

十九世紀下半葉台灣的糖業

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introduction

1864-1869: a change of comparative advantage

1870-1884: Japan opened ports

1885-1895: decline

conclusion

the research route

- ▶ wrong idea
 - ▶ Opening ports contributed importantly to Taiwan's economy?
- ▶ wrong sources
 - ▶ Taiwan was a price taker in the world market.
 - ▶ Customs reports and consular reports provide excellent description of 19th century Taiwan, but they only tell half of the story: supply side.
 - ▶ What really happened?

wrong idea

- ▶ Tea, sugar and camphor
- ▶ importance of comparative advantage?
- ▶ 2-way causality between growth and trade
 - ▶ Bernhofen and Brown (2005) consider Japan's opening ports as a natural experiment.
 - ▶ Free trade contributed no more than 8-9% of GDP.
 - ▶ Meiji restoration was the driving force for later fast growth.
- ▶ Taiwan?

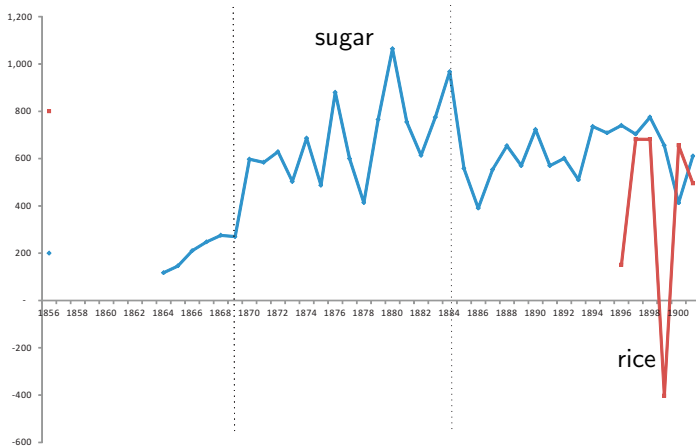


Figure: Taiwan's rice and sugar exports (1,000 piculs)

- ▶ 1858: Tianjin Treaty
- ▶ 1863.10: The Provisional Regulations
 - ▶ Prior to 1863, the foreign ships before visiting Takao needed to pay a deposit first in Foochow, then pay import duties in Tamsui/Amoy. When leaving, they had to return to Amoy/Foochow to pay export duties.
- ▶ 1864.5: Takao port opened
- ▶ but...

It is this day agreed between Kim.mo.hop and Thomas Sullivan as follows that the said Kim.mo.hop supplies Thomas Sullivan with a cargo of sugar as under within 50 fifty days of this date.

no.1	white	2,000 pecul	\$5.40 per pecul
no.2		9,000 pecul	\$5.25 per pecul
no.3		9,000 pecul	\$5.10 per pecul

Total 20,000 peculs. The above prices not to include mandarins fee or shipping expenses. The sugar to be delivered at Tywanfoo on ship's arrival; payment for the same to be made at Takow by Capt'n. Rorie in drug or dollars at 6.8 per dollar. 1/3 one third payment to be made in advance. For which agreement we both affix our signatures this 29th day of September 1860.

Thomas Sullivan
for Mess. Jardine Matheson Co.
Schooner Wild Wave
off Tywenfoo, Sept. 29th 1860 金和合

Why did sugar exports increase since 1864?

- ▶ 黃修文 (2005) cast doubts: an accounting phenomenon as sugar shifted from junks to foreign ships
- ▶ 李國恆 (2012) considers it a real phenomenon
 - ▶ stable trade value and ships' tonnage from 1865 to 1869 at Takao
 - ▶ Increase in sugar exports implies decrease in rice exports.
 - ▶ Opening port was more favorable to sugar's long-distance trade, i.e. a change of comparative advantage
- ▶ A problem of identification:
 - ▶ Customs data started in 1864.
 - ▶ Taiping Rebellion also ended in 1864.
 - ▶ What if Taiwan rice had a comparative advantage when 江南 fell into Taiping's hands?

