Institutions, Diversity, and Cultural persistence: Evidence from Imperial China

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High-Value Work and the Rise of Women

The Cotton Revolution and Gender Equality in China

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Outline of the Talk

- Introduction
- Historical Context
- Data
- Baseline estimates
- Robustness
- Intermediate shocks
- Alternative hypotheses
- Instrumental Variable Analysis
- Evidence for persistence
- The initial transition

The Norm: Male Domination

- Most past and modern human societies are characterized by male domination.
- The inevitability of patriarchy (Goldberg, 1977)?
  - Answers to the origin of male domination range from a group's effort secure animal protein (Harris, 1977, 1978, 1993) to a man's desire to impregnate women so as to pass on his genes (Lerner, 1986; Smuts, 1995).
- What have economists found?
  - Alesina, Giuliano and Nunn (2013, QJE): the use of the plough.
  - Hansen, Jensen and Skovsgaard (2015, JEG): any agricultural intensification.

An Early Transition

- More advanced agricultural societies, higher levels of gender inequalities?
- True for most western societies.
  - English legal scholar William Blackstone: "[b]y marriage, the husband and wife are one person in the law: that is, the very being or legal existence of the woman is suspended during the marriage, or at least is incorporated and consolidated into that of the husband: under whose wing, protection, and cover, she performs every thing." (Blackstone, 1764, pp.442-445).
- This paper is to document an early transition in gender norms (14th century) that took place within an agrarian society.
- A transition in gender equality can occur under large relative productivity shocks.

The Cotton Revolution

- Cotton Revolution: a transformative event that redefined women's contribution to economic production in premodern China.
- The use of more productive spinning and weaving technologies dramatically increased women's productivity.
- Participation in cotton textile production:
  - enabled women to take on a new role as their household's major income earner;
  - constituted a significant shock to the level of women's engagement in market activities and their economic independence.

An Ancient Ideal: Men Plough, Women Weave

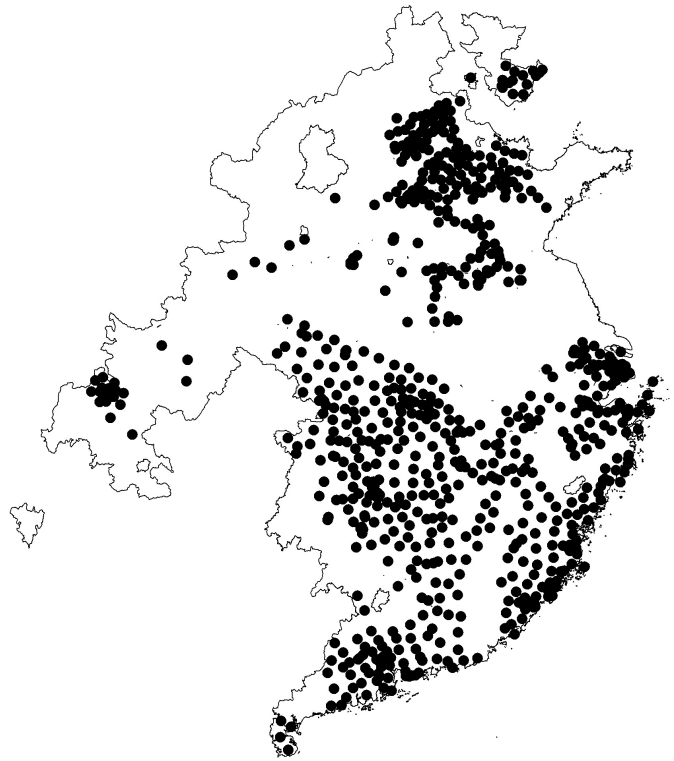


Figure: Locations of Premodern Cotton Textile Production

Main Hypothesis

- A sexist belief derived from premodern experience: women are intrinsically inferior to men.
- The origins of gender inequality: male strength and propensity to violence in warfare (Harris, 1993).
- In the absence of decentralized violence, when an average woman earns more than an average man, sexist beliefs can be modified in the long run.
- Cotton textile production was high-value work.
- I propose a causal relationship between the availability of high-value work for women and gender equality in contemporary China through the transformation and transmission of sexist beliefs.

Related Literature: Culture and Gender Equality

- The role of culture and identity in determining gender outcomes:
  - (Fortin, 2005; Fernández, 2007; Fernández and Fogli, 2009; Gneezy, Leonard and List, 2009; Alesina, Giuliano and Nunn, 2013; Bertrand, Kamenica and Pan, 2015; Hansen, Jensen and Skovsgaard, 2015; Jayachandran, 2015).
  - Fernández (2007) and Fernández and Fogli (2009): cultural proxies have significant explanatory power for the work and fertility behavior of second-generation American women.
  - Gneezy et al. (2009): women compete less, but only in patriarchal societies.
  - Jayachandran (2015): norms explain a large portion of the male-skewed sex ratio in India and China.
- The "devaluation" hypothesis

Related Literature: Economic Opportunities and Gender Norms

- Gender norms tend to be highly resilient.
- The link between women's earnings and female autonomy (Anderson and Eswaran, 2009; Aizer, 2010; Ashraf, Karlan and Yin, 2010; Deininger, Goyal and Nagarajan, 2010).
- The perpetuation of gender norms
  - Bertrand et al. (2015): the gender identity norm where husband earns more than wife can affect marital formation and chances of divorce.
  - Bertrand et al. (2016): skilled women can be punished by negative social attitudes towards working women by a marriage gap.

Related Literature: Culture and Economic Development

- This paper contributes to the literature of culture and economic development.
- Culture can be viewed as decision making heuristics or 'rules of thumb' (Nunn, 2012).
- Culture plays an important role in economic development (Guiso et al., 2006).
- Cultural norms persist (Alesina, Giuliano and Nunn, 2013; Caicedo14; Grosjean11; Grosjean15; Guiso et al, 2008; Jha, 2010; Nunn and Wantchekon, 2011; Voth and Voigtländer, 2012).

Contribution

- Disentangle the effects of an increase in general income (higher stage of development) and gender-specific activities on sexist beliefs.
- Isolate the increase in value of work from socio-political aspects of work (location, social networks and etc.) that could also be empowering women.
- Document the persistence of modified sexist beliefs since the end of the premodern period for China (1840).

Initial Conditions

- Confucianism and Status of Women
  - Confucius became an important basis for the Chinese state since the Han Dynasty (206 BC-220 AD)
  - Confucianism laid a particular emphasis on continuing the family line, and only male offspring can fulfill this purpose.
  - Mothers and grandmothers had important and respected places in their families.
  - Confucianism celebrated the virtues of hard work.
- State and Women's Work
  - "Men plow and women weave"
  - Under the state tax system, each household was required to pay in-kind taxes in both grain and textiles.

China: 1300–1840 AD

Technological breakthrough in cotton textile production:

- Huang Dao Po (1245–1330) imported new spinning and weaving technologies to China Proper around 1300.
- She developed a pedal spinning wheel with three spindles (premodern version of "Spinning Jenny").
- Little known subsequent technology improvement until after 1840. Textile production was not mechanized until the 19th century.

China: 1300–1840 AD

- Expansion of cotton textile trade:
  - State-sponsored trade: cotton textiles accounted for a large portion of in-kind taxes.
  - Single whip law in 1580. This led to the monetization of the economy.
  - Sizable intra-regional trade of cotton textiles: Huang estimates the size of trade in cotton textiles via the Grand Canal to be one million teals around 1600.
- Ownership structures: small businesses; household production.
- Women as primary income earners. Textile workers earned a wage premium compared with workers in construction or agriculture (Allen et al., 2011).

Data Sources

- Historical Sources
  - Local gazetteers from the Ming and Qing Dynasty (1368–1840);
  - GIS files from the China Historical GIS Project by Harvard University;
  - Economic Census from Republican China (1916); Surveys by Christian missionaries (1922).
- Modern Censuses & Surveys
  - 2000 Census;
  - 1990 1% Census (IPUMS);
  - China's General Social Surveys (2010).
- Geographic & Climatic Controls

  CRU of University of East Anglia, FAO, NOAA, NASA...

Premodern Cotton Textile Production

- Check the "local specialty" section in county or prefecture gazetteers.
- Construct a binary variable:
  - Coded as 1 when either "cotton cloth" or "cloth (cotton)";
  - 0 otherwise.
- Focus on China proper.
- 1622 counties are included in the main sample.

Sex Ratio at Birth

- The decision to keep only one of the several possible children in the presence of the one-child policy.
- Sex selection reflects deeply held cultural beliefs about the relative worth of men to women. (The President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavior Research of the United States) .
- China in late 1990s: few meaningful constraints on sex selection.
- Examine sex ratio at birth in the 2000 Census.

Variation in Sex ratios at Birth

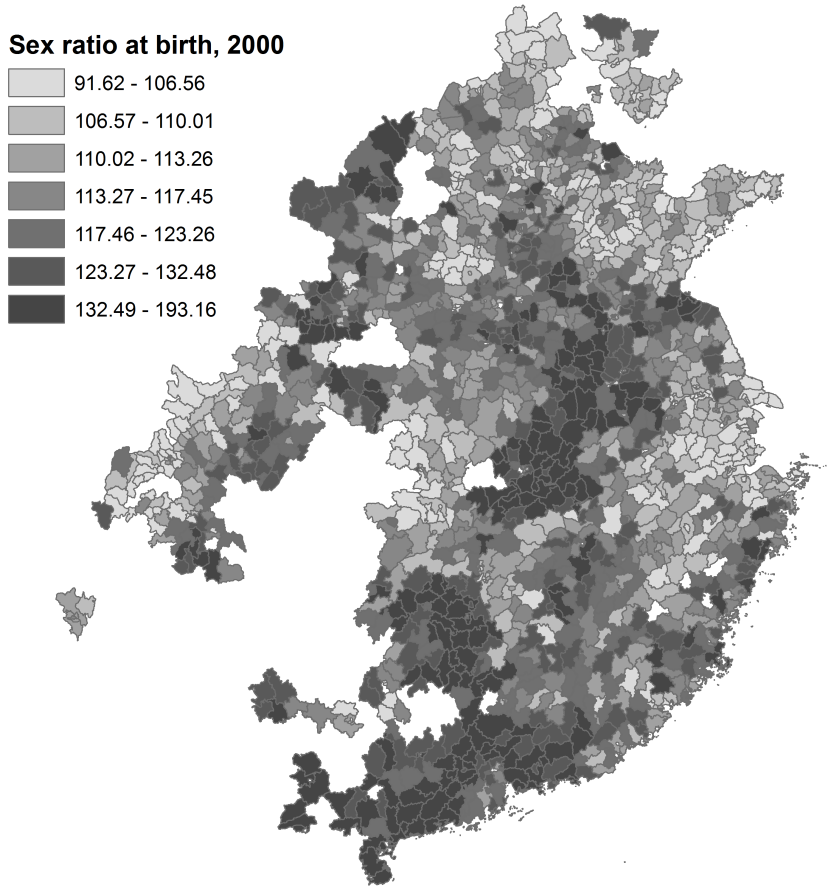


Figure: Main Outcome Variable: Sex Ratio at Birth

Main Estimation

I test my hypothesis by estimating the following equation:

$$\begin{aligned}\text{Sex ratio at birth} =& \alpha + \beta \text{Premodern cotton textiles}_c + X_c^H \Omega \\ &+ X_c^G \Lambda + X_c^C \Pi + \epsilon_c \ ,\end{aligned} \tag{1}$$

- where c denotes a county.
- Sex ratio at birth is my dependent variable.
- Premodern cotton textiles$_c$ is my measure of premodern cotton textile production at a county level.
- $\mathbf{X}_c^H$ is a vector of historical controls.
- $\mathbf{X}_c^G$ and $\mathbf{X}_c^C$ are vectors of geographical and contemporary controls respectively.

