The Impact of the Chinese Exclusion Act on the Economic Development of the Western U.S.

Joe Long RIPL

Nancy Qian Northwestern University, NBER Carlo Medici Brown University

Marco Tabellini Harvard Business School, NBER

October 2024

Motivation

- Demand for immigration restrictions is on the rise in many countries
 - Often motivated by both economic and cultural concerns
 - Not a new phenomenon: many historical examples

Motivation

- Demand for immigration restrictions is on the rise in many countries
 - Often motivated by both economic and cultural concerns
 - Not a new phenomenon: many historical examples
- What are the economic effects of immigration restrictions?
 - For native workers and for the overall economy

Motivation

- Demand for immigration restrictions is on the rise in many countries
 - Often motivated by both economic and cultural concerns
 - Not a new phenomenon: many historical examples
- What are the economic effects of immigration restrictions?
 - For native workers and for the overall economy

Answer depends on

- Complementarity b/w (restricted) immigrants and natives (Card, 1990; Borjas, 2003; Peri&Sparber, 2009)
- Economy's endogenous response to replace restricted immigrants
 - Automation, technology adoption, and changes in input mix (Lewis, 2011; Hornbeck&Naidu, 2014; Lafortune et al., 2019)
 - Labor mobility of natives and unrestricted workers (Dustmann et al., 2017; Abramitzky et al., 2023)

This Paper

- Study the economic effects of the 1882 Chinese Exclusion Act
 - First immigration ban based on ethnicity or race in US history
 - Banned all Chinese laborers from entering (or re-entering) the US
 - Stopped inflows and increased outflows

This Paper

- Study the economic effects of the 1882 Chinese Exclusion Act
 - First immigration ban based on ethnicity or race in US history
 - Banned all Chinese laborers from entering (or re-entering) the US
 - Stopped inflows and increased outflows
- Difference-in-differences (DD): compare Western counties
 - With high vs low 1880 Chinese population shares
 - Before and after the Act
- Hold constant county time invariant and state time varying factors
 - Allow for differential trends along important characteristics
 - Test parallel trends assumption

Related Literature

Economic effects of immigration

- Moser et al. (2014); Terry et al. (2022); Bernstein et al. (2022)
- Sequeira et al. (2020); Peters (2023)
- Card (2001); Borjas (2003); Borjas & Doran (2012); Monras (2019)
- → Study sudden and large (negative) labor supply shock

Related Literature

Economic effects of immigration

- Moser et al. (2014); Terry et al. (2022); Bernstein et al. (2022)
- Sequeira et al. (2020); Peters (2023)
- Card (2001); Borjas (2003); Borjas & Doran (2012); Monras (2019)
- \rightarrow Study sudden and large (negative) labor supply shock

Immigration restrictions and population expulsions

- Clemens et al. (2018); Moser et al. (2020); Abramitzky et al. (2023)
- Grosfeld et al. (2013); Chaney & Hornbeck (2016); Lee et al. (2023)
- → Study first US immigration restriction based on race/ethnicity

Related Literature

Economic effects of immigration

- Moser et al. (2014); Terry et al. (2022); Bernstein et al. (2022)
- Sequeira et al. (2020); Peters (2023)
- Card (2001); Borjas (2003); Borjas & Doran (2012); Monras (2019)
- → Study sudden and large (negative) labor supply shock

Immigration restrictions and population expulsions

- Clemens et al. (2018); Moser et al. (2020); Abramitzky et al. (2023)
- Grosfeld et al. (2013); Chaney & Hornbeck (2016); Lee et al. (2023)
- \rightarrow Study first US immigration restriction based on race/ethnicity

Consequences of the Chinese Exclusion Act

- Chen (2015); Chen and Xie (2020); Hoi (2023)
- → Study medium- and long-run consequences on all workers and economy

Outline

- Historical Background
- ② Data
- Empirical Strategy
- Results
- Mechanisms
- Conclusions

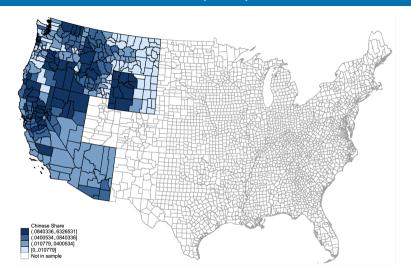
Outline

- **1** Historical Background
- Oata
- Empirical Strategy
- Results
- Mechanisms
- Conclusions

Chinese Immigration

- First Chinese immigrants arrived during the California Gold Rush (1848-1855)
- By 1880, more than 300,000 Chinese had moved to the US
- The Chinese were about 1.5% of all US immigrants in 1880
- Concentrated in the West: 7% of population, but 12% of labor force

Chinese Immigrants in the US West (1880)





Chinese Workers and the US Western Economy

- Early immigrants employed in mining and railroad construction
- Many Chinese immigrants worked in extractive industries
- Not only laborers: often brought skills and know-how
- Gradually, Chinese immigrants entered more sectors (e.g., services and manufacturing)

Share of Chinese and white workers in main industries

Widespread Support for Chinese Exclusion



A nation has a right to do everything that can secure it from threatening danger and to keep at a distance whatever is capable of causing its ruin.

H. N. Clement, California State Senate Committee, 1876

Chinese Exclusion Advocated by Labor Unions

MEAT vs. RICE

American Manhood against Asiatic Coolieism

WHICH SHALL SURVIVE?

SAMUEL GOMPERS AND HERMAN GUTSTADT

Published by American Federation of Labor

[T]he experience of the last thirty years in California and on the Pacific coast [has] proved conclusively that the presence of Chinese and their competition with free white labor is one of the greatest evils with which any country can be afflicted.

