary veterans) is a primitive, it is also reasonable to assume that the degree of effective concern that group members share for each other is a function of not only their primordial connection but also the extent to which they have invested effort in cultivating connections to their primordial group. A simple way of endogenizing this investment decision can be modelled by following the approach taken by Battaglini, Patacchini and Rainone (2021). Instead of assuming that the level of connection that j has to i, $c_{j,i}$, is directly related to θ_f instead assume that the strength of connection that any individual $j \in f$ has to another group member $i \in f$ depends on the degree of effort i has invested in to cultivating ties to his group.

Investments are costly, and this cost may be interpreted as in Battaglini et al. (2021), as the cost of the time i spent socializing with j. In particular, let the costs of building a connection by $i \in f$ of strength $c_{j,i}$ with any other agent j be denoted by $\kappa\left(c_{j,i}, \theta_{j,i}\right)$. We can paramaterize these costs using the simple form followed by Battaglini et. al (2021) as:

$$\kappa\left(c_{j,i}, \theta_f\right) \equiv \frac{\lambda}{1+\lambda}\left(\frac{c_{j,i}}{\theta_{j,i}}\right)^{\frac{1+\lambda}{\lambda}} \; with \; \begin{cases} \theta_{j,i} = \theta_f \text{ if } j \in f \\ \theta_{j,i} = 0 \text{ if } j \notin f \end{cases} .$$

This formulation assumes that $i's$ investment to form a connection $c_{j,i} > 0$ to any j is feasible if and only if j is a member of group f as well. They then share some of what Battaglini et. al. term "compatability". In our case compatability can be thought of as the primordial group level of cohesion, θ_f; common to all members of group f. If $j \notin f$ then there is zero compatability and it is infinitely costly for i to connect with j. Note that this specification follows Battaglini et. al. in assuming that the the ability of i to establish a connection with j depends only on i's effort and i and j's types (group membership), but not on j's effort. As they show, it is possible to generate qualitatively similar results, at cost of additional complexity, by extending the model to allow j's effort to play a role too.

For simplicity, and to avoid introducing a complicated additional state variable, we proceed by assuming that investments in connecting to group members fully depreciate at the end of a period. So i chooses $c_{j,i}$ for all $j \in f$ taking into account the effect such connections will have on i's probability of gaining promotion support within the period. That is, i takes the solution from j's optimal support decision, equation (5), as given as denoted by the functional $s^*_{j,i}$, defined in the body of the paper.

Connections are valuable to i because they increase i's probability of promotion to the next level of the hierarchy, $p^i\left(\sum_j w_j s_{1,j}, \sum_j w_j s_{2,j}, ... \sum_j w_j s_{i,j}, .., \sum_j w_j s_{I,j}\right)$ where I is the number of other eligible applicants for any position. Suppressing notation denoting support for other candidates, this can be written more compactly as $p^i\left(\sum_j w_j s_{i,j}\right)$, since support decisions for all other candidates are taken as given by i. We know from Proposition part (i), that $s^*_{j,i}$ is increasing in $c_{j,i}$, and we compactly denote this as $s^*_{j,i}(c_{j,i})$ below. Given the functional form assumptions in the estimation, support is linear in the level of connection, but we persist with the more general form of this example. In choosing the level of connection, $c_{j,i}$ to make to all $j \in f$ individual i at level ℓ solves

$$\max_{c_{j,i}} \bar{n}^{\ell+1} p^i\left(\sum_{j\in f} w_j s^*_{j,i}(c_{j,i})\right) v^{\ell+1} - \frac{\lambda}{1+\lambda}\left(\frac{c_{j,i}}{\theta_f}\right)^{\frac{1+\lambda}{\lambda}}, \tag{1}$$

where $\bar{n}^{\ell+1}$ is the expected number of openings at level $\ell+1$. Note that, in the optimization above, i only considers forming connections to $j's \in f$ since we have assumed it is infinitely costly to connect to others. This yields first order condition:

$$\bar{n}^{\ell+1} p^{i\prime}(\cdot)\, v^{\ell+1} \sum_{j\in f} w_j \frac{\partial s^*_{j,i}}{\partial c_{j,i}} = \frac{1}{\theta_f}\left(\frac{c_{j,i}}{\theta_f}\right)^{\frac{1}{\lambda}}, \tag{2}$$

where p^{i}' is the change in $i's$ probability of promotion for a marginal increase in support. The existence of a unique solution is guaranteed under the functional form assumptions already made in the estimation part of the paper, so this microfoundation could easily be added to the model.[1]

[1]The logistic promotion probability function for p^i in equation (9) guarantees $p^{i\prime} > 0$ and $p^{i\prime\prime} < 0$, and

The solution to (2) yields optimal connection strength for an individual i at level ℓ which has comparative static properties that $c_{j,i}$ is increasing in: primordial connections, θ_f , the value of promotions, $v^{\ell+1}$, the expected number of positions i can contest, $\bar{n}^{\ell+1}$, and the weighted sum of group members already in the hierarchy $\sum_{j\in f} w_j$ (where the weights correspond to a member's influence on promotion, estimated above).[2] Note also that, under this microfoundation, the optimal amount of connection chosen by an individual at each level of the hierarchy, ℓ, potentially differs, since benefits of investment depend on level specific parameters.