A List of Controls

- Historical characteristics: population density in 1300, agriculture suitability, on the major trade network (Grand Canal and Yangtze), and treaty-port status.
- Geographic controls: ruggedness, distance to coast, latitude and longitude.
- Economic controls: per capita GDP, share of agricultural workforce and share of service workforce; social controls: men's years of schooling and share of ethnic population; political controls: share of urban *hukou*,self-governance status and provincial capital status.
- Socioeconomic macroregion fixed effects (Skinner, 1978) and province fixed effects.

Son Preference and Sex Ratio Imbalances

- China has had the most unbalanced sex ratios in East Asia for the past two decades.
- In the 2000 Census, the national average sex ratio at birth was 118:100.
- Prior to the one-child policy, most families resorted to higher-parity births.
- One-child policy prevents families from securing a sons by having multiple births.
- Sex selection at a lower-parity birth contributes to massive sex ratio imbalances.

Textiles and Women

- "Up until the Industrial Revolution, and into this century in many peasant societies, women spent every available moment spinning, weaving, and sewing." (Barber, 1993)
- In pre-modern China, cotton textile production represented an new opportunity for women to earn monetary income, and contribute to household income.
- Chinese women had been doing productive work prior to the cotton revolution. Cotton textile production enabled woman to take on a new role as their household's major income earner.
- The rise of the textile industry constituted a significant shock to the level of women's engagement in market activities and their economic independence.

Main Hypothesis

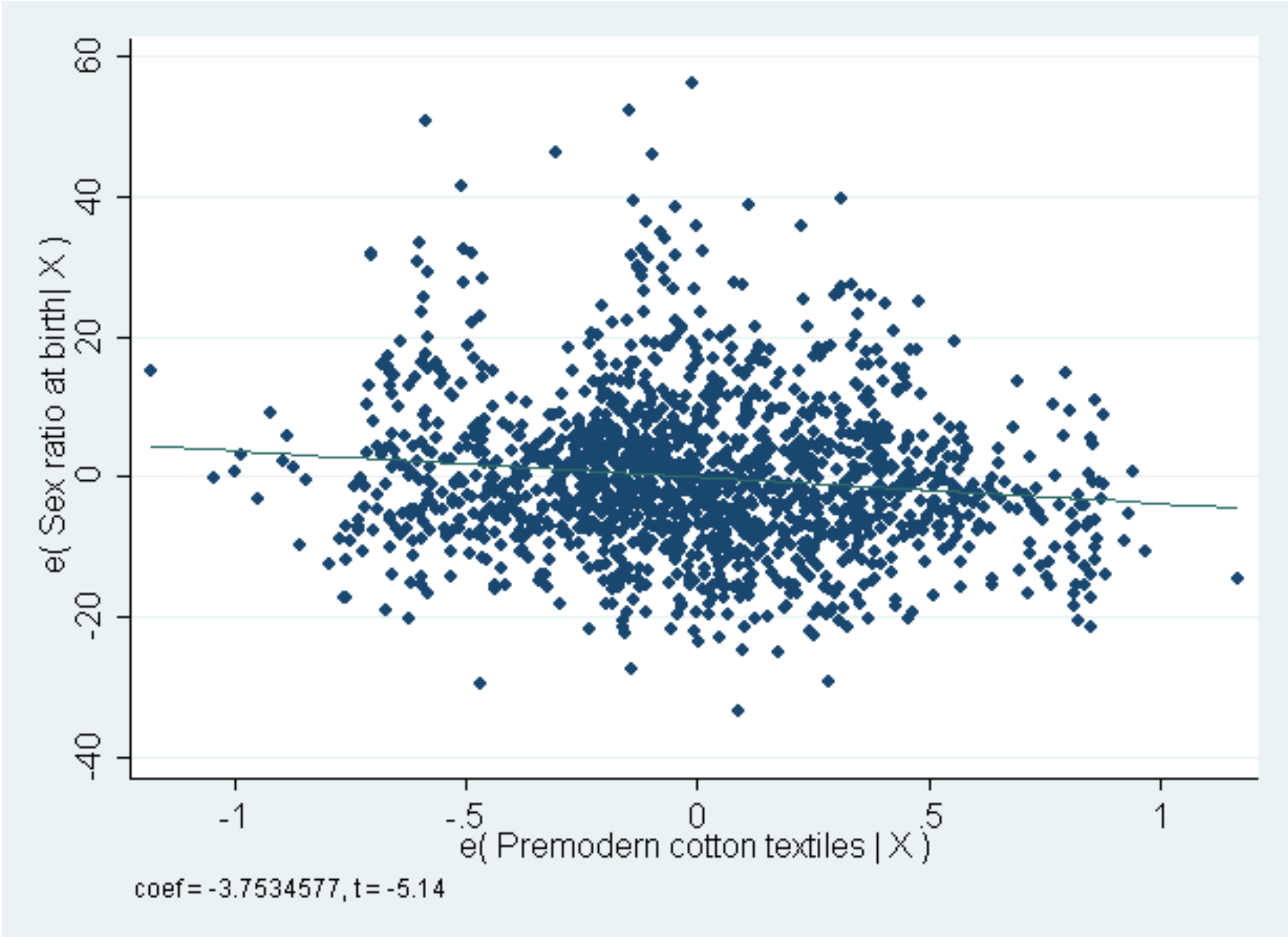
- The use of a productive technology increases women's social status and the desirability of daughters.
- Women's increasing relative contribution to household income generated new norms about women's role in the household as a main breadwinner.
- I hypothesize a causal relationship between pre-modern textile production and gender equality in contemporary China through cultural transmission. .
- A belief derived from premodern experience: women are intrinsically inferior to men. .
- Rising female economic contribution can erode beliefs in male superiority. .

This paper is to document an early transition in gender equality (14th century): relative productivity shocks can reverse gender stereotypes.

Table: 1. Premodern Cotton Textiles and SRB: Baselines

	Sex ratio at birth					
	(1)	(2)	(3)	(4)	(5)	(6)
Mean of Dep. Var.	118.3	118.3	118.6	118.6	118.6	118.6
Premodern cotton textiles	-3.008***	-3.225***	-3.753***	-4.049***	-3.887***	-4.066***
Socioeconomic controls			Yes			
Political controls			Yes	Yes	Yes	
Ethnic population			Yes	Yes		
Historical controls	Yes	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	No	Yes	Yes	Yes	Yes	Yes
Socioeconomic Macroregion FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.150	0.231	0.368	0.314	0.306	0.288
Observations	1622	1622	1489	1489	1489	1489

Figure: Partial Correlations



Selection on Unobservables Based on Selection on Observables

Varying Controls, R_{max}=1.3$\tilde{R}$							
	Baseline Effect [R^2]		Controlled Effect [R^2]		Null Reject	δ	Identified Set
Col. 1 of Table 1	-3.361	[0.156]	-3.753	[0.386]	Yes	[<0]	[-3.946, -3.753]
Col. 2 of Table 1	-3.611	[0.245]	-3.753	[0.386]	Yes	[<0]	[-3.868, -3.753]
Col. 4 of Table 1	-4.049	[0.331]	-3.753	[0.386]	Yes	4.165	[-3.753,-3.149]
Col. 5 of Table 1	-3.887	[0.322]	-3.753	[0.386]	Yes	10.041	[-3.753,-3.552]
Col. 6 of Table 1	-4.067	[0.303]	-3.753	[0.386]	Yes	5.723	[-3.753,-3.326]

Matching

	Dependent variable: sex ratio at birth					
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Matching estimates						
ATT	-3.381 ***	-4.006 ***	-3.901 ***	-4.329 ***	-4.541***	-5.590**
	(1.184)	(1.350)	(1.181)	(1.446)	(1.685)	(2.486)
ATE	-2.894 ***	-3.828 ***	-3.678 ***	-4.182 ***	-4.633 ***	-4.984 **
	(1.012)	(1.226)	(1.037)	(1.330)	(1.515)	(2.272)
Panel B: Regression estimates on matched samples						
	-2.793***	-4.283***	-4.123***	-3.900***	-4.803***	-3.143**
	(0.905)	(1.029)	(0.920)	(1.079)	(1.180)	(1.583)
Propensity score range	All	All	All	[0.1-0.9]	[0.1-0.7]	[0.3-0.7]
Caliper size	0.005	0.001	0.01	0.001	0.001	0.001
Adjusted R^2	0.499	0.468	0.490	0.485	0.518	0.594
Observations	565	426	591	394	318	201

Robustness Checks

- Clustering: Socioeconomic macroregion, province; Conley SEs.
- Special regions: Yangtze Delta, net in-migration region.
- Alternative outcome: female education. Placebo: male education.

Recent Economic and Political Shocks

- Early industrialization (1840-1949)—treaty-port status;
- Missionary influence (1840-1949)—number of communicants;
- Post-1979 economic reforms—whether on the coast.