- ▶ 姚瑩 (1820s): 臺本產穀之區, 福、泉、漳三府民食仰之, 商民販運, 歲常百萬。江、浙、天津亦至焉。
- ▶ 姚瑩 (1839): 比各省皆熟, 米客不至, 臺人苦穀有餘而乏日用。
- ▶ 徐宗幹 (1848-1854): 履其地而後, 知十年前之不如二十年前也, 五年前之不如十年前也, 一二年內之不如五六年前也。其故安在? 兩言以蔽之曰: 銀日少, 穀日多... 蓋由內地食洋米而不食台米也。不食台米, 則台米無去處, 而無內渡之米船。無內渡之米船, 即無外來之貨船。往年春夏, 外來洋元數十萬。今則來者寥寥, 已數月無廈口商船矣。各廳、縣雖有海口, 幾成虛設。
- ▶ Taiping Heavenly Kindom established in 1851; occupying Nanking in 1853 but soon sieged by Qing's army and only breaking through defence lines in 1856. Taiping never came to Taiwan.

“During the last few days, there has been a large quantity of Siam rice put into the market and some sales have been made at Tls. 1.1 ppl. I would not advise any shipment of this article, as the stocks now in the north are large; besides importations by foreign vessels, I hear there are 50 Junks in the river from Formosa with rice.”

Ningpo business letter, 8 June, 1859, no.399, from Daniel Patridge

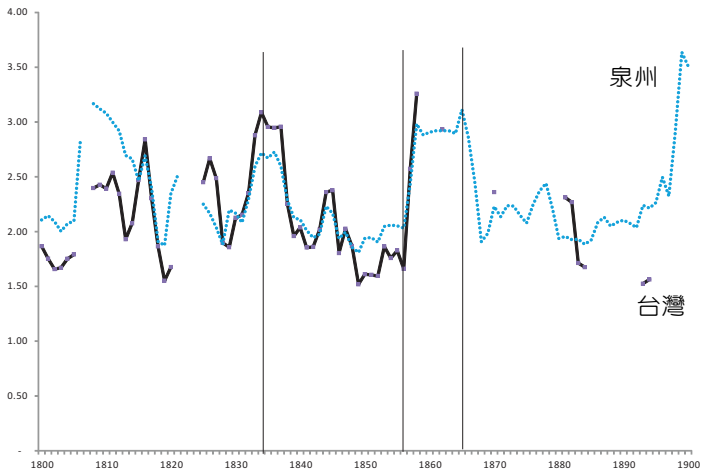


Figure: 台灣與泉州中米價格 (兩/倉石)

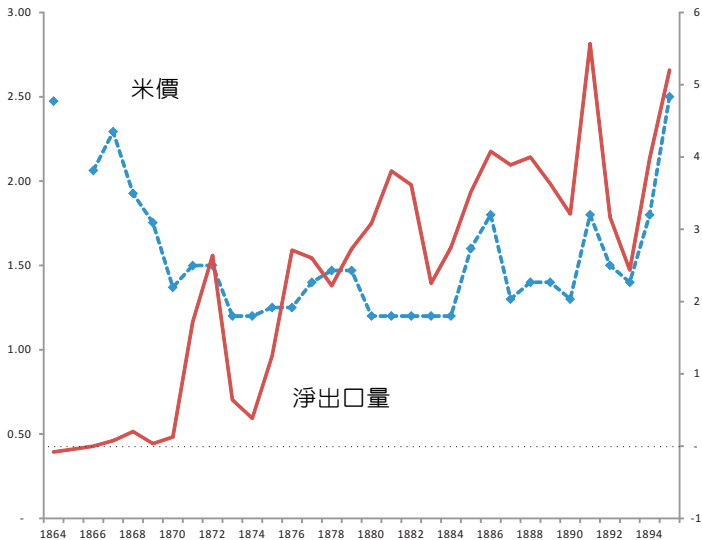


Figure: 上海米淨出口量(百萬擔) 與出口價格(海關兩/擔)

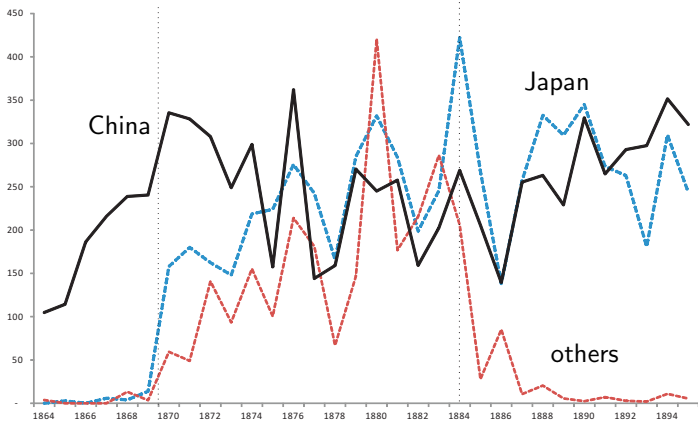


Figure: Brown sugar exported from Taiwan (1,000 piculs)

