Discretion, Talent Allocation, and Governance Performance: Evidence from China's Imperial Bureaucracy

Kevin Zhengcheng Liu[*]   Xiaoming Zhang[*]

[*]Faculty of Business and Economics, HKU

China Economics Summer Institute
August 24, 2022

Motivation

- Bureaucrats, who perform state functions, are a key element of state capacity (Besley et al., 2021).
  - Bureaucracy faces many constraints in utilizing incentive devices due to the multi-tasking problem.
  - The allocation of talent is critical
- Long-standing views on ideal bureaucracy: "*dehumanized*" and completely rule-based system (Weber, 1922)
- But rigid rules $\implies$ talents misallocation
  - Disregards heterogeneity in positions
  - Prevents the use of (soft) private information

- **We ask**: How discretion in appointments *compared* to rule affects the quality and performance of bureaucrats?

Discretion vs. Rule in Bureaucratic Appointment

- Theoretic tension on the effect of discretion
  - Positive: use private and public information in appointment (Aloson & Matouschek, 2008; Hoffman et al., 2018; Voth & Xu, 2020; Bosio et al., 2020)
  - Negative: create scope for favoritism and corruption (Prendergast & Topel, 1996; Xu, 2018; Colonnelli et al., 2020)

- Clean causal evidence remains rare.
  - The lack of variation in appointment methods *within* the organization, making it hard to know the counterfactual (i.e., those appointed to the same position under the status quo rule) for comparison

This Paper

- Studies the effect of discretion in appointment on the quality of bureaucrats and governance performance

- Context: China's imperial bureaucracy system in the Qing Dynasty
  - The earliest inventor of the modern-style bureaucracy (Fukuyama, 2011)
  - Rule-based appointment process for the majority of middle and junior level positions in the Qing Dynasty (1644-1911)
  - Focus on the prefecture governors (comparable to mayor)

- Exploits a historical natural experiment in appointment method

Natural Experiment in Appointment Method

- Early period of the Qing Dynasty (1644-1736):
  - The appointments of prefecture governors were made by a seniority-based random allocation rule.

- After 1736, an abrupt change in the appointment method
  - Local jurisdiction were rated according to governance features (regional importance rating: ranging from 0–4)
  - Two different appointment methods were applied to different governorships

Natural Experiment in Appointment Method

- Prefectures with high importance rating: **status quo rule ⇒ discretion**
  - The emperor select within the eligible candidate list
- Prefectures with low importance rating: **status quo rule** ↻
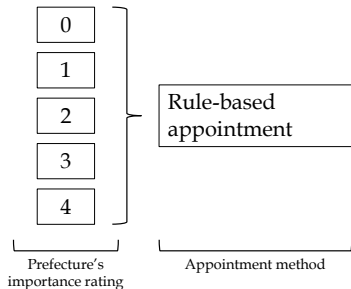
Before the reform
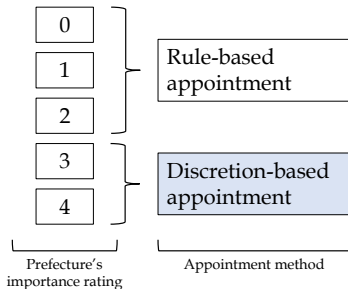
After the reform

Data and Identification Strategy

- Data: almost the entire universe of prefecture governors in 1644-1820
    - Over 10,000 official appointment records across 250 prefectures
    - Detailed information:year of appointment, name, civil exam degree, ethnicity, and hometown
    - Measuring governor's quality by experiences and civil exam degree (*Jinshi* or *Juren* degree)
- Link this personnel dataset to prefecture-level data on disaster, public goods, and social unrest
- DiD strategy + propensity score matching:
    - Comparing the quality and performance of governors in reformed prefectures (treatment group: by discretion) and those in non-reformed prefectures (control group: by rule), before and after the reform

Main Findings Preview

- Discretionary appointment improves the quality of prefecture-governors
  - $+$ 15 p.p. probability of experienced governor $\rightarrow$ 47% increase
  - $+$ 6 p.p. probability of competent governor $\rightarrow$ 16% increase

- Consequences on governance performance
  - More public goods provision (Disaster relief programs)
  - Less social unrest

- When is discretion beneficial?
  - Whether appointer's incentive is aligned with the organization
  - Greater positive effects when alignment is high
  - More favoritism when alignment is low

Contributions

- The personnel economics of the state (Finan et al., 2017; Besley et al., 2021)
  - How incentives and monitoring work (or fail) in public sector workers
    the role of financial incentives (Khan et al., 2016; Leaver et al., 2021), career incentives (Bertrand et al., 2020), mission and non-monetary incentive (Ashraf et al., 2014; Khan, 2020), and monitoring (Olken, 2007; Muralidharan et al., 2021)
  - The trade-off between financial vs. prosocial motivation
    Dal Bo et al. (2013), Deserranno (2019), Ashraf et al. (2020)

  - Centers on the entry-level selection and recruitment of lowertier civil servants
  - We instead focus on the internal selection of **middle-tier** officers
  - New evidence on the impacts of appointment method

Contributions

- Rule vs. discretion trade-off in the public sector organization
    - growing evidence on the benefits of discretion and autonomy
      public construction (Rasul and Rogger, 2018), environment regulation (Duflo et al., 2018),
      officer promotion (Voth and Xu, 2020), and public procurement (Decarolis et al., 2020;
      Bandiera et al., 2021)
    - Voth and Xu (2020): Admiralty used their discretion to promote better
      naval officers in the British Royal Navy.

    - Existing work studies selection effects within a discretionary system
      Xu (2018), Colonnelli, Prem, and Teso (2020)
    - We explicitly compare the discretionary appointment *against* its rule-based
      counterpart within the organization.