In the model estimation conducted in the body of the paper, we have calculated a unique $c_{j,i}$ for all $i, j \in f$ and interpreted the $c_{j,i}$ as directly reflecting the exogenous underlying connectivity between group members, θ_f. Under the alternative microfoundation proposed here, the estimated $c_{j,i}$ for a group f would instead be interpreted as a weighted average of the (potentially) differing levels of connection investment made by members of f who are at different levels of the hierarchy. As the solution above shows, this would indeed be increasing in θ_f, as per the main model, but it would also be affected by a host of other factors that vary along different levels of the hierarchy. We have not proceeded with a microfoundation like this in the core estimations because investments in connection making are not observable, and because it is not possible for us to recover level specific $c_{j,i}$ investments that would constitute the aggregate level of group connection.

the linearity of $s^*_{j,i}$ in $c_{j,i}$ from equation (8) together with the restriction that $\lambda > 0$, makes the optimization problem (1) strictly concave in $c_{j,i}$.

[2]The LHS of equation (2) is strictly decreasing in $c_{j,i}$ and the RHS strictly increasing in $c_{j,i}$ given the assumed functional forms. So, the comparative static claims follow immediately by observing that the LHS of (2) is increasing in $\bar{n}^{\ell+1}, v^{\ell+1}$, and $\sum_{j\in f} w_j$, while the RHS is decreasing in θ_f.

Appendix II: Proof of Proposition

Proof: Consider first the effect on economic performance of promoting i to a position paired with $-i$. If promoted to this position, i solves (4) which yields an interior solution with FOC:

$$v_1^\ell(q_i, q_{-i}) + c_{i,-i} v_2^\ell(q_{-i}, q_i) \quad = \quad 0, \tag{3}$$

with second order condition at a maximum:

$$v_{11}^\ell(q_i, q_{-i}) + c_{i,-i} v_{22}^\ell(q_{-i}, q_i) \quad < \quad 0, \tag{4}$$

where numbered sub-scripts denote partial derivatives. Denote the solution by $q_i^*(c_{i,-i}, \ell)$. By the strict concavity of v, the solution is unique, and by continuity of v, q_i^* is differentiable. Totally differentiating the FOC with respect to $c_{i,-i}$:

$$v_{11}^\ell(q_i, q_{-i}) \frac{\partial q_i^*}{\partial c_{i,-i}} + v_2^\ell(q_{-i}, q_i) + c_{i,-i} v_{22}^\ell(q_i, q_{-i}) \frac{\partial q_i^*}{\partial c_{i,-i}} = 0,$$

$$\Rightarrow \frac{\partial q_i^*}{\partial c_{i,-i}} = -\frac{v_2^\ell(q_{-i}, q_i)}{v_{11}^\ell(q_{-i}, q_i) + c_{i,-i} v_{22}^\ell(q_{-i}, q_i)} < 0.$$

Where the sign follows from equation (3) and the second order condition (4).

When choosing support to provide, politician j solves (5), which also yields an interior solution as $\pi_1(0, \cdot, \cdot) > k'(0)$, with FOC:

$$\pi_1(s_{i,j}, e_{i,-i}^\ell, b^\ell c_{i,j}) - k'(s_{i,j}) = 0, \tag{5}$$

and second order condition at a maximum of:

$$\pi_{11}(s_{i,j}, e_{i,-i}^\ell, b^\ell c_{i,j}) - k''(s_{i,j}) < 0. \tag{6}$$

Denote the solution $s_{i,j}^*(\cdot)$, suppressing the arguments for simplicity. The solution is unique due to the strict convexity of k, and differentiable in its arguments due to the assumed continuity of π and k.

Part (i). Totally differentiating (5) with respect to $c_{i,j}$ yields:

$$\pi_{11}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})\frac{\partial s^*_{i,j}}{\partial c_{i,j}} + \pi_{13}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})b^{\ell} - k''(s_{i,j})\frac{\partial s^*_{i,j}}{\partial c_{i,j}} = 0,$$

$$\frac{\partial s^*_{i,j}}{\partial c_{i,j}} = -\frac{\pi_{13}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})b^{\ell}}{\pi_{11}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j}) - k''(s_{i,j})}.$$

Since $\pi_{13} > 0$, using (6) yields $\frac{\partial s^*_{i,j}}{\partial c_{i,j}} > 0$.