Alternative Hypotheses

Table: Competing Hypotheses

	Dependent variable: sex ratio at birth						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Premodern cotton textiles	-3.635***	-3.785***	-3.731***	-3.740***	-3.770***	-3.729***	-3.695***
	(0.741)	(0.806)	(0.735)	(0.737)	(0.740)	(0.730)	(0.733)
Cotton	-2.028						
	(1.654)						
All textiles		0.0832					
		(0.896)					
Tea			0.215				
			(1.671)				
Rice				-0.323			
				(1.491)			
Pre-1300 commerce					0.0257		
					(0.0960)		
#courier routes						-0.387	
						(0.369)	
Modern textile industry							-0.431
							(0.279)
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Socioeconomic Macroregion FE	Yes	Yes	Yes	Yes	Yes	Yes	
Adjusted R^2	0.368	0.368	0.368	0.368	0.368	0.368	0.369
Observations	1484	1489	1484	1484	1489	1489	1489

IV Estimation (i)

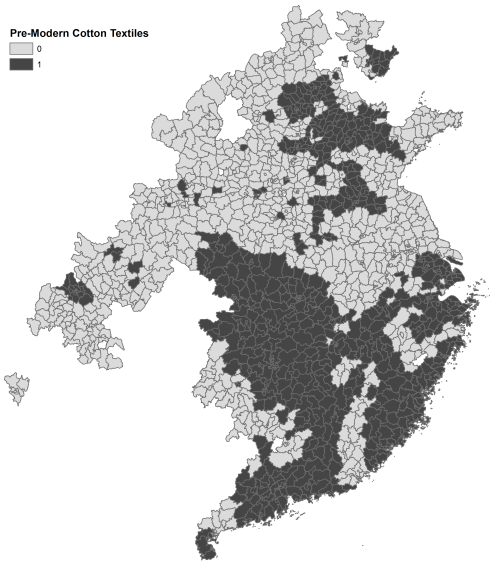


Figure: Premodern Cotton Textile Production

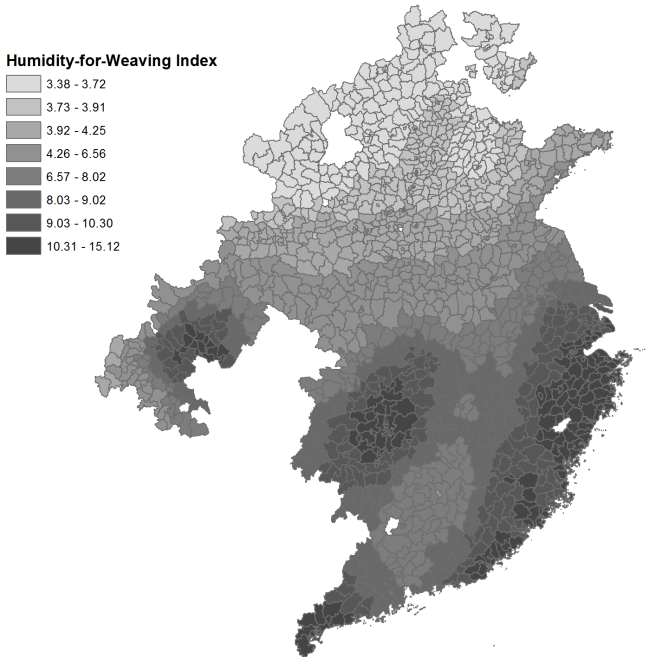


Figure: Humidity-for-Weaving Index

IV Estimation (ii)

- Geo-climatic conditions played an important role in premodern cotton textile production .
- Relative humidity makes cotton fibers more pliable and reduces the chance of breakages in the yarn.
- Humidity-for-weaving index:
  - Account for non-linearity in the impact of relative humidity on premodern cotton textile production;
  - Approximate the number of months available for production;
  - Pick up the quality and quantity dimension of premodern cotton textile production.

IV Estimation (iii)

Table: Humidity-for-Weaving Index and Correlates of Premodern Cotton Textile Production

	(1) Premodern cotton textiles	(2) Silk or hemp	(3) Cotton suitability	(4) Agricultural suitability
Mean of Dep. Var.	0.478	0.784	0.555	4.807
Humidity-for-weaving	0.0408***	-0.00204	-0.0185**	-0.0647*
Baseline controls	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Socioeconomic Macroregion FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.441	0.445	0.715	0.615
Observations	1483	1483	1478	1483

IV Estimation (iv)

Table: Premodern Cotton Textiles and SRB: Instrumental Variable Analysis

	(1) OLS	(2) IV	(3) OLS	(4) IV
	Humidity-for-weaving		Humidity-for-weaving (inverse) × dist. to Suzhou	
	Second Stage Dependent variable: sex ratio at birth			
Mean of Dep. Var.	118.7	118.7	118.7	118.7
Premodern cotton textiles	-3.800***	-6.368**	-3.991***	-4.757*
Adjusted R^2	0.364	0.360	0.373	0.372
	First Stage Dependent variable: premodern cotton textiles			
Humidity-for-weaving		0.255***		
Humidity-for-weaving (inverse) × dist. to Suzhou				-3.3680***
Pseudo R^2		0.417		0.428
Humidity-for-weaving	No	No	Yes	Yes
Log(dist. to Suzhou)	No	No	Yes	Yes
Baseline controls	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Socioeconomic Macroregion FE	Yes	Yes	Yes	Yes
Observations	1467	1467	1467	1467

Premodern Cotton Textiles and Sexist Beliefs: Evidence from CGSS 2010

- "Men are naturally more capable than women?"
- "Men should focus on career; women should focus on family?"
- "How many sons do you want? How many daughters do you want?"

Premodern cotton textile production is systematically correlated with less sexist beliefs.

Table: Sexist Beliefs: Evidence from CGSS

	Men naturally more capable			Women focus on family		
	(1)	(2)	(3)	(4)	(5)	(6)
		OLS			OLS	
Mean of Dep. Var.	3.006	3.006	3.006	3.659	3.659	3.658
Premodern cotton textiles	-0.244***	-0.243***	-0.239***	-0.195***	-0.191***	-0.183***
Age group	No	Yes	Yes	No	Yes	Yes
Female	No	Yes	Yes	No	Yes	Yes
Education	No	Yes	Yes	No	Yes	Yes
Female $\times$Education	No	Yes	Yes	No	Yes	Yes
Individual controls	No	No	Yes	No	No	Yes
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes
Socioeconomic Macroregion FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2/Pseudo R^2	0.0287	0.0952	0.102	0.0535	0.119	0.127
Observations	6161	6156	6146	6168	6162	6152

Table: Sexist Beliefs: Evidence from CGSS

	Daughter preference		
	(7)	(8)	(9)
		Logit	
Mean of Dep. Var.	0.0975	0.0974	0.0975
Premodern cotton textiles	0.120 $^{(+)}$	0.131 $^{+}$	0.200*
Age group	No	Yes	Yes
Female	No	Yes	Yes
Education	No	Yes	Yes
Female $\times$Education	No	Yes	Yes
Individual controls	No	No	Yes
Baseline controls	Yes	Yes	Yes
Socioeconomic Macroregion FE	Yes	Yes	Yes
Adjusted R^2/Pseudo R^2	0.014	0.025	0.030
Observations	6105	6100	6084

Sexist Beliefs Before Mass Sex Selection (pre-1990s)

Table: Premodern Cotton Textiles and Status of Women : 1990 Census

	Dependent variable: wife				
	(1)	(2)	(3)	(4)	(5)
	Continuous	Dummy	Dummy	Dummy	Dummy
Mean of Dep. Var.	0.0578	0.0589	0.0647	0.0589	0.0589
Premodern cotton textiles	0.256^{+}	0.332^{*}	0.316^{*}	0.355^{*}	0.339^{*}
Marginal effects	0.013^{*}	0.017^{*}	0.018^{*}	0.017^{**}	0.018^{+}
# cluster	114	88	88	88	88
Age >30	No	No	Yes	No	No
Education	No	No	No	Yes	No
Occupation	No	No	No	Yes	No
Pop. density in 1820	No	No	No	No	Yes
Age group	Yes	Yes	Yes	Yes	Yes
Family size	Yes	Yes	Yes	Yes	Yes
Baseline controls	Yes	Yes	Yes	Yes	Yes
Socioeconomic macroregion FE	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes
# cluster	114	88	88	88	88
Pseudo R^2	0.068	0.067	0.062	0.195	0.067
Observations	954881	701263	555282	701263	701263

Sexist Beliefs Before State Socialism (pre-1949)

Table: Premodern Cotton Textiles and Female Labor Force Participation: 1916 Economic Census

	Share of Female Workers			
	(1)	(2)	(3)	(4)
Mean of Dep. Var.	0.197	0.197	0.197	0.197
Premodern cotton textiles	0.137**	0.110**	0.110**	0.0974*
Log Total Population	No	Yes	No	No
Industry dummies	No	Yes	Yes	Yes
Adjusted R^2	0.0244	0.267	0.262	0.275
Observations	170	170	170	170

How Did the Cotton Revolution Transform Sexist Beliefs?

- The cotton revolution produced a shock that could lead to the breakdown of prior cultural beliefs concerning women's role in providing for a family.
- The gender identity norm where husband always earns more than wife (Bertrand et al., 2015) is simply not sustainable under the regime of cotton textile production.
- The size of the relative income shock, and the institution of universal marriage for women, amplified the effects of the cotton revolution on gender norms.

The Case of Widow Survival

- Premodern cotton textile production reduced rates of widow suicide.
- The elevated status of widows could have changed perception of women's proper role in society (Anderson and Ray, 2015; Miguel, 2005; Oppong, 2006; Sossou, 2002).
- Women being able to derive a stable and competitive lifetime income from producing cotton textiles reassure parents that they can have daughters and still do fine.

Table: *jingbiao*: Widow Suicide

	Widow suicide						
	(1)	(2)	(3)	(4)	(5)	(6)	
Mean of Dep. Var.	0.500	0.500	0.500	0.500	0.500	0.500	
Premodern cotton textiles	-0.338	-0.461 $^{+}$	-0.594 $^{+}$	-0.621 $^{+}$	-0.665 $^{+}$	-0.581 $^{+}$	
Log (dist. to Qufu)		-0.722***	-0.712***	-0.814***	-0.756***	-0.242	
Pop. density in 1600			0.181	0.316	0.224	0.345	
Agriculture suitability				-0.106	-0.178	-0.177	
Ruggedness	No	No	No	No	Yes	Yes	
Latitude	No	No	No	No	No	Yes	
Longitude	No	No	No	No	No	Yes	
Latitude $\times$ Longitude	No	No	No	No	No	Yes	
Province FE	Yes	Yes	Yes	Yes	Yes	Yes	
Adjusted R^2	0.326	0.482	0.465	0.465	0.461	0.526	
Observations	32	32	32	32	32	32	32

Summary

- Premodern cotton textile production explains a quarter of the standard deviation (3 to 4 boys per 100 girls) in present-day sex ratio at birth.
- Cannot be explained by past cotton, silk or hemp textiles, tea or rice production, commercialization, state presence or modern textile industry.
- Premodern cotton textile production is strongly correlated with less sexist beliefs.
- Modified sexist beliefs have persisted over time under various regimes since 1840.
- Suggestive evidence for an adaptation in gender norms to the cotton revolution by the 17th Century.

From the Cotton Textile Revolution to The Impact of Political Persecutions

- I have shown how an economic shock transferred the cultural value assigned to women in premodern China.
- In the next paper (joint with Mark Koyama), we study how political shocks in premodern China have also shaped cultural attitudes through to this day.
- Specifically, we show that persecutions during the Qing dynasty—known as "literary inquisitions" undermined social capital and that this effect persisted beyond the collapse of imperial China.

The Literary Inquisition:

The Persecution of Intellectuals and Social Capital in China

Mark Koyama[1] Melanie Meng Xue [2]

[1]George Mason University

[2]UCLA Anderson School of Management

The Literary Inquisition

> China had little in the way of religious persecution, but her literary persecutions amounted at times to inquisitions. The worst persecution came under the Manchus
>
> Han (1947)

This paper studies the impact of literary inquisitions on social capital.

Paper Summary

This paper:

1. Establishes that literary inquisitions reduced the number of charitable organizations (*social capital*) at a prefectural level.
2. Explores the long-run impact of this reduction in social capital on the provision of local public goods.
3. Show that these persecutions shaped *cultural attitudes*.

Paper Summary

This paper:

1. Establishes that literary inquisitions reduced the number of charitable organizations (*social capital*) at a prefectural level.
2. Explores the long-run impact of this reduction in social capital on the provision of local public goods.
3. Show that these persecutions shaped *cultural attitudes*.

