

Who Pays the Cost of Exclusion?: Selection into Immigration Under the 1885 Chinese Head Tax

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Introduction

- U.S. and Canadian immigration → increasingly restrictive over time
- One channel: **cost of migration**
- Potential implications for (1) immigration flows & (2) immigrant characteristics
- But hard to find exogenous changes in migration cost, or to even measure
- **Historical Setting:** 1885 Chinese Head Tax
 - Flat immigration fee for Chinese immigrants to Canada
 - Exogenous variation in fee over time – by 1903, \$500 (~14k USD today)
 - Detailed data on fees and immigrant characteristics at arrival + census

This Paper

How did the Chinese Head Tax affect Chinese immigration to Canada?

- ① Direct effect of Head Tax on inflow of Chinese immigrants
 - **Result:** 34% ↓ in Chinese imm. overall
- ② Effect of Head Tax on selection of Chinese immigrants into migration
 - **Result:** Chinese immigrants more positively selected when Head Tax ↑
 - ↑ avg. height, literacy, home ownership
 - ↓ probability of being a laborer

Literature Review

- Immigration Policy Clemens et al. 2018, Feigenberg 2020, Abramitzky et al. 2023
 - Chinese immigration: using census data Chen 2015, Chen and Xie 2020
 - **My Contribution:** Detailed migration microdata + understudied imm. group
- Selection into migration Roy 1951, Borjas 1987, Chiquiar and Hanson 2005
 - Historical: low cost Abramitzky et al. 2013, Abramitzky and Boustan 2017, Connor 2019
 - Modern: high 'cost' but hard to measure McKenzie and Rapoport 2010, Ortega and Peri 2013, Angelucci 2015, Cai 2020, Feigenberg 2020
 - **My Contribution:** historical setting + high cost

Outline

1. Introduction
2. Historical Context
3. Data
4. Effects on Immigration Inflow
5. Effects on Selection into Immigration
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Chinese Immigration to Canada

and honesty of purpose of our people. ~ Mr. Chapleau will undoubtedly learn much that is new to him, but the bitter experience of twenty years can produce only one verdict from the people of this Province—"The Chinese must go!"

Figure: Port Moody Gazette, August 23 1884

The Chinese were as a leech sucking the life-blood from the country. They should make a stand against any employer of Chinese getting any public position.

Figure: Victoria Daily Colonist, June 16 1885

- 1850s and 1860s: West Coast Gold Rush
- 1880s: Canadian Pacific Railway
- 1882: U.S. Chinese Exclusion Act
- July 1885: Canada's Chinese Immigration Act

Chinese Head Tax

- Initial 1885 Head Tax: \$50 (\approx 1.5k USD today)
 - Exceptions for diplomats, merchants, students
- 1900 amendment – increase to \$100 (\approx 3k USD)
- 1903 amendment – increase to \$500 (\approx 14k USD)
- 1923 Chinese Immigration Act banned Chinese immigration altogether

▸ HT Certificate

▸ Adherence to Tax

▸ Share Taxpayer

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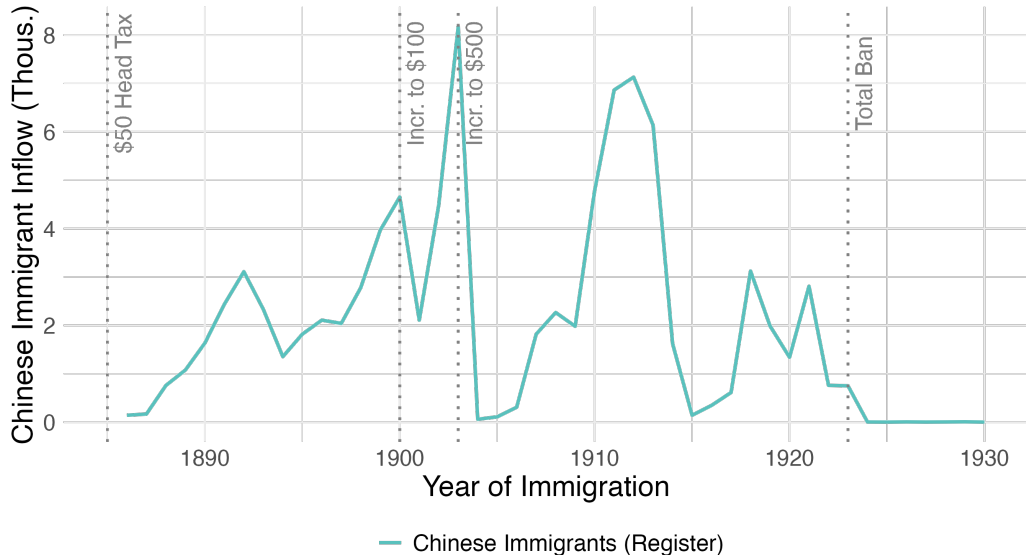
Summary of Data Sources