Part (ii). Totally differentiating (5) with respect to b^{ℓ} similarly yields:

$$\pi_{11}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})\frac{\partial s^*_{i,j}}{\partial b^{l}} \quad + \quad \pi_{13}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})c_{i,j} \quad - \quad k''(s_{i,j})\frac{\partial s^*_{i,j}}{\partial b^{l}} \quad = \quad 0,$$

$$\Rightarrow \frac{\partial s^*_{i,j}}{\partial b^{\ell}} = -\frac{\pi_{13}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})c_{i,j}}{\pi_{11}(s_{i,j}, e^{l}_{i,-i}, b^{\ell}c_{i,j}) - k''(s_{i,j})}.$$

By the same argument as above, $\frac{\partial s^*_{i,j}}{\partial b^{l}} > 0$ if $c_{i,j} > 0$, and $\frac{\partial s^*_{i,j}}{\partial b^{l}} = 0$ for $c_{i,j} = 0$.

Part (iii). Totally differentiating (5) with respect to $c_{i,-i}$ and noting that $e^{\ell}_{i,-i} \equiv e^{\ell}(q_i, q_{-i}, a_i, a_{-i})$, yields:

$$\pi_{11}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})\frac{\partial s^*_{i,j}}{\partial e^{\ell}}\frac{\partial e^{\ell}}{\partial q_i}\frac{\partial q_i}{\partial c_{i,-i}} + \pi_{12}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})\frac{\partial e^{\ell}}{\partial q_i}\frac{\partial q_i}{\partial c_{i,-i}} - k''(s_{i,j})\frac{\partial s^*_{i,j}}{\partial e^{\ell}}\frac{\partial e^{\ell}}{\partial q_i}\frac{\partial q_i}{\partial c_{i,-i}} = 0,$$

$$\frac{\partial s^*_{i,j}}{\partial c_{i,-i}} \equiv \frac{\partial s^*_{i,j}}{\partial e^{\ell}}\frac{\partial e^{\ell}}{\partial q_i}\frac{\partial q_i}{\partial c_{i,-i}} = -\frac{\pi_{12}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})\frac{\partial e^{\ell}}{\partial q_i}\frac{\partial q_i}{\partial c_{i,-i}}}{\pi_{11}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j}) - k''(s_{i,j})}.$$

The effect on $j's$ support of the nodal connection between i and $-i$, $c_{i,-i}$, operates through the effect of on q_i which affects $e^{\ell}_{i,-i}$. That is, j is not affected directly by i and $-i's$ relationship, only via the effect that relationship has on provision of public goods at the node, q_i, and hence on economic performance at the node, $e^{\ell}_{i,-i}$. So the effect on $j's$ support of a nodal connection $c_{i,-i}$ is given by the sign of $\frac{\partial s^*_{i,j}}{\partial e^{\ell}}\frac{\partial e^{\ell}}{\partial q_i}\frac{\partial q_i}{\partial c_{i,-i}}$. Since $\pi_{12} > 0$, $\frac{\partial e^{\ell}}{\partial q_i} > 0$, we have established above that $\frac{\partial q_i}{\partial c_{i,-i}} < 0$, and using (6) to sign the denominator, we then have $\frac{\partial s^*_{i,j}}{\partial e^{l}}\frac{\partial e^{\ell}}{\partial q_i}\frac{\partial q_i}{\partial c_{i,-i}} < 0$.

Part (iv). Since levels, ℓ, are discrete, the effects of a change in ℓ are given by considering the discrete change accompanying a level increase, $\Delta\ell$

$$\pi_{11}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})\frac{\Delta s^*_{i,j}}{\Delta\ell} + \pi_{13}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})\frac{\Delta b^{\ell}}{\Delta\ell}c_{i,j} - k''(s_{i,j})\frac{\Delta s^*_{i,j}}{\Delta\ell} = 0,$$

$$\Rightarrow \frac{\Delta s^*_{i,j}}{\Delta\ell} = -\frac{\pi_{13}(s_{i,j}, e^{\ell}_{i,-i}, b^{\ell}c_{i,j})\frac{\Delta b^{\ell}}{\Delta\ell}c_{i,j}}{\pi_{11}(e^{\ell}_{i,-i}, b^{\ell}c_{i,j}) - k''(s_{i,j})}.$$

Note that moving up the hierarchy creates greater incremental benefits, $\frac{\Delta b^{\ell}}{\Delta\ell} > 0$, so a cofaction member for whom, $c_{i,j} > 0$, receives relatively more support from cofactionals than a neutral (for whom $c_{i,j} = 0$) the higher is the opening in the hierarchy.

Part (v). It is immediate that higher a_i raises $e^{\ell}_{i,-i}$, so that $\frac{\partial s^*_{i,j}}{\partial a_i} > 0$.□

Appendix III: Formal Procedure of Promotion in the CCP

This appendix briefly describes the formal procedure of promotion based on the "Interim Regulations on Selection and Appointment of Party and Government Leading Cadres" of the Chinese Communist Party issued in 1995. A detailed account can be found in Bo (2004). There have been two subsequent updates to these formal regulations, issued in 2002 and 2014, but the main procedure has remained substantially the same over our period of analysis.