Road Map

Local Government in Qing's Bureaucracy System

- Hierarchy and scale in "Inner China"
  - Three layers: 18 provinces - 250 prefectures - 1,700 counties
  - Prefecture governor: decisive authority in matters of administration and judicature
- Highly institutionalized personnel regulation:
  - Open and merit-based selection into office by imperial civil exam (*keju*)
  - Regular monitoring and evaluation mechanisms

The allocation of bureaucrats

- Seniority-based random allocation rule in the status quo
  - Centralized appointment system by the Ministry of Personnel for the majority of middle and junior positions (rank lower than 4)
  - Each position had specific qualification requirements according to the stipulated career tracks (品级考)
  - Bureaucrats with corresponding qualifications would be added to the candidate list and queue up for vacancies **based on seniority**
  - Once they were at the top of the candidate list, they would be assigned to new positions by a **random lottery**

The allocation of bureaucrats

TV series *Yu Chenglong*

▸ lottery process

The appointment reform

- After 1736, prefecture governorships with the importance rating ≥ 3 would be appointed at the discretion of the emperor
  - Treated prefectures: 114 out of 250
  - Within the candidate list determined by the eligibility rule ▸ detained process
- The regional importance rating
  - assessed the governance features of local jurisdictions using four elements
    - ▶ Important in transportation (*Chong*, 冲)
    - ▶ Onerous administrative burden (*Fan*, 繁)
    - ▶ Difficulty in collecting taxes (*Pi*, 疲)
    - ▶ Prevalence of crime and violence (*Nan*, 难)
  - Each prefecture was labeled a rating according to how many of these four elements were present. ▸ distribution

Personnel Data

- Appointment record of prefecture governors
    - Source: A large-scale digitization from over 300 volumes historical local gazetteers ▸ Record sample
    - Detailed information on governor characteristics: year of appointment, name, civil exam degree, ethnicity, and hometown
    - Data quality: cross-checked from different sources
- Biographical data on senior officials
    - Personal backgrounds and career tracks of senior officials
    - Source: Acade mia Sinica
- Sanction records of officials
    - Source: *Veritable Records of the Qing* (*Qingshilu*), a chronological historical book compiled by the Qing government.

Other Data

- Governance Outcome
    - Disaster relief and tax exemption from Chen(2012)'s data based on the *Veritable Records of the Qing*
    - Social unrest data from Wu (2011)
- Natural disaster
    - Prefecture-year level data on natural disasters from the *Comprehensive Compilation of Weather Records for the Last Three Millennia of China* (Zhang, 2004)
    - A comprehensive record of various types of natural disasters (drought, flood, plague, locust infestations, hurricane, earthquake)
    - Complement with rainfall shock data from State Meteorological Society (1981)
- Prefecture characteristics
    - Regional importance rating from the *Official Register (Jinshenlu)*

Pre-reform Descriptive Statistics: Treated vs Control

	(1) Control prefectures	(2) Treated prefectures	(3) Difference
Civil exam degree: *Juren-Jinshi*	0.285	0.293	0.009
			(0.015)
Civil exam degree: *Jinshi*	0.171	0.177	0.006
			(0.012)
Civil exam degree: *Juren*	0.114	0.117	0.003
			(0.010)
Civil exam degree: *Gongsheng*	0.265	0.277	0.012
			(0.014)
Experienced governor	0.166	0.182	0.016
			(0.012)
Years of governor experiences	0.693	0.775	0.082
			(0.067)
Ethnicity: Han	0.618	0.634	0.016
			(0.016)
Ethnicity: Manchu Bannerman	0.01	0.005	-0.005*
			(0.003)
Ethnicity: Han Bannerman	0.372	0.36	-0.012
			(0.015)
Observations	2,281	1,687	3,968

Notes: The unit of observation is appointment. The sample period is 1644-1735. Column 3 reports raw difference in means between control group and treatment group, as well as the corresponding standard errors (in parentheses). ***, **, * denote significance at 1%, 5%, 10% levels.

Road Map

Empirical Strategy: DiD Specification

Compare the quality of governors appointed by discretion with the counterpart appointed by the status quo rule, before/after 1736

$$y_{ipt} = \beta \times Discretion_p \times Post_t + \theta_t + \lambda_p + \epsilon_{ipt} \tag{1}$$

- y_{ipt}: the quality of governor appointed to prefecture *p* in year *t*
    - Experiences: dummy for whether having served as governor before
    - Competence: dummy for whether civil exam degree is *Juren or Jinshi*
- $Discretion_p$: dummy for treated prefectures
- $Post_t$: indicator for post reform years
- θ_t: year fixed effects
- λ_p: prefecture fixed effects

Identification Assumptions

Common trend assumption

- Outcome in treated and control prefectures would have evolved similarly, in absence of the reform

Supporting evidence

- Randomness of appointment in pre-reform Period
  - Distribution of governor's civil exam rank before the reform: treated vs. control prefectures   ▸ distribution
  - Rating and selection before the reform   ▸ results
- Conditional balance between treatment & control
  - Conditional on the treatment criteria, two groups show no differences
    ▸ balance
- Propensity score matching
  - 1-to-1 matched sample with similar characteristics
  - 89 pairs of treated and untreated prefectures   ▸ PSM sample

Discretion and Governor Quality: Main Results

	Experiences			Competence		
Mean of D.V.	0.296	0.296	0.289	0.375	0.375	0.373
	(1)	(2)	(3)	(4)	(5)	(6)
Discretion × Post	0.148***	0.127***	0.126***	0.059***	0.066***	0.065**
	(0.023)	(0.022)	(0.027)	(0.022)	(0.023)	(0.026)
Year FE	Y	Y	Y	Y	Y	Y
Prefecture FE	Y	Y	Y	Y	Y	Y
Controls × Post		Y			Y	
PSM sample			Y			Y
Observations	9,389	9,309	7,166	9,389	9,309	7,166