- ① Register of Chinese Immigrants to Canada (1885-1949) Ward and Yu 2008
 - Record of all Chinese immigrants to Canada at time of entry [▶ Image](#)
 - Full name, age, sex, occupation, height, tax paid, date & port & method of entry
 - Registration mandatory only for post-1885 arrivals, so no pre-period (\$0 tax)
- ② Hong Kong Harbourmaster Reports (1870-1930)
 - Total immigrants (emigrants) from (to) HK by destination (origin) port [▶ CA imm/em](#)
 - **This paper:** total immigration out of Hong Kong as 'push factor' proxy
- ③ Decennial Canadian Census (1881-1921)
 - Includes year of immigration (starting in 1901) and birthplace
 - Rich set of variables, but suffers from return migration attrition and measurement error

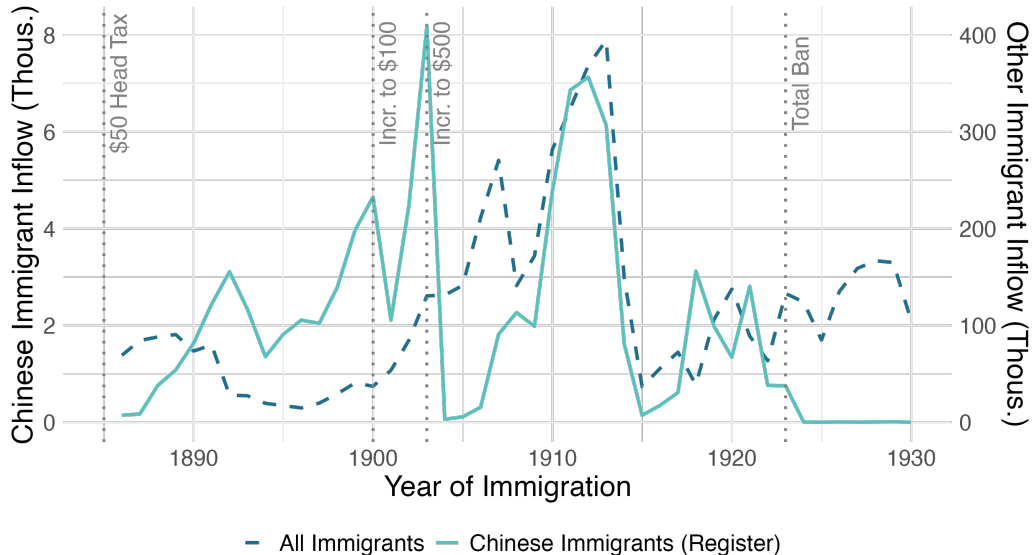
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↓ in Chinese immigration when Head Tax ↑



No corresponding Δ in total immigration ► Census Data



Regression specification

Following similar migration analysis by Clark, Hatton and Williamson (2007):

$$FLOW_t = \alpha_0 + \sum_{\tau \in \{100, 500\}} \gamma_{\tau} \mathbb{1}[TAX_t = \tau] + \alpha_1 HK_t + \alpha_2 CA_t + \alpha_3 P_{t-1} + \alpha_4 (P_{t-1})^2 + \varepsilon_t$$

where

- $FLOW_t$ is # Chinese immigrants to Canada in year t (Register)
- TAX_t represents the Head Tax amount in year t
 - γ_{τ} represents the effect of Head Tax τ relative to \$50 Tax
- Controls:
 - HK_t : Total emigration from Hong Kong in year t
 - CA_t : Total immigration to Canada in year t
 - P_{t-1} : Lagged population stock of Chinese immigrants living in Canada

Significant Negative Effect of \$500 Head Tax...