Founding convention of the Federation of Organized Trades (precursor of AFL), 1881

The Chinese Exclusion Act

- Growing hostility during the 1870s
 - Economic concerns and scapegoating
 - Xenophobia and cultural backlash

The Chinese Exclusion Act

- Growing hostility during the 1870s
 - Economic concerns and scapegoating
 - Xenophobia and cultural backlash
- Chinese Exclusion Act passed in 1882
 - Nationwide ban of Chinese laborers
 - Re-entry was also banned in 1884
- Initially introduced for 10 years, then made permanent in 1902
- US later introduced additional restrictions to other immigrant groups
- Chinese Exclusion Act repealed in 1943. Quotas remained in place until 1965

Reactions to the Chinese Exclusion Act

I am satisfied the present Chinese labor invasion (it is not in any proper sense immigration – women and children do not come) is pernicious and should be discouraged.

Rutherford B. Hayes, 19th US President, 1879

Reactions to the Chinese Exclusion Act

I am satisfied the present Chinese labor invasion (it is not in any proper sense immigration – women and children do not come) is pernicious and should be discouraged.

Rutherford B. Hayes, 19th US President, 1879

Without Chinese labor we would be thrown back in all the branches of industry, farming, mining, reclaiming lands, and everything else.

Charles Crocker, president of Southern Pacific Railroad, 1882

Outline

- Historical Background
- O Data
- Empirical Strategy
- Results
- Mechanisms
- Conclusions

Data

- Full count US population censuses (1850-1940)
- Complemented with other sources
 - Census of Manufacturing
 - Historical, Demographic, Economic and Social Data
- Unit of observation: county-decade
 - Western states w/ Chinese population share above 1%
 (Arizona, California, Idaho, Montana, Nevada, Oregon, Washington, Wyoming)
 - Whenever possible, analysis from 1850 to 1940
 - However, many variables available after 1860, with gaps

Outline

- Historical Background
- Oata
- Empirical Strategy
- Results
- Mechanisms
- Conclusions

Empirical Strategy

• Focus on Western states over 1850-1940. Estimate:

$$y_{ct} = \alpha_c + \delta_{st} + \beta \left(Ch_c^{1880} \times POST_t \right) + X_{ct} + u_{ct}$$

Empirical Strategy

• Focus on Western states over 1850-1940. Estimate:

$$y_{ct} = \alpha_c + \delta_{st} + \beta \left(Ch_c^{1880} \times POST_t \right) + X_{ct} + u_{ct}$$

- y_{ct}: outcome for county c in decade t
- Ch_c^{1880} : dummy for 1880 Chinese share above median
- $POST_t$: dummy for years after 1882
- α_c and δ_{st} : county and state by decade fixed effects
- X_{ct} : county controls interacted w/ decade dummies
 - Number of years since railroad connection (pre-1882)
 - Dummy for mine presence before 1882
- Standard errors clustered at the county level
 - Robust to alternatives (e.g., Conley)

Identifying Assumption and Threats to Empirical Design

• Identifying assumption: parallel trends

Identifying Assumption and Threats to Empirical Design

- Identifying assumption: parallel trends
- Main concern: 1880 Chinese share correlated w/ other factors
 - Employment share in agriculture, manufacturing, etc.
 - Presence of mines or railroads
 - European (and other immigrant) population share

Identifying Assumption and Threats to Empirical Design

- Identifying assumption: parallel trends
- Main concern: 1880 Chinese share correlated w/ other factors
 - Employment share in agriculture, manufacturing, etc.
 - Presence of mines or railroads
 - European (and other immigrant) population share
- Test for pre-trends
- Interact year dummies w/ many 1880 controls
- Run placebo exercises using non-Western US

Outline

- Historical Background
- Oata
- Empirical Strategy
- Results
 - 4.1 Population and Labor Supply
 - 4.2 Manufacturing
 - 4.3 Dynamic Effects
 - 4.4 Robustness Checks
- Mechanisms
- Conclusions

Drop in Chinese Population and Labor Supply

	Dependent Variable: Log ($\#$ of individuals $+$ 1)		
	Population (1)		
Post x High Chinese Share	-0.92 (0.18)		
bservations	2,688		
hinese Industry Share ep. Var. mean (sample) in 1880	204.2 357.9		

↓ 60% population

Drop in Chinese Population and Labor Supply

	Dependent Variable: Log ($\#$ of individuals $+$ 1)				
	Labor Supply (males age 15-64) by Sector				y Sector
	Population (1)	All Workers (2)	Mining (3)	Manufacturing (4)	Transportation (5)
Post x High Chinese Share	-0.92 (0.18)	-1.03 (0.17)	-0.90 (0.13)	-0.16 (0.09)	-0.17 (0.07)
Observations	2,688	2,401	2,401	2,401	2,401
Chinese Industry Share Dep. Var. mean (sample) – in 1880	204.2 357.9	0.615 131.7 318	0.338 24.59 75.71	0.186 11.47 35.02	0.112 3.539 13.94

 $[\]downarrow$ 60% population



Effects on Skill Composition

^{↓ 64%} labor supply

Slowdown in White Population and Labor Supply

		Dependent Variable: Log ($\#$ of individuals $+$ 1)
	Population (1)	
Post x High Chinese Share	-0.24 (0.13)	
Obs. Chinese Industry Share	2,689	
Dep. Var. Mean (Sample) – in 1880	14,891 4,126	

 \downarrow 21% population

Slowdown in White Population and Labor Supply

	Dependent Variable: Log ($\#$ of individuals $+$ 1)				
	Labor Supply (males age 15-64) by Sector				by Sector
	Population (1)	All Workers (2)	Mining (3)	Manufacturing (4)	Transportation (5)
Post x High Chinese Share	-0.24 (0.13)	-0.34 (0.14)	-0.48 (0.19)	-0.27 (0.16)	-0.43 (0.15)
Obs. Chinese Industry Share Dep. Var. Mean (Sample)	2,689 14,891	2,401 0.615 5.179	2,401 0.338 268.4	2,401 0.186 892.3	2,401 0.112 529.9
- in 1880	4,126	1,503	147.7	153.2	109.1

