



Trading Silver for Gold: 19th Century Asian Exports and the Political Economy of Currency Unions

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Motivation

- **Increasing discussion of prospects for AMU after “1997 and all that”**
- **What does historical precedent tell us about the prospects for an Asian currency union?**
- **What determines the returns to regional vs. global currency unions?**

This paper

- **Examines the evolution of trade volumes in Asia between 1870-1913**
- **Analyses trade within Asia as well as its trade with the rest of the world**
- **Considers the political economy of switching from an established to a new monetary standard**

Historical background

- Silver widely used in Asia as a medium of exchange for its intrinsic value, from Persia and Oman to Japan (exception: Hindi kingdoms of India)
- Low level of economic development (low monetization) made silver more practical than gold for transactions
- European (Mexican and Peruvian) silver was traded for Asian spices and tea in the 16th century.
- Silver's value relatively stable in relation to gold up to 1870
- After 1870, many Asian countries switched from silver to gold or gold-pegs
 - First is Dutch Indonesia
 - Followed by British India, Japan, Straits Settlement, Siam

Incomes: England vs. China

A. Silver wages (grams of silver per day)

Date	Southern England	Yangzi delta	Chinese wage as % of English wage
1550-1649	3.8	1.5	39
1750-1849	11.5	1.7	15

B. Grain wages (kilograms of grain per day)

Date	England (wheat)	Yangzi delta		Chinese wage as % of English wage
		(rice)	(rice, on wheat equivalent basis)	
1550-1649	5.2	3.0	4.5	87
1750-1849	7.8	2.0	3.0	38

From Broadberry and Gupta 2005

Background

- **Methodological advantages**
 - Adoption of silver was largely exogenous
 - Much larger database; allows focus on intra-Asian trade
 - New identification strategy for effects from switching to gold
- **Period allows us to examine adoption of gold and abandonment of silver and determine how trade changed as a result of this shift in currency regimes**
- **Was leaving silver harmful for trade?**
- **Why did some countries or colonies leave the historical standard, joining one with partners further away?**

Results

- Intra-Asian trade stagnated while trade with the rest of the world increased
- Silver was good for trade, but gold was better
- Leaving silver for gold resulted in more trade – even with former silver partners
- *Ex ante* countries & colonies could not be certain of this outcome
- Nevertheless, they moved to the gold standard.
Why?
 - Colonies had little choice in the matter
 - Independent countries, like Japan and China, had choices, but these were bounded by interest-group politics (Japan overrode interests of exporters, but China did not)

Related papers

- **Rose 2001, Glick and Rose 2002, Persson 2001 etc.**
- **Estevadeordal, Frantz and Taylor 2003; Lopez-Cordova and Meissner 2003; Ritschl and Wolf 2003**
- **Alesina and Barro 2003**

Silver standard in Asian is relatively underexplored

- **Nugent (JPE, 1973) finds silver standard was beneficial to trade due to decline in price of silver relative to gold, but no systematic analysis**
- **Mitchener and Weidenmier (2008) focus on the devaluation of silver and its effects on trade**
- **We employ a new database of nearly 18,000 bilateral observations on trade (347 distinct dyads) to assess the role of trade in Asia during the period 1870-1913**