According to CCP regulations, the appointment process consists of four phases: (i) democratic recommendations; (ii) screening; (iii) deliberation; and (iv) discussions and decision.

In the first phase, the party committee of the same level of the opening or the organization department of a next higher level delimit a pool of potential candidates for the position.

Second, the organization department screens candidates by having private meetings with relevant individuals, conducting public opinion polls, and interview the short-listed candidates.

In the third phase, the list of candidates are vetted through a process of internal deliberation. The participants of the deliberation include the leaders of the party committee, the legislature, and the government at the same level of the opening.

In the fourth and final phase, the list of candidates is presented to the next higher-up party committee where the final selection decision is made for the post. The party committee of this level may also make suggestions regarding the selection.

Appendix IV: Details of Estimation Procedure

We provide here more details on our simulations and estimation. It proceeds through several steps:

1. We first create a party hierarchy with 6 levels, corresponding to the tiers TL, SC, PB, CC, AC, and an entry level. The numbers of politicians in each level are 2, 6, 18, 160, 160, and 200, respectively.

2. We start with an arbitrary initial hierarchy, simulate $M = 1000$ retirements so that it reaches the steady-state, $\tilde{x}_0$.

3. Starting with the steady-state composition, $\tilde{x}_0$, we simulate $T = 20$ Congresses for a given set of parameters, Θ. Each new Congress means that half of the politicians will be retired. We define the whole history of the T Congresses as $X_s = \{x_{s,1}, x_{s,2}, ..., x_{s,T}\}$

4. We repeat step 3 for $S = 100$ times and get S possible path, $\tilde{X} = \left\{\tilde{X}_s\right\}_{s=1,...,S}$

5. We calculate the moments $\hat{m}\left(\tilde{X}|\Theta\right)$ from $\left\{\tilde{X}_s\right\}_{s=1,...,S}$ by estimating the regression models equation 1 and equation 2 in the simulated data. Specifically, for equation 1, we create a promotion dummy in the simulated data using two consecutive Congress, $\tilde{x}_{s,t}$ and $\tilde{x}_{s,t+1}$. Then we regress the promotion dummy on faction dummies and their interaction with top leader's faction and SC shares. For equation 2, we regress the faction dummy of No.1 politician on the faction dummy of No.2 politician in the simulated data, $\tilde{x}_{s,t}$.

6. We use the sum of squared errors in moments as the distance metric. Formally, for each moment, we calculate the moment error function $e(\tilde{X}, X|\Theta) \equiv \frac{\hat{m}\left(\tilde{X}|\Theta\right) - m(X)}{m(X)}$ as the percent difference in the vector of simulated model moments from the data moments. The SMM estimator is defined as $\hat{\Theta} = \arg\min_{\Theta} e(\tilde{X}, X|\Theta)^T W e(\tilde{X}, X|\Theta)$, where W is the weighting matrix. We use a two-step procedure where the identity matrix is used as the weighting matrix in the first step and the optimal weighting matrix is used in the second step.

7. The variance-covariance matrix for the parameter estimates is given by:

$$\hat{\Omega} = \left(1 + \frac{1}{S}\right) \left[\frac{\partial e(\tilde{X}, X|\Theta)^T}{\partial \Theta} W \frac{\partial e(\tilde{X}, X|\Theta)}{\partial \Theta} \right]^{-1}$$

where $\frac{\partial e(\tilde{X},X|\Theta)}{\partial \Theta}$ is the derivative of the vector of moments with respect to the parameter vector (so this is a $q \times p$ matrix for q moments and p parameters. We calculate the derivatives numerically.

