

Coalitions, Retaliation, and Whistleblowing: Evidence from Memorials of Qing China

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*For the uplifting of the Whole People
The University of Alberta*

Memorials

**Qing secret memorial system est. by Yung-cheng Emperor
& in use 1660s to 1912**

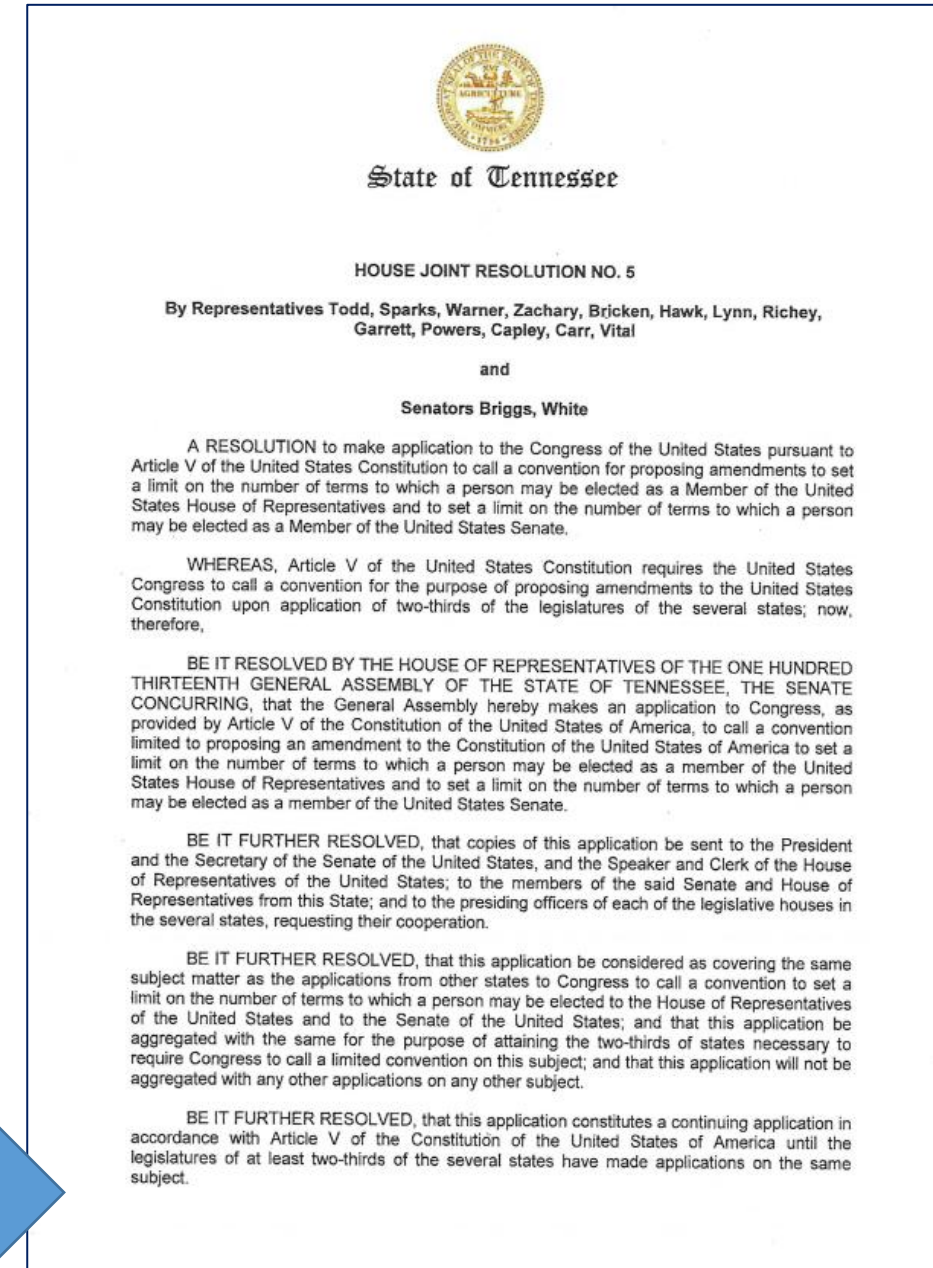
- ☐ **Secure, one-to-one communication (only sender & emperor held keys to the message box)**
- ☐ **Local officials expected to compete in idealized prisoner's dilemma by whistleblowing to emperor 1st**
- ☐ **Whistleblowers to be rewarded with emperor's gain trust and favor.**

Why call it a “memorial” in English?