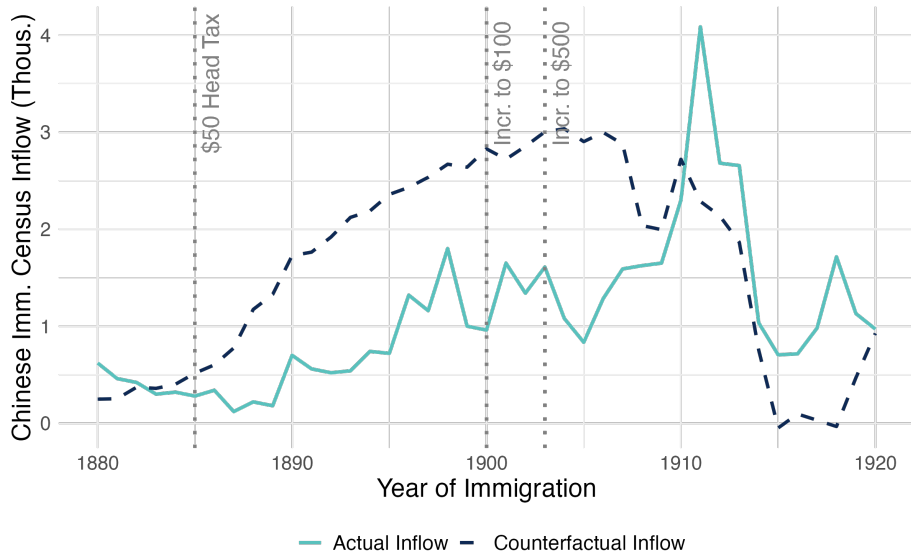
	Register (1886-1921)	Census (1880-1920)
γ_{50} (\$50 Tax)		-411.60 (318.60)
γ_{100} (\$100 Tax)	-1,394.00 (899.20)	-724.90 (569.20)
γ_{500} (\$500 Tax)	-8,803.00*** (1,210.00)	-1,864.00** (684.90)
Dep. Var. Mean	2460.8	1095.4
Observations	36	41
Adjusted R ²	0.75	0.69

► Placebo Test

...But Hard to Interpret Magnitudes

- Effect on $FLOW_t \implies$ effect on population stock, so effects compound over time
- **Cannot** use regression equation minus head tax term as counterfactual
- Need to simulate counterfactual instead!
- Using census data to start from pre-head tax period

Head Tax: 34% Fewer Imm. Rel. to Counterfactual



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Selection: Theoretical Framework [Details](#)

Context: Lower returns to skill in Canada for Chinese imm \implies neg. selection
Chancel and Piketty 2021; 1901 Census

Two Models of Selection:

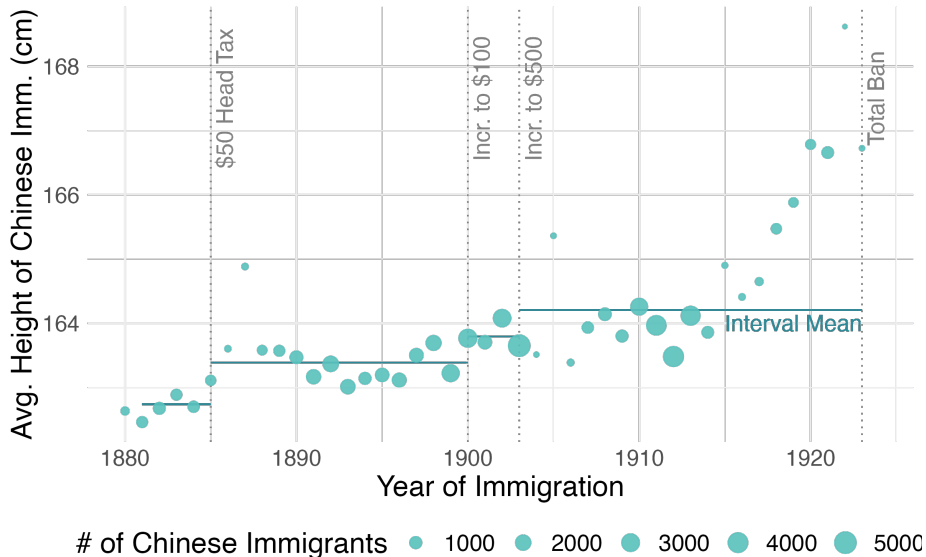
- ① Roy-Borjas: homogeneous cost of migration
 - Supported by majority of historical immigration research
 - **Prediction:** increase in migration costs \implies more *negative* selection
- ② Chiquiar-Hanson: skill-varying cost of migration
 - More recent model to explain more positive selection from Mexico
 - **Prediction:** increase in migration costs \implies more *positive* selection