To achieve this we:

- Employ a DID estimation strategy at a propensity score-matched prefectural level to study the impact on charitable organizations and notable scholars.
- Study the impact of literary inquisitions on long-term public goods provision, including literacy and infant mortality outcomes. Provide evidence that these effects worked through cultural values by studying political attitudes in affected prefectures today.

Overview

Contribution

- Studying the consequences of autocratic rule is challenging because of instability of most modern autocracies, many of which are located in Africa and the Middle East.
- This paper explores the consequences of one feature of autocratic rule—persecutions. First paper to empirically explore the consequences of the literary inquisitions in China.
- We study a phase of intensification of autocratic rule and literary inquisitions as a tool of the autocratic state. Unlike cross-country studies, we can exploit within country variation.
- To identity the immediate impact we construct a unique panel dataset for persecutions, charitable organizations and notable scholars. This allows use variation the timing and location of persecutions to uncover their impact.
- In contrast to recent papers like Waldinger (2010, 2012); Lichter et al. (2015) we have a long time horizon so can explore the persistent impact of persecutions on cultural values.

Relationship to Literature: Autocratic Rule and Social Capital

- Our findings relate to large literature on the persistent effects of institutional and political changes on cultural values (Alesina and Fuchs-Schündeln, 2007; Nunn and Wantchekon, 2009; Tabellini, 2010; Guiso et al., 2013; Alesina and Giuliano, 2015).
- The importance of social capital (de Tocqueville, 2000; Coleman, 1990; Putnam, 1994; Fukuyama, 1995, 1997; Guiso et al., 2004)
- Social capital is crucial for liberal institutions to function.
- Guiso et a. (2011) discuss the idea that autocratic political institutions can reduce trust and civic engagement.
- Extractive institutions can have a persistent negative impact on social capital (Nunn and Wantchekon, 2011).
- This is consistent with models of the vertical transmission of cultural values over generations as theorized by Bisin and Verdier (2000, 2001).

Main Argument

- The literary inquisition refers to the persecution of individuals for speech crimes.
- We argued that these persecutions have two effects:
  1. Persecutions increase risks associated with being active members of the local community. Communities see a decline in public goods provision.
  2. Persecutions intimidate scholars and writers. Individuals switch away from producing writings, particularly on political topics.

Manchu Expansion

Political Economy of Qing China

- Imperial China faced a problem of projecting power over long distances in a world of poor communication technology.
- During the Qing period, this problem was exacerbated as the Qing government involved an alien Manchu ruling class trying to dominate an established Han population.
- Political order required collaboration between Qing rulers and Han population. Collaboration requires credible commitments.
- Mutual distrust (lack of shared history) made it difficult for Qing ruling class to commit not to expropriate Han Chinese and for Han Chinese to credibly commit to endorsing the Qing regime.
- The Manchus implemented literary inquisitions to solidify their rule by making examples of those suspected of ideological opposition to the regime.

Political Economy of Qing China

- We focus on the High Qing period—three emperors Kangxi Emperor (r. 1661–1722), the Yongzheng Emperor (r. 1722–1735), and the Qianlong Emperor (r. 1735-1796).
- This is a period of internal stability and peace (from 1680s onwards) and relative economic prosperity. (Pomeranz, 2000).
- Nevertheless, the legitimacy of the Qing emperors depend on them not being viewed as 'barbarian interlopers from beyond the pale of civilization' but as being civilized:

> *'a concept consistently phrased in terms of wen or literate expression' which 'meant, among other things, the recording of knowledge, and those who controlled that record held the keys to state legitimacy. The Manchu leaders realized that they needed to dominate discourse about the past so as to be able to project certain historical interpretations that would justify Inner Asian rule over the Chinese people' (Brook, 1988, 177–178).*

The Literary Inquisition

Manchu rulers faced legitimation issue: they had to rule over a Han Chinese population, including an ethnocentric Han elite.

Many potential reasons an author could be investigated:

1. Cases of factionalism, actual or alleged.
2. Cases of taboo words, criticism of the ruler or the dynasty, and insulting allusions to the monarch or the regime.
3. Anti-Manchu ideas and activity.

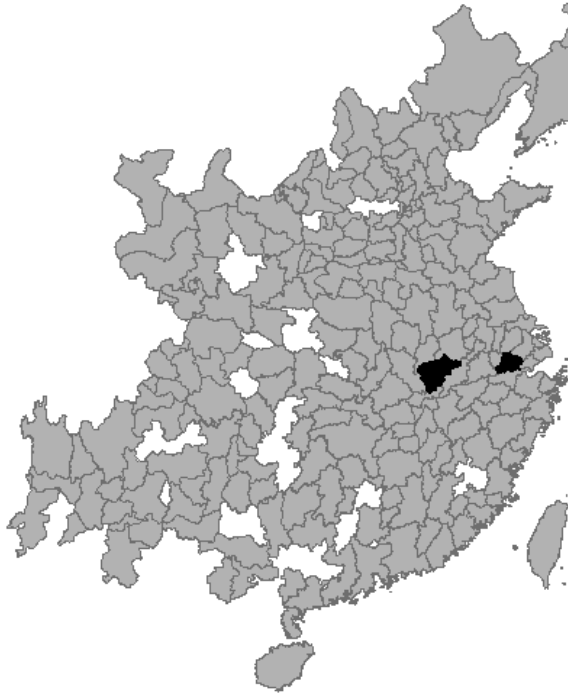
The Literary Inquisition

- Individuals were liable, not only if they wrote suspect literature, but also if they kept silent about the existence of such literature or owned copies themselves.
- Definition of what was subversive was not clearly defined and changed over time.
- Emperor 'was the sole interpreter of these cases, and some accusations were based on suspicion.' (Huang, 1974, 208).
- Wakeman refers to this as 'the institutionalization of imperial subjectivity' (Wakeman, 1998, 168).
- The largely random element in the persecutions meant that a large and uncountable number of scholar-bureaucrats saw themselves as potential victims of a literary persecution.

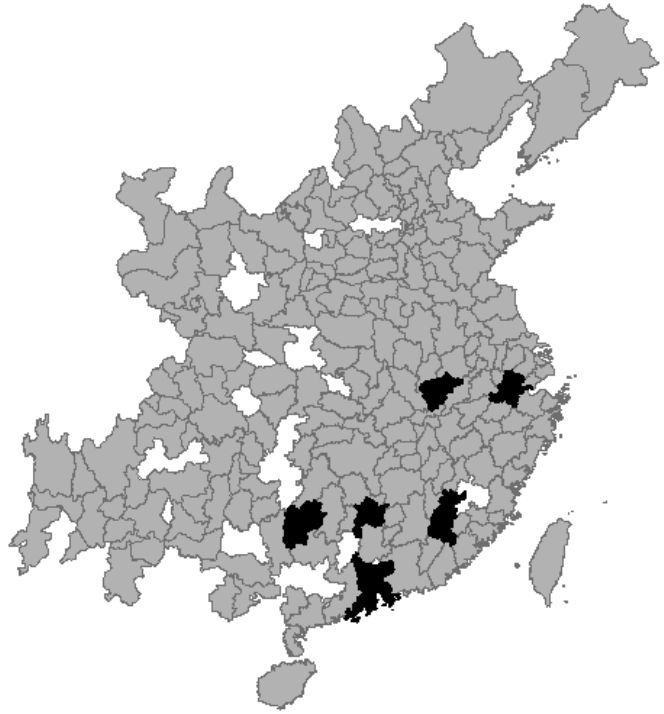
Data on Persecutions

- Three levels of administration in Imperial China: the province, the prefecture and the county.
- Conduct our analysis at the level of the prefecture in China proper (18 provinces and 275 prefectures).
- 88 cases are quintessential literary inquisitions as defined in *qing chao wen zi yu an* and *qing chao wen zi yu dang an*.

Distribution of Literary Inquisitions

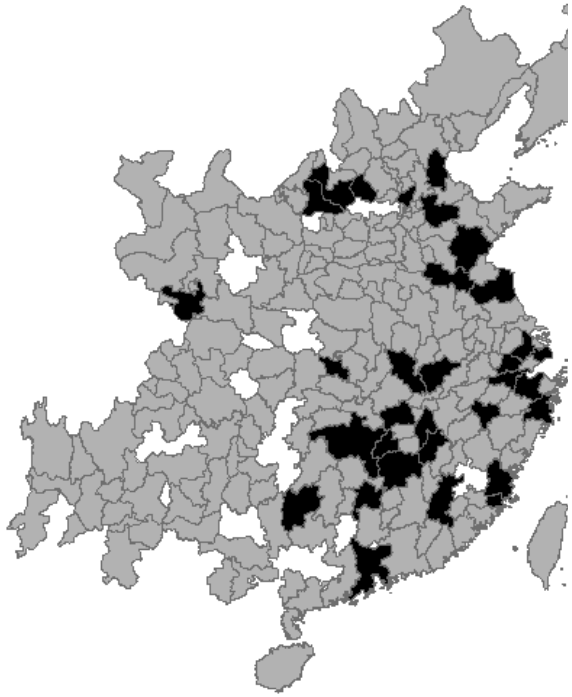


(a) Prefectures of Persecuted Individuals,1660–1725.

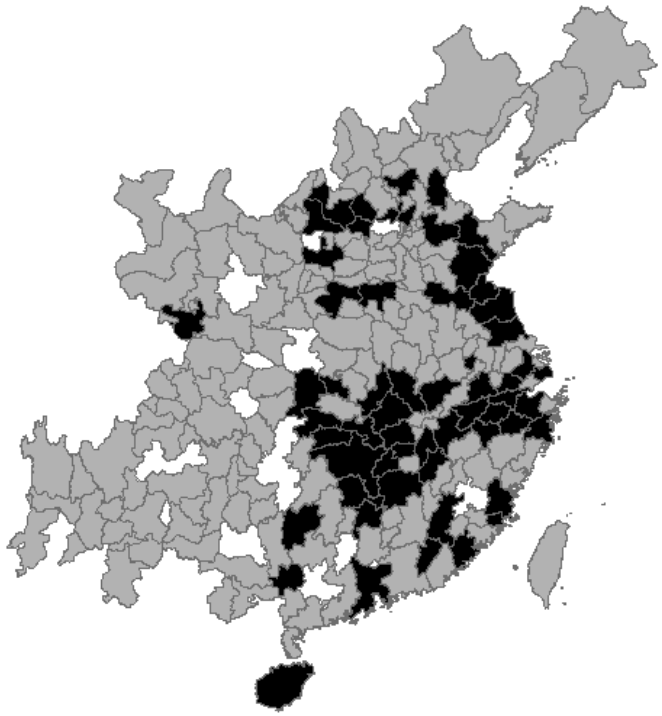


(b) Prefectures of Persecuted Individuals, 1660–1750.

Distribution of Literary Inquisitions



(c) Prefectures of Persecuted Individuals, 1660–1775.



(d) Prefectures of Persecuted Individuals, 1660–1800.

Figure: Prefectures of individuals persecuted as result of a literary inquisition per quarter century: 1725, 1750, 1775, 1800 .