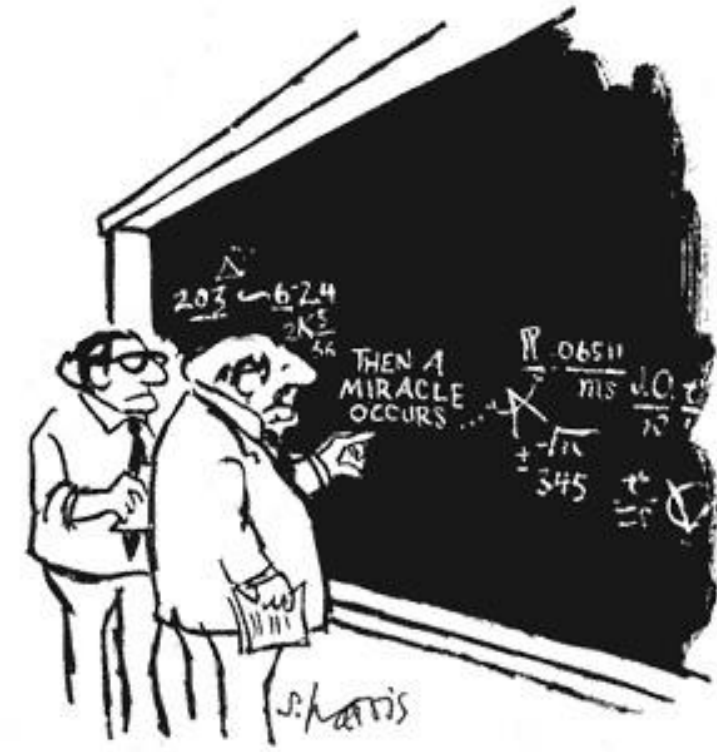
Memorial (n); plural : memorials

- 1. Something, especially a structure or ceremony, established to remind people of a person or event, as in "a monument built as a memorial to those who fell in the Civil War"**
- 2. [Historical] A statement of facts, especially as the basis of a petition, as in "the council sent a strongly worded memorial to the chancellor." Antecedent to “memorandum”.**

**A memorial submitted by the State of Tennessee to the United States
House of Representatives, July 25th 2024**



Model: Multi-period Infinitely Many Agents Game Theory



Countably infinite set of risk neutral patient bureaucrats

- Two bureaucrats / prefecture

Countable number of periods grouped as cycles

- Bureaucrats are evaluated & either axed or reassigned (never repaired to same person again) every 3 years (modeled as two-period cycles)
- Disaster occurs in a prefecture with probability δ per period, independent across prefectures

Bureaucrat's end-of-cycle evaluation (payoff) depends on

- Bureaucrat's own report re. conditions in prefecture
- Reports from other bureaucrat in same prefecture
- Central government signal is true with prob. $\eta \sim U[0, 1]$ (bureaucrats know η)
- Signal realizations independent across prefectures

Bureaucrats' payoffs are standard Prisoner's dilemma

- Cooperative (cover-up) & non-cooperative (one or both rat) Nash equilibria
- Payoffs & equilibrium stability depend on exogenous variables
- Sequence of intra-cycle Prisoners' Dilemma games nest along countable series of periods
- Equilibrium existence proof as fixed point
- Algebra perhaps unnecessarily opaque

Assumptions

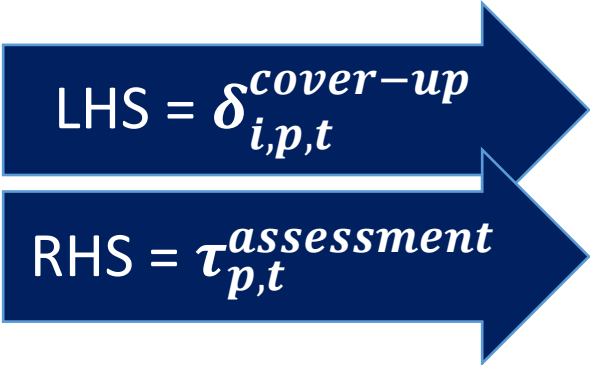
- Information timing: Who knows what when, and who knows who-else knows, or the probabilities that who-else knows
- Somewhat rational bureaucrats know probability η , but later infer it from its past realizations
- Evaluators (emperor's) behavior is exogenous

Variables

Why isn't $\mu = 2$?