Measuring Selection in the Chinese Register

Height

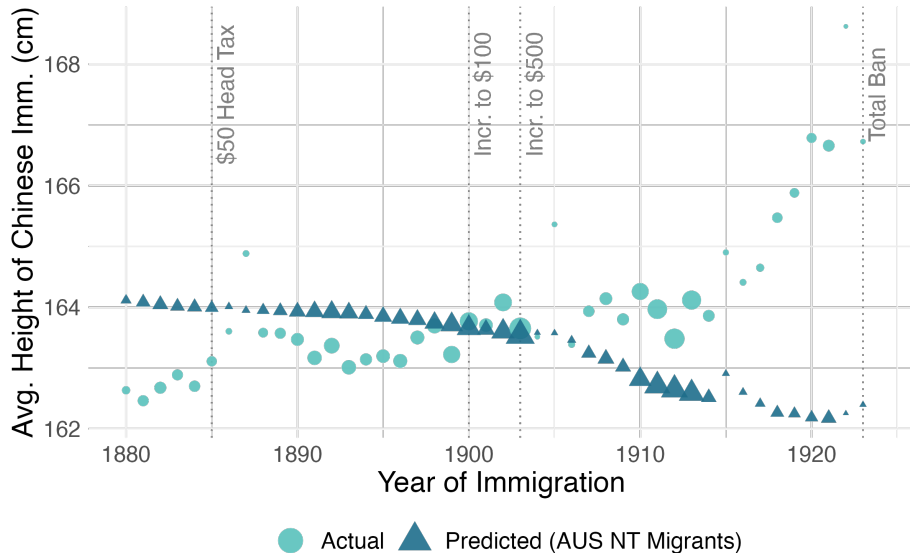
- Recorded by officials at time of arrival for all Chinese immigrants
- After age 23, independent of decision to migrate – common metric of human capital
- Can compare with existing estimates of height of Chinese population

Increase in Chinese Immigrant Height as Head Tax ↑...



...especially relative to Chinese population

► Other Height Samples



Measuring Selection in the Census

Occupation, Literacy, Home Ownership

- Biased by return migration & post-arrival factors
- **But** can compare with other immigrants as 'counterfactual'
- Can rule out 'Canada-wide' effect

Empirical Specification: Standard Difference-in-Differences

$$y_{ict} = \beta_1 C_i + \beta_2 A_{ic} + \delta_c + \delta_t + \sum_{\tau \in \{50, 100, 500\}} \gamma_{\tau}^{DD} \times C_i \times \mathbf{1}[TAX_t = \tau] + \varepsilon_{ict}$$

- y_{ict} is the outcome of interest for individual i as measured in census year c , who immigrated to Canada in year t
- C_i is an indicator for i having been born in China
- A_{ic} is a control for age
- δ_c and δ_t are census year and arrival year FEs respectively
- As before, TAX_t represents the Head Tax amount in year t
 - γ_{τ}^{DD} : effect of HT τ rel. to no tax for Chinese rel. to non-Chinese imm.

ID Assumption: Without the Head Tax, characteristics of Chinese and non-Chinese imm. would have evolved in parallel

More positive selection of Chinese vs. all imm. when HT \uparrow

	$\mathbb{P}[\text{Laborer}]$	$\mathbb{P}[\text{Literate}]$	$\mathbb{P}[\text{Owns House}]$
$\hat{\beta}_1$ (Born in China)	0.252*** (0.032)	-0.396*** (0.024)	-0.497*** (0.038)
$\hat{\gamma}_{50}^{DD}$ ($C_i \times \$50$ Tax)	-0.038 (0.035)	0.181*** (0.027)	0.101** (0.041)
$\hat{\gamma}_{100}^{DD}$ ($C_i \times \$100$ Tax)	0.035 (0.039)	0.200*** (0.029)	0.014 (0.046)
$\hat{\gamma}_{500}^{DD}$ ($C_i \times \$500$ Tax)	-0.132*** (0.034)	0.120*** (0.026)	0.133*** (0.040)
Dep. Var. Mean (Chinese)	0.3582	0.6715	0.1325
Observations	55,149	56,156	57,148
Adjusted R ²	0.062	0.050	0.123

► Japanese Imm Only

Outline

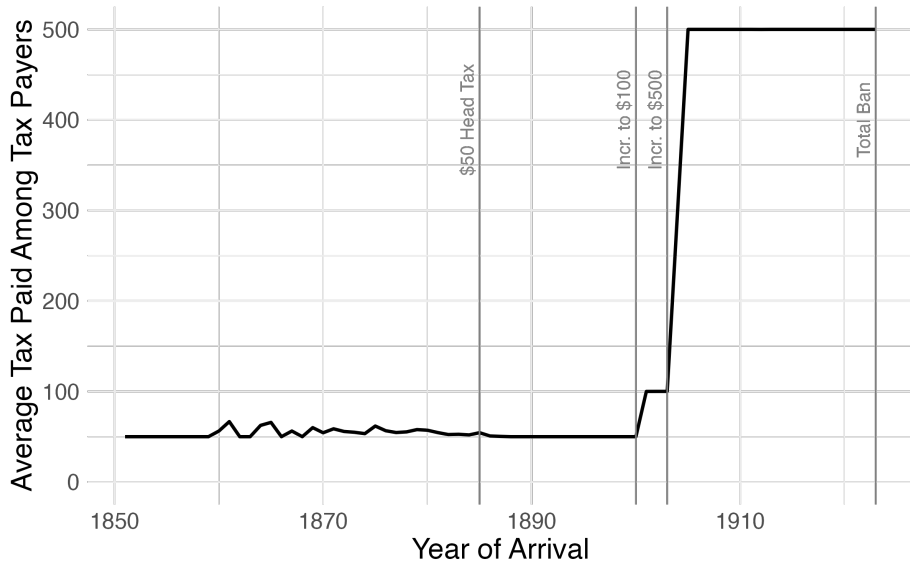
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Summary of Results