Appendix V: Additional Figures and Tables

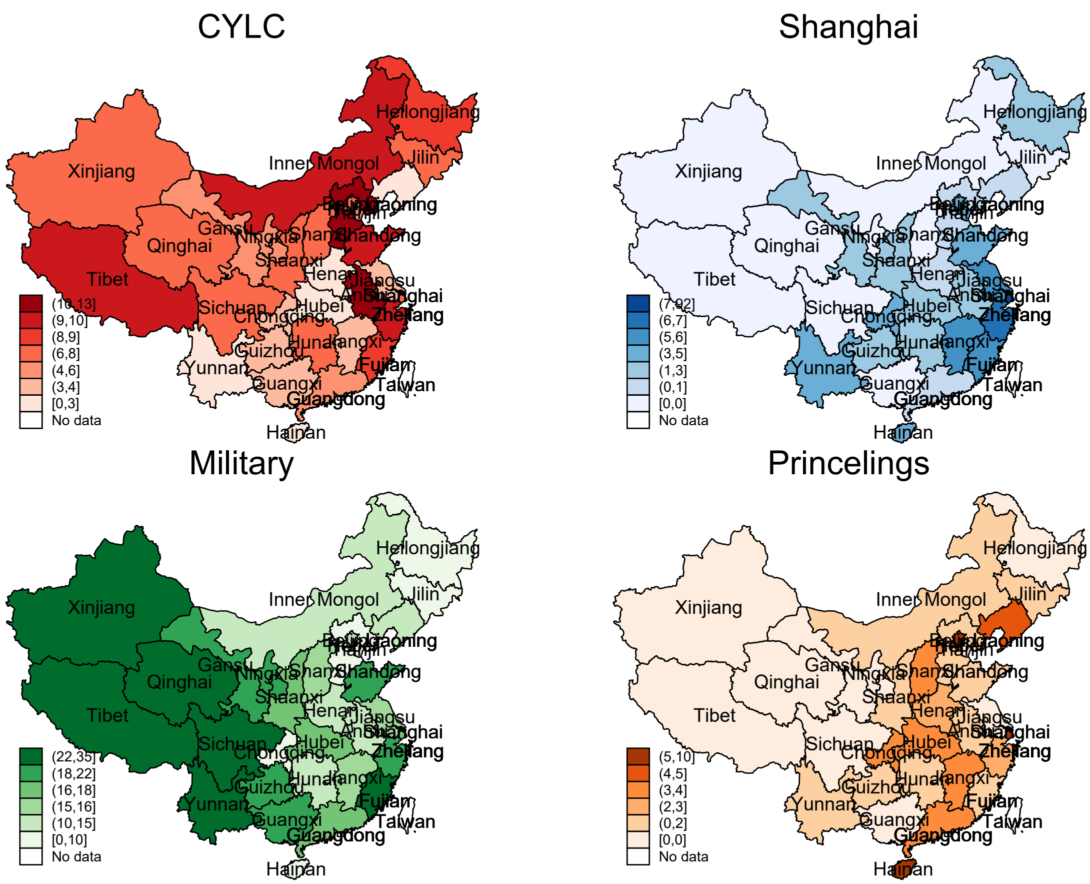

Figure 1: Geographic Distribution of Factions

This graph shows the geographic distribution of factions across provinces (municipalities) for 1956 to 2014. The color scale represents the average share of faction in a province (municipality).