Matching and DID Analysis

- Prefectures are highly heterogeneous. They are not comparable units with balanced covariates.
- Non-comparable units do not conform to the various assumptions of a difference-in-differences design.
- To mitigate that concern, we construct a comparison group following a matching exercise.
- By combining propensity score matching and difference-in-differences estimation, we aim to minimize the bias arising from non-linear effects of covariates.
- We generate a propensity score for each prefecture by running a Logistic regression on a set of pre-treatment covariates.
- We end up with a matched sample of 109 prefectures. ▸ Before Matching ▸ After Matching
- Map of matched prefectures ▸ Map
- Summary statistics ▸ Main Variables ▸ Controls

Persecutions and Individual Participation

- Historians note a shift from neo-Confucian emphasis on the role of the intellectual in the public sphere to narrow studies of philology.
- Kuhn (2002) quotes a Korean visitor to China in 1780 who observed that "Even about the most commonplace affairs, they burn the records of their conversations without leaving a scrap of paper" (quoted in 10). Kuhn comments: '[t]here is no doubt that alien rule—particularly under the touchy Qianlong—had made the Han literati fearful and circumspect'.
- For example Dai Mingshi was studying 'the history of the loyalist Southern Ming dynasties, but after his death that personal realm of scholarly curiosity was off-limits for officials who had elected to serve the Qing dynasty' (Wakeman, 1998, 174).
- Dependent variable: the number of notable writers under the age of 30 in a prefecture.
- Jiang (2005) provides data on notable scholars in the Qing Dynasty. Extract the name of all individuals born between 1670 and 1800 who came from prefectures in our matched sample (109 prefectures, 2,240 individuals).

Persecutions and Participation: DID Analysis

We first estimate the following equation:

$$\begin{aligned}\text{Notable Writers}_{p,d} =& \beta_0 + \beta_1 \text{Inquisition}_{p,d} + \mathbf{\Omega}_p + \mathbf{\Lambda}_d + \mathbf{\Lambda}_d \mathbf{X}' \\ &+ \epsilon \ ,\end{aligned} \tag{2}$$

p refers to prefecture; and d to decade. Our dependent variable is the number of notable writers under the age of 30 in a prefecture.

- $\text{Inquisition}_{p,d} \in \{0, 1\}$ is an indicator variable that becomes equal to 1 once a prefecture is affected by an inquisition.
- $\mathbf{\Omega}_p$ are prefecture fixed effects.
- $\mathbf{\Lambda}_d$ represents decade fixed effects.
- We include interactions between decade FE and time-invariant controls .

Main sample is between 1700 and 1820 (13 periods).

Persecutions and Individual Participation: DID Analysis

	Dependent variable: N. notable scholars			
	(1)	(2)	(3)	(4)
Inquisition$_{p,d}$	-0.535*	-0.520*	-0.603**	-0.569**
	(0.319)	(0.271)	(0.288)	(0.273)
Decade FE	Yes	Yes	Yes	Yes
Ming Jinshi*Decade FE	Yes	Yes	Yes	Yes
Log 1600 population*Decade FE	Yes	Yes	Yes	Yes
Socioeconomic macroregion*Decade FE	No	Yes	Yes	Yes
Latitude & Longitude*Decade FE	No	No	Yes	Yes
Observations	1417	1417	1417	1417
Adjusted R^2	0.155	0.241	0.246	0.810

Notes: Column (1) presents our baseline specification which includes prefecture FE and Decade FE as well as interactions between decade FE and the log of 1600 population as the number of Ming era Jinishi. Columns (2) adds an interaction between decade FE with socioeconomic macro-region. Column (3) interacts latitude and longitude with decade FE. Column 4 employs two-way clustering of our standard errors. In the other specifications standard errors are clustered at the prefectural level and are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Persecutions and Social Capital

- De Tocqueville (2000) and Putnam (1994) argue that social capital and civic participation are crucial for modern liberal democracies.
- Tocqueville (1998) and others argued that autocratic institutions undermine social capital and civil society.
- North et al. (2009) argue that autocratic states ('limited access orders') do not recognize organizations that our independent of the state.
- Our measure of social capital is the number of local charitable organizations studied by Rowe (2009).
- Data on the number of charitable organizations in the Qing period provided by Liang (2001).
- Charities distributed relief in local areas. They were not totally independent of the state. But they did rely on local private initiative.

Persecutions and Social Capital: DID Analysis

We estimate the following equation:

$$\begin{aligned} \text{N. Charitable Organizations}_{p,d} =& \beta_0 + \beta_1 \text{Inquisition}_{p,d} + \mathbf{\Omega}_p + \mathbf{\Lambda}_d \\ &+ \epsilon \ , \end{aligned} \tag{3}$$

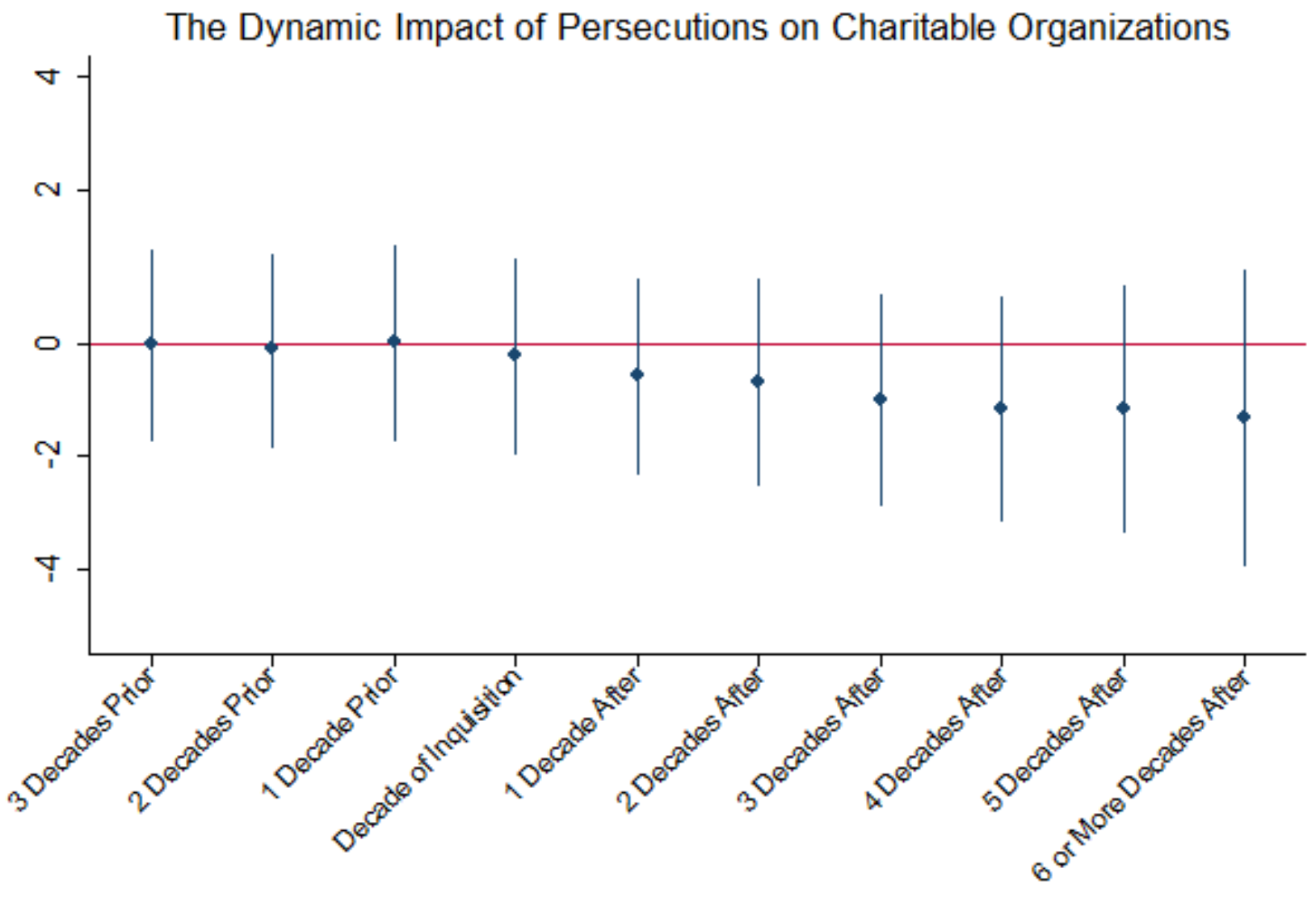
- where subscript p represents a prefecture and d a decade.
- $\text{Inquisition}_{p,d}$ denotes a prefecture p of an individual affected by an inquisition for all subsequent decades d.
- $\mathbf{\Omega}_p$ are prefecture fixed effects. $\mathbf{\Lambda}_d$ represents decade fixed effect

Number of charitable organizations

	Dependent variable: N. charitable organizations: DID Analysis			
	(1)	(2)	(3)	(4)
$\text{Inquisition}_{p,d}$	-0.745*	-0.817*	-1.018**	-1.002**
	(0.400)	(0.433)	(0.478)	(0.474)
Decade FE	Yes	Yes	Yes	Yes
Initial Pop*Decade FE	Yes	Yes	Yes	Yes
N. Ming Jinishi*Decade FE	No	Yes	Yes	Yes
Socioeconomic Region*Decade FE	No	Yes	Yes	Yes
Latitude & Longitude*Decade FE	No	No	Yes	Yes
Two-way Clustered S.E's	No	No	No	Yes
Observations	1417	1417	1417	1417
Adjusted R^2	0.311	0.445	0.495	0.830

Robustness

- Analysis with additional controls. ▸ Additional Controls
- Time-varying controls including natural disasters, conflicts and human capital controls. ▸ Time Varying Controls
- Different samples ▸ Different Samples
- 50-year time periods ▸ 50 year time periods
- No effect on the number of academies. ▸ Number of Academies


The Dynamic Impact of Persecutions on Charitable Organizations
4
2
0
-2
-4
3 Decades Prior
2 Decades Prior
1 Decade Prior
Decade of Inquisition
1 Decade After
2 Decades After
3 Decades After
4 Decades After
5 Decades After
6 or More Decades After

Long-Run Effects of Persecutions: Literacy

- We hypothesize that the literary inquisitions reduced social capital and trust, particularly among intellectuals and gentry.
- Basic education in Qing China was provided by families and by local schools run by the gentry.
- We expect to find a negative impact of persecutions on local public good provision. Therefore we predict literacy inquisitions undermined local schooling.
- Systematic data on schooling and literacy in Qing China is lacking.
- We innovate by assessing prefecture-level literacy rates in the early twentieth century using the literacy rates of individuals aged over 70 in the 1982 census.
- This data reflects literacy at the end of the Qing dynasty.

Literacy Data

- After 1931 provision of education became centralized. Therefore we focus on individuals educated before 1931.
- Use the Integrated Public Use Microdata Series census (IPUMS) to obtain individual level literacy data for China in 1982.
- Match individual level observations from IPUMS data with prefecture-level data from the Historical China County Population Census (HCCPC) from 1982 and prefecture-level information from historical GIS data.
- Study literacy among individuals aged at least 70 in 1982 (i.e. those born before 1912). (sample = 72,658)
- Unbiased estimate of literacy rates in the late 19th and early 20th century if we control for any potential differences in survival rates between literate and illiterate individuals; and if there are limited opportunities for individuals to become literate later in life.
- Explicitly control for the age structure of a prefecture in our analysis.