Table 1. Data Description

Notes: This table reports summary statistics for the main variables used in the paper. For each variable, we present its definition, the number of observations, mean, median, standard deviation (Std), minimum (Min), and maximum (Max). The data sample covers the period from 1723 to 1909, starting from the implementation of the confidential memorial system during the Yongzheng reign to the end of the Qing dynasty.



Variable Names	Definition	Observation	Mean	Median	Std	Min	Max
Cover_up	= 1 if local officials did not report a disaster	6898	0.547	1	0.498	0	1
Reassignment distance	= the time distance of the closest re-assignment for local officials	6898	1.362	1	0.55	1	3
Two_Person	= 1 if the information coalition team consists of only two people	6898	0.301	0	0.459	0	1
Infrastructure irrigation	= 1 if there are irrigation facilities in the locality	6898	0.006	0	0.077	0	1
Infrastructure transportation	= 1 if there are transportation facilities in the locality	6898	0.007	0	0.081	0	1
Genealogy	= 1 if there is a genealogy in the locality	5102	31.509	0	201.18	0	3885
Tusi	= 1 if there is a Tusi	5102	23.121	23	1.56	21	34
Secret_religion	= 1 if there are secret religions	5102	0.075	0	0.264	0	1
confusion	= Number of Confucian temples	5102	0.544	1	0.538	0	3
Tri	= Degree of ruggedness (high/low)	5102	526.3	338.87	555.02	-94.96	3032.2
Population	= Population	4280	2.516	2	1.528	0	8
Juangong	= Total number of donations	5102	13.227	0	39.067	0	357
Land tax	= Land tax	5102	11.152	11.375	1.639	0	13.461
Area	= area (log)	5102	7.409	7.43	0.716	2.736	9.761

Empirical Findings

OLS regressions of the form

$$\delta_{i,p,t}^{cover-up} = a + \beta \tau_{p,t}^{assessment} + B_1^T X_{i,t} + B_2^T G_{p,t} + \delta_i + \delta_t + \varepsilon_{i,p,t}$$

cluster at country (i) level with controls for

$X_{i,t}$ = county characteristics e.g. transportation, irrigation

$G_{p,t}$ = provincial officials characteristics – e.g. civil exam scores & ethnic backgrounds

$$\delta_{i,p,t}^{cover-up} = \begin{cases} 1 & \eta \leq \eta_N \\ 0 & \eta > \eta_N \end{cases}$$

6,898 disasters

54.7% covered-up

Years until assessment

County-Level Characteristics: We used the ChinaW Database created by Skinner et al. (2008) to gather several county-level characteristics such as county area, terrain harshness, governance complexity, distance to the provincial capital, and irrigation infrastructure. We selected data from the year 1820 as control variables, as it provides unique historical records of key characteristics during the Qing Dynasty.

Official Characteristics: We obtain the characteristics of officials from the Qing Dynasty Official Database,²⁴ published by the Institute of Modern History of the Academia Sinica. The database covers central and local senior officials from the fifty-first year of Emperor Chienlung's reign to the end of the Qing Dynasty. These records provide detailed information on the officials' birth and death dates, career trajectories, places of origin, and banner affiliations.

Limited dependent variable bias is non-trivial

- ❑ Despite the common belief that endogeneity is the only econometric problem in corporate finance, statistics classes discuss other things too
- ❑ Indicator (0/1 dummy) dependent variables determined by an unobserved continuous variable call for regressions in the probit, logit, etc. family because OLS (so-called linear probability) is biased
- ❑ Standard software allows probit estimation with clustering

Main Finding

Credible

LHS = $\delta^{cover-up}_{i,p,t}$

Economic significance
 $\Delta p^{cover-up}_{i,p,t} = 0.025/\text{yr}$

RHS = $\tau^{assessment}_{p,t}$

Prefecture-level clusters,
but how geographically
correlated are disasters?

Sample = 6,898 disasters in (1),
less in (2) to (5)

Table 2. Cover up more likely in the first year than the second year

Notes: This table presents the regression results examining the relationship between reassignment distance (re-assignment_distance) and the probability of disaster concealment (Cover_up). Column (1) reports the baseline results. Columns (2) through (5) introduce robustness checks: removing demoted officials (Column 2), excluding cases involving significant news events (Column 3), controlling for the local disaster count (Column 4), and considering commissioners' reports (Column 5). Standard errors clustered at the county level are shown in parentheses. All regressions include county fixed effects, year fixed effects, and control variables at the county and official levels.