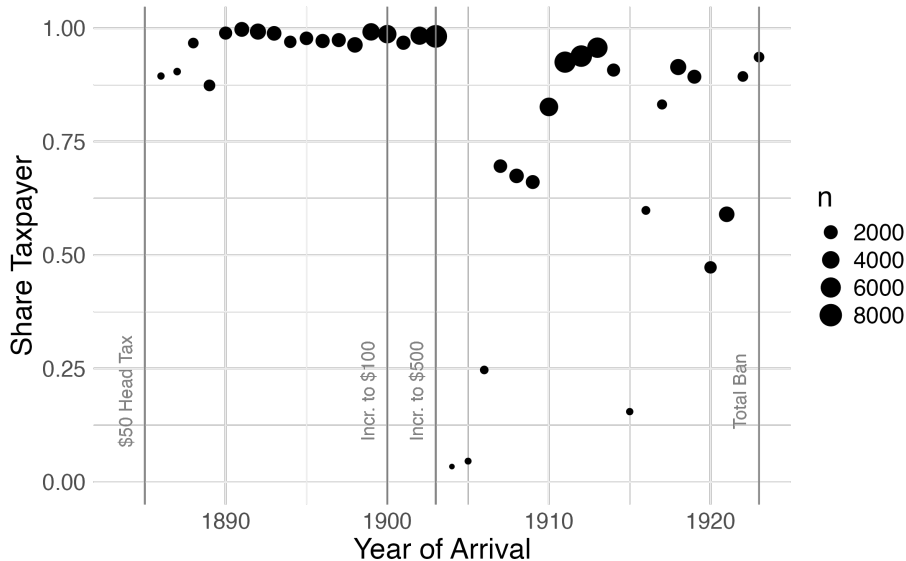
- Direct negative impact of Head Tax on level of Chinese immigration to Canada
- Chinese immigrants more positively selected on height as Head Tax increased
- More positively selected on occupation, literacy, home ownership vs. all other immigrants, only on occupation rel. to Japanese immigrants as HT \uparrow
- Results support Chiquiar-Hanson model with skill-varying migration cost
- **Takeaway:** High migration cost \implies 'pricing out' immigrants with most to gain

Average Non-Zero Tax Paid by Chinese Imm.

[← Return](#)



Share of Chinese Imm. Paying Taxes by Year

[◀ Return](#)

Head Tax Certificate

[Return](#)



Figure: Chinese Immigration Certificate, Library and Archives Canada (R1206-178-X-E) via The Canadian Encyclopedia