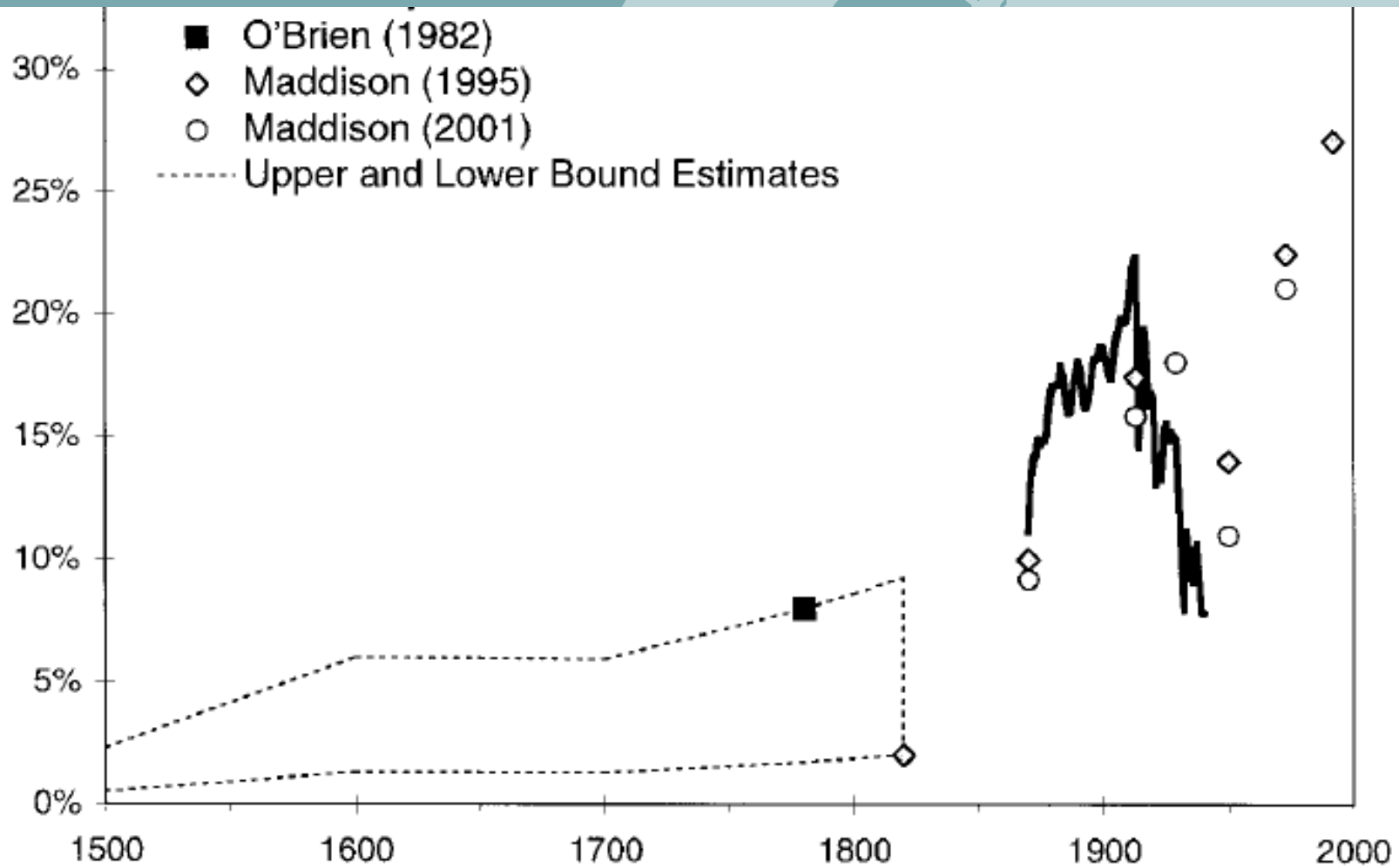


FIGURE I
Five Hundred Years of World Trade-to-GDP Ratios

World Trade by Region, 1870

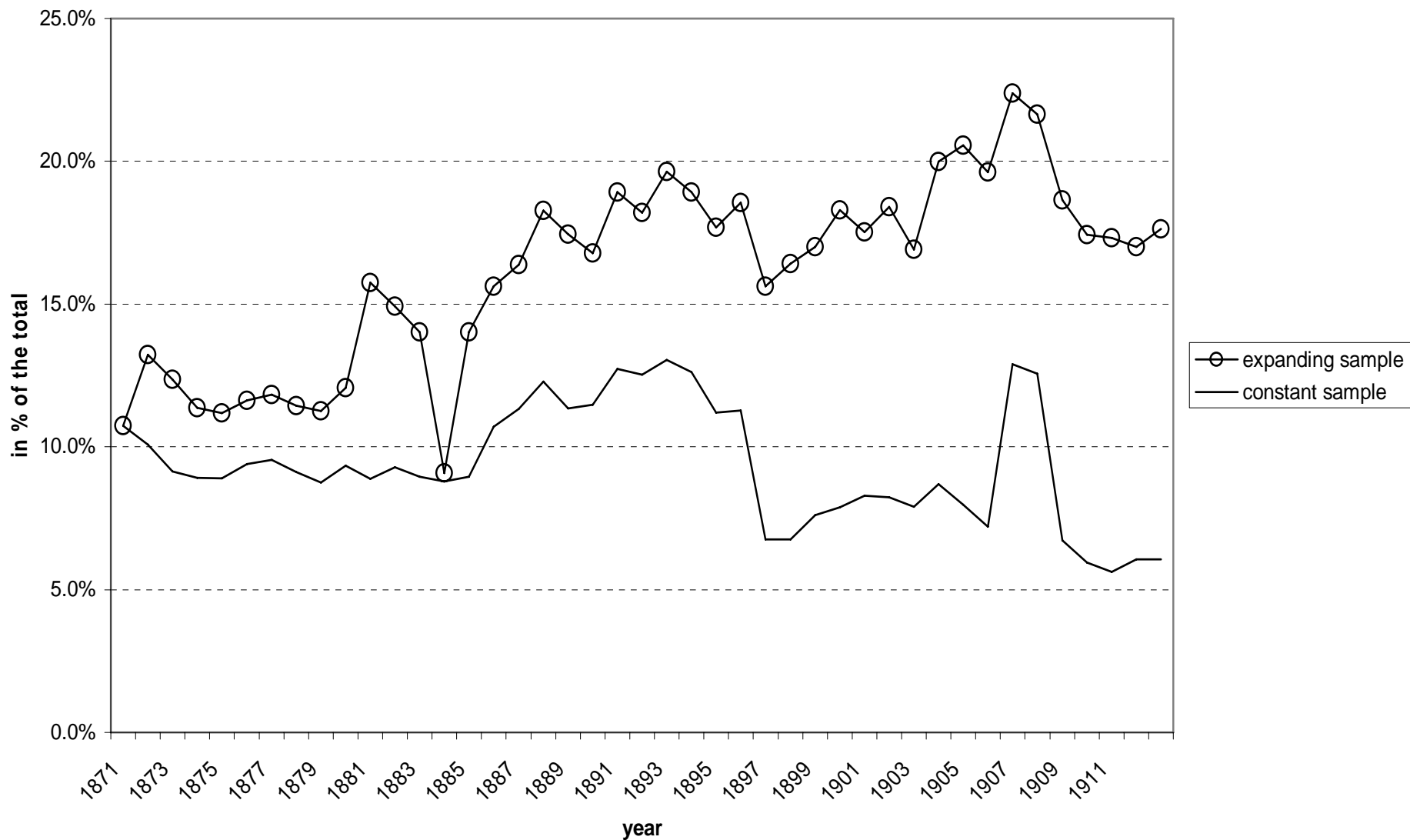
Region	% of World GDP	% of World Merchandise Exports	Merchandise Exports as % of GDP	Growth in Volume of Merchandise Exports, 1870-1913
Europe	33.6	64.4	8.8	3.2
Western Offshoots	10.2	7.5	4.7	4.7
Asia (incl. Japan)	38.3	13.9	1.7	2.8
Latin America	2.5	5.4	9.7	3.3
Eastern Europe	11.7	4.2	1.6	3.4
Africa	3.7	4.6	5.8	4.4

19th Century marks nadir in Asia's role in global trade

- **Start at a low level**
 - Low trade/GDP
 - Low trade/pop
- **Lowest growth of all regions**
- **What growth there was for Asia came via the rest of the world (Intra-Asian trade declines from 10% to 6%)**

Inter-Asian Trade declines in importance

Intra-Asian Trade



Currency unions then and now

19th century

“currency unions”:
silver (gold)

- Trade: N-S
- Nominal anchor: unimportant
- BCS: secondary
- Trade costs: very important

20 + 21st century currency unions

- Trade: N-N
- Nominal anchor: crucial (EMU)
- BCS: important
- Trade costs: smaller, but possibly important

Why the silver standard?