 $[\]downarrow$ 21% population

^{↓ 28%} labor supply

Outline

- Historical Background
- Oata
- Empirical Strategy
- Results
 - 4.1 Population and Labor Supply
 - 4.2 Manufacturing
 - 4.3 Dynamic Effects
 - 4.4 Robustness Checks
- Mechanisms
- Conclusions

Slower Growth in Manufacturing

	Dependent Variable		
	Log (Output) (1)		
Post x High Chinese Share	-0.97 (0.38)		
Obs.	744		
Dep. Var. Mean (sample) – in 1880	262,616 36,678		

 \downarrow 62% total output

Slower Growth in Manufacturing

	Dependent Variable		
	Log (Output) (1)	Log (Output per Worker) (2)	
Post x High Chinese Share	-0.97 (0.38)	-0.10 (0.12)	
Obs.	744	672	
Dep. Var. Mean (sample) – in 1880	262,616 36,678	95 79.79	

 \downarrow 62% total output \downarrow 10% productivity (noisily estimated)

Slower Growth in Manufacturing

		Depender	nt Variable	
	Log (Output) (1)	Log (Output per Worker) (2)	Log (# Firms) (3)	# Firms (Poisson) (4)
Post x High Chinese Share	-0.97 (0.38)	-0.10 (0.12)	-0.78 (0.25)	-1.16 (0.62)
Obs.	744	672	768	768
Dep. Var. Mean (sample) – in 1880	262,616 36,678	95 79.79	122.7 71.76	122.7 71.76

^{↓ 62%} total output

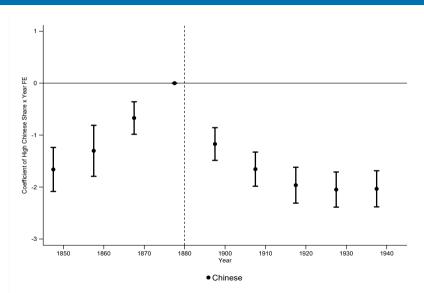
^{↓ 10%} productivity (noisily estimated)

^{↓ 54–69%} establishments

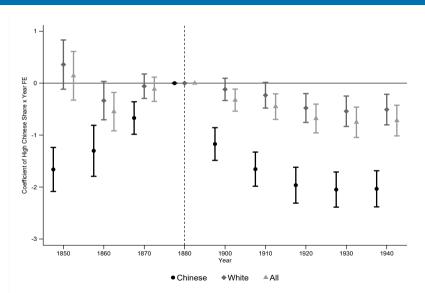
Outline

- Historical Background
- Oata
- Empirical Strategy
- Results
 - 4.1 Population and Labor Supply
 - 4.2 Manufacturing
 - 4.3 Dynamic Effects
 - 4.4 Robustness Checks
- Mechanisms
- Conclusions

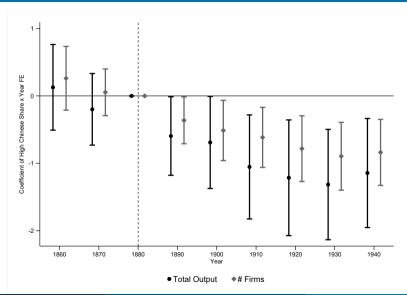
Dynamic Effects: Labor Supply



Dynamic Effects: Labor Supply



Lower Growth in Manufacturing



Outline

- Historical Background
- Oata
- Empirical Strategy
- Results
 - 4.1 Population and Labor Supply
 - 4.2 Manufacturing
 - 4.3 Dynamic Effects
 - 4.4 Robustness Checks
- Mechanisms
- Conclusions

No Spillovers Within the West

		Depende	nt Variable: Log	(X + 1)	
	Chinese Labor (1)	White Labor (2)	Total Labor (3)	Total Output (4)	# Firms (5)
			A. Full Sample		
Post \times High Chinese Share	-0.70	-0.26	-0.36	-0.96	-0.77
	(0.23)	(0.16)	(0.16)	(0.41)	(0.25)
Post x HCS in Border Counties	-0.68	-0.11	-0.15	-0.03	-0.07
	(0.24)	(0.17)	(0.17)	(0.39)	(0.25)
Obs.	2,380	2,380	2,380	736	760
Dep. Var. Mean (sample)	105.6	4,804	5,106	224,545	98.30
– in 1880	256.5	1,274	1,542	14,392	41.24
	E	3. Counties with	Chinese Share <	Sample Median	
Post \times HCS in Border Counties	-0.59	-0.20	-0.24	-0.03	0.01
	(0.24)	(0.20)	(0.20)	(0.41)	(0.32)
Obs.	1,154	1,154	1,154	368	368
Dep. Var. Mean (sample)	41.71	5,564	5,851	261,255	117.6
– in 1880	50.15	851.5	908.2	7,414	32.07

No evidence of reallocation \implies aggregate decline in US West

• Would growth in high-Chinese share counties have declined anyway?