Variable	Base (1)	Remove dem- oted officials (2)	Remove Big News (3)	Control Local disaster count (4)	Commissioner's report (5)
Rotation distance	0.025** (0.013)	0.026** (0.013)	0.024* (0.013)	0.190*** (0.071)	0.027*** (0.009)
Observations	6689	6599	6644	6689	6689
county FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES
Number of clusters	749	746	748	749	749
Adjusted R-squared	0.397	0.400	0.398	0.528	0.397

Additional Findings

Substitute other variables, e.g. $x_{i,p,t}$ = **Future Collaboration**, for $\tau_{p,t}^{assessment}$ & rerun

$$\delta_{i,p,t}^{cover-up} = a + \beta x_{i,p,t} + B_1^T X_{i,t} + B_2^T G_{p,t} + \delta_i + \delta_t + \varepsilon_{i,p,t}$$

Rationality assumption?

- ❑ Bureaucrats know the true probability of disaster $\delta^{disaster}$, but then irrationally infer it from its past local frequency

Table 3. Cover up more likely when disasters are more likely obtaining predictions for future disaster probabilities is challenging. We use the historical frequency of disasters as a proxy for future opportunities for cooperation, denoted as “Disaster Prone.” This variable represents the frequency of natural disasters experienced by the region

All regressions include county fixed effects, year fixed effects, and control variables at the county and official levels.

More frequent prior disasters → more opportunity for future disaster cover up

Economic significance unclear?

$$\begin{aligned} \hat{v}^{disaster} &= \frac{7,000 \text{ disasters}}{186 \text{ yrs} \times 747 \text{ prefectures}} \\ &= 0.5 \frac{\text{disasters}}{\text{prefecture-yr}} \end{aligned}$$

- ❑ So $\Delta p^{cover-up} = 0.5 \times 0.0003 = 1.5 \times 10^{-4}$ v. baseline 57%

Statistical significance issue?

- ❑ Disaster frequency serially & geographically correlated?

$$\rho(\eta_{j,p,t}, \eta_{i,p,t-s}) > 0$$

Future Collaboration	[-100,-1] (1)	[-50,-1] (2)	[-30,-1] (3)	[-5,-1] (4)	[-3,-1] (5)
Opportunities	0.0003** (0.000)	0.0008** (0.000)	0.0019*** (0.000)	0.0050** (0.002)	0.0154* (0.009)
Observations	6637	6637	6637	6637	6637
county FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES
Number of clusters	747	747	747	747	747
Adjusted R-squared	0.395	0.395	0.396	0.395	0.394

Additional Findings

Cover-up likelier if

Bureaucratic oversight stronger

Bureaucratic oversight shakier

Whistleblower cost < benefit

Disaster harder to cover up

But not if

Disaster smaller

More aid to steal

More remote province

Table 4. Cover up more likely when the probability that whistleblower private correspondence is revealed

Notes: This table examines the factors influencing the likelihood of whistleblower identity disclosure in the context of local alliances and central governance structures. The independent variables include: (1) the presence of two

Table 5. Cover up less likely when the probability of exogenous separation is higher

Notes: This table examines the concealment decisions of local officials in highly uncertain environments, focusing on scenarios where exogenous factors increase the probability of career separation. The independent variables include: (1) approaching the end of a career due to illness or age, (2) the five years leading up to retirement,

Table 6. Cover up less likely when the net benefit of whistleblowing is larger

Notes: This table examines the relationship between the net benefits of whistleblowing and the likelihood of disaster information concealment (*Cover_up*). We considers several indirect factors influencing the overall net benefits: (1) the potential for retaliation from other officials (e.g., differences between Manchu and other ethnicities); (2) the influence of hierarchical roles (e.g., Governor-General vs. Commissioner); (3) the emperor's preference for