Notes: The unit of observation is appointment. Controls include six criterion variables that determined the treated prefectures: pre-reform conflict frequency and incidence of weather shock, land tax, population density, distance to the national road, and terrain ruggedness. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

- 51% increase in experience and 16% increase in competence

Discretion and Governor Quality: Event Study

On Experience
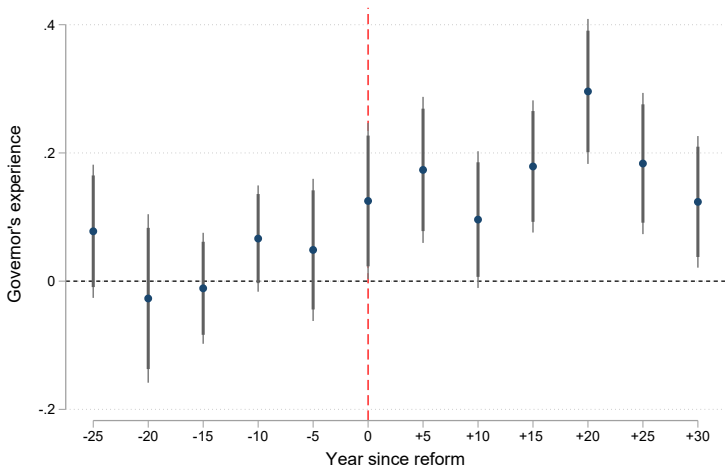
Parallel Trend Assumption

On Competence
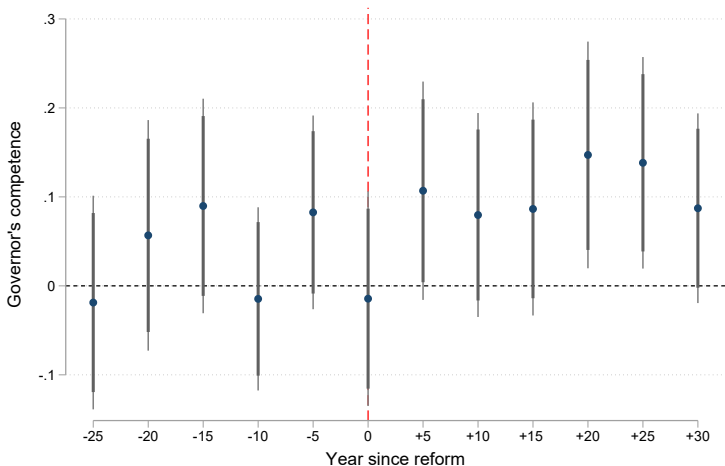
Robustness Checks

- Excluding acting governors
- Excluding term length < 2 years
- Excluding the provincial capital
  ▶ Table B2
- Comparing prefectures around the cutoff (rating 2 vs. 3)
- Controlling for province-year fixed effects
  ▶ Table B3
- Alternative measurement for experiences by years of services
  ▶ Table B4
- ▶ Spillover

Road Map

Does Discretionary Appointment Affect Governance?

As chief leaders of local government, prefecture governors have great implications on governance performance.

- We focus on disaster relief programs as key outcome
  - Imperial China was an agricultural economy in Malthusian regime (Chen and Kung, 2016). Frequent crop failure threatened people's lives and catalyzed conflicts (Jia, 2014).
  - Essential for maintaining social stability (Wong and Rosenthal, 2011)
  - Sufficient and timely response of to disasters is crucial
- Governor's role
  - Surveying and reporting disaster, assessing losses, and implementing relief programs are the declared duties of prefecture governors
  - Cooperation with local elites to mobilize extra resources (Will, 1990)

Discretion and Governance Performance: Main Results

DID specification in a prefecture-year panel:

$$Y_{it} = \beta \times Discretion_i \times Post_t + \theta_t + \lambda_i + \epsilon_{ipt} \qquad (2)$$

| **Panel A: provision of disaster relief** | | | | | | |
| | Disaster relief programs | | | Disaster relief (0/1) | | |
	(1)	(2)	(3)	(4)	(5)	(6)
Discretion × Post	0.398***	0.250**	0.328**	0.066***	0.044***	0.062***
	(0.109)	(0.103)	(0.128)	(0.017)	(0.016)	(0.021)
Prefecture FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Controls × Post		Y			Y	
PSM sample			Y			Y
Observations	33,627	33,408	24,185	33,627	33,408	24,185
Mean of D.V.	0.287	0.287	0.287	0.065	0.065	0.065

Notes: The unit of observation is prefecture-year. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

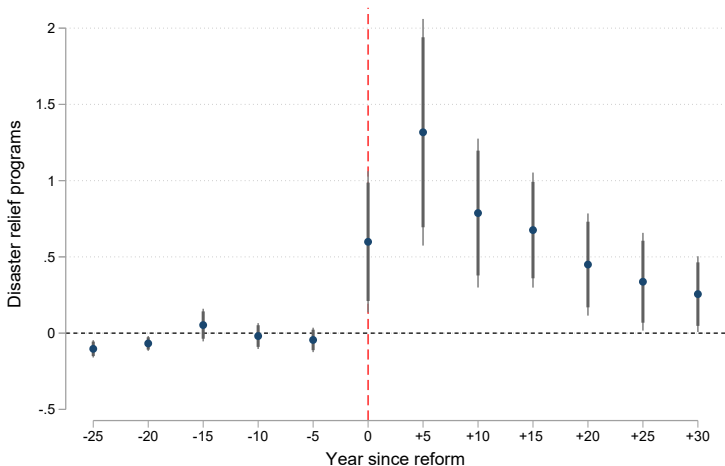## Discretion and Governance Performance: Responsiveness

$$Y_{it} = \beta \times Discretion_i \times Post_t + \gamma Disaster_{it}$$
$$+ \alpha \times Discretion_i \times Post_t \times Disaster_{it} + \theta_t + \lambda_i + \epsilon_{ipt} \tag{3}$$