- Would growth in high-Chinese share counties have declined anyway?
- Use counties outside the West to perform a placebo exercise

- Would growth in high-Chinese share counties have declined anyway?
- Use counties outside the West to perform a placebo exercise
- LASSO: identify variables that predict 1880 Chinese share in the West List of variables

- Would growth in high-Chinese share counties have declined anyway?
- Use counties outside the West to perform a placebo exercise
- LASSO: identify variables that predict 1880 Chinese share in the West List of variables
- Use these variables to predict 1880 Chinese share in the East

- Would growth in high-Chinese share counties have declined anyway?
- Use counties outside the West to perform a placebo exercise
- LASSO: identify variables that predict 1880 Chinese share in the West List of variables
- Use these variables to predict 1880 Chinese share in the East
- Re-estimate analysis on the non-West sample

- Would growth in high-Chinese share counties have declined anyway?
- Use counties outside the West to perform a placebo exercise
- LASSO: identify variables that predict 1880 Chinese share in the West List of variables
- Use these variables to predict 1880 Chinese share in the East
- Re-estimate analysis on the non-West sample
 - \rightarrow Expect no negative effect outside US West

			Dependent Vari	able: Log $(X + 1)$		
	Chinese Labor	White Labor (2)	Total Labor (3)	European Immigrant Labor (4)	Mfg. Output (5)	# Mfg. Firm:
			A. Western Sta	tes (Main Sample)		
Post x High Predicted Chinese Share	-1.06	-0.59	-0.68	-0.6	-1.37	-0.85
	(0.17)	(0.13)	(0.13)	(0.14)	(0.34)	(0.23)
Obs.	2,394	2,394	2,394	2,394	744	768
Dependent Variable Mean	131.7	5,179	5,516	1,021	262,616	122.7
– in 1880	318	1,503	1,834	524.9	36,678	71.76
			B. All Other State	es (Placebo Sample)		
Post \times High Predicted Chinese Share	0.23	0.06	0.12	0.18	0.23	0.24
	(0.04)	(0.04)	(0.04)	(0.07)	(0.10)	(0.05)
Obs.	23,335	23,335	23,335	23,335	12,224	13,584
Dependent Variable Mean	4.527	6,496	7,224	1,200	276,195	141.7
– in 1880	1.615	4,186	4,745	902.9	88,349	136.7

Placebo sample: no decline in labor supply or manufacturing outcomes

Placebo w/ Sample Restrictions

Additional Robustness Checks

- Control for 1880 pop. share of largest immigrant groups × post Table
- Control for several baseline variables × year dummies Table
- Adjust standard errors for spatial correlation (Conley, 1999) Chinese White Manufacturing
- Use alternative measures of "High Chinese Share" Table
- Drop outliers Table
- Perform permutation and falsification tests
- Effect on Other Groups (e.g., all races; both male and female workers) Table

Outline

- Historical Background
- ② Data
- Empirical Strategy
- Results
- Mechanisms
- Conclusions

- Chinese Exclusion Act: sudden, large drop in labor supply
 - Highly localized shock within Western labor markets

- Chinese Exclusion Act: sudden, large drop in labor supply
 - Highly localized shock within Western labor markets
- Missing Chinese workers: binding constraint for firms
 - Overall expansion of the US West: high labor demand

- Chinese Exclusion Act: sudden, large drop in labor supply
 - Highly localized shock within Western labor markets
- Missing Chinese workers: binding constraint for firms
 - Overall expansion of the US West: high labor demand
- Hard to replace Chinese immigrants
 - US West still relatively remote as of 1880
 - No labor saving technology readily available

- Chinese Exclusion Act: sudden, large drop in labor supply
 - Highly localized shock within Western labor markets
- Missing Chinese workers: binding constraint for firms
 - Overall expansion of the US West: high labor demand
- Hard to replace Chinese immigrants
 - US West still relatively remote as of 1880
 - No labor saving technology readily available
- Chinese workers concentrated in sectors key for economic growth
 - Manufacturing, mining, railroads
 - Supply shock likely to spread to other sectors (within labor markets)

Effects Driven by Lower In-Migration

	Depen	dent Varia	ble: Log (labor su	pply + 1)
	All Workers (1)	Mining (2)	Manufacturing (3)	Transportation (4)
		A. Born	in the Same Stat	e
Post \times High Chinese Share	0.09	0.34	-0.08	-0.12
	(0.11)	(0.15)	(0.14)	(0.13)
Obs.	2,401	2,401	2,401	2,401
Dependent Variable Mean	1,030	31.07	188.3	99.28
– in 1880	156	6.125	15.30	8.709
	B.	Born in St	ates outside of the	e West
Post \times High Chinese Share	-0.41	-0.44	-0.34	-0.48
	(0.16)	(0.19)	(0.17)	(0.16)
Obs.	2,401	2,401	2,401	2,401
Dependent Variable Mean	2,588	125.3	423.6	257.2
– in 1880	698.2	58.06	61.11	51.57
		C. E	Born in Europe	
$Post \times High \ Chinese \ Share$	-0.39	-0.46	-0.18	-0.34
	(0.14)	(0.18)	(0.18)	(0.16)
Obs.	2,401	2,401	2,401	2,401
Dependent Variable Mean	1,021	81.36	182	109.6
– in 1880	524.9	68.91	62.10	40.91

Larger Effects in (Climatically) Distant Areas

			De	ependent Variable	es: Log $(X + 1)$			
			Labor	Supply			Manufacturing	
	Chinese Labor	White Labor	All Non-Chinese Immigrants Labor	European Immigrants Labor	White Born Out-of-State Labor	White Born in-State Labor	Output	# Firms
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post \times High Chinese Share	-1.04 (0.17)	-0.33 (0.13)	-0.48 (0.14)	-0.38 (0.14)	-0.38 (0.15)	-0.00 (0.10)	-1.01 (0.42)	-0.84 (0.26)
$Post \times High \ Chinese \ Share \times Climate \ Distance \ (std)$	-0.22 (0.17)	-0.45 (0.13)	-0.36 (0.14)	-0.33 (0.14)	-0.45 (0.14)	-0.09 (0.10)	-0.39 (0.47)	-0.28 (0.31)
Obs. Dependent Variable Mean – in 1880	2,396 132 319.1	2,396 5,190 1,508	2,396 1,419 631.3	2,396 1,023 526.7	2,396 2,901 732.7	2,396 1,087 160.7	744 262,616 36,678	768 122.7 71.76