- **Dominance of silver rupee in India after 1835/53 (due to British East India Co.) cements its regional importance**
- **Silver standard prevails through mid-19th century based on trade patterns established in earlier centuries**
- **System spanned various empires and countries in Asia:**
 - Dutch colonies (Indonesia), French colonies (Indochina), British (Straits Settlements, Hong Kong, India, etc.), Japan, China, etc.**

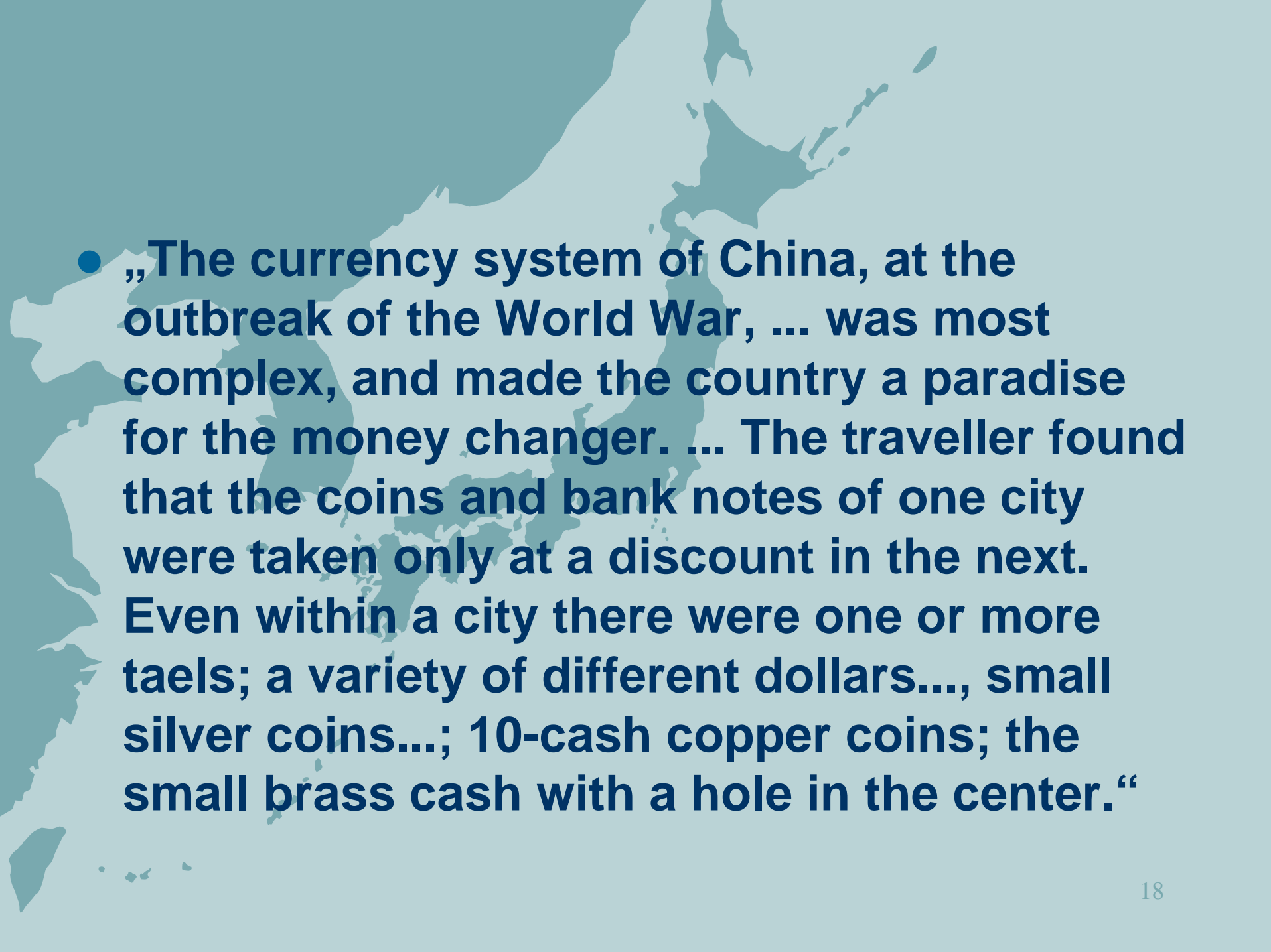
A common currency?

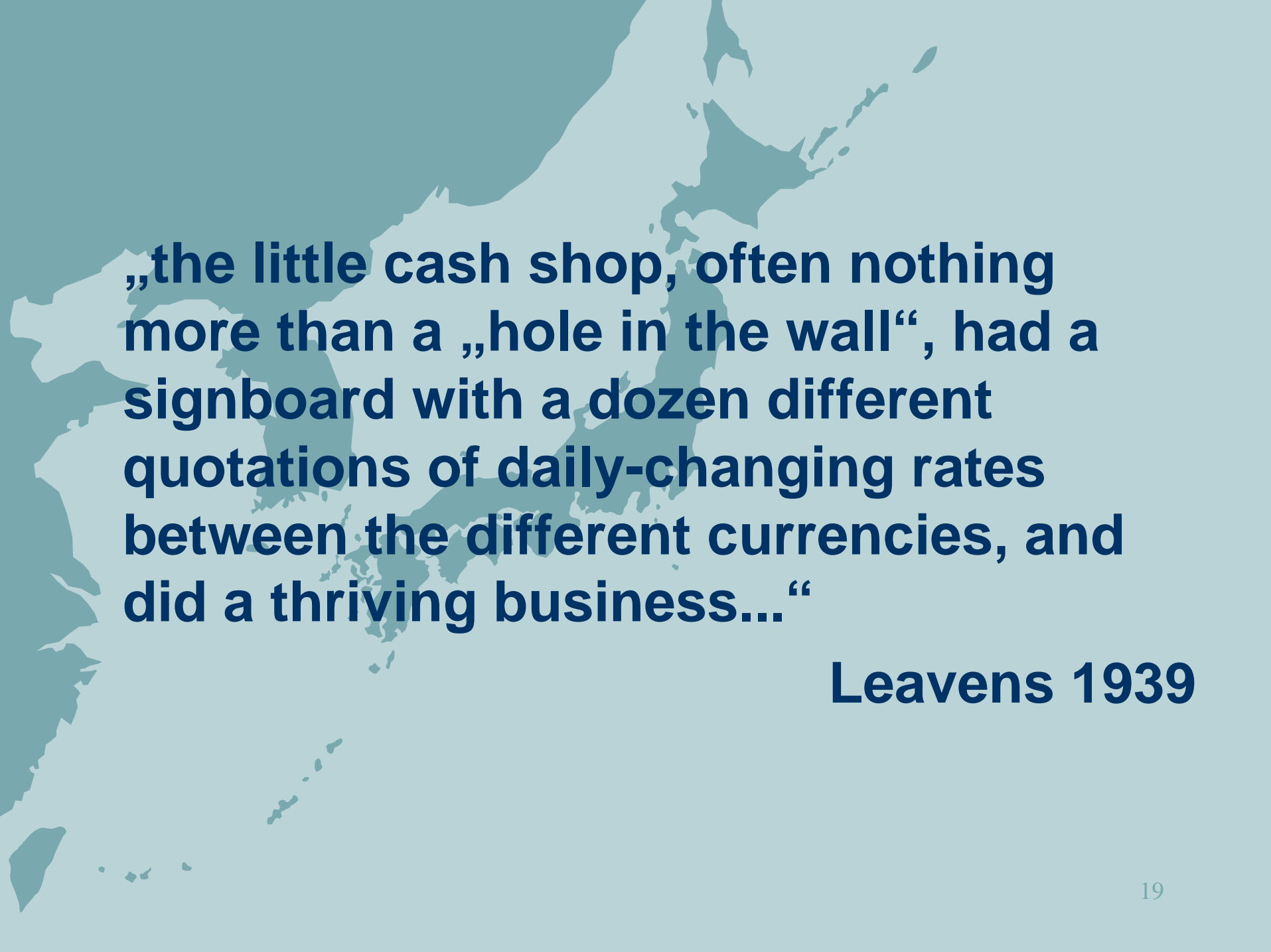
“By ‘currency union’ we mean essentially that money was interchangeable between the two countries at a 1:1 par for an extended period of time, so that there was no need to convert prices when trading between a pair of countries.”