Panel B: state responsiveness to natural disaster

	Disaster relief programs			Disaster relief (0/1)		
	(1)	(2)	(3)	(4)	(5)	(6)
Discretion × Post	0.025	-0.057	-0.005	0.013	0.001	0.009
	(0.060)	(0.069)	(0.069)	(0.012)	(0.013)	(0.015)
Natural disaster	0.121***	0.153***	0.101***	0.031***	0.037***	0.029***
	(0.027)	(0.026)	(0.034)	(0.004)	(0.004)	(0.005)
Discretion × Post	0.730***	0.648***	0.697***	0.105***	0.091***	0.111***
× Natural disaster	(0.121)	(0.115)	(0.145)	(0.015)	(0.014)	(0.019)
Prefecture FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Controls × Post		Y			Y	
PSM sample			Y			Y
Observations	33,627	33,408	24,185	33,627	33,408	24,185
Mean of D.V.	0.287	0.287	0.287	0.065	0.065	0.065

Notes: The unit of observation is prefecture-year. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

Discretion and Governance Performance: Dynamic Effects

Number of relief programs

Discretion and Governance Performance: Dynamic Effects

Dummy for relief
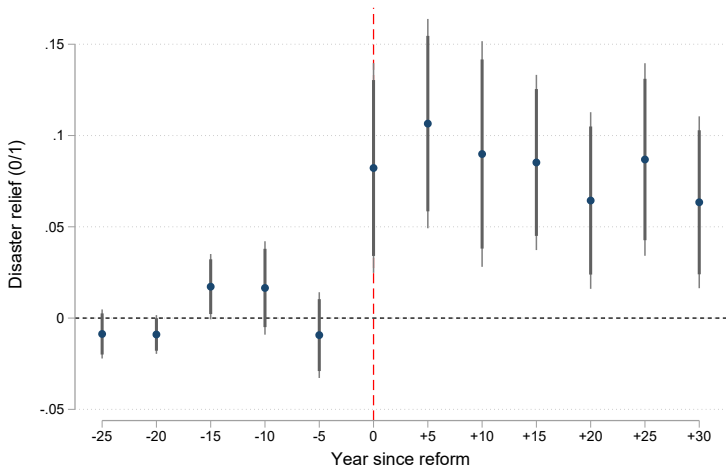
Alternative Mechanisms

Preferential policy from above

- Upper level of governments may place more emphasis on treated prefectures (high importance rating) and prioritize them in disaster relief.
- Evidence suggests not ▸ Evidence
    - 1. Treated prefectures did NOT receive more attention from senior officials and the emperor
    - 2. Importance rating NOT associated with relief provision

Preferential Policy by Upper Government?

	Attention index	Attention index on disaster	Disaster relief programs	
Mean of D.V.	0.413	0.423	0.287	0.287
	(1)	(2)	(3)	(4)
Discretion × Post	0.036	-0.085		
	(0.051)	(0.128)		
Importance rating 4 × Post			0.185	
			(0.242)	
Importance rating 2 × Post				0.099
				(0.077)
Prefecture FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Sample	All	All	Treated	Control
Observations	23,322	22,350	15,231	18,396

Notes: The unit of observation is prefecture-year. In columns 1 – 2, the sample is restricted to the period between 1723-1820 due to the availability of report data. In column 1, the attention index is calculated as the number of times that a prefecture had been mentioned in the regular reports by the senior local officials, relative to the mention times of all prefectures (rescaled by × 100). In column 2, attention index on disaster is calculated in similar method but only based on the reports of which topic is disaster issue. Column 3 restrict the sample to treated prefectures (rating 3 and 4). Column 4 restrict the sample to control prefectures (rating 0, 1, and 2). ***, **, * denote significance at 1%, 5%, 10% levels.

‣ back

Alternative Mechanisms

Connection-induced resource allocation

- Governors in treated prefectures have better connection with central government and thus have an advantage in lobbying for resource distribution.
- Inconsistent evidence ▸ Evidence
  - 1. Shared hometown connection with top central officials
  - 2. Using land tax exemption as an outcome of officials' effort

Better Connection with the Central Government?

Mean of D.V.	Connection with central gov't 0.351	Tax exemption (0/1) 0.132	Tax exemption (0/1) 0.132
	(1)	(2)	(3)
Discretion × Post	0.019	0.044**	0.017
	(0.024)	(0.019)	(0.017)
Natural disaster			0.057***
			(0.007)
Discretion × Post × Natural disaster			0.052***
			(0.015)
Prefecture FE	Y	Y	Y
Year FE	Y	Y	Y
Observations	33,627	33,627	33,627

Notes: The unit of observation is prefecture-year. The dependent variable in column 1 is the number of top central officials who shared hometown with the given prefecture governors in a given year. In columns 2–3, the dependent variable is a dummy that takes the value one if a prefecture was granted tax exemption. Natural disaster is a dummy variable for the occurrence of any natural disasters. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

▸ back

Alternative Mechanisms

Longer tenure

- Governors appointed to treated prefectures may have longer tenure, and hence time horizon, which led to better performance.
- No effect on the length of tenure
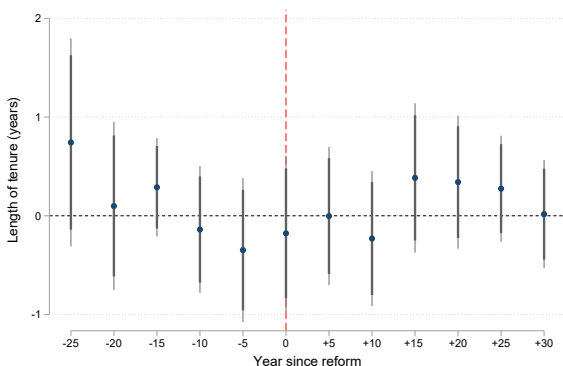
Additional Results: Effect on Social Unrest

- Maintaining social stability was another crucial task of governors
  - Over-taxation, unfair and corrupt sentencing, and the untimely provision of disaster relief → social unrest.
  - harmful to governors' career prospects.