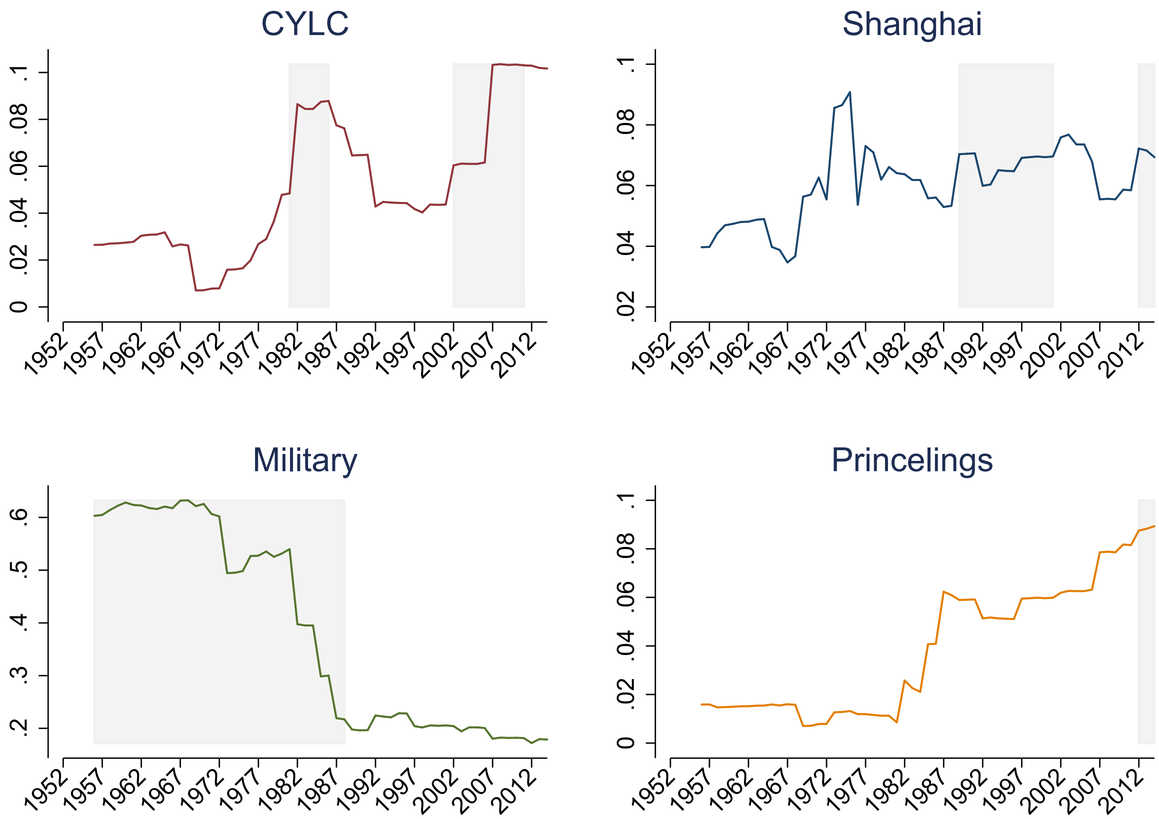

Figure 2: Leadership Premium in Power Score of Each Faction
This graph shows the share of the power score of each faction in the Central Committee over time. The power score is constructed following the scheme of Bo (2010). The shaded area indicates that the General Secretary of CCP is from the corresponding faction.

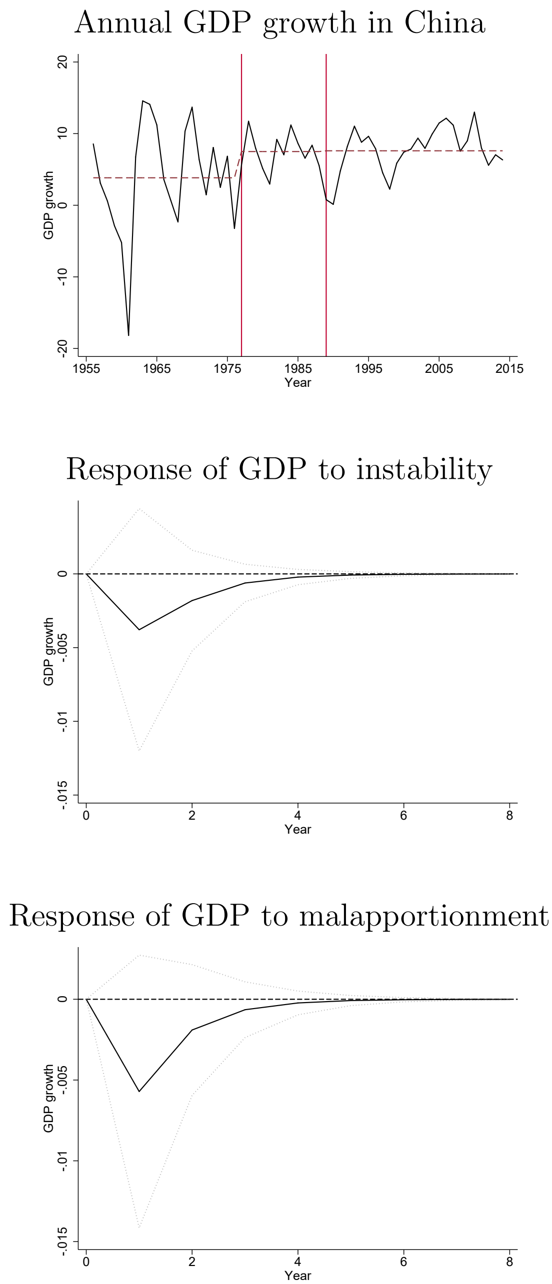

Figure 3: Political Organization and GDP Growth in China

The upper panel shows the annual GDP growth rate of China from 1956 to 2014. The two vertical lines indicate 1977 (Deng Xiaoping returned to power) and 1989 (Jiang Zemin became the General Secretary of the CCP), respectively. The middle and bottom panels show the impulse response functions of the GDP growth to a one standard deviation shock to instability and malapportionment of the Central Committee of the CCP, respectively. The dashed lines represent the 90% confidence intervals. The impulse response functions are estimated using a VAR(1) model of the GDP growth, instability, and malapportionment. The sample period is from 1956 to 2014.

Table 1: Anticorruption and Factional Affiliation

This table shows the cross-sectional regression of a corruption dummy on the faction affiliation of an official. Corruption is defined as 1 if the official is investigated or prosecuted according to ChinaFile and the China's Central Commission for Discipline Inspection (CCDI) website, and 0 otherwise. The sample includes all the individuals covered by China Vitae who have not retired in the year of 2007, the year of 17th Party Congress. Robust standard errors are reported in brackets. ***,**,* indicates 1 percent, 5 percent, and 10 percent significance level, respectively.

	(1) Corruption	(2) Corruption	(3) Corruption
CYLC	0.0200	0.0131	0.0393*
	[0.0226]	[0.0220]	[0.0230]
Shanghai	-0.0249	-0.0190	-0.00983
	[0.0243]	[0.0236]	[0.0242]
Princelings	-0.0502	-0.0203	-0.0198
	[0.0341]	[0.0340]	[0.0343]
Military	0.169***	0.191***	0.215***
	[0.0278]	[0.0269]	[0.0271]
p-value (CYLC=Shanghai)	0.162	0.303	0.118
Individual Attributes	No	Yes	Yes
Level F.E.	No	No	Yes
Observations	2465	2465	2465
Adj. R-squared	0.0335	0.0784	0.0931

Table 2: Summary Statistics of Promotion, Retirement, and Term Length

This table shows the distribution of promotion, retirement, and term length in the Central Committee. The sample includes all the members in the 11th to 18th Central Committees (1977--2017). Column 1 presents the frequency of each group. Columns 2 and 3 are probability and cumulative probability, respectively.