Glick and Rose 2002

Analogy not exact

- **Use of multiple currencies itself raised transactions costs**
- **Use of uncoined silver (ingots) in China particularly cumbersome; Shanghai tael, the Kuping tael and the Haikwan tael.**

- 
- **„The currency system of China, at the outbreak of the World War, ... was most complex, and made the country a paradise for the money changer. ... The traveller found that the coins and bank notes of one city were taken only at a discount in the next. Even within a city there were one or more taels; a variety of different dollars..., small silver coins...; 10-cash copper coins; the small brass cash with a hole in the center.“**



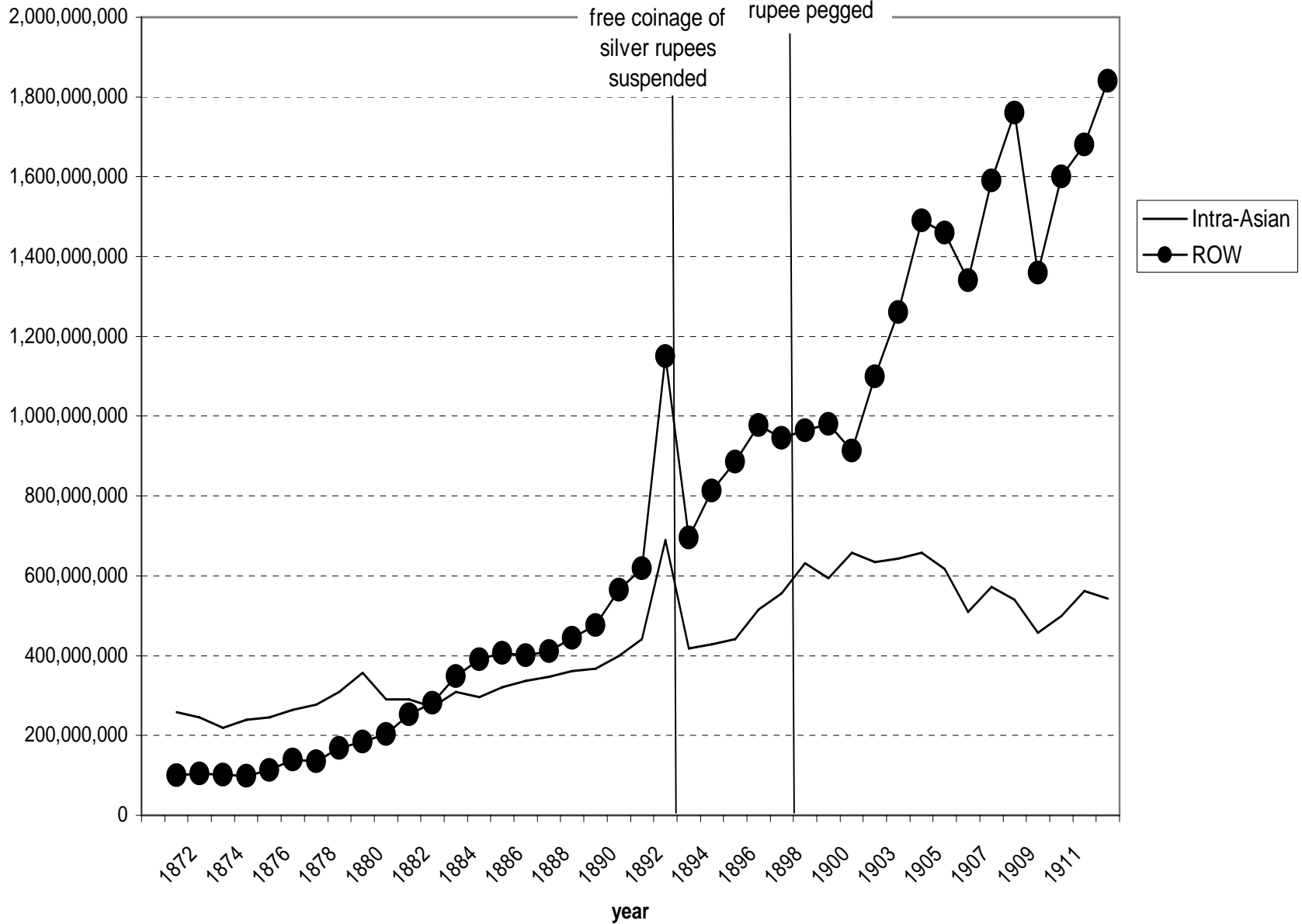
„the little cash shop, often nothing more than a „hole in the wall“, had a signboard with a dozen different quotations of daily-changing rates between the different currencies, and did a thriving business...“

Leavens 1939

Transition to gold in Asia

- After 1870, ROW switches more and more to gold: Silver price of gold falls
- Holland switched to gold in 1875 (due to Germany's switch in 1873); spilled over to its Asian colonies, Indonesia (1877)
- India switches in 1893/8 only after attempts to stabilize gold-silver price ratio fails
 - Other British colonies switch thereafter (Ceylon)
 - Growth of trade volume after switch to gold

Indian Trade Patterns



Transition to gold in Asia

- **Japan goes onto gold in 1897**
 - Resistance to adoption came from business community
 - Decline in silver price of gold had previously boosted Japanese exports
 - Opposition overcome through strong-arm tactics of Prime Minister (and Finance Minister) Matsukata
- **China stays on silver throughout the period**

Why was silver abandoned in spite of history and association with greater trade?