Empirical Specification: Literacy Outcomes

We now examine the effect of literary inquisitions on long-run literacy outcomes.

$$\text{Literate } 1982_{i,p} = \beta_0 + \beta_1 \text{Inquisition}_p + \Lambda_p \mathbf{X}_p^H + \mathbf{X}_i + \epsilon_{i,p} \tag{4}$$

- $\mathbf{X}_p^H$ are historical controls including whether a prefecture is on the coast, had a historical courier route, agricultural suitability, and log population in 1820.
- Include a measure of social and economic activity based on prefectures identified in 1820 as important centers of transport and communication (Chong), important in business (Fan), and areas with high crime (Nan).
- $\mathbf{X}_i$ are individual level controls including gender and martial status.
- Λ_p are province fixed effects.

Long-Run Effects: Literacy Outcomes

	Dependent variable: literate or illiterate					
	(1) Logit	(2) OLS	(3) Logit	(4) Logit	(5) Logit	(6) Logit
Inquisition	-0.426**	-0.0406*	-0.349**	-0.474**	-0.522***	-0.259*
	(0.209)	(0.0217)	(0.178)	(0.199)	(0.187)	(0.152)
Historical Controls	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Socioeconomic macroregion FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Over 80 year olds	No	No	Yes	No	No	No
Population Density 1820	No	No	No	Yes	Yes	Yes
% over 65	No	No	No	No	Yes	Yes
Modern Controls	No	No	No	No	No	Yes
Observations	72658	72659	12035	72658	72658	72658
Adjusted R^2 / Pseudo R^2	0.294	0.233	0.314	0.294	0.295	0.300

Controlling for Selective Migration

- We estimate the percentage of the population who migrated to Taiwan (the main destination of migrants fleeing the communists).
- Data is from the Taiwan Family Genealogy Catalogue Database—a database that aggregates information from a range of sources, the most important of which is the Taiwan special collection maintained by the Genealogical Society of Utah.
- Number of clans (proxied by number of family trees) by prefecture who migrated to Taiwan in the late 1940s.
- Normalize our migration measure by the prefecture-level population as measured in the 1953 census.
- Distinguish between the records originally obtained from the GSU as these are more reliable from those records collected from other libraries that are also available in the Taiwan Family Genealogy Catalogue Database.
- Introducing controls for selective migration increases the size of the coefficient slightly. Implies that migration of more literate individuals biases our results towards zero in our baseline estimation.

Validity of the Selective Migration Measure

	(1) Middle School or Above	(2) Primary School or Above
Migration records	-0.175***	-0.149
	(0.0372)	(0.124)
Total Migration Records	0.0465**	0.0314
	(0.0206)	(0.0220)
Inquisition	0.131	-0.532**
	(0.320)	(0.269)
Historical Controls	Yes	Yes
Individual Controls	Yes	Yes
Socioeconomic macroregion FE	Yes	Yes
Province FE	Yes	Yes
Observations	72658	72658
Pseudo R^2	0.171	0.295

Long-Run Effects on Literacy: Control for Selective Migration

	Dependent variable: literate or illiterate						
	(1)	(2)	(3)	(4)	(5)	(6)	(
				Logit			
Migration Records	None	Certain	Log Certain	Binary Certain	Possible Certain	Log Possible	Bi Pos
Inquisition	-0.522***	-0.532***	-0.525***	-0.518***	-0.641***	-0.609***	-0.4
	(0.187)	(0.180)	(0.189)	(0.168)	(0.177)	(0.179)	(0.
Historical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Y
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Y
Socioeconomic macroregion FE	Yes	Yes	Yes	Yes	Yes	Yes	Y
Province FE	Yes	Yes	Yes	Yes	Yes	Yes	Y
Observations	72658	72658	72658	72658	72658	72658	72
Pseudo R^2	0.295	0.295	0.295	0.296	0.296	0.296	0.

Long-Run Effects of Persecutions: Infant Mortality

- Within a country we expect a economic and development characteristics to predict infant mortality.
- Conditional on these characteristics, variation in infant mortality reflects variation in local levels of health care provision
- For this reason infant mortality is widely used as a measure of local public goods provision (Zhuravskaya, 2000) and of quality of government (Ross, 2006).
- In China village health centers remain partially funded at a local level and the number and capacity of local health clinics partially reflects local organizational capacity and local funding (see Li, 1975; Babiarz et al., 2013).
- This was especially true prior to the introduction of market reforms in the 1980s.

Long-Run Effects: Infant Mortality

	(1)	(2)	(3)
	Dependent variable: infant mortality rate (%)		
Inquisition	6.760**	7.178**	5.785**
	(3.199)	(2.976)	(2.738)
%. of over 65s	No	Yes	Yes
% Agricultural Population	No	No	Yes
Output	No	No	Yes
Historical Controls	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes
Socioeconomic Macroregion FE	Yes	Yes	Yes
Province FE	Yes	Yes	Yes
Observations	72	72	72
R^2	0.840	0.843	0.899
Adjusted R^2	0.700	0.700	0.783

Long Run-Effects: Economic and Demographic Outcomes

	(1) % Employed	(2) % Industrial Employment	(3) Birth rate	(4) Death rate	(5) % over 65	(6) % under
Inquisition	-0.470	-0.932	-0.292	0.0350	-0.165	0.287
	(1.389)	(5.379)	(1.547)	(0.350)	(0.352)	(1.332)
Historical Controls	Yes	Yes	Yes	Yes	Yes	Yes
Macroregion FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	72	72	72	72	72	72
Adjusted R^2	0.719	0.481	0.601	0.715	0.594	0.668

We use two data sources:

1. Chinese General Social Survey (GGSS).
2. Chinese Political Compass (CPoC)

Chinese General Social Survey (GGSS) launched in 2003; the earliest national representative continuous survey project run by academic institutions in mainland China.

CPoC is an online survey to assess political values and beliefs in modern China. This comprises a survey 50 questions designed to elicit individual views and attitudes on politics, economics and social or cultural topics (Pan and Xu, 2015)
.

We match the IP addresses of respondents to the prefecture they live in.

Contemporary Political Outcomes: GGSS.

Table: Political Participation

	(1) Obedience to Government	(2) Voted in the Last 3 Years	(3) Uninterested in Voting
Literary inquisition	-0.282 (0.164)	-0.470*** (0.0601)	0.392*** (0.0783)
Adjusted R^2	0.122	0.171	0.0399
Observations	2449	2450	1350
Historical Controls	Yes	Yes	Yes
Modern Controls	Yes	Yes	Yes

Contemporary Political Outcomes: GGSS.

Table: Trust in Government

	(1) Trust in general	(2) Trust in central government	(3) Trust in courts	(4) Trust in People's Congress	(5) Trust in army
Mean of Dep. Var.	3.450	4.377	3.812	4.310	3.821
Literary inquisition	-0.286**	-0.616***	-0.708***	-0.418***	-0.519***
	(0.134)	(0.0440)	(0.150)	(0.102)	(0.0960)
Adjusted R^2	0.0606	0.101	0.0947	0.127	0.103
Observations	2456	2451	2447	2435	2447
Historical Controls	Yes	Yes	Yes	Yes	Yes
Modern Controls	Yes	Yes	Yes	Yes	Yes

Contemporary Political Outcomes: GGSS.

Table: Trust in Peers

	(1) Trust in classmates	(2) Trust in colleagues	(3) Trust in one's boss	(4) Trust in businessmen
Mean of Dep. Var.	3.614	3.539	3.242	2.659
Literary inquisition	-0.507*** (0.107)	-0.315*** (0.0760)	-0.409*** (0.0712)	-0.226*** (0.0647)
Adjusted R^2	0.0738	0.0732	0.0601	0.0342
Observations	2344	2328	2433	2444
Historical Controls	Yes	Yes	Yes	Yes
Modern Controls	Yes	Yes	Yes	Yes

Contemporary Political Outcomes: GGSS.

Table: Placebo Analysis: Trust in Family

	(1) Trust in Family	(2) Trust in Relatives
Mean of Dep. Var.	4.804	4.221
Literary inquisition	0.0667 (0.0584)	0.0427 (0.114)
Historical Controls	Yes	Yes
Modern Controls	Yes	Yes
Adjusted R^2	0.0337	0.0627
Observations	2453	2456

Contemporary Political Outcomes: CPoC

	Right to Vote†		Multiparty System♮		Confucian Thinking§	
	(1)	(2)	(3)	(4)	(5)	(6)
Literary Inquisition	-0.0809***	-0.0544*	-0.110***	-0.0938***	-0.145***	-0.128***
	(0.0308)	(0.0322)	(0.0278)	(0.0315)	(0.0386)	(0.0435)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Excluding Beijing	No	Yes	No	Yes	No	Yes
Observations	53491	34435	53469	34425	53502	34446
Pseudo R^2	0.011	0.010	0.008	0.008	0.031	0.035

† Q 2. People should not have the right to vote if they do not understand democracy.

♮ Q 4. Western-style multi-party systems are not suitable for China.

§ Q 43. Modern China needs to be guided by wisdom of Confucius/Confucian thinking.

Conclusions

- Literary inquisitions had a lasting impact on intellectual elites.
- This is evident in Yuan Mei's poem 'Avoiding the Heat':

  'There's no other method of avoiding the heat;
  There is a secret recipe for saving your life:
  Just stay far, far away from the crimson sun,
  Then you'll feel how cool the blue sky can be!'

  Schmidt (quoted in 2003, 371).

- Yuan Mei noted that he was 'normally . . . able to use my wits for the sake of self-preservation' but that life at court forced him into a situation where he faced a choice between his 'personal integrity' and putting his own life in danger (quoted in Schmidt, 2003).

Conclusions

- Extractive institutions can have a variety of long-lasting effects on a range of economic outcomes including human capital formation (see, for instance, Nunn and Wantchekon, 2009; Dell, 2010; Vidal-Robert, 2014).
- This paper has shown that the literary inquisition of the Qing had both a contemporaneous and a persistent effect on human capital and social capital.
- This was significant because as Parker (2013) observed:

> *'[t]he Qing thus continued to see intellectual innovation and much 'useful knowledge' as a potential threat, not a potential asset. For them, "new truths about the physical world' continued to seem 'both a symptom of, and stimulus to, the fires of doubt". Unlike rulers in northwest Europe, China's new masters refused to allow their leading scholars either freedom of expression or freedom to exchange ideas' (Parker, 2013, 667).*

Comparisons with Europe

- Europeans executed 40,000 witches and perhaps 50,000 heretics in the early modern period (Johnson and Koyama, 2013; 2014).
- European persecutions targeted scholars and thinkers: notably, Michael Servetus, Giordano Bruno, and Galileo.
- Even as late as 1697 a student at Edinburgh was executed for expressing atheist views.
- But after 1700, West Europe moved away from reliance on repression towards a more open intellectual environment.
- In China the control imposed on thinkers increased in the High Qing period. This factor should not be dismissed in discussions of the causes of the Great Divergence.