Fraction of promotion and retirement

	No.	Col %	Cum %
Retirement	1,188.0	50.7	50.7
No change	770.0	32.8	83.5
Promotion	365.0	15.6	99.1
Demotion	21.0	0.9	100.0

Change in level conditional on promotion

	No.	Col %	Cum %
1	349.0	95.6	95.6
2	15.0	4.1	99.7
3	1.0	0.3	100.0

Term length

	No.	Col %	Cum %
1	1,305.0	67.2	67.2
2	530.0	27.3	94.5
≥ 3	107.0	5.5	100.0

Table 3: Faction Affiliation and Promotion (Post 1992 Sample)

This table shows panel regressions of promotion on the faction affiliation. The sample includes all the members of the 14th to 18th Central Committees (1992–2017). Promotion is a dummy that equals 1 if a Central Committee member moves up in the levels of Central Committee, 0 otherwise. Control variables include gender, college degree, graduate degree, mishu dummy, ethnic minority, abroad experience dummy, age, age square, and age cube. Robust standard errors are reported in brackets. ***,**,* indicates 1 percent, 5 percent, and 10 percent significance level, respectively.

	(1)	(2)	(3)
	Promotion	Promotion	Promotion
CYLC	0.125**	0.348***	0.0562
	[0.0509]	[0.106]	[0.0468]
Shanghai	0.177***	0.128	0.172***
	[0.0530]	[0.101]	[0.0512]
Princelings	0.0697	0.169	0.0915**
	[0.0463]	[0.114]	[0.0384]
Military	-0.0357	-0.0703	0.00557
	[0.0263]	[0.0553]	[0.0218]
Sample	All	AC	CC
Individual Attributes	Yes	Yes	Yes
Level F.E.	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes
Observations	1351	604	683
Adj. R-squared	0.17	0.13	0.08

Table 4: Faction Affiliation and Promotion (Alternative Definition for Military)

This table shows panel regressions of promotion on the faction affiliation. The Military faction is defined using veterans of Korean War. The sample includes all the members of the 11th to 18th Central Committees (1977-2017). Promotion is a dummy that equals 1 if a Central Committee member moves up in the levels of Central Committee, 0 otherwise. Control variables include gender, college degree, graduate degree, mishu dummy, ethnic minority, abroad experience dummy, age, age square, and age cube. Robust standard errors are reported in brackets. ***,**,* indicates 1 percent, 5 percent, and 10 percent significance level, respectively.

	(1) Promotion	(2) Promotion	(3) Promotion
CYLC	0.125***	0.178**	0.135***
	[0.0348]	[0.0769]	[0.0315]
Shanghai	0.0861**	0.0939	0.0541*
	[0.0347]	[0.0778]	[0.0318]
Princelings	0.0670*	0.0526	0.104***
	[0.0370]	[0.0854]	[0.0331]
Korean War Veterans	0.0103	0.0742	-0.00441
	[0.0337]	[0.0813]	[0.0281]
Sample	All	AC	CC
Individual Attributes	Yes	Yes	Yes
Level F.E.	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes
Observations	2296	983	1193
Adj. R-squared	0.14	0.09	0.04

Table 5: Factional Mix: Regression Evidence (with Congress F.E.)

This table shows panel regressions of the factional affiliation of the number 1 official on the number 2 official in the same political office. Variable CYLC1 (CYLC2) is a dummy which equals 1 if number 1 (2) official is from the CYLC faction. Shanghai1, Shanghai2, Princelings1 Princelings2, Military1, and Military2 are defined similarly. The sample period is 1992–2015. Standard errors are clustered at the year level. ***,**,* indicates 1 percent, 5 percent, and 10 percent significance level, respectively.

	(1) CYLC1	(2) CYLC1	(3) CYLC1
CYLC2	-0.236***	-0.129**	-0.509**
	[0.0653]	[0.0608]	[0.161]
Sample	All	Provincial	National
Postion F.E.	Yes	Yes	Yes
Congress F.E.	Yes	Yes	Yes
Observations	773	627	146
Adj. R-squared	0.256	0.241	0.290

	(1) Shanghai1	(2) Shanghai1	(3) Shanghai1
Shanghai2	-0.379**	-0.0308	-0.818**
	[0.179]	[0.0485]	[0.326]
Sample	All	Provincial	National
Postion F.E.	Yes	Yes	Yes
Congress F.E.	Yes	Yes	Yes
Observations	773	627	146
Adj. R-squared	0.402	0.201	0.368