Panel A: Too small disaster to Report Hypothesis							
Variable	Small disaster (1)	Reassignment distance (2)	[-3,-1] (3)	Two-person (4)	Anti-Corruption Campaign (5)	Governor-General vs. Commissioner (6)	Active Censors (7)
keyVariable		0.032**	-0.023	0.093*		0.190***	
Panel B: The Report for Relief Hypothesis							
Variable	Fiscal burdens (1)	Reassignment distance (2)	[-3,-1] (3)	Two-person (4)	Anti-Corruption Campaign (5)	Governor-General vs. Commissioner (6)	Active Censors (7)
keyVariable		0.032**	-0.023	0.093*		0.190***	
The Report for Relief Hypothesis	0.003 (0.015)						
KeyVariable × The Report for Relief Hypothesis		-0.018 (0.026)	-0.001 (0.062)	0.070 (0.059)	-0.043 (0.043)	-0.012 (0.052)	-0.006 (0.025)
Observations	6,707	6,707	6,655	6,707	6,707	6,707	6,707
Lev FE	YES	NO	NO	NO	NO	NO	NO

-0.006

(0.025)

6,707

NO

YES

YES

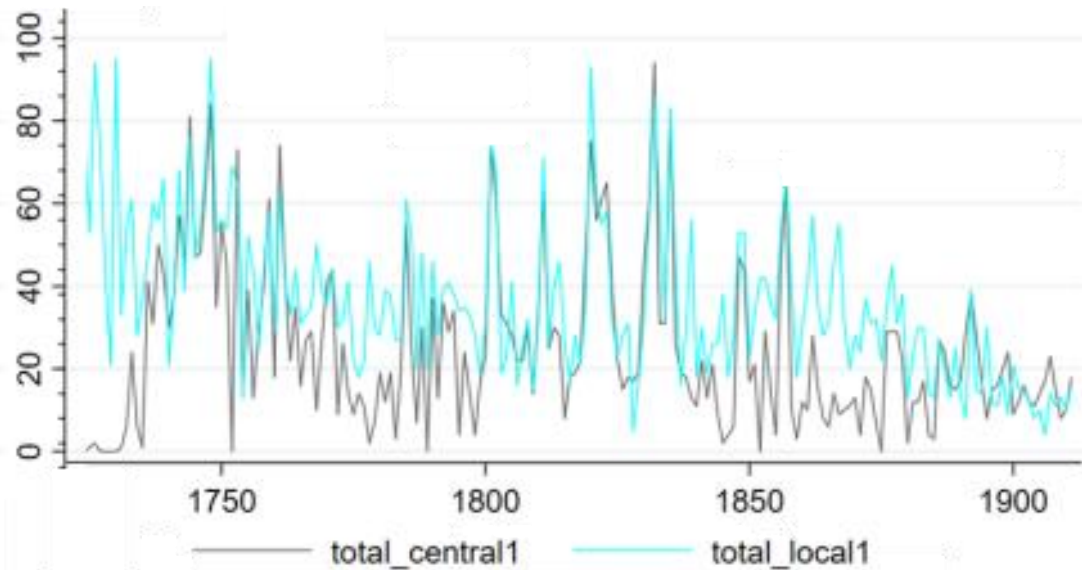
YES

753

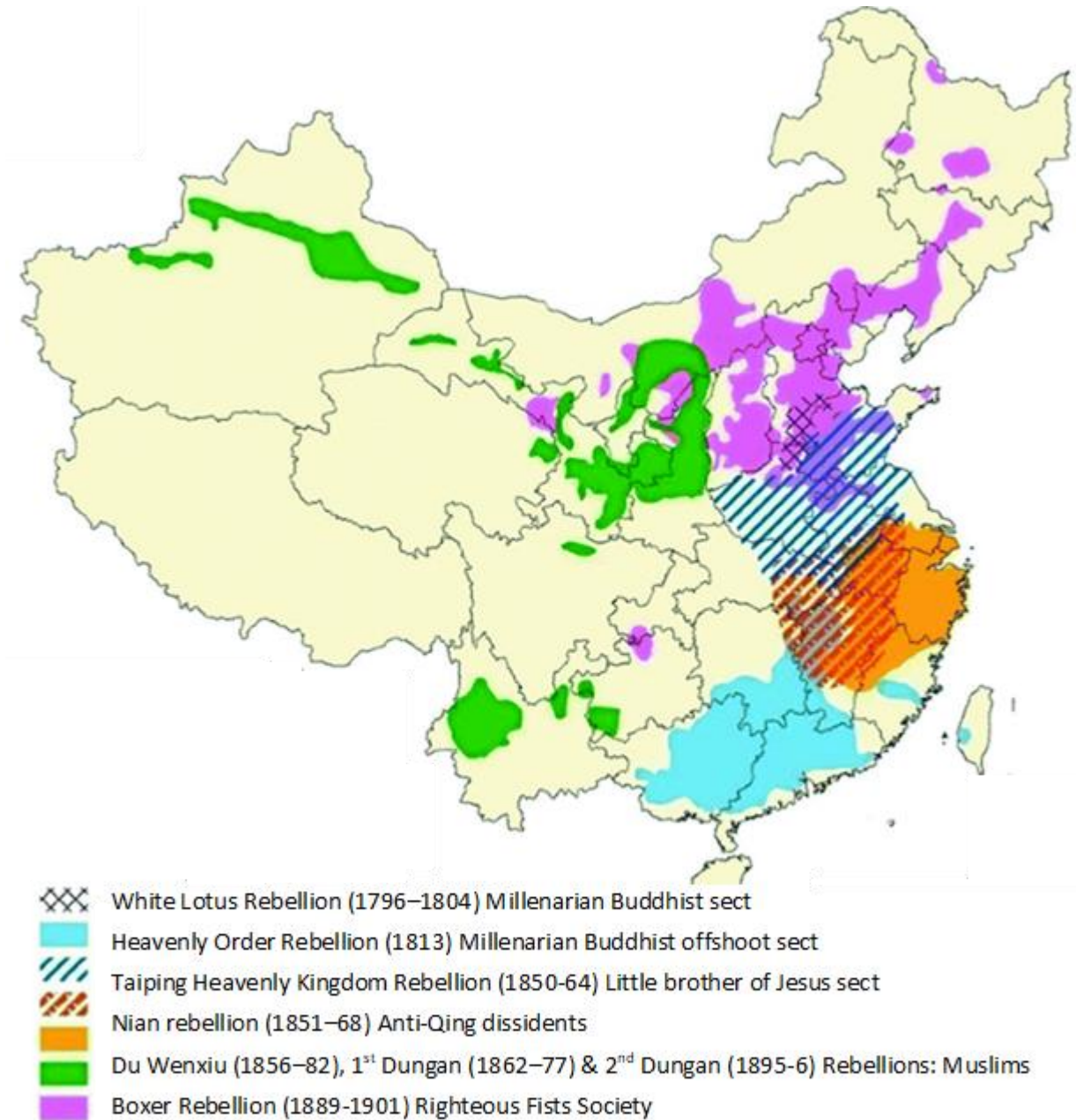
What Else? Degree of Imperial Control

Late Qing bouts of internal instability

- ❑ As Qing misrule worsened, a succession rebel armies led by religious zealots or dissident officials seized control of large parts of China for substantial periods of time
- ❑ Officials cut of from the imperial government would likely not report disasters to the emperor
- ❑ Natural disasters apt to be more disastrous amid breakdown of government authority



- ❑ Perhaps consider a time-varying geographic control for rebellions interrupting imperial power in each prefecture?