Climate Distance Measure | Climate "Remoteness" Map

Alternative Mechanisms

- Direct effects through lower (Chinese) consumption
 - Chinese workers $\downarrow \implies$ Chinese consumption $\downarrow \implies$ Consumer demand \downarrow
- Unlikely to explain our results
 - Chinese immigrants had very high savings rate (Chang, 2019; Fishkin & Chang, 2019)
 - No effect on agricultural labor force (i.e., food production)
 - If this was mechanism, we should see effects mostly in non-tradable (local) sectors Table



Outline

- Historical Background
- ② Data
- Empirical Strategy
- Results
- Mechanisms
- Conclusions

• Chinese Exclusion Act motivated by economic concerns and xenophobia

- Chinese Exclusion Act motivated by economic concerns and xenophobia
- Sharp and permanent drop in Chinese population and labor supply

- Chinese Exclusion Act motivated by economic concerns and xenophobia
- Sharp and permanent drop in Chinese population and labor supply
- Contrary to expectations, it did not benefit other workers
 - Lower population growth, labor force, and income for all groups
- Slower growth in economic activity
- Persistent effects, visible at least until 1940

- Chinese Exclusion Act motivated by economic concerns and xenophobia
- Sharp and permanent drop in Chinese population and labor supply
- Contrary to expectations, it did not benefit other workers
 - Lower population growth, labor force, and income for all groups
- Slower growth in economic activity
- Persistent effects, visible at least until 1940
- Immigration restrictions can lead to widespread economic losses if
 - Immigrant workers are concentrated in key sectors
 - It is hard to replace them, w/ either other workers or technology

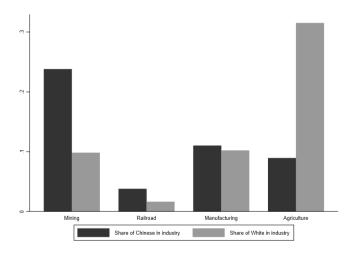
Appendix

BACK-UP SLIDES

Summary Statistics (1880)

		I. All Count	ies	II. 1880	Chinese Shar	e ≥ Median	III. 188	0 Chinese Sha	ıre < Median
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. De
A. All Individuals									
% Chinese (amongst county population)	289	6.63	8.03	144	11.87	8.55	145	1.42	1.23
using race definition only	289	6.61	8.02	144	11.85	8.54	145	1.41	1.22
using country of origin definition only	289	6.42	7.95	144	11.55	8.56	145	1.33	1.15
6 Chinese (amongst all immigrants)	289	21.39	18.24	144	35.01	15.23	145	7.86	8.08
Avg. Age of Chinese population	264	31.68	4.56	144	32.80	3.86	120	30.33	4.96
Male (amongst Chinese population)	264	95.99	5.99	144	95.94	5.44	120	96.06	6.61
% Male Age 15-64 (amongst Chinese population)	264	93.63	8.44	144	93.77	7.02	120	93.47	9.91
B. Chinese (Males 15-64) Labor Supply									
% Chinese (as a share of all workers)	289	12.05	12.14	144	20.91	11.42	145	3.25	2.96
% Chinese Literate Workers (as a share of all literate workers)	289	10.30	11.14	144	18.04	11.01	145	2.61	2.86
C. Industry Amongst (%Chinese as a share of all workers in sector)								
Personal services	279	50.09	25.63	141	63.01	16.20	138	36.88	26.78
Entertainment and Recreation Services	170	21.87	33.89	104	33.58	37.01	66	3.41	15.81
Aining	256	25.45	29.49	141	35.53	31.80	115	13.09	20.60
Transportation, Communication, and Other Utilities	281	8.21	19.22	144	12.29	24.35	137	3.93	10.07
Manufacturing	279	5.78	11.87	143	9.47	15.08	136	1.90	4.63
Wholesale and Retail Trade	284	5.15	8.65	143	9.04	10.47	141	1.21	2.98
Agriculture, Forestry, and Fishing	289	2.73	6.35	144	4.76	8.42	145	0.71	1.41
Professional and Related Services	275	1.90	6.86	141	3.41	9.32	134	0.31	0.85
Construction	278	0.74	4.01	143	1.40	5.51	135	0.05	0.33
Business and Repair Services	275	1.03	6.91	142	1.78	9.52	133	0.23	1.04
Finance, Insurance, and Real Estate	177	0.38	2.71	98	0.67	3.63	79	0.02	0.19
Public Administration	272	0.17	1.32	137	0.15	0.82	135	0.20	1.69
D. Occupation (% Chinese as a share of all workers)									
Skilled	289	2.78	5.37	144	5.06	6.81	145	0.53	1.16
Unskilled	289	23.20	19.15	144	37.40	16.15	145	9.11	8.56
Managers	287	4.60	7.92	143	8.26	9.77	144	0.97	1.98
Income Score for Chinese	264	19.42	3.51	143	20.53	2.66	120	18.09	3.93

Chinese Workers in the US West (1880)





Effect on Chinese Labor Supply, by 1-Digit Industry

							Dependent Va	riable: Log (# of i	ndividuals + 1)					
							Lab	or Supply (males a	ge 15-64) by Sec	tor				
	Tot. Pop.	All Workers	Personal services	Entertainment, Recreation	Mining	Manufacturing	Wholesale, Retail Trade	Transportation, Communica- tion	Agriculture, Forestry, Fishing	Professional Services	Construction	Business, Repair Services	Finance, Insurance, Real Estate	Public Admin.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Post x High Chinese Share	-0.92 (0.18)	-1.03 (0.17)	-0.36 (0.11)	-0.30 (0.06)	-0.90 (0.13)	-0.16 (0.09)	-0.45 (0.15)	-0.17 (0.07)	-0.04 (0.12)	-0.16 (0.07)	-0.07 (0.05)	-0.06 (0.04)	-0.00 (0.04)	0.02 -0.03
Obs.	2,688	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401
Chinese Industry Share Dep. Var. mean (sample)	204.2	131.7	0.615 30.37	0.363 1.185	0.338 24.59	0.186 11.47	0.117 20.99	0.112 3.539	0.0739 18.45	0.0295 1.356	0.0168 0.890	0.00887 0.260	0.00633 0.354	0.00295 0.351
- in 1880	357.9	318	72.55	3.024	75.71	35.02	20.67	13.94	38.76	1.464	1.332	0.339	0.0865	0.128