- **Politics drove the decision**
- **In colonies, metropolises made the choice**
- **In other countries, it hinged on the power of politicians to overcome domestic interest groups (exporters)**

Data

- **Export data 1870-1913**
 - Hand collected from British Board of Trade publications
 - Converted to British pounds and deflated using UK PPI
 - Based on Mitchener & Weidenmier (2008)
 - Full database 20 times larger than previous databases
- **Compile data on other country-specific variables to construct a gravity model of trade**

Estimating effects of silver standard on exports

Estimation equation

$$\ln(\text{Exports}_{ijt}) = \beta_0 + \beta_D (\text{Dist}_{ijt}) + \beta_P \log(\text{Pop}_{ijt}) + \beta_L \text{Landl}_{ijt} + \beta_E \text{Empire}_{ijt} \\ + \beta_R \ln(\text{rail})_{ijt} + \beta_G \text{Gold}_{ijt} + \beta_S \text{Silver}_{ijt} + \varepsilon_{ijt}$$

- Use uni-directional trade data (exports)
- Exploit time-series variation rather than the cross section (panel approach)
- Adoption largely exogenous in Asia
- Use population, not GDP

Pooled OLS results: Currency standards and exports in Asia

	(1)	(2)	(3)	(4)
Distance	-0.700 ^{***} (-34.51)	-0.688 ^{***} (-34.13)	-0.660 ^{***} (-32.78)	-0.643 ^{***} (-30.62)
Log (pop)	0.285 ^{***} (43.55)	0.314 ^{***} (41.29)	0.305 ^{***} (39.41)	0.316 ^{***} (39.51)
Landlocked	-0.394 ^{***} (-3.63)	-0.556 ^{***} (-5.04)	-0.547 ^{***} (-5.05)	-0.578 ^{***} (-5.34)
Empire	0.540 ^{***} (11.76)	0.343 ^{***} (7.58)	0.330 ^{***} (7.30)	0.358 ^{***} (7.66)
Log (rail)	0.125 ^{***} (23.35)	0.0724 ^{***} (11.43)	0.0851 ^{***} (13.25)	0.0733 ^{***} (10.55)
Gold standard		0.437 ^{***} (11.76)	0.458 ^{***} (12.31)	0.474 ^{***} (10.87)
Silver standard			0.394 ^{***} (5.69)	0.339 ^{***} (4.81)
Paper-bimetallic				-0.142 (-1.15)
Bimetallic-silver				-1.045 ^{***} (-4.17)
Bimetallic-gold				-2.077 ^{***} (-4.82)
Paper-silver				-0.688 ^{***} (-7.29)
Paper-gold				0.265 ^{***} (4.48)
Paper standard				-0.0761 (-1.12)
C	14.91 ^{***} (77.12)	14.99 ^{***} (75.29)	14.70 ^{***} (74.93)	14.53 ^{***} (70.52)
N	15599	14517	14517	14517
adj. R ²	0.290	0.311	0.313	0.319

Note: excluded category for currency arrangement is gold-silver. *t*-statistics in parentheses

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Fixed effects regressions: Currency standards and exports in Asia

	(1)	(2)	(3)	(4)
Log (pop)	0.512*** (24.08)	0.452*** (21.15)	0.456*** (21.35)	0.453*** (21.44)
Empire	0.687*** (7.19)	0.576*** (6.40)	0.534*** (5.92)	0.677*** (7.56)
Log (rail)	0.131*** (26.20)	0.106*** (21.28)	0.100*** (19.72)	0.0893*** (17.66)
Gold standard		0.395*** (16.77)	0.377*** (15.84)	0.296*** (10.69)
Silver standard			-0.210*** (-5.16)	-0.272*** (-6.69)
Paper-bimetallic				-0.364*** (-3.02)
Bimetallic-silver				-1.419*** (-15.95)
Bimetallic-gold				-2.141*** (-10.63)
Paper-silver				-0.369*** (-6.26)
Paper-gold				-0.0279 (-0.65)
Paper standard				-0.222** (-2.40)
C	4.985*** (14.87)	6.344*** (18.84)	6.395*** (19.00)	6.626*** (19.86)
<i>Year Dummies</i>	N	N	N	N
<i>Fixed Effects</i>	Y	Y	Y	Y
<i>N</i>	15601	14519	14519	14519
<i>adj. R²</i>	0.154	0.169	0.170	0.192

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Fixed effects regressions: Time dummies and time-varying country dummies

	(1)	(2)
Log (pop)	0.187*** (7.61)	0.294*** (8.59)
Empire	0.631*** (7.17)	0.596*** (6.01)
Log (rail)	0.0113* (1.74)	0.00207 (0.23)
Gold standard	-0.0108 (-0.35)	0.0419 (1.08)
Silver standard	-0.112*** (-2.73)	-0.237*** (-4.87)
Paper-bimetallic	-0.159 (-1.33)	-0.210 (-0.96)
Bimetallic-silver	-1.068*** (-11.81)	-1.212*** (-10.49)
Bimetallic-gold	-2.217*** (-11.10)	-2.409*** (-11.63)
Paper-silver	-0.189*** (-3.21)	-0.183*** (-2.73)
Paper-gold	-0.136*** (-3.18)	0.00575 (0.11)
Paper standard	-0.104 (-1.13)	0.117 (1.06)
C	11.69*** (27.99)	9.198*** (13.95)
<i>N</i>	14519	14519
adj. <i>R</i> ²	0.221	0.314

	(1)	(2)
Gold standard	-0.0108 (-0.35)	0.0419 (1.08)
Silver standard	-0.112*** (-2.73)	-0.237*** (-4.87)
C	11.69*** (27.99)	9.198*** (13.95)
<i>N</i>	14519	14519
adj. R^2	0.221	0.314