	Urban riots	Urban riots	Urban riots	Riots against Gov't	Riots between social groups
Mean of D.V.	0.0078	0.0078	0.0078	0.0054	0.0027
	(1)	(2)	(3)	(4)	(5)
Discretion × Post	-0.0063**	-0.0065**	-0.0070***	-0.0047**	-0.0015
	(0.0026)	(0.0026)	(0.0026)	(0.0023)	(0.0015)
Prefecture FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Controls × Post		Y		Y	Y
PSM sample			Y		
Observations	23,826	23,641	17,116	23,641	23,641

Notes: The unit of observation is prefecture-year. All dependent variables are indicators set to 1 if riots occurred, and 0 otherwise. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

▶ More Evidence on Heterogeneous Effects

Road Map

When Is Discretion Beneficial in Appointments?

- Costs and benefits of discretion
    - Enable the use of information to select officials
    - Be exploited for personal gain by favoritism appointment
- Different appointers at the top of the hierarchy differ in how they use discretionary power.
- The net effect of discretion depends on the extent to which the appointer's incentive is aligned with the organization (Holmstrom, 1984; Aloson & Matouschek, 2008)

Empirical predictions:
$\longrightarrow$ Greater positive effects when alignment in interests is high
$\longrightarrow$ More favoritism when alignment in interests is low

Heterogeneity: the Emperor vs. Provincial Leaders

- Heterogeneity of appionters in treatment group
  - Posts under the emperor's discretion (89 prefectures)
  - Posts under the prov-leaders' discretion (46 prefectures)

- The diligent emperor of the Qing dynasty: high incentive alignment
  - Cares about long-term regime survival and has a large stake in the overall bureaucracy performance (Twitchett and Fairbank, 2002; Rowe, 2009)
- Provincial leaders: low incentive alignment
  - Rotated frequently, have short-term incentive and more private gains in favoritism and corruption
- Break down treated prefectures into two groups

The Role of Incentive Alignment: Talent Allocation

	Experiences		Competence	
Appointer:	Emperor (1)	Prov. leaders (2)	Emperor (3)	Prov. leaders (4)
Discretion (Emperor) × Post	0.164***		0.065**	
	(0.024)		(0.026)	
Discretion (Prov. leader) × Post		-0.027		0.055
		(0.033)		(0.035)
Year FE	Y	Y	Y	Y
Prefecture FE	Y	Y	Y	Y
Controls × Post		Y		Y
Observations	8,466	5,943	8,466	5,943

Notes: The unit of observation is appointment. In columns 1 and 3, the sample is restricted to governor appointments made by emperor's discretion and those in control groups. In columns 2 and 4, the sample is restricted to governor appointments made by the provincial leader's discretion and those in control groups. Competence is a dummy variable set to 1 if the appointed governor has civil exam degree *Juren* or *Jinshi*. Experiences is a dummy variable set to 1 if the appointed governor has previously served as prefecture governor. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

The Role of Incentive Alignment: Governance Outcomes

The effect on governance outcomes are mainly driven by prefectures under the emperor's discretion

	Disaster relief (0/1)				Urba
Appointer:	Emperor (1)	Prov. leaders (2)	Emperor (3)	Prov. leaders (4)	Emperor (5)
Discretion (Emperor) × Post	0.043** (0.020)		-0.003 (0.017)		-0.006** (0.003)
Discretion (Prov. leader) × Post		0.024 (0.025)		0.008 (0.017)	
Natural disaster			0.040*** (0.004)	0.041*** (0.005)	
Discretion (Emperor) × Post × Natural disaster			0.088*** (0.014)		
Discretion (Prov. leader) × Post × Natural disaster				0.048 (0.036)	
Prefecture FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Controls × Post		Y		Y	
Observations	28,168	21,161	28,168	21,161	19,867

Notes: The unit of observation is prefecture-year. In columns 1, 3 and 5, the sample is restricted to treated prefectures under the discretion of the emperor and control prefectures. In columns 2, 4, and 6, the sample is restricted to treated prefectures under the discretion of provincial leaders and control prefectures. Natural disaster is a dummy variable for the occurrence of any natural disasters. Robust standard errors in

Suggestive Evidence on Favoritism
Governors' ethnic tie to the appointers

- Governors by prov-leaders are more likely to have an ethnic tie
- No effect by the Bannerman leaders (share identity with the emperor)

Panel A: Ethnic tie Dependent variables:	Ethnic tie			
Appointer:	Prov. leaders	Prov. leaders (Han)	Prov. leaders (Bannerman)	Emperor
	(1)	(2)	(3)	(4)
Discretion (Prov. leader) × Post	0.080**	0.177**	-0.001	
	(0.038)	(0.087)	(0.032)	
Discretion (Emperor) × Post				0.022
				(0.014)
Prefecture FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	5,803	1,279	4,498	8,546

Notes: The unit of observation is appointment. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

Suggestive Evidence on Favoritism
Probability of sanction

- Governors by prov-leaders are less likely to be sanctioned
- Sanctions were proposed by their provincial superiors
    - $\Rightarrow$ Slack monitoring on the connected appointees

