A SWEET DEAL: SUGAR PLANTATIONS IN THE HAWAIIAN ECONOMY

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Hawaii was once one of the world's most important sources of sugar – a fascinating and unusual part of the world. Jason Somerville's extensive research examines how this highly specialised economy developed – from its first contacts with the West to its accession into the United States – and addresses the famous Lucas Paradox of why capital fails to flow from rich countries to poor.

Introduction

The defining characteristic of the Hawaiian economy since western contact has been overspecialisation. Initially, sandalwood, Hawaii's naturally most abundant resource, became the backbone of the economy. As supplies diminished and whaling spread to the Pacific, Hawaiian output was largely reliant on docked whalers. The discovery of petroleum sent whaling into decline, only to be replaced by a more dominant industry; sugar. Pineapple too has played a crucial role in the overspecialisation of the Hawaiian economy, but as Hitch (1992, p.108) notes: 'Pineapple was never the symbol of concentrated economic, political, and social power in Hawaii that sugar was'. Therefore, this essay will explore the emergence of the sugar industry and its place within the Hawaiian economy. Furthermore, the reason behind the absence of capital flows to this industry during the late 19th century will be explored.

The Rise of Sugar

Sugarcane had been grown in Hawaii for some time. The Polynesians grew the crop for centuries, but the first commercial attempt at growing sugar came in 1835 when Ladd & Co., an American merchant house in Honolulu, leased several thousand acres of land from the King which was then planted in sugar, coffee, banana and taro (Cushing, 1985). This was a huge operation and so considerable labour was required. However, hiring labour was the biggest difficulty the company faced, although the pay was reasonable, as the local chiefs refused to allow their tenants to work on the plantation; eventually, the King was forced to intervene (Hitch, 1992). Once labour was acquired, the plantation owners realised that native labourers were completely unaccustomed to the type of work that was required. To add to the difficulties, they lacked the required tools and animals; the local chiefs too blocked their efforts (Morgan, 1948).

Despite these difficulties, the plantation survived and 2 tons of sugar was harvested in its first year, rising to 4 tons in the second. However, all the inputs in the economy were owned by the King so industry remained small. Reform came with the 1839 Bill of Rights and the introduction of a Western-style constitution in 1840. With the Great Mahele of 1848, commoners gained not only voice but land rights. With private property rights established, capital could now be invested in with confidence.

With these political reforms, the sugar industry took off. Two other developments also spurred this growth. Firstly, California's gold rush led to a population explosion on the west coast of America. This created a whole new market for Hawaiian sugar. Production expanded rapidly, with output rising to 700 tons per year by the 1850s (Kuykendall, 1953). Secondly, the US civil war cut the North off from the South's sugar, providing a huge boost to the Hawaiian industry. Sugar could now be sold to an open, close-by, war-inflated economy. The price of sugar soared from 6c a pound to 17c a pound in 1864 and by 1870 the Kingdom was producing 9,000 tons annually (Kuykendall, 1953). Coffee, rice and salt output also grew, but sugar out-stripped them all. By the 1870s, the Hawaiian economy had become westernised and the sugar industry was now the driving force in society.

The Revolution of 1893

The Reciprocity Treaty of 1875 between Hawaii and the US greatly expanded Hawaiian exports of sugar and rice to the US as well as Hawaiian imports of US manufacturing. Sugar exports to the US rose from 21 million pounds in 1876 to 114 million pounds in 1883 and to 224.5 million pounds in 1890 (La Croix and Grady, 1997). This meant that the US was losing out on over five times the revenue from tariffs when it came to renegotiating the Treaty. By 1883, groups were already organising in the US to abrogate or modify it. Indeed, La Croix and Grady (1997) estimate the loss to the US in tariff income was $2.5 million in 1882.

The Treaty also generated problematic strategic dynamics, as the structural change it launched gradually worsened Hawaii's bargaining position with the US. The Hawaiian economy had become dependent on the US market, whereas the Hawaiian market represented such a negligible share of US exports that the incentives to renew the Treaty were heavily biased; indeed, when it expired in 1883, the US extracted better terms.

The Treaty also transformed Hawaii's internal politics by massively increasing the wealth of the Caucasian owners of sugar plantations (La Croix and Grady, 1997). The planters had clear incentives to support the treaty's successful renegotiation, whereas most native Hawaiians, as well as the King, were adamantly opposed to further economic concessions. Tensions came to a head in 1887 when the government's opponents (chiefly Caucasian industrialists) forced the King to accept a new cabinet and a constitution, stripping the monarchy of much of its authority. A special election in

September 1887 brought a pro-American government to power. Consequently, the US was given rights to Pearl Harbour and the Reciprocity Treaty was renewed in 1887.