Effect on White Labor Supply, by 1-Digit Industry

							Dependent Va	riable: Log (# of i	ndividuals + 1)					
							Lab	or Supply (males a	ge 15-64) by Sec	tor				
	Tot. Pop.	All Workers	Personal services	Entertainment, Recreation	Mining	Manufacturing	Wholesale, Retail Trade	Transportation, Communica- tion	Agriculture, Forestry, Fishing	Professional Services	Construction	Business, Repair Services	Finance, Insurance, Real Estate	Public Admin.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Post x High Chinese Share	-0.24 (0.13)	-0.34 (0.14)	-0.31 (0.13)	-0.46 (0.13)	-0.48 (0.19)	-0.27 (0.16)	-0.45 (0.15)	-0.43 (0.15)	-0.20 (0.13)	-0.26 (0.13)	-0.37 (0.13)	-0.37 (0.13)	-0.44 (0.15)	-0.10 (0.13)
Obs.	2,689	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,401
Chinese Industry Share Dep. Var. Mean (Sample)	14,891 4.126	5,179 1.503	0.615 171.2 41.93	0.363 57.86 5.232	0.338 268.4 147.7	0.186 892.3 153.2	0.117 703.2 155	0.112 529.9 109.1	0.0739 1,151 483.3	0.0295 180.8 48.09	0.0168 468 77.40	0.00887 127.9 37.66	0.00633 133.9 13.54	0.00295 179.8 43.16



Chinese and White Skill Composition

					Depender	nt Variables					
			Chinese			White					
	Log(# Literate+1) (1)	Log (# Skilled+1) (2)	Log (# Managers+1) (3)	Income Score (4)	% Urban (5)	Log(# Literate+1) (6)	Log (# Skilled+1) (7)	Log (# Managers+1) (8)	Income Score (9)	% Urban (10)	
Post × High Chinese Share	-1.06 (0.15)	-0.56 (0.14)	-0.40 (0.13)	-0.17 (0.03)	-12.29 (3.77)	-0.28 (0.12)	-0.39 (0.14)	-0.39 (0.14)	-0.04 (0.01)	-4.32 (2.44)	
Conley SE, 100 km cutoff	[0.13]	[0.09]	[80.0]	[0.03]	[2.98]	[0.11]	[0.10]	[0.09]	[0.01]	[1.46]	
Obs.	2,401	2,401	2,401	1,708	1,773	2,401	2,401	2,401	2,398	2,401	
Dependent Variable Mean – in 1880	76.95 72.48	20.94 28.28	9.881 10.08	20.09 19.36	24.42 4.20	95.10 93.91	2,169 443.3	471.7 111.9	20.78 19.89	13.06 4.17	

↓ Chinese and white skilled workers, income score, and urbanization



LASSO-Selected Variables

- Log distance from major port (San Francisco)
- Share of rural population
- Share of non-Chinese immigrants
- Share of labor force in:
 - agriculture
 - manufacturing
 - mining
 - construction
 - trade
 - transportation and communication
 - personal services
 - professional services
 - business and finance
 - public administration
 - entertainment
- Share of literate workers
- Log total population



Eastern "Placebo" w/ Sample Restrictions

			Dependent	: Variable: Log (X $+$	1)	
	Chinese Labor	White Labor	Total Labor	European Immigrant Labor	Total Output	# Firms
	(1)	(2)	(3)	(4)	(5)	(6)
Sample: non-West		A. Share of	Urban Populati	on (West) between ((p25) and 0 (p75)	
Post x High Predicted Chinese Share	0.02 (0.03)	-0.05 (0.05)	0.02 (0.05)	0.07 (0.08)	0.08 (0.16)	0.09 (0.06)
Obs.	17,428	17,428	17,428	17,428	7,608	8,768
	B. M	anufacturing C	utput per Capi	ta (West) between 5	88.5 (p25) and 1599	9 (p75)
Post x High Predicted Chinese Share	0.25 (0.09)	0.19 (0.09)	0.2 (0.09)	0.36 (0.17)	0.11 (0.23)	0.26 (0.10)
Obs.	3,760	3,760	3,760	3,760	3,360	3,360
	C. 9	Share of Non-Cl	ninese Immigra	nts (West) between (0.14 (p25) and 0.26	(p75)
Post x High Predicted Chinese Share	0.49 (0.14)	0.25 (0.16)	0.21 (0.15)	0.36 (0.19)	-0.17 (0.25)	0.19 (0.14)
Obs.	3,462	3,462	3,462	3,462	1,648	1,752
	D. S	hare of LF in R	ailroad and Mi	ning (West) between	0.02 (p25) and 0.27	7 (p75)
Post x High Predicted Chinese Share	0.35 (0.09)	0.07 (0.08)	0.07 (0.08)	0.01 (0.12)	0.23 (0.16)	0.29 (0.08)
Obs.	6,695	6,695	6,695	6,695	3,984	4,256

