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COMMENT

Suggestions and Debates: *The World of Sugar* and the Commodity Frontiers Initiative

A Note on Sugar in Nineteenth-Century South India

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Abstract

The commodity frontiers framework describes well the movement of sugar cultivation across the Mediterranean, Atlantic, and Caribbean. But it is less effective when explaining the evolution of sugar in nineteenth-century Tamil Nadu. In Tamil Nadu, the high costs of cultivation discouraged many peasants and landowners from planting sugar cane. As a consequence, despite British pressure to plant more cane, there was little increase in the crop before the twentieth century. In Tamil Nadu, sugar made from palmyra juice was a viable and popular substitute for cane sugar and this further discouraged the expansion of cane cultivation. The jaggery made from palm juice satisfied the demand for sweetener from most consumers in the region. From the mid-nineteenth century, palm jaggery was the raw material for making white sugar and distilling arrack in the sugar mills that were built in the region. Regional conditions shaped the development of sugar cultivation and manufacturing in Tamil Nadu. It is not a story of interaction between the local and the global as is found in the commodity frontiers framework. The region is a scale of activity that possesses great explanatory power, as the case of nineteenth-century South India shows.

Introduction

The commodity frontiers framework powerfully links the local with the global. The growth of sugar cultivation and refining in the centuries after 1500 illustrates the operation of these two scales. Sugar island-hopped across the Mediterranean, Atlantic, and Caribbean, transforming local economies and leaving behind broken bodies and exhausted environments. A growing demand for sugar propelled these shifts in the location of cultivation and refining.

In this modern story of sugar, Europeans take centre stage. However, Ulbe Bosma insists, correctly in the opinion of this writer, that Asia is essential to a global history of sugar. For thousands of years, Asia was the home of sugar. From there, the plant moved to Europe and the Americas. As late as the eighteenth century, India was the largest producer and consumer of sugar in the world. In the nineteenth and

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twentieth centuries, Asia continued to be an important player in the global story of sugar.

Sugar followed a different path of development in India than in Europe and the Americas. The Indian story fits uneasily with the commodity frontiers framework, and the interaction between the local and the global was insignificant. Regional factors were more important.[1] Bosma himself has acknowledged that the regional context shaped sugar's fortunes in nineteenth-century India. He attributes the divergent trajectories of sugar in Java and India to tax regimes, property relations, financial circuits, and colonial policies.[2]

The role that regional factors played may be seen in nineteenth-century South India – more precisely in Tamil Nadu, the area of south-eastern India that corresponds to the post-independence Indian state of that name. Sugar failed to take off in this region despite British attempts to expand its cultivation. There were three obstacles to the advance of sugar cane. Firstly, the high costs of cultivation – both financial and environmental – discouraged peasants and large landowners from taking up the crop. Secondly, there was an alternative to cane sugar that was popular and less expensive. This was sugar manufactured from the sap of palmyra trees. Finally, from the 1840s, modern sugar mills and liquor distilleries in Tamil Nadu relied upon unrefined sugar from the palmyra, known as palm jaggery, as the raw material for refining sugar and distilling spirits. (Jaggery was a sugar product that had a high molasses content.) In this hybrid process, modern technologies were combined with long-established raw materials. Sugar manufacturing was one of a number of hybrid production systems in nineteenth-century South India.

Sugar in South India

Surprisingly little is known about the production and consumption of sugar in Tamil Nadu. Bosma has argued that India was the leading producer of sugar in the eighteenth century. But there is little evidence of that fact in South India. Food consumption figures from the 1790s for the Baramahal, in the interior of Tamil Nadu, do not suggest a world awash in sugar but do show that jaggery made from sugar cane and palmyra was used as sweetener. Brahmins only consumed cane jaggery, and a disproportionate share of it. Merchants and labouring groups consumed both jaggeries, but more of the palm.[3]

Information on sugar becomes more abundant in the nineteenth century. Sugar appears to have been reserved for special occasions. In late nineteenth-century Tanjore, arguably the most prosperous agricultural area in South India, sugar was reported to not "enter into the ordinary daily meal of the native; it is a necessary ingredient of only

[1]This article's focus on the region is inspired in part by K. Sivaramakrishnan and Arun Agrawal, among others. For Sivaramakrishnan and Agrawal, "the term [regional] is a self-conscious effort to move away from the tyranny of the global or the local". See K. Sivaramakrishnan and Arun Agrawal, "Regional Modernities in Stories and Practices of Development", in K. Sivaramakrishnan and Arun Agrawal (eds), *Regional Modernities: The Cultural Politics of Development in India* (Stanford, CA, 2003), p. 13.