Just when the plantation owners were confident that their sugar would enter the US market tariff-free, the McKinley tariff was introduced, erasing the advantages that reciprocity provided to Hawaiian sugar producers over other foreign competitors selling in the US market. This laid the incentive to eliminate the uncertainty of reciprocity through annexation. At the same time, the new Queen, Kamaka'eha Lili'uokalan, was trying to restore power to the monarchy.

U.S. opportunism in 1890 with respect to the trade treaty threatened the wealth of the planters and thereby played a critical role in the overthrow of the Hawaiian monarchy (Kuykendall, 1967). Silva (2004) presents the 'Petition Against Annexation' that was signed by 21,269 native Hawaiian people, or more than half the 39,000 native Hawaiians and mixed-blood persons reported by the Hawaiian Commission census for the same year. However, by this stage the sugar interest groups were too powerful. They solicited the US support, the Queen yielded and in 1898 the islands were formally annexed.

The Plantation Economy (1876 – 1941)

Initially, after the Reciprocity Treaty came into effect in 1876 the vast US market was opened for duty-free entry of sugar and other agricultural products. The American connection propelled Hawaii into a period of economic boom. By the time the US entered WWII in 1941 Hawaii had developed into one of the biggest plantation economies in the world, producing 4% of global sugar supply. Overall, Hawaii grew at three times the pace of the US, which is phenomenal given the speed of economic expansion on the mainland. By 1940, Hawaii's GDP per capita was approximately equal to that of the US. This extraordinary rise in income and productivity was almost entirely the result of the sugar and pineapple plantations.

Sugar was already the main crop in Hawaii in 1876, but the Treaty led to the sustained expansion of the product. In 1876, sugar was sold for 6.5 cents an ounce in the US, 3 cents of which was duty. The removal of this tariff almost doubled revenues. Margins of this magnitude stimulated a rapid expansion of sugar acreage which rose from 15,000 acres in 1876 to 238,000 acres in 1941 (Hitch, 1992). And with higher productivity, output of raw sugar rose from 13,000 tonnes to 947,000 tonnes, 73-fold, over the same period. By 1941, one in three employees in the workforce in Hawaii was employed in the sugar or pineapple industry. The combined revenues of the sugar and pineapple companies were $135 million, compared with combined revenues of $35 million for the rest of the agriculture and manufacturing industries (Schmitt, 1968). Only the expansion of the military in the late 1930s kept the economy from being absorbed entirely by sugar and pineapple.

Sugar Revisited

Sugar production requires a lot of labour (to plant and mill) and water (which required irrigation systems). Both these factors gave a competitive advantage to large plantations. Also, for mills to be cost efficient, they must be large. Economies of scale dictated that plantations become larger and larger. In 1880 the average sugar plantation was 413 acres. This grew by 1000 acres a decade so that by 1940, the average size of the 38 plantations was over 6000 acres. Improvements in transport, first by railroad and then by truck, greatly reduced transport costs, again lowering the costs of production for sugar plantations. Keeping average costs lower required a lot more work than merely expanding output and exogenous declines in transport costs.

The first major obstacle the plantations faced was the chronic shortage of labour supply. The total number of immigrant labourers recruited to Hawaii during this period has been estimated at around 300,000 (Platt, 1950). There were three distinct periods of immigration in Hawaii. The first stretched from 1851 to 1885 when some 30,000, mostly Chinese, labourers came to the islands. Between 1885 and 1908 most of the 140,000 immigrants that came were Japanese, though the Chinese still came in vast numbers until 1898, when the US' introduction of the Chinese Exclusion Act prohibited the Chinese from entering Hawaii. Here we can see the double-edged sword that was annexation for the sugar elite. While it reduced tariffs to the US, it cut off the main source of cheap labour to the industry.