Panel B: Sanction Dependent variables:	Sanction			
Appointer:	Prov. leaders	Prov. leaders (Han)	Prov. leaders (Bannerman)	Emperor
	(1)	(2)	(3)	(4)
Discretion (Prov. leader) × Post	-0.008*	-0.034**	-0.002	
	(0.004)	(0.017)	(0.006)	
Discretion (Emperor) × Post				0.007
				(0.006)
Prefecture FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	5,803	1,279	4,498	8,546

Notes: The unit of observation is appointment. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

Takeaways

- Using the special setting of the China's imperial bureaucracy, we show that discretionary appointment improved the average quality and performance of governors

- Implications
    - Weberian tradition on ideal bureaucracy is not cost-less. In an rigid institutional environment, increasing discretion can be beneficial.
    - Discretionary appointment does not necessarily lead to poor performance or meritocratic allocation of talent. It matters *who* uses the discretion

Backup Slides

Road Map

Su Shi's question on rule and discretion in appointments

- 苏轼之问：

问："任人而不任法，则法简而人重。任法而不任人，则法繁而人轻。法
简而人重，其弊也，请谒公行而威势下移。法繁而人轻，其弊也，人得
苟免，而贤不肖均。此古今之通患也..."
——《东坡全集. 私试策问》
"...with appointment power being subject to the appointor's discretion,
rent-seeking and nepotism would be prevalent; with appointment power
being conditioned on the rigid rule, capable and mediocre talents could not
be differentiated with each other..."
——Su Shi

▸ back

The cost of random allocation

- Criticisms by scholars and officials:
  - "窃惟郅隆之治，莫先于用人，而亲民之官，莫切于州县。...伏念州县地方，本有大小之异，而居官才具，实有长短之分。**以长才而处之小邑，固为未尽其能；以要地而畀之短才，必致有亏厥职。**...一旦凭签掣缺，纵有才能出众者，无由区别。"——广西布政使金宏
  - "窃惟人才必有短长，地方实有难易，以短才治要地必无效，以长才治简易则可惜，**是人才之必与地方相宜**，明且甚矣。"——刑部右侍郎高其佩
  - "又不择其人之材，而以探筹投钩为选用之法。是以百里之命，付之爵茸不材之人。既以害民，而卒至于自害。于是烦剧之区，遂为官人之陷阱，而年年更代，其弊益深而不可振矣。"——顾炎武《日知录》
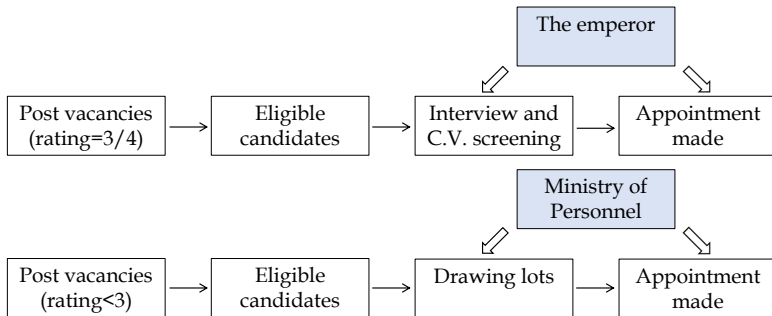
The process of lottery allocation

1, every month, retirement, rotation, promotion, and demotion created new vacancies.

2, vacant positions and the corresponding "allocation cohort" from the candidate list were determined.

3, candidates joined a lottery conducted by the MOP in Beijing, and appointments were made based on the result of drawing lots.

▸ back

The process of discretionary appointment after the reform

- The process of prefecture-governor appointment

```
                                    ┌─────────────┐
                                    │ The emperor │
                                    └─────────────┘
                                     ↗           ↘
┌──────────────┐   ┌────────────┐   ┌──────────────┐   ┌──────────────┐
│ Post vacancies│→ │ Eligible   │→ │ Interview and │→ │ Appointment  │
│ (rating=3/4) │   │ candidates │   │ C.V. screening│   │ made         │
└──────────────┘   └────────────┘   └──────────────┘   └──────────────┘

                                    ┌─────────────┐
                                    │ Ministry of │
                                    │ Personnel   │
                                    └─────────────┘
                                     ↗           ↘
┌──────────────┐   ┌────────────┐   ┌──────────────┐   ┌──────────────┐
│ Post vacancies│→ │ Eligible   │→ │ Drawing lots  │→ │ Appointment  │
│ (rating<3)   │   │ candidates │   │               │   │ made         │
└──────────────┘   └────────────┘   └──────────────┘   └──────────────┘
```

- Exception: a relatively small number of posts were delegated to provincial leaders (46 out of 250 prefectures)

▸ back

Regional Importance Rating and Designation of Governance Features

Table: Regional Importance Rating and Designation of Governance Features

Importance rating	Number of governorships	Transportation (*Chong*)	Burdensome (*Fan*)	Taxation (*Pi*)	Violence (*Nan*)
0	18	0	0	0	0
1	31	0.516	0.226	0.0323	0.226
2	87	0.575	0.851	0.0805	0.494
3	83	0.771	0.988	0.265	0.976
4	31	1	1	1	1
Total	250	0.644	0.776	0.244	0.648

Notes: This table shows the mean of governance feature designations among prefectures with different importance ratings. At the middle of the 18th century, The Qing Empire had 250 prefecture-level jurisdictions in the inner China area (not including the capital, Shuntian fu).