Number of Charitable Organizations: Robustness to Different Samples

Table

	N. Charitable Organizations				
	(1)	(2)	(3)	(4)	(5)
Inquisition	-1.018**	-1.454**	-0.888*	-0.734*	-2.807**
	(0.478)	(0.671)	(0.503)	(0.433)	(1.248)
Baseline Controls *Decade FE	Yes	Yes	Yes	Yes	Yes
No Charities in 1830	Yes	No	Yes	Yes	Yes
Incoming Migration	Yes	Yes	No	Yes	Yes
Strong Buddhist Presence	Yes	Yes	Yes	No	Yes
Strong Gov. Presence	Yes	Yes	Yes	Yes	No
Observations	1417	1040	1365	1157	390
Adjusted R^2	0.495	0.553	0.501	0.454	0.446

Long-run Effect: Omitting Post-Treatment Controls

	Logit			
	(1)	(2)	(3)	(4)
Inquisition	-0.522***	-0.601***	-0.438**	-0.440**
	(0.187)	(0.188)	(0.216)	(0.223)
Historical Controls	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes
Socioeconomic macroregion FE	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Chongxian	Yes	No	No	No
Treaty Ports	Yes	Yes	No	No
Courier Routes	Yes	Yes	Yes	No
Observations	72658	72658	72658	72658
Pseudo R^2	0.295	0.294	0.293	0.293

Long-Run Effects: Selective Migration and Educational Attainment

	(1) Middle School or Above	(2) Primary School or Above
Inquisition	0.131	-0.532**
	(0.320)	(0.269)
Historical Controls	Yes	Yes
Individual Controls	Yes	Yes
Socioeconomic macroregion FE	Yes	Yes
Province FE	Yes	Yes
Migration records	-0.175***	-0.149
	(0.0372)	(0.124)
Total Migration Records	0.0465**	0.0314
	(0.0206)	(0.0220)
Observations	72658	72658
Pseudo R^2	0.171	0.295

Notes: This table provides evidence for the validity of our migration variable. Historical and Individual controls are the same as in Table **??**. In all specifications robust standard errors, clustered at the city level, are reported in parentheses. There are 72 clusters. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table: Balance Table

(a) Before Matching					
Variables	N	Uuntreated	N	Treated	Difference in Means
Ming Jinishi	226	2.441	57	4.544	-2.104***
Agricultural suitability	226	-5.420	57	-4.632	-0.789***
Log 1600 population	226	12.387	57	13.273	-0.886***
N. of Courier routes	226	1.881	57	2.825	-0.944***
Ruggedness	226	5.860	57	4.176	1.684***
Other	225	0.067	57	0.000	0.067**
Northeast China	225	0.004	57	0.000	0.004
North China	225	0.120	57	0.140	-0.020
Northwest China	225	0.147	57	0.088	0.059
Upper Yangzi	225	0.089	57	0.018	0.071*
Middle Yangzi	225	0.120	57	0.211	-0.091*
Lower Yangzi	225	0.093	57	0.246	-0.152***
Southeast Coast	225	0.053	57	0.140	-0.087**
Lingnan	225	0.107	57	0.158	-0.051

Table: Balance Table

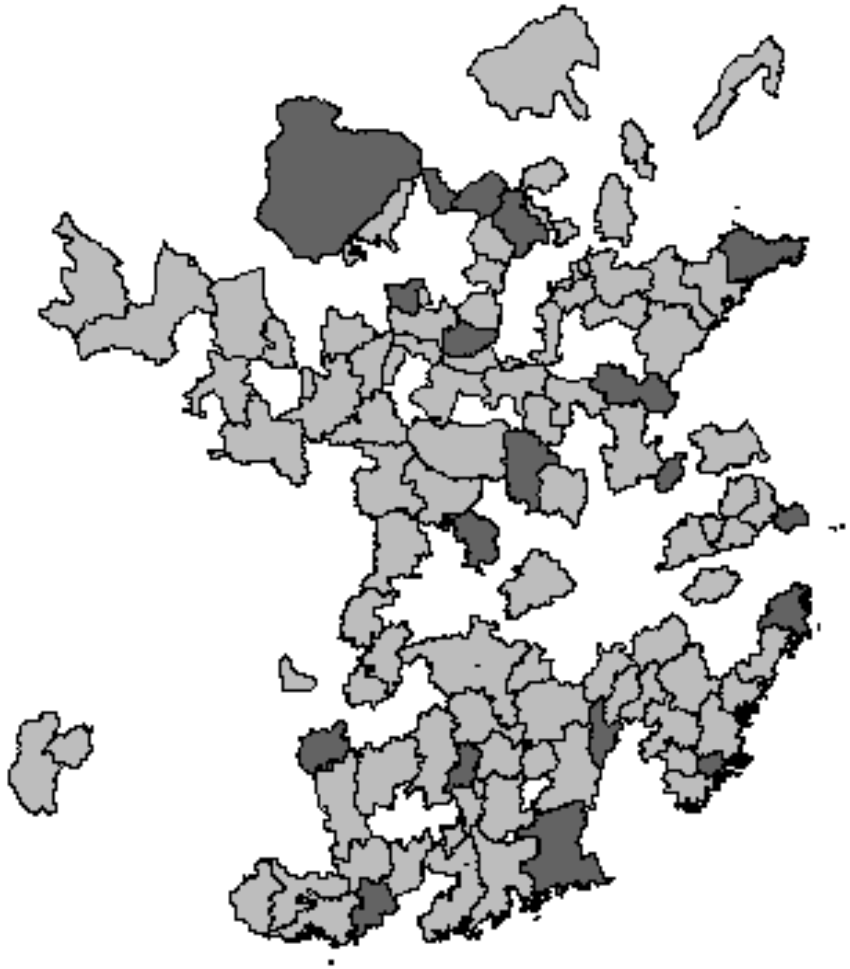
	(b) Before Matching, Excluding In-Migration				
Variables	N	untreated	N	Treated	Difference in Means
Ming Jinishi	179	2.547	56	4.539	-1.992***
Agricultural suitability	179	-5.492	56	-4.643	-0.849***
Log 1600 population	179	12.351	56	13.281	-0.930***
N. of Courier routes	179	1.933	56	2.857	-0.924***
Ruggedness	179	5.465	56	4.159	1.306**
Other	178	0.084	56	0.000	0.084**
Northeast China	178	0.006	56	0.000	0.006
North China	178	0.152	56	0.143	0.009
Northwest China	178	0.185	56	0.089	0.096*
Upper Yangzi	178	0.034	56	0.018	0.016
Middle Yangzi	178	0.124	56	0.214	-0.091*
Lower Yangzi	178	0.084	56	0.232	-0.148***
Southeast Coast	178	0.067	56	0.143	-0.075*
Lingnan	178	0.135	56	0.161	-0.026

Table: Balance Table

		(b) After Matching			
Variables	N	Untreated)	N	Treated	Difference in Means
Ming Jinishi	90	3.786	19	3.828	-0.042
Agricultural suitability	90	-4.944	19	-5.211	0.266
Log 1600 population	90	12.946	19	12.882	0.065
N. of Courier routes	90	2.400	19	2.263	0.137
Other	90	0.000	19	0.000	0.000
Northeast China	90	0.000	19	0.000	0.000
North China	90	0.189	19	0.105	0.084
Northwest China	90	0.144	19	0.211	-0.066
Upper Yangzi	90	0.022	19	0.053	-0.030
Middle Yangzi	90	0.167	19	0.105	0.061
Lower Yangzi	90	0.133	19	0.105	0.028
Southeast Coast	90	0.122	19	0.158	-0.036
Lingnan	90	0.189	19	0.263	-0.074

Return

Matched Sample



Prefectures with Persecutions---Matched Sample

Return

Number of charitable organizations: Analysis with Additional Controls

	N. Charitable Organizations					
	(1)	(2)	(3)	(4)	(5)	(6)
Inquisition	-1.018**	-0.998**	-0.980**	-1.104**	-1.049**	-3.991***
	(0.478)	(0.481)	(0.451)	(0.495)	(0.476)	(1.431)
Decade FE	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Controls *Decade FE	Yes	Yes	Yes	Yes	Yes	Yes
Ag Suitability*Decade FE	No	Yes	No	No	No	Yes
Distance to Grand Canal/Yangtze*Decade FE	No	No	Yes	No	No	Yes
Distance to Coast*Decade FE	No	No	No	Yes	No	Yes
Guangdong*Decade FE	No	No	No	No	Yes	Yes
Observations	1417	1417	1417	1417	1417	2289
Adjusted R^2	0.495	0.500	0.502	0.499	0.495	0.497

Return

Number of charitable organizations: Analysis with Conflict, Disaster and Human Capital controls

	N. Charitable Organizations				
	(1)	(2)	(3)	(4)	(5)
Inquisition	-1.018**	-0.862*	-1.056**	-0.996**	-0.896*
	(0.478)	(0.447)	(0.489)	(0.469)	(0.461)
Baseline Controls *Decade FE	Yes	Yes	Yes	Yes	Yes
Disaster intensity*Decade FE	No	Yes	No	No	Yes
N. conflicts*Decade FE	No	No	Yes	No	Yes
N. Jinishi*Decade FE	No	No	No	Yes	Yes
Observations	1417	1339	1308	1417	1236
Adjusted R^2	0.495	0.489	0.501	0.496	0.494

Return

Number of Charitable Organizations: Robustness to Different Samples

	N. Charitable Organizations				
	(1)	(2)	(3)	(4)	(5)
Inquisition	-1.018**	-1.454**	-1.422*	-0.888*	-0.734*
	(0.478)	(0.671)	(0.750)	(0.503)	(0.433)
Baseline Controls *Decade FE	Yes	Yes	Yes	Yes	Yes
No Charities in 1830	Yes	No	Yes	Yes	Yes
No Charities in 1750	Yes	Yes	No	Yes	Yes
Incoming Migration	Yes	Yes	Yes	No	Yes
Strong Buddhist Presence	Yes	Yes	Yes	Yes	No
Observations	1417	1040	910	1365	1157
Adjusted R^2	0.495	0.553	0.575	0.501	0.454

Return

Number of charitable organizations: 50 year time periods

	N. Charitable Organizations		New Charitable Organizations	
	(1)	(2)	(3)	(4)
Inquisition	-4.269***	-4.359***	-2.446**	-2.536***
	(1.406)	(1.406)	(0.946)	(0.937)
Baseline Controls *Decade FE	No	Yes	No	Yes
Baseline Controls *50 Year Time Trend	No	Yes	No	Yes
Observations	545	545	545	545
Adjusted R^2	0.461	0.464	0.333	0.324

50 year periods. Notes: Column (1) presents the baseline specification which includes our baseline controls interacted with decade fixed effects. Baseline controls include Ming Jinishi, socioeconomic macro regions, latitude and longitude. Columns (2) drops locations which have no charities in 1830. Column (3) drops locations with incoming migrants. In Column (4) we omit locations with a large number of Buddhist temples. Column (4) drops all locations which are recorded as having a strong government presence (chong=0). In all specifications, standard errors, clustered at the prefectural level, are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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Return

No Effect on Number of Academies

	(1)	(2)	(3)	(4)	(5)
	Number of Academies				
Inquisition	0.216	-0.0427	0.119	0.0266	0.0424
	(0.589)	(0.409)	(0.433)	(0.465)	(0.434)
Decade FE	Yes	Yes	Yes	Yes	Yes
Initial Pop*Decade FE	Yes	Yes	Yes	Yes	Yes
N. Ming Jinishi*Decade FE	No	Yes	Yes	Yes	Yes
Socioeconomic Region*Decade FE	No	Yes	Yes	Yes	Yes
Latitude & Longitude*Decade FE	No	No	Yes	Yes	Yes
Two-way Clustered S.E's	No	No	No	Yes	No
Lag N. Charitable Organizations	No	No	No	No	Yes
Observations	1417	1417	1417	1300	1300
Adjusted R^2	0.604	0.707	0.709	0.709	0.961

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Return

Friends From Afar:

Migration, Cultural Proximity and Primary Schooling in the Lower Yangzi, 1850-1949

Yu Hao[1] Melanie Meng Xue [2]

[1]Peking University

[2]UCLA Anderson School of Management

- Cultural distance impedes public goods provision.
- War events introduced exogenous variation in cultural distance.
- Use a unique historical dataset of surnames to construct a measure of cultural distance between migrants and natives (MNCD).
- A one-standard-deviation increase in MNCD is associated with a decrease of over 30% in primary school enrollment rate.

