Capital Markets and Colonial Institutions in China

Wolfgang Keller¹ and Carol H. Shiue²

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Impact of Foreign Influence in China in 19th century?

Negative economic impact

E.g., crowding out of local firms

Positive economic impact

E.g., new machinery & technology

Scope: Limited b/o no more than a few dozen treaty ports



Geographic Scope of Foreign Effect



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This Paper

Outcome variable: Regional interest rates, 1821 to 1900

- About 240 prefectures, annual frequency
- ► Difference-in-differences: interest rate regressed on foreign impacts
 - Treaty port and customs opening
 - Foreign consulates opening
 - Extraterritoriality: Foreigners not subject to Chinese law
 - Interest rates w/ storage cost approach (Keller, Shiue, Wang; McCloskey-Nash; Kaldor; Working)

► Variation: Across Chinese regions, over time, by foreign country

Regional Variation in Foreign Legal Effects



Estimation Equation & Initial Results

$$i_{igt} = \beta_1 Bank_{it} + \beta_2 FDI_{it} + \beta_3 TreatyPort_{it} + \beta' X + \varepsilon_{igt}$$

Subscript *i* is prefecture, *t* is year, *g* is grain; Ø $i_{igt} = 7.4\%$

X: year FE, prefecture-grain FE (clustered s.e.); N = 88,397

	(1)	(2)	(3)
Domostic Pank	0.180	0.200	0.212
Domestic Balk	(0.176)	(0.189)	(0.189)
Foreign Pank	-1.124^{*}	0.330	0.501
Foreigh Ballk	(0.449)	(0.337)	(0.339)
Familian Diseast Investment	0.102	-0.324*	0.122
Foreign Direct Investment	(0.176)	(0.143)	(0.157)
T , D ,			-1.952^{**}
Treaty Port			(0.359)
Prefecture-Grain FE		Y	Ŷ

Institutions. Little Evidence for Supply Increase



Threats to Identification

	Baseline	Pre-Trends	Geo-Shocks	Selection
Treaty Port or Consulate	-1.645	-1.545	-1.275	-1.781
Treaty Port or Consulate x Pre – Trend		0.007		
Year, Prefecture-Grain FE Geography-Time Shocks		Y	Y Y	Y Y

- ▶ (1) Pre-1842 interest rate trends, (2) Area x decade FE: no change
- Selection? Inverse-probability weighted RA
 - Score: Pop. 1776, Pop. growth 1776-1820, Yangzi & Pearl River, North & South Coast, Yangzi Delta

Which Foreign Institutions Matter Most?

	(1)	(2)	(3)	(4)
Maritime Customs	-1.399	-0.153		
Treaty Port		-1.441	0.656	
Consulate			-2.876	-2.380
N	88,937	88,937	88,937	88,937

Treaty Port open > Customs operations

- Consulate > Treaty Port
 - Legal Institutions Effect > Trade Institutions Effect

Quantifying Extraterritoriality - 4 Dimensions, 17 Countries



Unpacking Legal Mechanisms

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	(1)	(2)	(3)	(4)
Right to Appeal	-0.440			
No Limits to Cases		-0.808		
Prisons			-0.585	
Foreign Assessor				0.206
Consulate	-2.754	-2.000	-2.258	-3.439

Sum of indicators over 17 countries

- [Country Consulate Open] x Country Indicator
- No Limits to Cases: most important

Maximum Extraterritorial Influence

	(1)	(2)
Maximum Legal Influence	-1.235	-0.687
Consulate	1.601	
Treaty Port	0.650	

- Number of Maximum values in prefecture x year
 - Countries w/ Maximum Indicators: Britain, Sweden, Japan, US, Japan, and France
- ► The stronger is extraterritoriality, the lower is local interest rate

Scope of Foreign Influence - Geography

$$i_{igt} = \beta_1 For_{it} + \sum_d \beta^d For_{it}^d + \beta' X + \varepsilon_{igt}$$

- Foreign influence on prefecture i in distance band d
 - Think sequence of 'donuts' at distance d from prefecture i centroid away
- ► If geographic spillovers exist, foreign effect before is not total effect





Conclusions

Western foreign influence reduced regional interest rates

- Mostly institutions effect
 - Not capital supply
- Legal Institutions Effect > Trade Institutions Effect
 - A new focus for quantitative research: Extraterritoriality
 - Stronger foreign legal presence => lower interest rate
- Western foreign influence affected major part of China

Related Literature

- Sign of Economic Impact:
 - Negative: Extractive Colonialism (Acemoglu, Johnson, Robinson), World Systems (Wallerstein), Official Chinese accounts
 - Positive: Modernization (Weber, Parsons)

Nature of impact:

- Size: Small b/o few, insulated 'foreign places' (Rawski 1970, Fairbank 1978, Feuerwerker 1983, So-Myers 2011)
- In terms of: Trade (Fairbank, Feuerwerker, Keller, Li, Shiue)
 - Modern industry (Bai and Kung 2015), Pop. growth (Jia 2014)

Mechanisms

- Ports & Trade: Fairbank (1978)
- Protestantism: Bai and Kung (2015)
- Institutional-Legal: So-Myers (2011)



Chinese Prefectures and Provinces in 1820



Evolution of Consulate Services and Courts



Treaty Port versus Operating Customs in 1860





Carry Costs by Ever Foreign Influence



Interest Rate Averages over Time



Geographic Scope of Legal Institutions

	(1)	(2)	(3)	(4)
Consulate	-2.380** (0.363)	-2.529** (0.375)	-2.538** (0.376)	-2.538** (0.376)
Consulate (0, 200 km)		-2.180** (0.258)	-2.221** (0.262)	-2.216** (0.266)
Consulate (200, 400 km)			0.525** (0.185)	0.525** (0.185)
Consulate (400, 600 km)	0.197	0.200	0.200	0.200

Foreign Firms in China, 1891

	US	AUS	BEL	BRI	DEN	\mathbf{FRA}	GER	ITA	$_{\rm JP}$	POR	RUS	\mathbf{SPA}	SWE	Total
Newchang				4	1									5
Tientsin	- 3			16	1	5	15		3		3			46
Chefoo				5			2		1					8
Chunking	1			4										5
Ichang	1			4										5
Hankow	4			12		1	6		1		4			27
Kiukiang				4							2			6
Wuhu				4					2					6
Chinkiang	1			7										8
Shanghai	12	4	1	175	1	15	40	4	21	3	1	2	1	280
Ningpo	2			3		1	1							7
Foochow	2			33			2		2	1	2			42
Amoy	1			22			3		1	1		1		29
Swatow				4			1							5
Canton	1			35		2	8			1		2		47
Samshui				12	1		2			1				18
Kiungchow				1			1							2
Pakhoi				0			1							1
Total	27	4	1	345	4	24	82	4	31	7	12	5	1	547

Storage Cost Approach



- Estimating interest rate w/ monthly grain price gradient
- ► Grain prices (Jacks) to Bank rates (Bodenhorn-Rokoff) 19th c US
 - Correlation = 0.80 (Keller, Shiue, and Wang Cliometrica 2020)

Monthly Grain Prices in the Data - Guilin Prefecture



- Compare interest rates & capital markets across countries
 - China vs Britain, 1770 1860: w/ Wang 2020 AEJ: Applied Economics

Seasonal Grain Prices in NYC, 1825-34



Averaging reduces effect of idiosyncratic noise

Physical Storage Costs using Weather Data



Weather Shocks Affecting Storage Costs

Weather	Mean Carry Cost
Very Wet	7.37
Wet	7.07
Normal	6.83
Dry	7.23
Very Dry	8.52

Notes: Table shows mean carry cost for different weather conditions. N = 88,937. Source of weather data is State Meteorological Society (1981). Carry costs adjusted for year, prefecture x grain, and area-by-decade fixed effects.

Robustness I

	Baseline	High Prices	Low Prices	High + Low Prices	Mid Prices	Time	Rice	Wheat
Foreign Institution	-1.781^{**} (0.357)	-2.035^{**} (0.533)	-1.903^{**} (0.637)	-1.998^{**} (0.430)	-1.351^{*} (0.643)	-1.978^{**} (0.398)	-2.089^{**} (0.461)	-1.510^{*} (0.718)
Foreign Institution x 1860/70						$\begin{array}{c} 0.949 \\ (0.635) \end{array}$		
Foreign Institution x 1870/90						$\begin{array}{c} 0.454 \\ (0.488) \end{array}$		
$For eign Institution \\ x 1890/1900$						-0.284 (0.539)		
Ν	88,937	29,539	28,910	58,449	30,488	88,937	47,194	11,962

The Role of Individual Foreign Countries

	AUS	BEL	BRA	DEN	FRA	GER	ITA	$_{\rm JP}$	MX	NL	NOR	POR	RUS	SPA	SWE	US	UK
Max Legal Influence	-1.43	-1.22	-1.25	-1.41	-1.12	-1.75	-1.31	-0.87	-1.22	-1.76	-1.17	-1.38	-1.53	-1.37	-1.19	-1.25	-1.37
Country	0.64	-0.18	0.78	2.27	2.28	2.39	0.84	-1.28	-1.79	2.70	-0.26	1.84	3.18	1.38	-0.21	0.10	0.68

- No single foreign country responsible for findings
 - Regressions also include Consulate indicator
 - Max Legal Influence coefficient: -1.24 (robust s.e. 0.40)

Treaty Ports and GDP/Capita - Jia (2014)