Results before and after 1895

	(1)	(2)	(3)	(4)
	<1895	≥1895	<1895	≥1895
Distance	-0.486 ^{***} (-3.22)	-0.859 ^{***} (-5.28)		
Log (pop)	0.410 ^{***} (6.96)	0.259 ^{***} (4.64)	0.430 ^{***} (11.58)	0.435 ^{***} (15.25)
Landlocked	-0.386 (-1.08)	-0.529 (-0.81)		
Empire	0.746 ^{**} (2.04)	0.135 (0.44)	0.843 ^{***} (5.92)	0.794 ^{***} (5.73)
Log (rail)	-0.00640 (-0.17)	0.184 ^{***} (3.13)	0.0903 ^{***} (11.62)	0.156 ^{***} (14.40)
Gold standard	1.324 ^{***} (3.96)	-0.122 (-0.48)	0.684 ^{***} (8.35)	0.199 ^{***} (6.97)
Silver standard	0.120 (0.28)	0.746 (1.37)	-0.685 ^{***} (-7.47)	0.0493 (1.01)
Paper-bimetallic	0.142 (0.35)	0 .	-0.381 ^{***} (-2.96)	0 .
Bimetallic-silver	-1.041 (-1.23)	0 .	-1.199 ^{***} (-12.37)	0 .
Bimetallic-gold	-1.681 ^{**} (-2.42)	0 .	-1.700 ^{***} (-8.22)	0 .
Paper-silver	-0.563 (-0.99)	-1.012 (-1.36)	-0.385 ^{***} (-4.20)	-0.110 (-1.22)
Paper-gold	1.022 ^{***} (2.77)	-0.592 [*] (-1.75)	-0.0949 (-1.23)	0.0856 (1.51)
Paper standard	0.173 (0.56)	-0.252 (-0.65)	-0.0980 (-0.85)	0.221 (1.34)
C	12.34 ^{***} (7.49)	15.97 ^{***} (10.56)	7.103 ^{***} (12.69)	5.634 ^{***} (11.30)
<i>Year dummies</i>	N	N	N	N
<i>Dyad fixed effects</i>	N	N	Y	Y
<i>N</i>	7177	7340	7179	7340
<i>adj. R²</i>	0.346	0.333	0.168	0.084

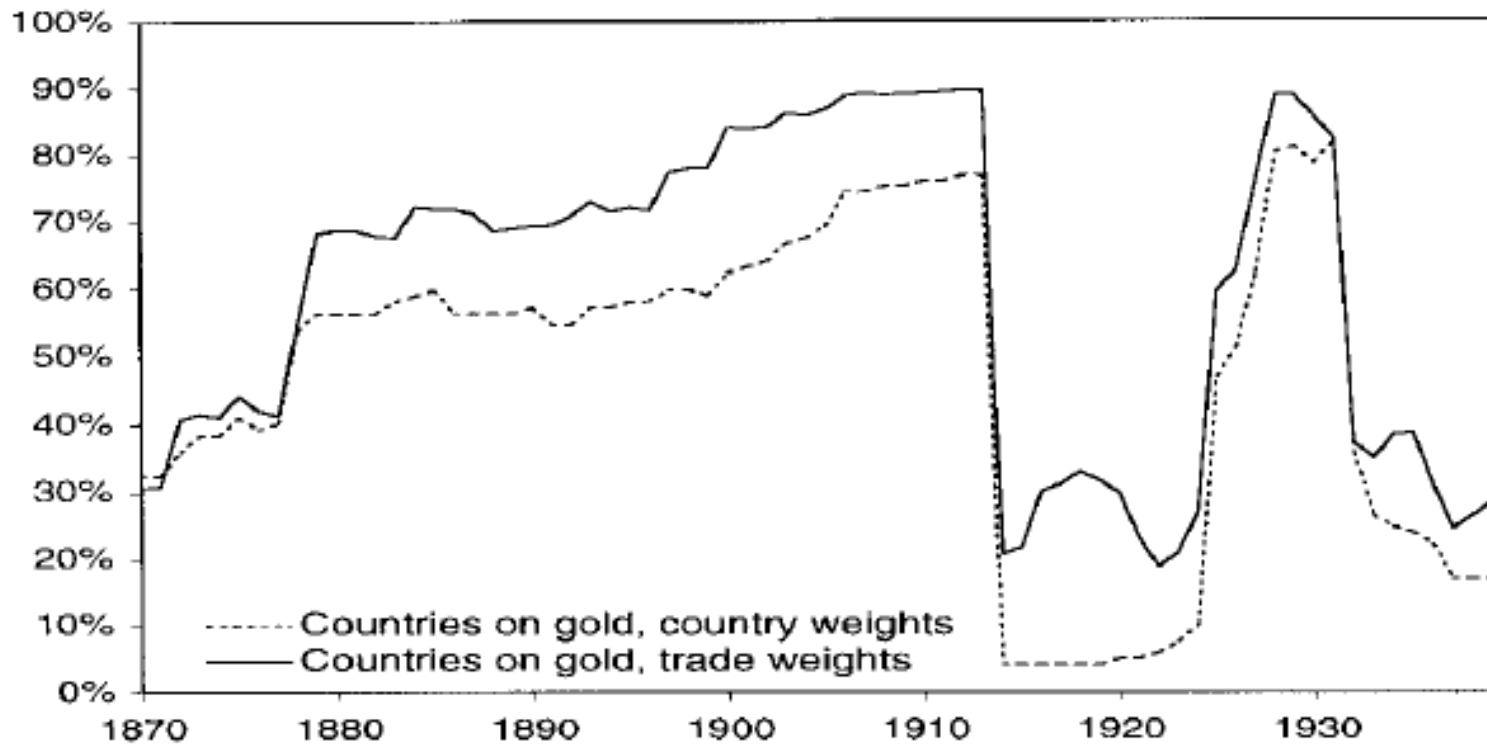
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Interpreting the switch to negative coefficient on silver in FE models

- Identifying variance of silver variable over time comes from countries switching to gold
- Implies that it paid to switch to gold
 - Large benefits if you switched early as trade increased,
 - Even late adopters of gold benefited by switching
- Countries staying on silver longer had strong ties to other countries on silver
- China & Hong Kong (whole sample), Straits Settlements (1906), Siam (1908), Japan (1897), India (1898)