What Else? Foreign Spheres of Influence 1850 - 1911

Keller, Wolfgang & Carol H. Shiue. 2021. The economic consequences of the opium war. NBER wp 29404

Late Qing foreign spheres of influence

- ❑ As Qing misrule & mishandling of foreigners worsened, various foreign countries established “spheres of influence”
 - ❑ How powerful was the emperor in different foreign spheres of influence at different times?
 - ❑ British imperial policy was to “work with local powers”, Japanese policy was to suppress local powers, ..
 - ❑ Were natural disasters apt to be more disastrous under direct Qing rule or under Qing rule filtered through foreign influence?
 - ❑ Would local officials be more likely to appeal to the head of a nearby foreign commission than to the Qing?
 - ❑ Was Qing power more blunted in some foreign spheres of influence than in others?
-
- ❑ Perhaps consider a time-varying geographic control for the varying scope of each foreign (British, French, German, Japanese, Russian) sphere of influence? See Keller & Shiue (2021)



What Else: Foreign legal Enclaves 1850 - 1911

Keller, Wolfgang & Carol H. Shiue. 2021. The economic consequences of the opium war. NBER wp 29404

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- ❑ Time-varying geographic control for the distance from nearest foreign (British, French, German, Japanese, Russian) treaty port? See Keller & Shiue (2021)