The nature of the labour contract changed when Hawaii became a territory of the US. The 13th Amendment to the Constitution prohibited any form of servitude, thereby invalidating the standard Hawaiian labour contracts that required a multi-year period of service. To emphasis the ban, Congress passed in 1900 an act specifically prohibiting the importation into Hawaii of foreigners under contract agreement to perform labour. Almost half of the 350,000 workers that came in were imported under these free labour contracts. The Hawaii immigration board therefore tried to focus on Caucasian workers, but with only limited success. Because federal law barred the importation of Chinese and Japanese labour, that left the Philippines as 'the only source of a permanent labour supply' (Platt, 1950, p.11). Between 1909 and 1934, the Hawaiian Sugar Planters' Association (HSPA) brought 118,449 Filipino workers to Hawaii (the Philippines Independence Act in 1934 stopped further Filipino migration to the US). In addition, large numbers of workers came on their own initiative in search of unskilled jobs. Overall, plantation labour recruitment was a success. By 1928 there were more people on sugar plantations' payrolls than there had been residents 50 years earlier. However, by 1934, the cheap labour supply had been exhausted. Not surprisingly, as labour became scarcer, it became more expensive. The average daily wage for sugar workers in 1835 was 12.5 cents. By 1874 that had risen to 45 cent a day and on the eve of WWII in 1941 it had shot up to $2.18. Moreover, pay levels for sugar workers had largely converged to US levels prior to Hawaii becoming a territory in 1898. In 1866 pay was at 60% of the US wage, but by 1890, it had risen to 85% (Schmitt, 1968). To afford such a wage Hawaii had to have the most efficient sugar industry in the world.

Productivity in the Sugar Industry

When Ladd & Co. planted 25 acres in 1835, they produced about one-twelfth of a ton per acre, or about one ton per 100 workers. By the early 1990s, this had soared to 5.5 tons per acre and 143 tons per employee. The sugar industry certainly benefited from the advancement in technology spurred on by the Industrial Revolution. Irrigation, planting cycle developments and falling transport costs were particularly beneficial to the industry. This outstanding increase in productivity was the result of an innovative, scientific approach to farming that overcame the high costs of land, labour and transportation that prevailed in the industry. Most sugar cane at this time was heavily subsidised by governments to provide jobs and secure foreign exchange. However the US did not subsidise the sugar industry in this way, so its survival depended on high levels of productivity.

The industry became consolidated under the 'Big Five': Castle & Cook, Theo H. Davies & Co, C. Brewer & Co., American Factors (now Amfac) and Alexander & Baldwin. They eventually gained control over other aspects of the Hawaiian economy including banking, warehousing, shipping, and importing. The operators of the 'Big Five' held senior post in most other large businesses in Hawaii. Hitch (1992, p.90) describes this as 'a network of interlocking directorships made the whole business community … all members of one family.' The companies did not compete with each other but rather cooperated to keep the prices of their goods and services high.

Why Didn't Capital Flow to Hawaii?

Worth considering is why capital didn't flow to Hawaii after 1875. Most of the investment in the sugar plantations came from reinvested profits. Besides this, capital flows to the industry were negligible. As the theory goes, capital should flow from rich to poor nations due to higher marginal products of capital (MPK). But Lucas (1990) argues that this may not occur due to differences total factor productivity ('A'). However, the technological advancements in Hawaii during the late 19th century suggest that productivity levels were not all that different. Institutional quality however, was not equal across countries. As noted above, the financial system was remarkably undeveloped for much of the late nineteenth century. The problem with Lucas' (1990) argument is that 'A' could represent any number of factors. Some of the explanatory power behind 'A' may be applicable in this case but, given the rapid growth in productivity in the sugar industry over this period, other factors seem to have been at play.

Clark (1978) has argued that it is not discrepancies in 'A' between countries that explains this paradox, but rather labour productivity which is culturally determined. After all, technology is easily transmitted; the Hawaiian sugar industry was certainly operating one of the most efficient production technologies in the sugar industry at the time. Clark (1978) finds that, in 1910, one New England cotton textile operative performed as much work as 1.5 British, 2.3 German, and nearly 6 Greek,

Japanese, Indian, or Chinese workers. Given that the Hawaiian labour supply consisted largely of Chinese and Japanese workers in the late 19th century, there is certainly some merit to this argument.
It might also have been the case that the MPK simply wasn't higher. Hawaii is land-scarce. Indeed, Lucas (1990) doesn't account for this variable. Therefore, labour productivity in Hawaii should decline much faster than in the US. By contrast, the US was rapidly expanding its land endowment at this time and experienced a huge population boom, mostly due to immigration. These factors, combined with rapid industrialisation, meant that the MPK was high and there were vast opportunities for capitalists. Moreover, as we will see, Hawaii only really came to the world's attention after WWII. This led to huge inflows of capital despite the fact that wages had converged to US levels. Therefore, investors may simply have been myopic given the developments in US economy.