[2]Ulbe Bosma, *The Sugar Plantation in India and Indonesia: Industrial Production, 1770–2010* (Cambridge, 2013), pp. 30–43.

[3]Prasannan Parthasarathi, *The Transition to a Colonial Economy: Weavers, Merchants and Kings in South India, 1720–1800* (Cambridge, 2001), p. 16.

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particular cakes which are made only on festival days".[4] Sugar cane was cultivated on a small scale in Tanjore, confined to the delta where water was most abundant. The locally grown cane was "consumed for the most part in a raw state" (perhaps the juice was pressed or the stalk was chewed). Much of the sugar that was consumed in Tanjore came from outside the area, but our sources do not reveal from where.[5] A few decades later, the story was much the same. The cultivation of sugar cane was not "sufficiently common" to deserve detailed description in the district gazetteer.[6]

The situation was similar elsewhere in South India. In Coimbatore, sugar was cultivated on 3000 acres in the late nineteenth century. The total area under cultivation was 2.2 million acres. The cane was typically milled close to where it was grown and the juice pressed and boiled to make jaggery.[7] In Salem, sugar cane was cultivated on approximately 2300 acres.[8] In Madura, sugar occupied 0.1 per cent of the total cultivated land.[9] In Trichinopoly, sugar cane was grown "on a small area".[10] In Tinnevelly, sugar cane was an insignificant crop and does not merit a mention in David Ludden's *longue durée* history of that area.[11]

Sugar Mills

Sugar cane was not a major crop in nineteenth-century Tamil Nadu, but from the 1840s a number of modern, large-scale mills were established in the region for manufacturing sugar and distilling arrack. South Arcot was the major sugar milling centre in Tamil Nadu and by the late nineteenth century was a major sugar exporter. According to the *Manual of the South Arcot District*, published in 1878, the annual value of sugar exports from the district came to 200,000 rupees.[12] But where did these mills get their sugar cane or their raw sugar?

Some cane was procured locally. In South Arcot, sugar began to be cultivated near mills. As a result, the district had more land devoted to sugar cultivation than other parts of Tamil Nadu. The land under sugar grew steadily from the mid-nineteenth century. In the 1870s, it was around 2000 acres per year, increasing to 3500–6500 acres in the 1880s and to as much as 10,500 acres in the 1890s. However, sugar cane remained a minor crop in South Arcot and never represented more than 0.5 per cent of the total cultivated area.[13] In the early twentieth century, the price of sugar fell, a result of growing competition from sugar beets, leading to a decline in sugar cane cultivation.

The mills and cane fields in South Arcot and elsewhere in Tamil Nadu were the culmination of decades of British attempts to expand sugar cultivation and manufacturing in Tamil Nadu. The English East India Company and its servants had been exploring

[4]T. Venkasami Row, *A Manual of the District of Tanjore in the Madras Presidency* (Madras, 1883), p. 213.
[5]*Ibid*., p. 366.
[6]F.R. Hemingway, *Gazetteer of the Tanjore District* (Madras, 1906), p. 99.
[7]W.R. Robertson, *Reports on the Agricultural Conditions, Capabilities and Prospects of the Neilgherry and Coimbatore Districts* (Madras, 1881), pp. 127–128.
[8]F.J. Richards, *Gazetteer of the Salem District*, vol. I, part 1 (Madras, 1918), p. 213.
[9]W. Francis, *Gazetteer of the Madura District*, vol. I (Madras, 1914), p. 113.
[10]F.R. Hemingway, *Gazetteer of the Trichinopoly District,* vol. 1 (Madras, 1907), p. 132.
[11]David Ludden, *Peasant History in South India* (Princeton, NJ, 1985).
[12]J.H. Garstin, *Manual of the South Arcot District* (Madras, 1878), p. 199.
[13]W. Francis, *Madras District Gazetteers: South Arcot,* vol. 1 (Madras, 1906), pp. 114, 118–119.

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ways to increase the acreage under sugar cane in South India since the late eighteenth century. In the 1790s, for instance, one of the tasks for the men assigned as revenue collectors to the Baramahal, territory in the interior of South India that had recently been ceded by the kingdom of Mysore to the English, was to investigate the possibilities for sugar cultivation. However, tariffs on East Indian sugar – enacted at the urging of the West Indian planter lobby – hampered these efforts. The English East India Company marketed its sugar as "East India sugar *NOT* made by slaves" but this was not enough to overcome the vast price difference between the two sugars, east and west.