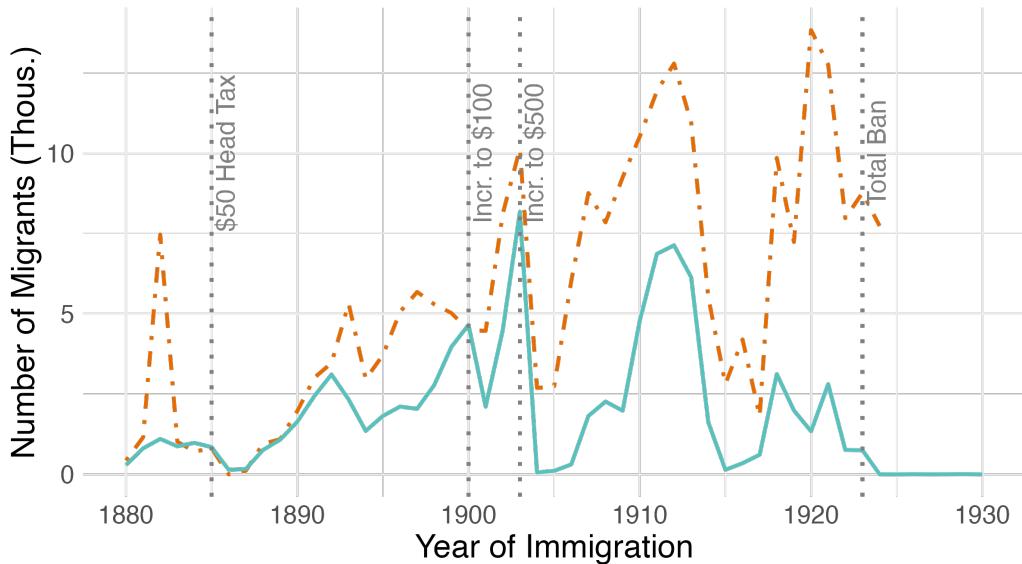
Chinese Register

◀ Return

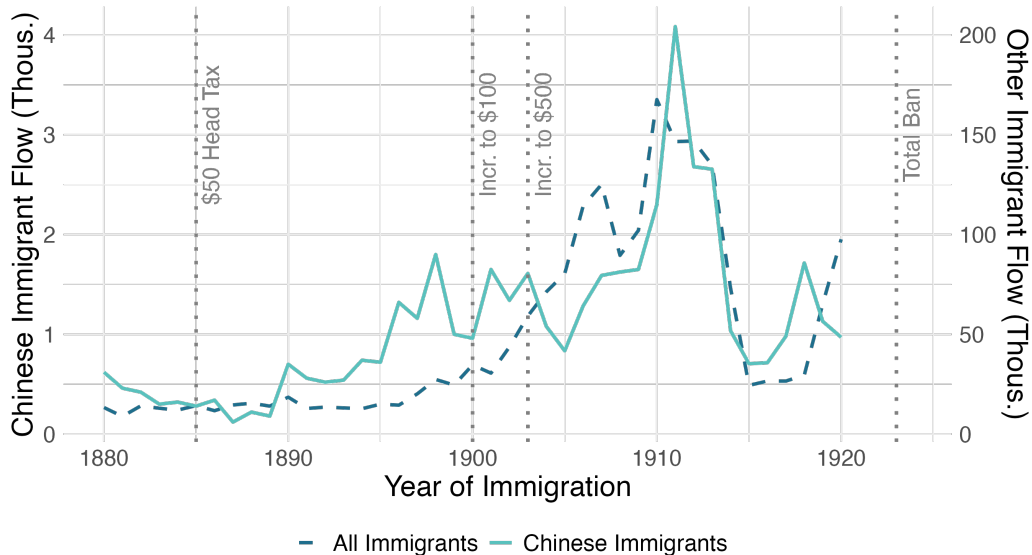
GENERAL REGISTER OF											
1	2	3	4	5	6	7	8	9	10	11	12
Serial No.	NAME	DATE OF ARRIVAL	PLACE OF ORIGIN	AGE	SEX	RELIGION	EDUCATION	PROFESSION	STATUS	REMARKS	REMARKS
10001	Wong, Ahn	1894	China	25	M						
10002	Wong, Ahn	1894	China	25	M						
10003	Wong, Ahn	1894	China	25	M						
10004	Wong, Ahn	1894	China	25	M						
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10099	Wong, Ahn	1894	China	25	M						
10100	Wong, Ahn	1894	China	25	M						

Figure: General Register of Chinese Immigration, RG76, Volume 700 (e006066717) via Library and Archives Canada Blog

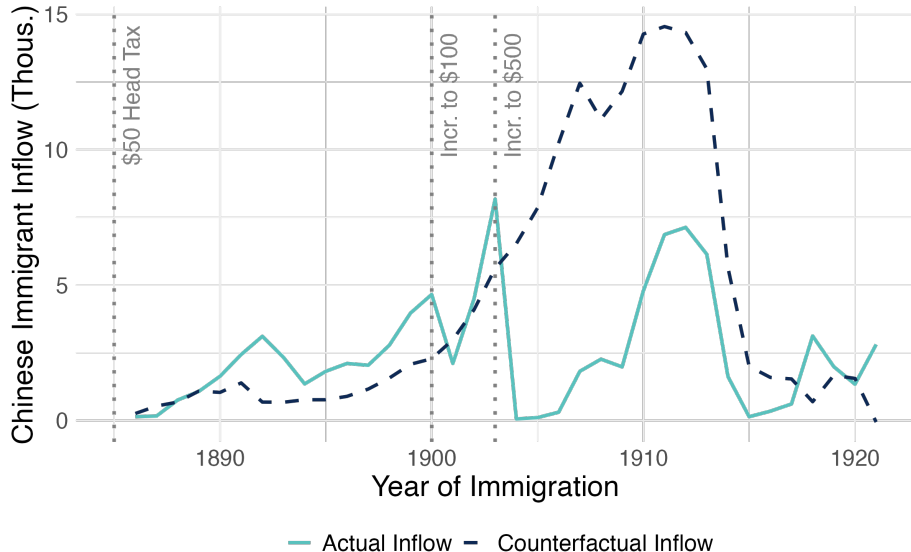
Chinese Immigration to Canada by Data Source