Control for Shares of Other Immigrant Groups

		Depe	endent Variables	s: Log (X + 1)	
		Labor Supply		Manufac	cturing
	Chinese Labor (1)	White Labor (2)	Total Labor (3)	Total Output (4)	# Firms (5)
Post \times High Chinese Share	-1.05	-0.34	-0.46	-0.71	-0.55
	(0.19)	(0.14)	(0.14)	(0.37)	(0.24)
Post \times High Irish Share	-0.08	0.01	0.00	-0.09	-0.18
	(0.26)	(0.19)	(0.20)	(0.50)	(0.33)
Post x High German Share	0.08 (0.23)	-0.21 (0.18)	-0.22 (0.18)	0.14 (0.35)	-0.07 (0.25)
Post x High English Share	-0.29	-0.47	-0.45	-0.38	-0.43
	(0.23)	(0.17)	(0.18)	(0.38)	(0.28)
Post x High Canadian Share	0.04	-0.04	-0.04	-0.46	-0.15
	(0.26)	(0.20)	(0.20)	(0.42)	(0.29)
Post x High Mexican Share	0.11	-0.04	-0.03	0.16	0.51
	(0.22)	(0.16)	(0.17)	(0.58)	(0.37)
Post x High Oth. Asian Share	0.57	0.26	0.26	0.72	0.76
	(0.26)	(0.19)	(0.19)	(0.43)	(0.29)
Obs.	2,401	2,401	2,401	744	768
Dependent Variable Mean	131.7	5,179	5,516	262,616	122.7
– in 1880	318	1,503	1,834	36,678	71.76

Control for Baseline County Characteristics

	Control for Year FE x Other Immigrant Share 1880	Control for Year FE x: Population 1860	Control for Year FE x Mfg Labor Supply 1860	Control for Year FE x: Agric. Labor Supply 1860 (4)	Control for Year FE x Other Immigrant Growth 1850-80 (5)	Control for Year FE x: Population Growth 1850-80	Control for Year FE x Mfg Labor Supply Growth 1850-80	Control for Year FE x: Agric. Labor Supply Growth 1850-80 (8)	Control for Year FE x Market Integration	Control for Year FE x Homestead Act
	(1)	(2)	(3)	(4)		_abor Supply	(1)	(0)	(3)	(10)
Post x High Chinese Share	-1.05	-0.96	-0.93	-0.92	-1.04	-0.99	-1.04	-1.02	-1.21	-1.03
	(0.18)	(0.22)	(0.21)	(0.22)	(0.33)	(0.34)	(0.34)	(0.34)	(0.23)	(0.17)
Obs.	2,401	1,962	1,962	1,962	1,041	1,041	1,041	1,041	1,809	2,401
R-square	0.79	0.79	0.79	0.79	0.79	0.80	0.80	0.80	0.80	0.79
					B. White L	abor Supply				
Post x High Chinese Share	-0.32	-0.45	-0.31	-0.43	-0.32	-0.32	-0.33	-0.32	-0.36	-0.34
	(0.14)	(0.15)	(0.14)	(0.15)	(0.28)	(0.28)	(0.28)	(0.28)	(0.18)	(0.14)
Obs.	2,401	1,962	1,962	1,962	1,041	1,041	1,041	1,041	1,809	2,401
R-square	0.89	0.91	0.91	0.91	0.88	0.89	0.89	0.88	0.86	0.89
					C. Manufact	uring Output				
Post x High Chinese Share	-1.23	-1.16	-0.90	-1.09	-1.08	-1.10	-1.08	-1.13	-0.92	-0.95
	(0.39)	(0.38)	(0.34)	(0.38)	(0.49)	(0.49)	(0.49)	(0.48)	(0.37)	(0.40)
Obs.	744	744	744	744	496	496	496	496	736	744
R-square	0.80	0.82	0.82	0.81	0.78	0.79	0.79	0.79	0.80	0.80



Conley (1999) Std. Err. - Chinese Population and Labor Supply

		Dependent Variable: Log ($\#$ of individuals $+$ 1)							
		Labor Supply (males age 15-64) by Sector							
	Population (1)	All Workers (2)	Mining (3)	Manufacturing (4)	Transportation (5)				
Post x High Chinese Share	-0.92 (0.14)	-1.03 (0.13)	-0.90 (0.13)	-0.16 (0.07)	-0.17 (0.08)				
Observations	2,688	2,401	2,401	2,401	2,401				
Chinese Industry Share Dep. Var. mean (sample) – in 1880	204.2 357.9	0.615 131.7 318	0.338 24.59 75.71	0.186 11.47 35.02	0.112 3.539 13.94				



Conley (1999) Std. Err. - White Population and Labor Supply

	Dependent Variable: Log ($\#$ of individuals $+$ 1)							
		Labor Supply (males age 15-64) by Sector						
	Population (1)	All Workers (2)	Mining (3)	Manufacturing (4)	Transportation (5)			
Post x High Chinese Share	-0.24 (0.11)	-0.34 (0.10)	-0.48 (0.12)	-0.27 (0.10)	-0.43 (0.10)			
Obs. Chinese Industry Share Dep. Var. Mean (Sample) – in 1880	2,689 14,891 4,126	2,401 0.615 5,179 1,503	2,401 0.338 268.4 147.7	2,401 0.186 892.3 153.2	2,401 0.112 529.9 109.1			



Conley (1999) Std. Err. - Manufacturing

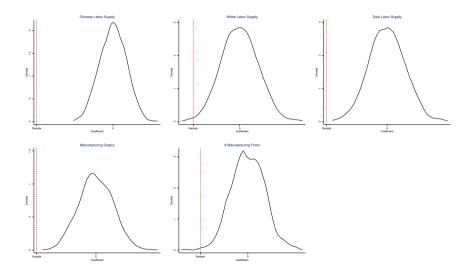
	Dependent Variable						
	Log (Output) (1)	Log (Output per Worker) (2)	Log (# Firms) (3)	# Firms (Poisson) (4)			
Post x High Chinese Share	-0.97 (0.22)	-0.10 (0.09)	-0.78 (0.15)	-1.16 (0.66)			
Obs.	744	672	768	768			
Dep. Var. Mean (sample) – in 1880	262,616 36,678	95 79.79	122.7 71.76	122.7 71.76			