	(1) Princelings1	(2) Princelings1	(3) Princelings1
Princelings2	-0.140**	-0.162*	-0.0591
	[0.0627]	[0.0805]	[0.111]
Sample	All	Provincial	National
Postion F.E.	Yes	Yes	Yes
Congress F.E.	Yes	Yes	Yes
Observations	773	627	146
Adj. R-squared	0.185	0.247	0.236

	(1) Military1	(2) Military1	(3) Military1
Military2	-0.367	-0.0102	-0.575***
	[0.284]	[0.0148]	[0.133]
Sample	All	Provincial	National
Postion F.E.	Yes	Yes	Yes
Congress F.E.	Yes	Yes	Yes
Observations	773	627	146
Adj. R-squared	0.361	0.247	0.478

Table 6: Frequency of Factional Mix (Exclude CMC)

This table shows the frequency of the factional mix of the top 2 officials in the same political office. The provincial positions include 31 provincial and municipal units (Secretary and Governor). The national positions include Politburo Standing Committee (two highest-ranking members), PRC presidency (President and Vice President), the State Council (Premier and Executive Vice Premier), Central Military Committee (Chairman and Executive Vice Chairman), CCP Secretariat (two-highest ranking secretaries), NPC (Chairman and Executive Vice Chairman), CPPCC (Chairman and Executive Vice Chairman), the Supreme People's Court (President and Executive Vice President). The sample period is from 1992 to 2015.

Empirical frequency

	CYLC	Shanghai	Princelings	Military	Neutral	Total
CYLC	2.25	1.32	3.58	0.00	14.57	21.72
Shanghai	2.25	0.00	1.19	0.00	1.19	4.64
Princelings	2.65	1.06	0.40	0.00	5.30	9.40
Military	0.93	0.00	0.00	0.00	0.93	1.85
Neutral	10.60	2.12	2.78	0.66	46.23	62.38
Total	18.68	4.50	7.95	0.66	68.21	100.00

Counterfactual frequency under a random matching

	CYLC	Shanghai	Princelings	Military	Neutral	Total
CYLC	4.06	.98	1.73	.14	14.82	21.72
Shanghai	.87	.21	.37	.03	3.16	4.64
Princelings	1.76	.42	.75	.06	6.41	9.40
Military	.35	.08	.15	.01	1.26	1.85
Neutral	11.65	2.81	4.96	.41	42.55	62.38
Total	18.68	4.50	7.95	0.66	68.21	100.00

Ratio between empirical frequency and counterfactual frequency

	CYLC	Shanghai	Princelings	Military	Neutral	Total
CYLC	.55	1.35	2.07	.00	14.82	21.72
Shanghai	2.60	.00	3.23	.00	3.16	4.64
Princelings	1.51	2.51	.54	.00	6.41	9.40
Military	2.69	.00	.00	.00	1.26	1.85
Neutral	.91	.76	.56	1.60	42.55	62.38
Total	18.68	4.50	7.95	0.66	68.21	100.00

Table 7: Factional Mix: Regression Evidence (Exclude CMC)

This table shows panel regressions of the factional affiliation of the number 1 official on the number 2 official in the same political office. Variable CYLC1 (CYLC2) is a dummy which equals 1 if number 1 (2) official is from the CYLC faction. Shanghai1, Shanghai2, Princelings1 Princelings2, Military1, and Military2 are defined similarly. The sample period is 1992–2015. Standard errors are clustered at the year level. ***,**,* indicates 1 percent, 5 percent, and 10 percent significance level, respectively.

	(1) CYLC1	(2) CYLC1	(3) CYLC1
CYLC2	-0.123**	-0.0752	-0.381**
	[0.0537]	[0.0565]	[0.116]
Sample	All	Provincial	National
Observations	755	627	128
Adj. R-squared	0.012	0.003	0.125

	(1) Shanghai1	(2) Shanghai1	(3) Shanghai1
Shanghai2	-0.0932***	-0.0314**	-0.456**
	[0.0301]	[0.0150]	[0.128]
Sample	All	Provincial	National
Observations	755	627	128
Adj. R-squared	0.005	-0.000	0.134

	(1) Princelings1	(2) Princelings1	(3) Princelings1
Princelings2	-0.0478	-0.0785***	-0.125
	[0.0503]	[0.0231]	[0.105]
Sample	All	Provincial	National
Observations	755	627	128
Adj. R-squared	0.001	0.002	0.011

	(1) Military1	(2) Military1	(3) Military1
Military2	-0.0577**	-0.0289*	-0.203
	[0.0234]	[0.0166]	[0.106]
Sample	All	Provincial	National
Observations	755	627	128
Adj. R-squared	-0.001	-0.001	0.002

Reference

Battaglini, M., E. Patacchini, and E. Rainone (2021) “Endogenous Social Interactions with Unobserved Networks,” *Review of Economic Studies,* forthcoming.