Japan

- ▶ 1715: 《正德新例》allowed only 3 Dutch ships and 30 Chinese ships to Japan in a year.
- ▶ 1791: 1 Dutch ship and 10 Chinese ships
- ▶ 1853-1854: Commodore Matthew C. Perry visited Tokayo Bay twice; only emergency aids to future American ships were promised by Japan
- ▶ 1858: 《安政條約》under threat of Anglo-French allied force, promising to open ports in 神奈川、長崎、新瀉、神戶、東京、大阪
- ▶ Conflicts continued between 攘夷派 and 開放派: 井伊直弼 who signed 《安政條約》was assassinated in 1860.3; 1863.6 下關海戰 etc.
- ▶ 1864.8: 長州藩蛤御門之變 failed
- ▶ 1866.6: Harry Parkes renegotiated and reduced traiff from 20% to 5%
- ▶ 1868: 大政奉還, 6 important 領主 denounced 攘夷; 神戶、大阪 opened ports
- ▶ Cane planted at the end of 1868 would be reaped and made into sugar in 1870.

陳福謙 and Jardine Matheson

- ▶ (陳) 福謙以日本銷糖巨，派人查之，知有利。同治九年 (1870年)，自配至橫濱，與日商貿易。.... 其糖分銷東京等處，歲約五萬擔，臺糖之直配日本，自福謙始。(連橫,《台灣通史》)
- ▶ JM business letters, Yokohama
 - ▶ The samples of Bangkok Rice, Peas and Formosa Sugar have been arrived and the two latter are reported upon my separate advices. (1869.11.27)
 - ▶ The sample for Formosa Brown received from you proves to be a very desirable quality, and comparing it with [Swatow's] No.8 kind, is a far preferred sugar. ... With the present dull state of all sugars, I quote the value of it at \$4.70 to \$4.75. (1869.11.27)
 - ▶ Taiwan's Sugar price in 1869 at Takao Customs was \$2.50/picul.

Invoice in Takao, 1871.7.11

	bags	piculs	\$/pcl	payments	sum
	195	200.65			
	5,055	5,055.00			
export duty	5,250	5,255.65	2.43	\$12,771.23 962.50	
					\$13,733.73
charges				\$1,575.00	
godown rent, packing, paper, mats, boat & coolie hire					
damaged mats				3.00	
freight from T'foo on 60 large baskets				18.00	
advance a/c charter				50.00	
shroffage				6.86	
commission				343.34	
insurance				360.00	
					2,356.20
					\$16,089.93

Sales Accounts, Japan, 1871.10.17

	bags	piculs	prices	revenue/charges	
sales	2,000	1,864.56	\$4.30/pcl	\$ 8,017.61	
	2,748	2,595.69	4.30	11,161.47	
	500	476.25	4.30	2,047.88	
	2			10.67	(short)
sum	5,250	4,936.50			\$21,237.62
charges					
freight				\$2,160.72	
import duty				522.39	
boat coolie				262.40	
godown				418.32	
fire insurance				56.30	
postages and petties				21.48	
sum					3,441.61
					\$17,796.01
invoice cost					16,089.93
					\$ 1,706.08

profitability?

- ▶ net margin of the above 5,055 bag sugar = 8% in 1871
- ▶ net margin of 9,800 bag sugar = -3% in 1880 (joint account with Elles & Company)

釐金?

- ▶ 1884.10–1885.4: French blockade
- ▶ 1886.5: 糖釐 \$0.40/picul on white sugar;
\$0.20/picul on brown sugar
- ▶ Boycotts by both farmers and merchants
- ▶ a merely nominal likin in 1886; the rate was reduced to be \$0.15/picul on white sugar;
\$0.09/picul on brown sugar
- ▶ The tax rate was about 3.15% for brown sugar.