Alternative Measures of Chinese Share or Sample Restrictions

	High Chinese Sh. $= 1$ if Chinese Sh. ≥ 1860 p50	High Chinese Sh. $= 1$ if Chinese Sh. ≥ 1880 p75	Continuous Measure of 1880 Chinese Sh.	Omit Top 1% Chinese Sh.	Omit SF County			
	(1)	(2)	(3)	(4)	(5)			
		A. Chinese Lab	or Supply					
Post x High Chinese Share	-0.90	-1.30	-6.12	-1.02	-1.04			
	(0.34)	(0.20)	(1.08)	(0.18)	(0.17)			
Obs.	1,962	2,401	2,401	2,383	2,393			
R-square	0.79	0.79	0.79	0.79	0.78			
	B. White Labor Supply							
Post × High Chinese Share	-0.88	-0.56	-2.25	-0.35	-0.34			
	(0.22)	(0.15)	(0.99)	(0.14)	(0.14)			
Obs.	1,962	2,401	2,401	2,383	2,393			
R-square	0.90	0.89	0.89	0.89	0.89			
		C. Manufacturi	ng Output					
Post x High Chinese Share	-1.31	-1.48	-6.79	-0.97	-0.97			
	(0.39)	(0.39)	(2.93)	(0.38)	(0.38)			
Obs.	744	744	744	744	736			
R-square	0.80	0.81	0.80	0.80	0.79			

Permutation Test





Effect on Other Groups

		Dependent Variable: Log $(X + 1)$					
	Total Labor (1)	# Literate (2)	# Skilled (3)	# Managers (4)	Income Score (5)		
		А	. All - Male Work	ers			
Post x High Chinese Share	-0.451 (0.137)	0.004 (0.010)	0.010 (0.010)	0.004 (0.003)	-0.917 (0.283)		
Obs.	2,401	2,113	2,399	2,399	2,399		
		B. Chinese	e - Male and Fema	ale Workers			
Post x High Chinese Share	-1.036 (0.175)	-0.058 (0.028)	-0.043 (0.017)	-0.03 (0.015)	-2.817 (0.542)		
Obs.	2,401	`1,538 [´]	`1,722 [´]	1,722	1,717		
		C. White	- Male and Fema	le Workers			
Post x High Chinese Share	-0.346 (0.139)	-0.013 (0.007)	-0.008 (0.010)	-0.001 (0.003)	-0.91 (0.260)		
Obs.	2,401	2,112	2,398	2,398	2,398		
	D. All - Male and Female Workers						
Post x High Chinese Share	-0.461 (0.139)	0.006 (0.010)	0.008 (0.010)	0.004 (0.003)	-0.946 (0.258)		
Obs.	2,401	2,113	`2,399 [´]	2,399	2,399		

Climate Remoteness Index

- Build on Obolensky, Tabellini, and Taylor (2024): climate distance reduces migration
- For any county in the US West, calculate climate distance from any non-Western county

$$\mathsf{ClimaDist}_{c,-w} = |\mathsf{Temp}_c - \mathsf{Temp}_{-w}|$$

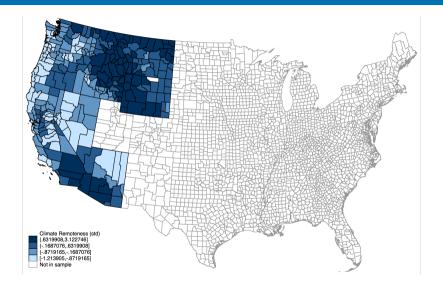
- County climate: average yearly temperature, 1895-1920
- Derive predicted county-pair migration as: $\hat{m}_{c,-w} = \text{ClimaDist}_{c,-w} \times -.26$
- Similar to Obolensky et al. (2024), compute

$$CC_c = \sum_{-w} (pop_{-w} \times \hat{m}_{c,-w})$$

- Similar in spirit to market access in Donaldson&Hornbeck (2016)
- Standardize and multiply by -1: higher values \implies climatically more remote counties



Distribution of Climate Remoteness Index



Larger Effects in Counties w/ More Skilled Chinese

	Dependent Variables: Log $(X+1)$					
_		White Labo	r	Manufac	turing	
	# Total # Literate		# Literate in Manufacturing	Total Output	# Firms	
	(3)	(4)	(5)	(6)	(7)	
Post x High Chinese Share	0.16 (0.16)	0.23 (0.14)	0.19 (0.16)	0.02 (0.46)	-0.19 (0.26)	
$Post \times High \ Chinese \ Share \times 1880 \ Share \ of \ Skilled \ Chinese$	-15.76 (4.47)	-15.36 (3.79)	-15.26 (3.73)	-31.05 (9.09)	-18.07 (5.69)	
Observations Dependent Variable Mean – in 1880	2,223 5,459 1,636	2,223 3,818 1,528	2,223 645.4 159.6	736 262,107 37,072	760 123.1 72.46	

Consistent w/ complementarities b/w skilled Chinese and skilled white workers High Ch. Share counties w/ avg. share of skilled Chinese (3%): \downarrow 38% white workers



Similar Effects in Tradable Sectors

		Depend	dent Variable: Log((X + 1)	
	Chinese Labor (1)	White Labor (2)	Total Labor (3)	Mfg. Output (4)	# Mfg. Firms (5)
			A. Full Sample		
$Post \times High \ Chinese \ Share$	-1.03	-0.34	-0.45	-0.97	-0.78
	(0.17)	(0.14)	(0.14)	(0.38)	(0.25)
Observations	2,401	2,401	2,401	744	768
Dependent Variable Mean	131.7	5,179	5,516	262,616	122.7
– in 1880	318	1,503	1,834	36,678	71.76
			B. Tradable sector	5	
$Post \times High \ Chinese \ Share$	-1.07	-0.39	-0.51	-0.95	-0.8
	(0.29)	(0.21)	(0.21)	(0.52)	(0.33)
Observations	1,235	1,235	1,235	512	528
Dependent Variable Mean	96.97	3,709	3,934	100,626	49.81
– in 1880	271.8	1,274	1,554	7,297	30.83