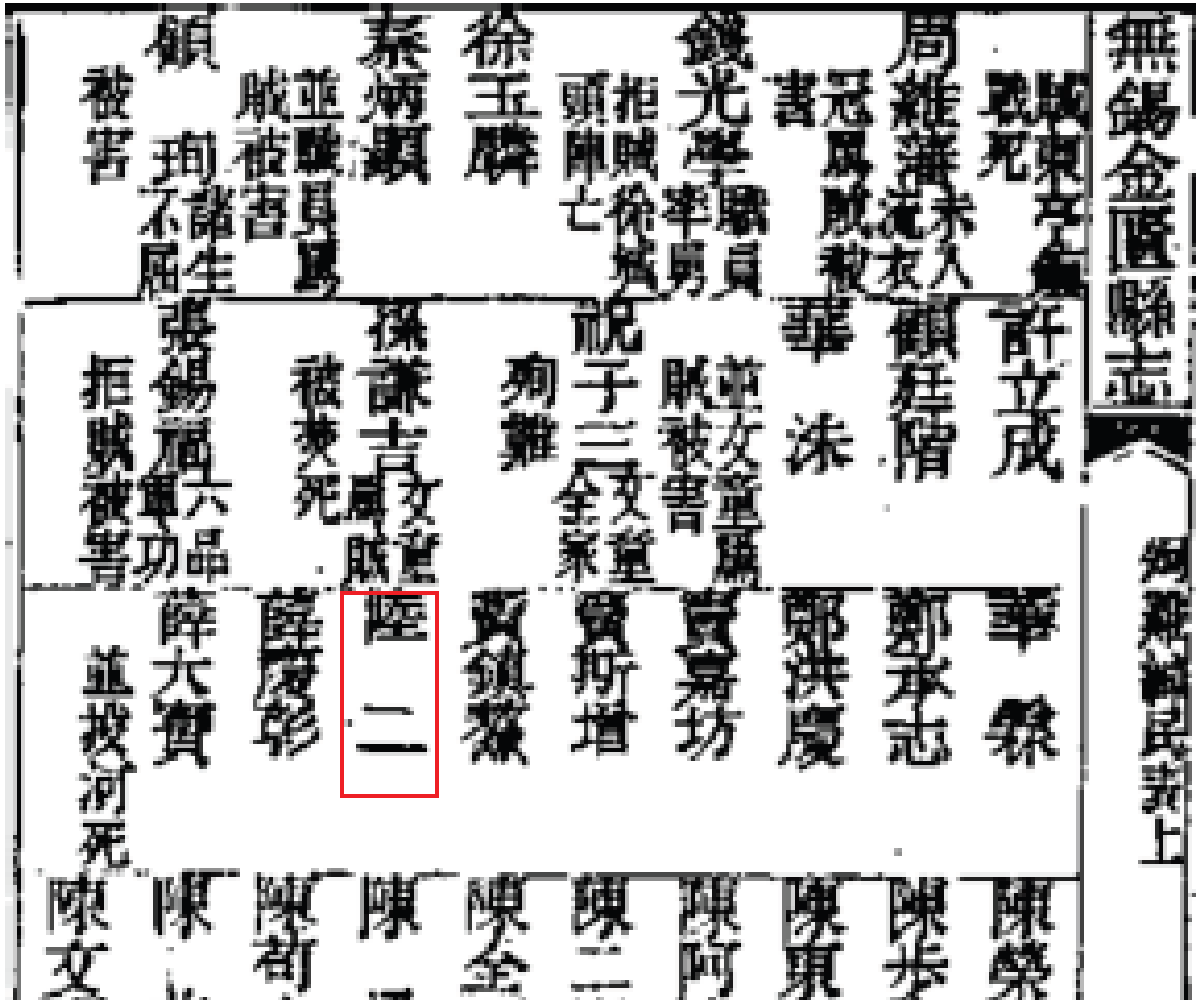
Our independent variable is the cultural distance between natives and migrants. We rely on surname data to construct our measure. To be specific, we use differences in the surname mix to proxy for the cultural distance between migrants and natives:

$$MNCD_i = \frac{1}{\sum_k^S P_{k,native,i} P_{k,overall,i}} , \tag{5}$$

where S is the number of surnames in the two groups. $P_{k,native,i}$ and $P_{k,overall,i}$ are the relative frequencies of surname k within natives and within the overall population. The denominator measures how likely any individual randomly drawn from within natives bears the same surname as one drawn from within the overall population; *MNCD* captures how culturally dissimilar natives and migrants were.

1850 surname distribution: dead persons during Taiping Rebellion recorded by county gazetteers compiled in late Qing and early Republic

太平天国忠烈姓名录、寿民录、列女, 100,000



1900 surname
recorded by cou

各县新地方志革命

一、武进县

雪堰乡：

王建平	朱荣生	
吕曙光	吴云程	
秦锦秋	秦正祥	
黄金达	蒋锦良	

潘家乡：

王永金	王荣芳	
邵玉明	任进元	
张世根	陆阿富	
潘德芳	岳玉惠	
姚金生	田锦林	

漕桥乡：

王金根	王炳章	
朱芝轩	朱坤生	
许氏荣	余山富	
陈志荣	陈世根	
金培根	周氏大	
钟翁降(女)	赵洗降	
唐荣宜	诸金生	
蒋永生	雷洪金	

南宅乡：

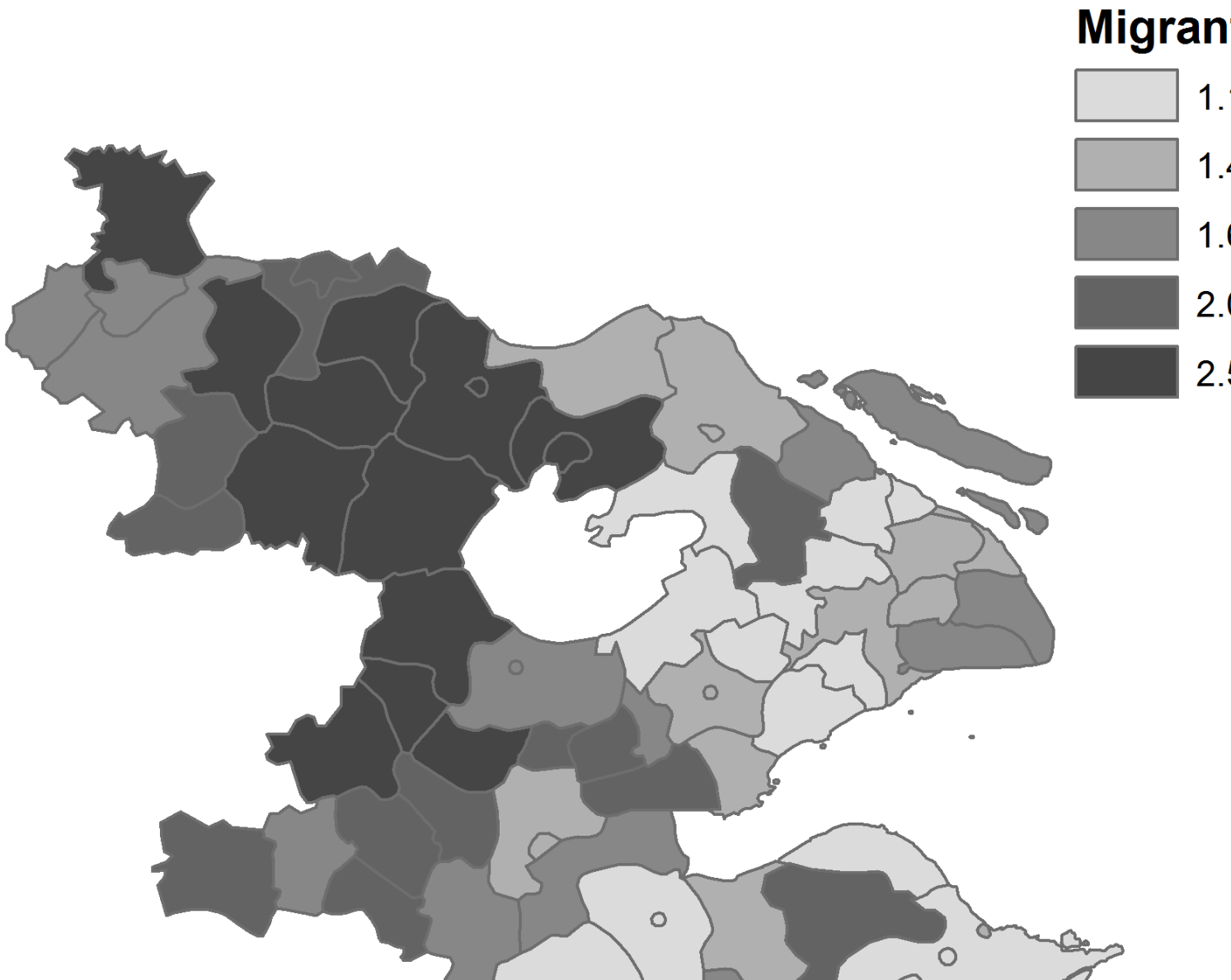

Migran
1.
1.
1.
2.
2.

Table: The Impact of of Migrant-Native Cultural Distance: Main Specification

	(1)	(2)	(3)	(4)	(5)
	Log Primary Enrollment				
MNCD	-0.339***	-0.332***	-0.323***	-0.317***	-0.292***
	(0.062)	(0.069)	(0.065)	(0.074)	(0.066)
Log population		0.031	-0.056	-0.078	-0.090
		(0.129)	(0.127)	(0.122)	(0.095)
Urbanization			0.009***	0.009**	0.009**
			(0.003)	(0.004)	(0.004)
Log primary enrollment 1880				0.156	0.265
				(0.390)	(0.381)
Observations	54	54	54	54	60
Adjusted R^2	0.251	0.238	0.269	0.257	0.263

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