▸ back

Name of governor

Hometown

Degree in civil exam

Year of appointment

陸世楷 鄭龍光 順治 國朝 直隷南雄州志卷之四
胡 知府 職官志二 續編
奇 江南 剛

The Distribution of Governor Quality before the Reform

Treated vs. Control Prefectures
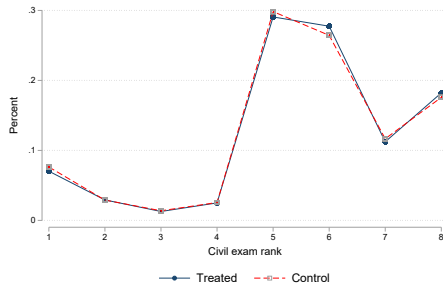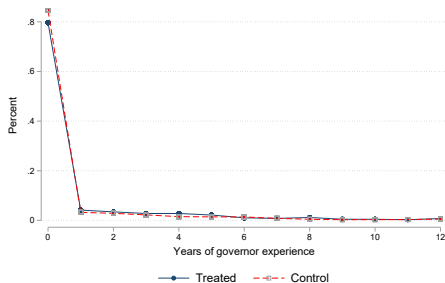
▸ Back

Randomness of Appointment in Pre-reform Period
Experience

Sample period	(1) 1644-1659	(2) 1660-1679	(3) 1680-1699	(4) 1700-1719	(5) 1720-1735
Panel A	Dependent variable: experience				
Importance rating: 1	-0.038	0.035	-0.035	-0.174	-0.072
	(0.078)	(0.107)	(0.056)	(0.110)	(0.080)
Importance rating: 2	-0.024	-0.001	0.011	-0.104	-0.052
	(0.077)	(0.101)	(0.054)	(0.109)	(0.070)
Importance rating: 3	-0.024	0.019	0.046	-0.082	0.003
	(0.077)	(0.101)	(0.056)	(0.108)	(0.070)
Importance rating: 4	0.005	0.015	0.028	-0.021	0.067
	(0.080)	(0.102)	(0.062)	(0.110)	(0.073)
Observations	862	767	863	782	1,126
R-squared	0.002	0.001	0.004	0.012	0.011

Notes: The unit of observation is appointment. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

Randomness of Appointment in Pre-reform Period

Competence

Sample period	(1) 1644-1659	(2) 1660-1679	(3) 1680-1699	(4) 1700-1719	(5) 1720-1735
Panel B	Dependent variable: competence				
Importance rating: 1	-0.103	0.034	0.02	0.004	-0.038
	(0.137)	(0.101)	(0.066)	(0.085)	(0.059)
Importance rating: 2	-0.093	-0.046	-0.005	-0.039	-0.009
	(0.132)	(0.098)	(0.062)	(0.070)	(0.040)
Importance rating: 3	-0.141	-0.024	-0.022	0.033	0.007
	(0.132)	(0.099)	(0.062)	(0.072)	(0.040)
Importance rating: 4	-0.089	-0.058	0.023	0.015	0.024
	(0.136)	(0.099)	(0.070)	(0.080)	(0.045)
Observations	862	767	863	782	1,126
R-squared	0.003	0.003	0.002	0.006	0.001

Notes: The unit of observation is appointment. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

Randomness of Appointment in Pre-reform Period

Ethnicity

Sample period	(1) 1644–1659	(2) 1660–1679	(3) 1680–1699	(4) 1700–1719	(5) 1720–1735
Panel C	Dependent variable: ethnicity (Han Chinese)				
Importance rating: 1	0.084	-0.067	0.014	0.015	0.002
	(0.094)	(0.095)	(0.096)	(0.102)	(0.059)
Importance rating: 2	-0.024	-0.019	-0.03	-0.082	-0.041
	(0.090)	(0.082)	(0.089)	(0.089)	(0.044)
Importance rating: 3	-0.042	0.014	0.009	0.001	-0.036
	(0.092)	(0.082)	(0.089)	(0.092)	(0.046)
Importance rating: 4	-0.024	-0.092	-0.051	0.029	-0.015
	(0.102)	(0.086)	(0.094)	(0.097)	(0.050)
Observations	862	767	863	782	1,126
R-squared	0.005	0.006	0.002	0.009	0.001

Notes: The unit of observation is appointment. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

▶ Back

Comparison of Prefectures Characteristics

|	(1) Control	(2) Treated	(3) Raw difference	(4) Conditional difference	(5) Matched difference
Panel A: Treatment criteria:					
Distance to national road (km)	106.485	84.666	-21.819		-3.98
			(14.851)		(18.553)
Terrain ruggedness	258.224	184.137	-74.087***		-4.436
			(21.304)		(24.641)
Incidence of weather shock	0.119	0.144	0.025**		0.007
			(0.011)		(0.013)
Population density (Person/km^2)	78.99	146.151	67.160***		12.429
			(13.787)		(12.588)
Land tax (1,000 silver teals)	78.848	172.278	93.430***		10.607
			(16.709)		(16.327)
Major conflicts	2.485	3.123	0.638		-0.09
			(0.390)		(0.473)

Comparison of Prefectures Characteristics

	(1) Control	(2) Treated	(3) Raw difference	(4) Conditional difference	(5) Matched difference
Panel B: Other characteristics:					
Suitability: wheat	24.061	24.248	0.186	24.700	-2.487
			(1.409)	(11.469)	(1.714)
Suitability: rice	9.139	12.904	3.765***	10.836	0.402
			(1.358)	(10.417)	(1.566)
Suitability: sweet potato	9.826	7.86	-1.966	8.993	-1.216
			(1.223)	(9.795)	(1.470)
Suitability: maize	22.667	22.709	0.042	23.26	-2.811
			(1.443)	(11.914)	(1.779)
Distance to Beijing	1,264.18	1,125.87	-138.312*	1,180.43	-5.619
			(73.010)	(574.163)	(86.314)
Huohao surtax rate	0.134	0.123	-0.011**	0.128	-0.002
			(0.004)	(0.031)	(0.005)
Grain tax (1,000 shi)	4.751	48.717	43.966***	14.956	16.698
			(12.487)	(72.872)	(10.882)
Number of academies	3.287	5.456	2.169***	4.567	1.09
			(0.627)	(5.154)	(0.770)
Strength of clan	19.368	81.46	62.093***	43.983	36.730*
			(17.924)	(127.852)	(19.020)
No. of prefectures	136	114	250	250	178