Switch to gold

(a) Gold Standard Adherence



Identifying the effect of switching to gold

- How exogenous was switch from silver to gold? History suggests – accident played a large role. Yet in some cases (Straits), local interests also important
- Literature until today (Lopez-Cordova and Meissner): use gold stock /money outstanding as instrument
- New instrument: success in war

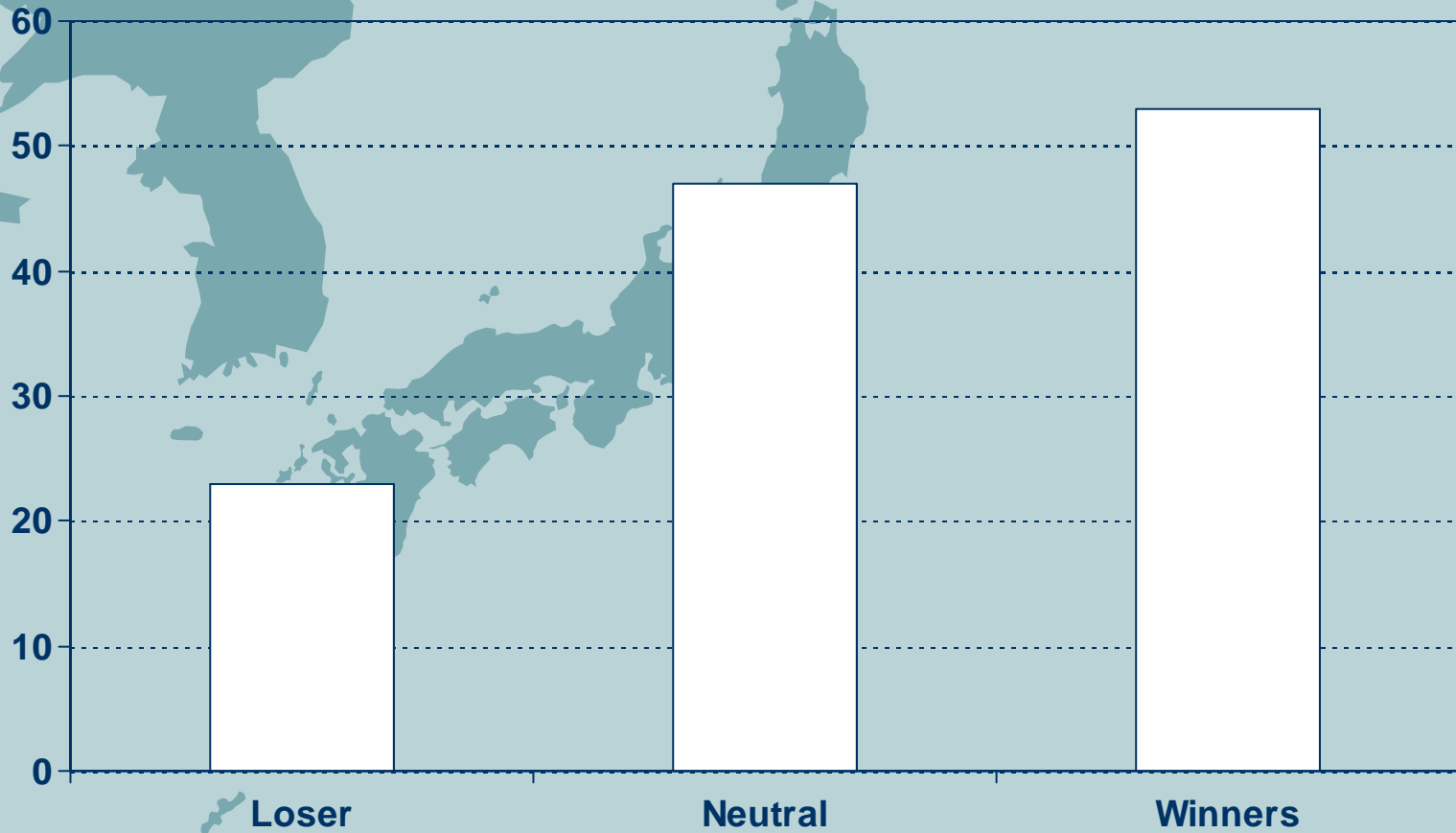
Political Economy of Currency Arrangements

- Decisions by colonial masters
- Example of India:
 - Herschell committee convenes in 1892
 - Hears 28 witnesses (one Indian)
 - Manufacturers, bankers, tea planters in India favor staying on silver
 - Home charges falling in gold value – administration favors gold
 - 1,700 submissions from British civil servants, etc., complaining about the falling value of their colonial salary back in Britain (school fees, etc.)

Political Economy: The Colonies - 2

- **Not all cases so simple:**
 - **Siam (switches to gold-silver standard in 1908) often portrayed as a de facto dependency; yet some evidence that British advisors not all-powerful**
 - **Straits Settlement (switches in 1906): colonial interests favor gold**

Wartime success and switch to gold



IV results

	(1)	(2)	(3)	(4)
Gold standard	1.689 ^{***} (7.86)	3.857 [*] (1.69)	1.602 ^{***} (5.48)	1.984 [*] (1.67)
Log (pop)	0.246 ^{***} (5.97)	0.363 ^{***} (2.72)	0.317 ^{***} (8.43)	0.315 ^{***} (3.90)
Empire	0.215 [*] (1.87)	-0.122 (-0.29)	0.450 ^{***} (4.18)	0.390 ^{**} (2.24)
Log (rail)	0.0650 ^{***} (7.55)	0.139 [*] (1.73)	0.0665 ^{***} (9.00)	0.0646 ^{**} (1.99)
Silver standard			0.124 (1.26)	0.0619 (0.55)
Paper-gold			0.988 ^{***} (4.28)	1.208 (1.51)
Bimetallic-gold			-0.930 ^{***} (-2.70)	-0.424 (-0.39)
Paperstandard			0.639 ^{***} (2.96)	0.716 (1.44)
Paper-silver			0.479 ^{**} (2.40)	0.588 (1.26)
Paper-bimetallic			0.416 [*] (1.93)	0.605 (1.28)
Bimetallic-silver			-0.803 ^{***} (-4.82)	-0.628 ^{**} (-2.24)
C	12.30 ^{***} (12.36)	10.42 ^{***} (5.40)	10.76 ^{***} (12.44)	10.68 ^{***} (7.63)
<i>Year dummies</i>	N	Y	N	Y
<i>Dyad fixed effects</i>	Y	Y	Y	Y
<i>N</i>	14519	14519	14519	14519
<i>adj. R²</i>	0.834	0.690	0.846	0.835

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Independent country decision-making: Japan

- **Japan's experience is illustrative**
 - **Business community resisted change from silver**
 - Exporters argued trade had increased under silver standard due to silver's depreciation
 - Interests were concentrated (70% of exports in four products)
 - **A committee of exports recommends staying on silver**
 - **Opposition parties initially back the business community**

Opposition

“The exports to gold standard countries increased by more than 260 percent from 1878 to 1893 while the imports from these countries only increased by 70 percent over the same period. This is because the price of exports has fallen while the price of imports has risen. This has promoted the development of industries, technical progress, and growth in the demand for labor. These benefits exceed the costs of being a silver standard country.”