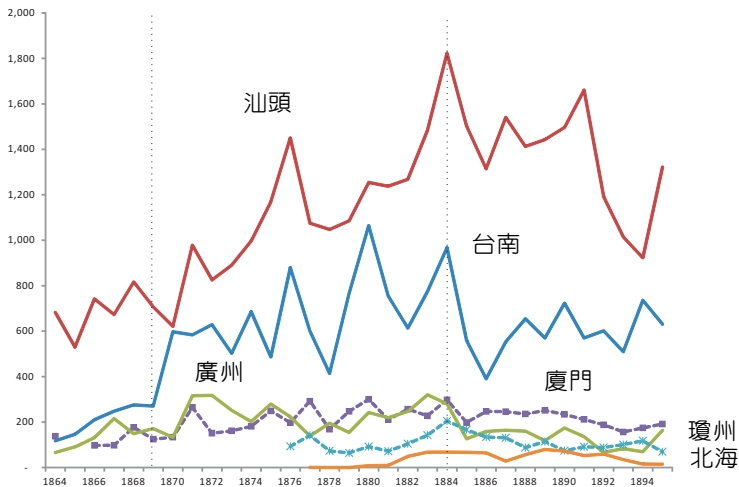


Figure: Sugar exports at China's treaty ports (1,000 piculs)

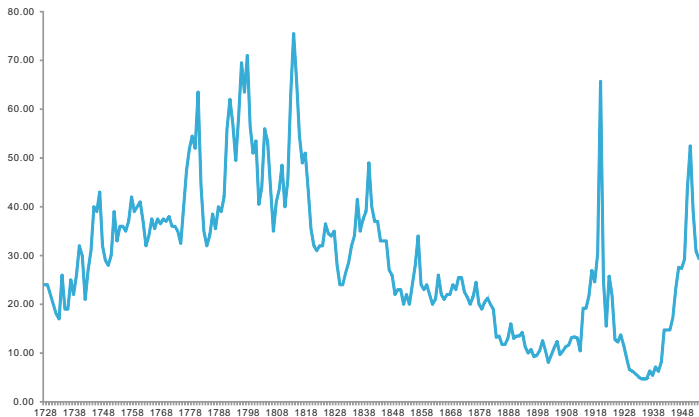


Figure: Raw sugar price in London (shillings/cwt)

Sugar crisis in 1884

- ▶ London price dropped by 30%
- ▶ “The sugar trade in almost every part of the world has been ruinously bad of late years.” *North China Herald*, 1884.10.8,
- ▶ Java sugar retreated from Europe and strongly entered markets in Asia, America, Africa and Middle-East.

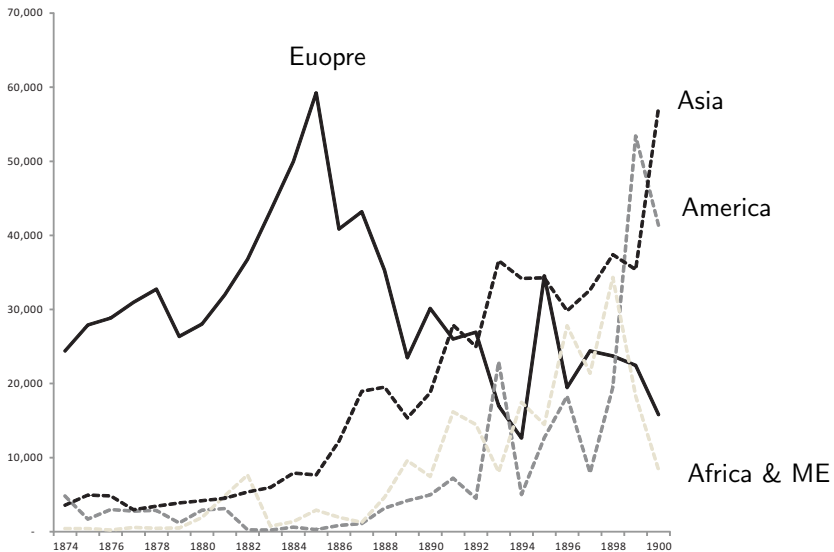


Figure: Java sugar exports (1,000 piculs)