▸ Back

Standardized Bias before and after PSM

[Back]
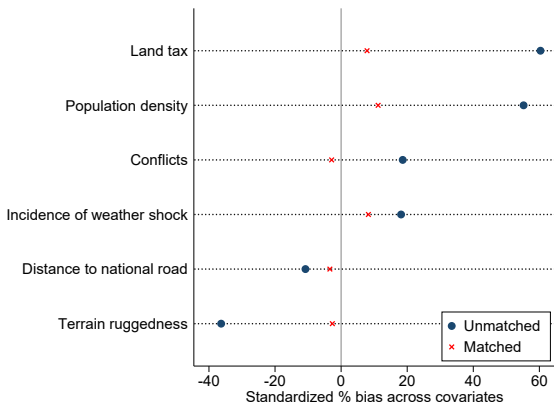
The Distributions of Matched Treated and Untreated Prefectures

Matched prefectures
- Control
- Treated
- Unmatched
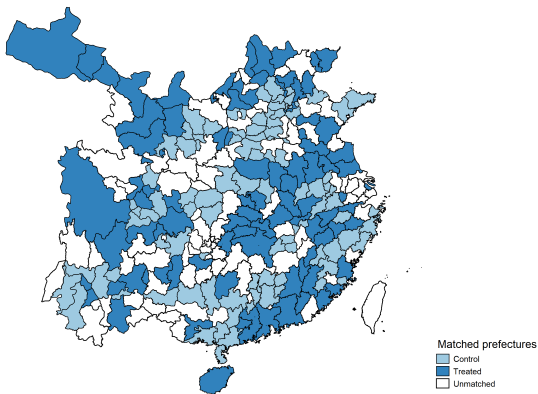
Robustness: Sub-samples

	Experiences			Competence		
	(1)	(2)	(3)	(4)	(5)	(6)
Discretion × Post	0.141***	0.135***	0.114***	0.066***	0.063**	0.055**
	(0.024)	(0.027)	(0.025)	(0.023)	(0.026)	(0.022)
Prefecture FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Excluding acting governors	Y			Y		
Term length >1 years		Y			Y	
Excluding provincial capital			Y			Y
Observations	8,567	6,420	8,408	8,567	6,420	8,408

Notes: The unit of observation is appointment. Competence is a dummy variable set to 1 if the appointed governor has civil exam degree *Juren* or *Jinshi*. Experiences is a dummy variable set to 1 if the appointed governor has previously served as prefecture governor. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

▸ back

Robustness: Province-Year FE and Rating 3 vs. 2

	Experiences		Competence	
	(1)	(2)	(3)	(4)
Discretion × Post	0.122***	0.148***	0.060**	0.054**
	(0.028)	(0.027)	(0.026)	(0.025)
Prefecture FE	Y	Y	Y	Y
Year FE	Y		Y	
Rating 2 vs. rating 3 sample	Y		Y	
Year × Province FE		Y		Y
Observations	8,567	6,420	8,408	8,567

Notes: The unit of observation is appointment. Competence is a dummy variable set to 1 if the appointed governor has civil exam degree *Juren* or *Jinshi*. Experiences is a dummy variable set to 1 if the appointed governor has previously served as prefecture governor. In columns 1 and 3, the sample is restricted to prefectures where the importance rating is 2 or 3. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

▸ back

Robustness: Alternative Measurement of Experience

	Years of governor experiences			
Mean of D.V.	1.228	1.228	1.228	1.228
	(1)	(2)	(3)	(4)
Discretion × Post	0.715***	0.635***	0.712***	0.756***
	(0.142)	(0.134)	(0.168)	(0.163)
Prefecture FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Controls × Post		Y		
PSM sample			Y	
Year × Province FE				Y
Observations	9,389	9,309	7,166	8,862

Notes: The unit of observation is appointment. Experience is measured by the total years of service as a governor before the current appointment. In column 3, we use the matched sample where treated prefectures are one-to-one matched to control prefectures, using propensity score matching based on criteria that determined the adoption of discretionary appointment. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

Discussion on SUTVA

- Stable unit treatment values assumption (SUTVA) (Imbens and Rubin, 2015)
  - the potential outcomes for control group units do not vary with the treatment applied to other units
- Negative spillover effect on the control group.
  - better bureaucrats $\rightarrow$ treated prefectures
  - the quality of remaining bureaucrats in the pool $\downarrow$
  - the potential outcomes for control prefectures through seniority-based random allocation $\downarrow$
- Not a big concern
  - Candidate pool was sufficiently large: 3329; 4% (135/3329)
  - Average turnover rate: 29% (33 vacancies) $\rightarrow$ 1% involved in the pool

▸ back

More Evidence on Social Unrest

Prevalence of violence	Urban riots		Riots against government		Riots between social groups	
	Low	High	Low	High	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)
Discretion × Post	-0.0384	-0.0066**	-0.0405	-0.0047**	0.0022	-0.0015
	(0.0250)	(0.0030)	(0.0250)	(0.0020)	(0.0020)	(0.0020)
Prefecture FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Observations	10,208	18,792	10,208	18,792	10,208	18,792

Notes: The unit of observation is prefecture-year. All dependent variables are dummies set to 1 if riots occurred, and 0 otherwise. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at 1%, 5%, 10% levels.

▶ back