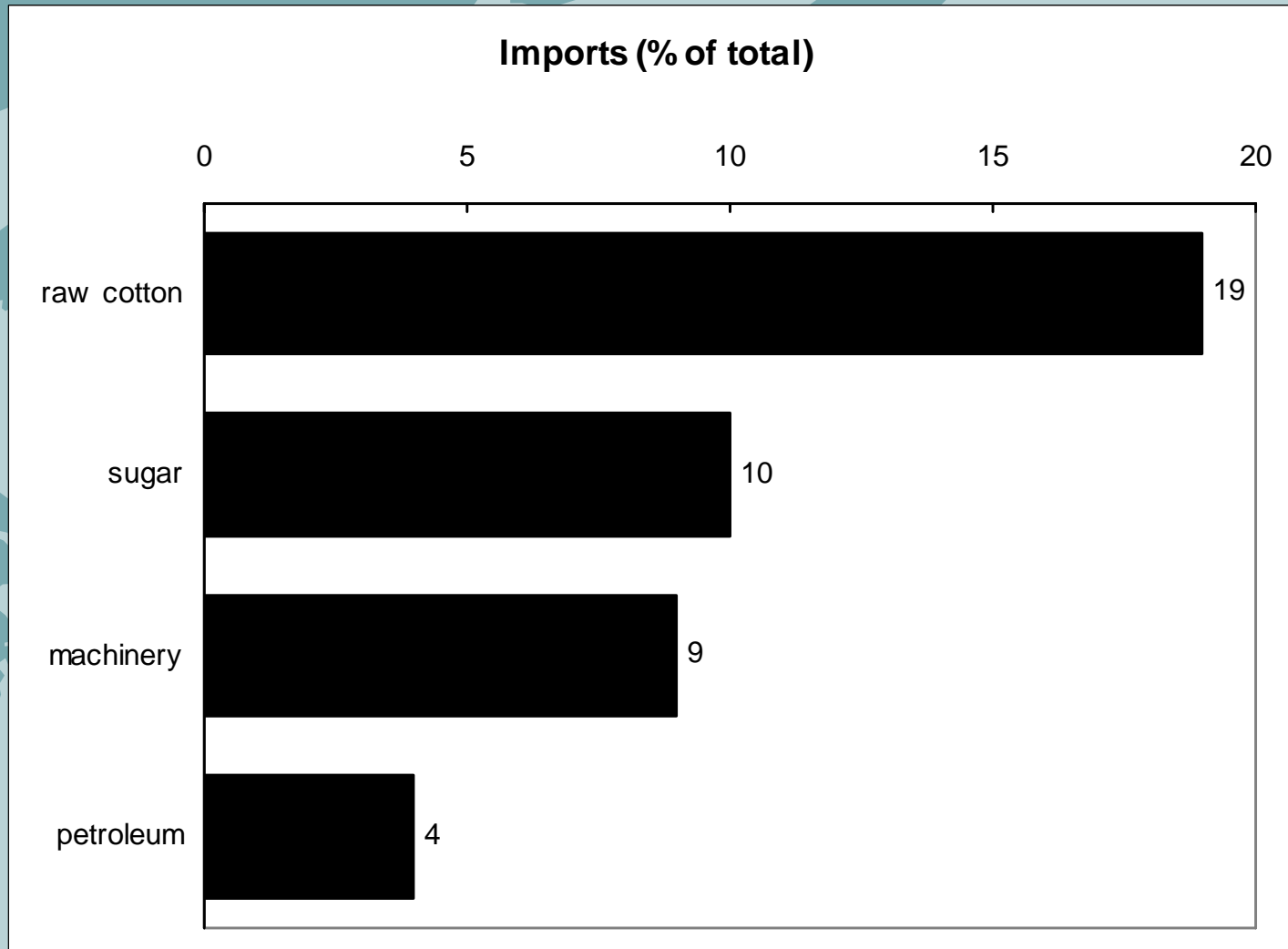
- Eiichi Shibusawa

Neutral observer's view

“From 1886 to 1897, a period of over a decade, it is doubtful whether there was the slightest demand for return to the gold standard. On the contrary, every so-called decline of silver was hailed with general satisfaction by those engaged in industrial and commercial pursuits.”

Garrett Droppers, QJE

Case study Japan



Japan's adoption of gold

- Matsukata, the Prime Minister is not dissuaded by these positions
- Uses war indemnity to acquire gold
- Forms a strategic alliance with the Progressive Party (a key opposition party) in order to win passage in the Diet
- Without support of one of the opposition parties, measure would have failed at the committee level
- Heavy hand of ruling party, political guile, and sheer luck guided adoption of gold

Conclusions

- **Silver standard functioned similarly to a “regional” currency union – trade between members higher (many reasons possible)**
- **Abandoning this currency arrangement not harmful in 19C Asia**
- **Alternative: global standard, offering easier trading with far-away countries with very different factor endowments and technology**
- **Benefits to trading with Europe and the Americas (Ricardian or “East-West” trade) in 19C proved greater than the disadvantages of abandoning silver (even for trade with former silver bloc partners)**

Implications for today

- **Challenge today: Currency arrangements (dollar pegs) aim to maximize Ricardian trade. Benefits of more regional integration may be large – more intra-industry trade as countries get richer (but doubts about Asia as an OCA).**
- **Would Asian countries be willing to abandon exchange-rate policies that in the past seem to have promoted trade in favor of an alternative arrangement?**
- **Little shared institutional legacy; little political impetus**
- **Analogy with Europe (role of Bundesbank credibility): what carrots could be used to induce membership in a CU?**