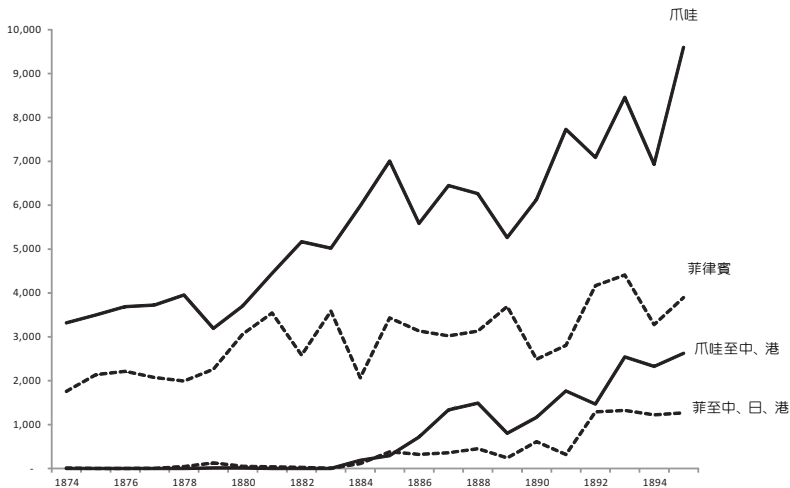


Figure: Java's and Philippines's sugar exports (1,000 piculs)

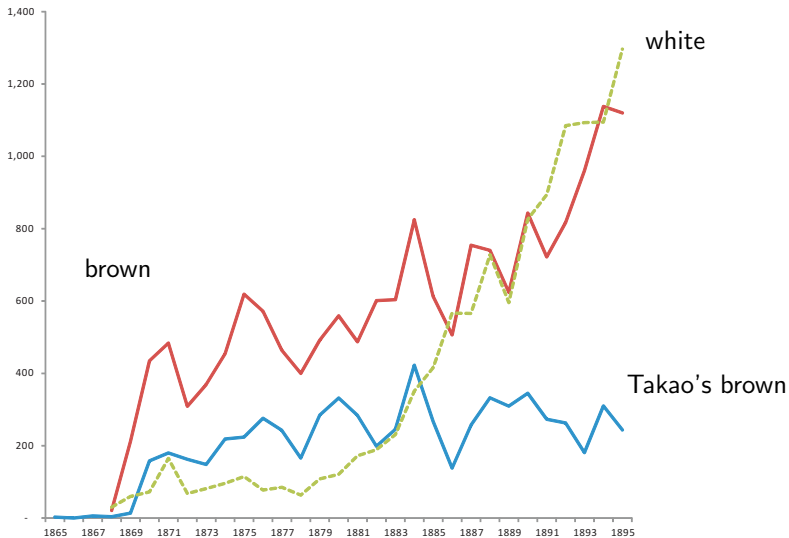


Figure: Japan's sugar imports (1,000 piculs)

- ▶ In 1895, Java and Philippines exported 3,894 thousand piculs of sugar to China, Hong Kong and Japan. It exceeded China's total exports (including sales to provinces not producing sugar) of 3,641 thousand piculs reached at the peak in 1884.
- ▶ Why couldn't China compete with her neighbors?
- ▶ Industry revolution of sugar from the second half of the 18th century onwards: steam power, vacuum pan, centrifugal etc.
- ▶ Java, Philippines and Australia modernized their sugar production in the 19th century (all under British influence).
- ▶ China's technology stagnated for centuries while foreign direct investments was banned till 馬關條約.

“According to the advices from Formosa by the China Mail, Messrs. Russell & Co. are working energetically for the development of the resources of that island. They propose to establish sugar-cane mills in the centres of the cane-growing districts to supersede the wasteful and primitive machinery now used by the natives. They propose further to erect a refinery near Takow, to work up sugar bought from the natives, as well as the products of the intended mills. They further propose to increase cultivation of sugar in the island, ... by supplying modern appliances for the drainage or irrigation of land at present valueless. That these propositions if accepted by the Chinese, will greatly promote the prosperity of the island, ...”

The North China Herald, 1886.7.23

Iron Mills

- ▶ Ordered from Messrs. Blake, Barclay and Co., of Greenock
 - ▶ requiring 2 instead of 3 oxen to drive it
 - ▶ extracting 18% more juice
- ▶ "[T]he mill was at once taken over by a sugar-grower, who had undertaken to buy it provided that it did the work promised. ... I have not heard, however, that any orders have as yet been received by the importers of the mill." (Tainan, 1892)
- ▶ mechanical vulnerability of the iron cane crushers
 - ▶ The use of the Otaheite cane was a logical concomitant to the introduction of iron crushers.
 - ▶ 台灣竹蔗

concluding remarks

- ▶ comparative advantage
 - ▶ 李國恆 (2012): Opening ports and introducing foreign shipping favored sugar's long-distance trade
 - ▶ Rice returned to its disadvantaged position after the end of Taiping Rebellion.
- ▶ Opening trade did not matter much until your trading partner (Japan) did the same.
- ▶ Importance of foreign direct investment

rice