[◀ Return](#)

Chinese vs. Total Immigration with Census Data

[◀ Return](#)

Actual vs. Counterfactual Chinese Immigration

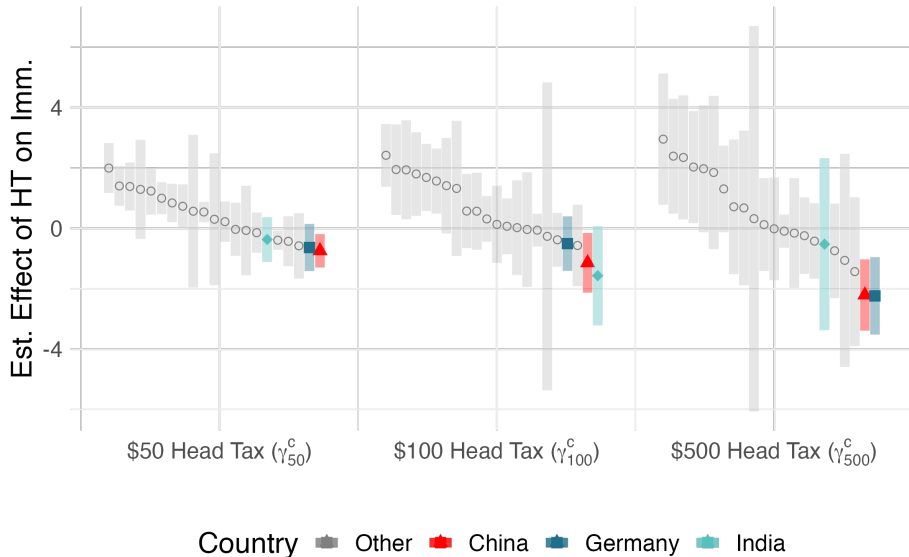
[◀ Return](#)

Modifying original regression for cross-country comparison:

$$\log(FLOW_{ct}/POP_{ct}) = \alpha_0 + \sum_{\tau \in \{50, 100, 500\}} \gamma_{\tau} \mathbb{1}[TAX_t = \tau] + \alpha_2 CA_t + \alpha_3 P_{t-1} + \alpha_4 (P_{t-1})^2$$

where c indexes country and POP_{ct} represents origin-country population, such that the dependent variable is now the log of the **migration rate**. **Sample:** All countries with at least 20 years of non-zero immigration flow to Canada in the Census between 1880 and 1920.

Placebo: Effects of HT on Other Countries' Imm

[◀ Return](#)

Selection: Theoretical Framework Model Details [◀ Return](#)

Roy-Borjas:

Model wage w_c in country c for worker with skill s as:

$$\ln(w_c) = \mu_c + \delta_c s \quad (1)$$

where μ_c represents baseline wage and δ_c represents return to skill.

Condition for migration with cost π :

$$\mu_1 + \delta_1 s - \pi > \mu_0 - \delta_0 s \quad (2)$$

where 1 indexes Canada, 0 indexes China.

- $\delta_0 > \delta_1 \implies$ migration only occurs for $s < s^*$: negative selection
- Increase in cost $\pi \implies$ decrease in s^* : **more negative selection**

Selection: Theoretical Framework Model Details 2 [◀ Return](#)

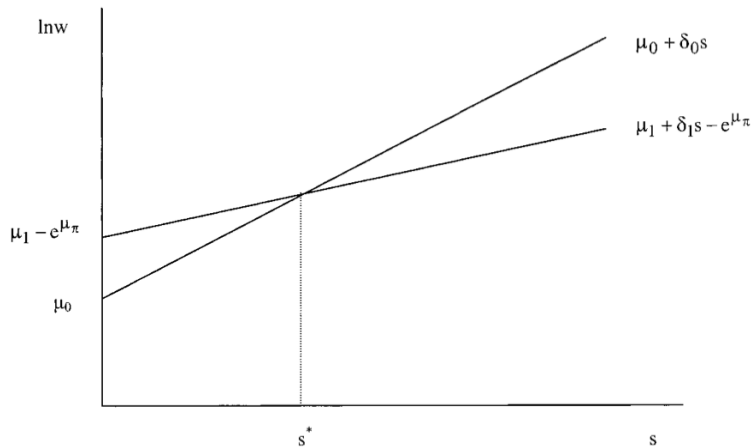


Figure: Chiquiar and Hanson 2005 Fig 1

Selection: Theoretical Framework Model Details 3 [◀ Return](#)