What Else? Opium Addiction Varied Across Time and Geography

Anglo-Chinese Opium Wars

- ❑ Moral low-point of British imperialism: British Co lobbied Parliament for gunboat diplomacy
- ❑ Qing misrule left Chinese military very weak and disorganized
- ❑ 1st Opium War
- ❑ 2nd Opium War

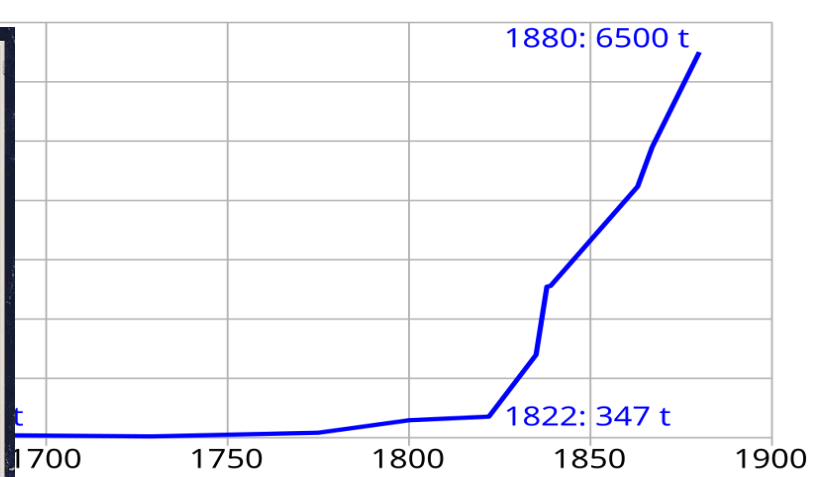


Opium den in Victorian London

- ❑ Time-varying geographic control for the distribution of opium at nearest foreign (British, French, German, Japanese, Russian) treaty port? See Keller & Shiue (2021)



Opium imports into China 1650–1880



Opium use in China in 1906

Opium use in China in 1906			
Intensity	% using		quantity
	60%	mace	81 picul 4 yearly
	40%	mace	54 picul 4 yearly
	70%	mace	94.5 picul 2 yearly
	50%	mace	67.5 picul 2 yearly
Light	8%	mace	10.8 picul 1/3 / 3 days
Moderate	2%	mace	2.7 daily
Light	20%	mace	27 picul 2/5 / 3 days
Moderate	12%	mace	16.2 picul 2/5 / 3 days
		mace	12.6 picul 2/5 daily
Heavy	2%	mace	1.8 1 daily
		mace	1.8 picul 2 daily
		mace	1.4 picul 5 daily
		mace	1 picul 8 daily

1 mace = 3.78 g 1 picul = 16,000 mace

Source: Newman RK. 1995. Opium smoking in late imperial China: a reconsideration. Modern Asian Studies 29(4)765-94.

What Else? The Emperor's Dilemma?



Li, Wei, and Dennis Tao Yang. 2005. The great leap forward: Anatomy of a central planning disaster. *Journal of Political Economy* 113.4 840-877.

- ☐ Fearful cadres covered up disaster (famine)
- ☐ CPC Orgburo retains aspects of imperial system, as do bureaucracies in many countries and eras

Centola D, Willer R, Macy M. 2005. The emperor's dilemma: A computational model of self-enforcing norms. *American Journal of Sociology* 110(4):1009-40.

- ☐ Everyone thinks everyone thinks thinking explains much intellectual nudity in politics, markets, and academia

Willer, Robb, Ko Kuwabara, and Michael W. Macy. 2009. The false enforcement of unpopular norms. *American Journal of Sociology* 115.2 451-490.

- ☐ Everyone does *X* because everyone thinks everyone else thinks *X* is the thing to do, even though everyone secretly doubts (but dares not say) that doing *X* is a good idea
- ☐ *X* = burn witches, kill aristocrats, kill [insert disfavored group here], burn books, destroy historic monuments, ...

DellaPosta, Daniel J., and Michael W. Macy. 2015. The Center Cannot Hold. In Edward J. Lawler et al. eds. *Order on the Edge of Chaos*. Cambridge University Press, c 5

- ☐ Did Qing emperors (& dowager empresses) really care to know?
- ☐ Or is the purpose of bureaucracy sometimes to insulate emperors (university presidents?) from unpleasant problems they created?
- ☐ Are cover-ups just what the system is supposed to do?

A+

Thank you / Merci