Finally, Clemens and Williamson (2000) have argued that, had Lucas (1990) used a less contemporary example, such as the first great global market boom after 1870, he might have been less surprised by the results. This was a period characterised by huge global flows of capital, but it was between Britain and the new world, two developed nations. The authors reject any international market failure explanation of the Lucas Paradox. Rather, they argue that British capital heading abroad, especially that invested in private enterprise, went where it was most profitable—chasing natural resources, educated populations, migrants, and young populations. Assuming this conclusion holds true for the US, then it explains why capital did not flow to the sugar industries in Hawaii; it had few natural resources, not a particularly educated workforce, limited US migrants, and an average-age populations.

The Demise of Sugar

WWII had a big impact on the sugar industry. To continue operating, the plantations had to cope with a flood of economic controls; replenishing stocks as they became depleted, making a profit when the price was fixed but costs were variable and finding labour in a very tight market. Despite the military's belief in the importance of sugar, one in three plantation workers left to seek better paid work between 1939 and 1945. There was also a string of operational disruptions to production due to the realities of war. For example, harvesting at night was not permitted due to blackout rules. Remarkably, despite these obstacles, in 1945 sugar was only 14% below 1941 levels.

The real damage was not to output, but rather to the place of sugar in the Hawaiian economy. The most crucial development of this period economically was the total displacement of the 'Big Five' who now took their orders from the military leaders. The plantation oligarchy was instantly and totally eclipsed. Not only did they lose control of their companies, but their plantation economy was largely overshadowed by the immensity of the war economy that was added to it.

Of greater significance was the emergence of labour unions. They had gained momentum prior to 1941, but were restrained from striking because to do so would seem disloyal. However, workers were now dissatisfied: they were unable to change jobs even as others sought higher-paid work; and they were paid only 41c per hour even though the military paid 62c an hour per worker to the owners, to compensate them for the use of plantation labour. Most of this difference was due to tax, overheads and compensation for the loss of sugar, but workers believed that plantation owners were profiting at their expense.

The power of the union stems from the overspecialised nature of the economy; shutting down warehouses and ports would bring the industry to a standstill, as the International Longshore and Warehouse Union (ILWU) demonstrated during the 1946 sugar contract negotiations, with a shutdown of 79 days. Unionisation brought rapid wage appreciation. Recall that, in 1941 the average daily wage of a sugar worker was $2.18. By 1986 it had risen to $68.72 and by the early 1990s this reached over $100 (Schmitt, 1968).

The final nail in the coffin of the sugar industry came in 1974 when congress abandoned the Sugar Act of 1934. At the time, 80% of the world's sugar was either consumed locally or committed to some other country at a fixed price; the remaining supply was sold at severely reduced rates on the world market. The Sugar Act prevented this excess supply from being dumped onto the US market by providing complicated government subsidies to domestic sugar industries. The result of its repeal was that cheap sugar flooded that US market, and the industry could no longer compete in any meaningful way.

Interestingly, although sugar accounted for a much smaller proportion of the economy in 1988, production levels were roughly the same. Since 1990, the importance of sugar has been diminishing primarily due to a decline in the output of this industry and not rising incomes. By 2009, Hawaiian sugar production was down to 127,000 tons and was produced by the last remaining sugar company in Hawaii, Alexander & Baldwin; this company is also contemplating switching to ethanol production which could mark the end of this industry in Hawaii. Today the sugar industry is paltry by comparison with the tourism sector: in 2007 it generated just over $40 million in sales.

Conclusion

For over 100 years, sugar plantations held a remarkable position with respect to the Hawaiian economy. Their power was such that they could dictate the policies of the Kingdom. Inevitably, such a privileged position brought about collusion and excess profits. It was truly a sweet deal. When the McKinley tariff threatened these profits, the industry responded by displacing the monarchy and seeking union with the US. However, once within the protective barriers of the US, the industry soon realised that annexation was a double-edged sword. The cheap and plentiful supply of Asian labour was cut off. Furthermore, the emergence of a new generation of educated, American-born, labourers who held strong beliefs about paternalism further damaged the supply of labour to the industry. Thus, the industry soon found itself unable to compete with the low-wage sugar economies of the world. Ultimately, the forces that made the deal so sweet for the sugar elite – US ideology – led to the industry's decline.

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