Chiquiar-Hanson:

Now model cost as decreasing in skill:

$$\ln(\pi) = \mu_{\pi} - \delta_{\pi}s \quad (3)$$

Condition for migration:

$$\mu_1 + \delta_1s - \exp(\mu_{\pi} - \delta_{\pi}) > \mu_0 - \delta_0s \quad (4)$$

- μ_{π} suff. large \implies cost too high for lowest-skilled: intermediate selection
- Increase in baseline cost μ_{π} and δ_{π} : (likely) **more positive selection**

Selection: Theoretical Framework Model Details 4 [◀ Return](#)

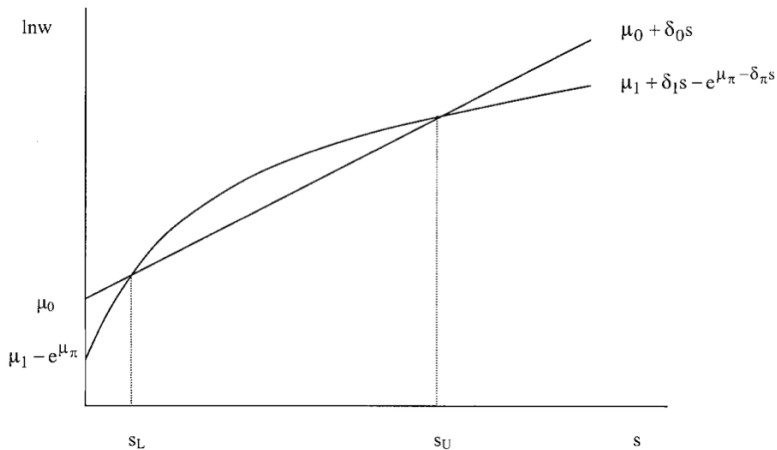
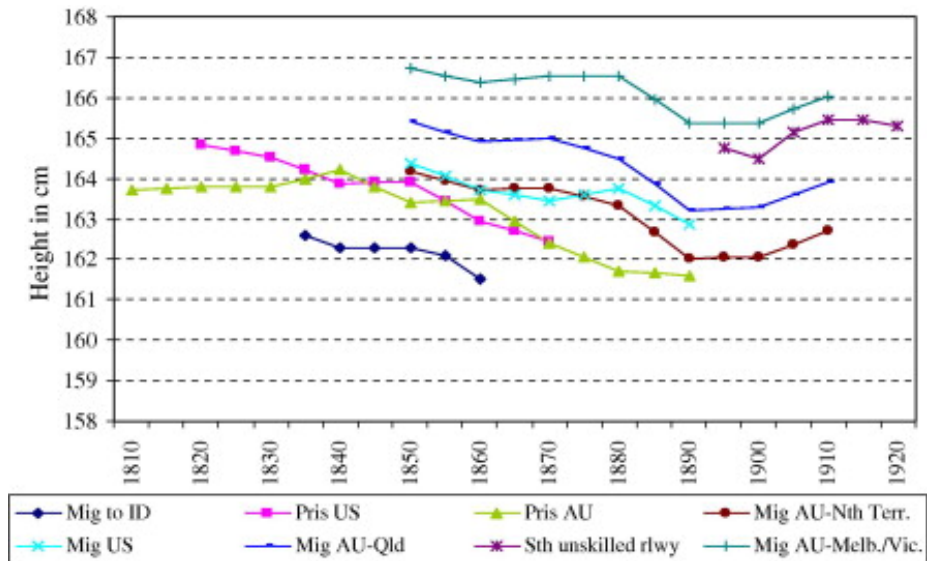


Figure: Chiquiar and Hanson 2005 Fig 2

Height of Various Chinese Populations Baten et al. 2010

[Return](#)

Results more mixed for Chinese vs. Japanese imm. [Return](#)

	$\mathbb{P}[\text{Laborer}]$	$\mathbb{P}[\text{Literate}]$	$\mathbb{P}[\text{Owns House}]$
$\hat{\beta}_1$ (Born in China)	0.056* (0.031)	0.023 (0.035)	-0.131*** (0.025)
$\hat{\gamma}_{100}^{DD}$ ($C_i \times \$100$ Tax)	0.050 (0.075)	0.080 (0.079)	-0.007 (0.060)
$\hat{\gamma}_{500}^{DD}$ ($C_i \times \$500$ Tax)	-0.117** (0.052)	-0.114** (0.055)	0.014 (0.042)
Dep. Var. Mean (Chinese)	0.3582	0.6715	0.1325
Observations	2,190	1,864	2,190
Adjusted R^2	0.017	0.008	0.060