In 1836, tariffs on the two sugars were equalized, providing an opening to exports from India. In the south, several mills had been established, but most did not weather the British move in 1845 to free trade in sugar. In Tamil Nadu, a mill built by Parry and Co. in the South Arcot District survived the downturn. Parry and Co. built several more mills in South Arcot in the next decade or two and continued to export sugar to Britain. While the market for sugar was unpredictable, the arrack that was also distilled at these mills had a steadier demand from local consumers, allowing the mills to remain profitable.

Palm Jaggery

Sugar cane was cultivated on a very small scale in nineteenth-century Tamil Nadu. Where, then, did the raw material come from for making sugar and distilling arrack? Hilton Brown gives an answer to this question. In his history of Parry and Co., Brown writes that sugar cane was not the "sole source of raw material". Much of the raw sugar that the mills processed came from the juice of palmyra trees in the form of jaggery.

Parry's purchased palm jaggery in Tinnevelly and Palghat. Palmyra was a major "crop" in the sandy soils of Tinnevelly and, in addition to sugar, provided fruit, timber, leaves, and material for ropes, baskets, mats, and many other products.[14] Palmyras were also grown widely in Kerala, and Palghat was likely to have been a bulking point for the palm jaggery that was exported to consumers east of the ghats. When refined, palm jaggery yielded a sugar that was inferior to that derived from cane, but the mills had little choice. According to Brown, "not all Parry's blandishments or their practical inducements could persuade the local ryots to take up cane in earnest. The reply to Parry's overtures was invariably to the effect that there were other crops – for example, groundnut – which were much less trouble to cultivate and brought in much more money".[15]

The situation in North Arcot was much the same. In 1895, the Arcot Sugar Works and Distilleries was established in Ranipet. While the early history of this enterprise is murky, according to the account of one Parthasarathy Iyengar, who was connected to the undertaking, the works refined sugar for seven or eight years. The raw material was palm jaggery. No sugar cane was grown near the mill and the nearest cane fields were seven or eight miles away.[16] The Ranipet mill in North Arcot shows that sugar

[14]Ludden, *Peasant History in South India*, p. 47.
[15]Hilton Brown, *Parry's of Madras: A Story of British Enterprise in India* (Madras, 1954), p. 86.
[16]*Ibid*., pp. 138–139.

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refineries in Tamil Nadu relied upon palm jaggery for their raw material even into the twentieth century.

The sugar mills that Parry and Co. built in Tamil Nadu were modern industrial facilities. They used steam power, and in several mills steam drove crushers that extracted the juice from the cane. They used vacuum pans for the evaporation of the juice.[17] These machines and techniques of the machinery age were combined with palm jaggery, which continued to be produced in the same way that it had been for several centuries.

Sugar mills in nineteenth-century Tamil Nadu were hybrid operations. From the outside they appeared to be modern industrial undertakings. However, these mills combined the old with the new. In this, they were worthy counterparts to the Porto Novo Iron Works that began operations in Tamil Nadu from the 1820s. The Porto Novo works smelted iron using methods and machinery imported from Britain, such as steam engines, rolling machines, and large furnaces. But the heat for these furnaces came from a long-standing source of energy in South India – charcoal – not coal, as was the case in Britain at the time.

The railways in Tamil Nadu are another example of hybridity and of what I have called biosteam power. The locomotives and railcars were imported into South India from Britain, but, in contrast to Europe, the heat energy for the railways came from firewood, not coal. As in the Porto Novo Iron Works, an organic fuel – wood – was combined with technologies that were developed in a mineral economy. The Porto Novo Iron Works and railway lines in Tamil Nadu relied upon wood fuel because it was cheaper than coal, making these undertakings more profitable. The mills of North and South Arcot were forced to rely upon palm jaggery because landowners and peasant cultivators had no interest in cultivating sugar cane. Again, it came down to a question of cost.

Sugar cane demanded enormous quantities of water, adding substantially to the costs of cultivation. In Coimbatore, for instance, cane had to be watered every third day and occupied the ground for almost a year. Wells were the primary source of irrigation in Coimbatore and lifting sub-surface water was expensive, whether powered by humans or by cattle. These costs discouraged sugar cane cultivation.[18] Cane sugar also exhausted the soil, which was a compelling reason to avoid the crop. In nineteenth-century Coimbatore, sugar fields were well manured, but this did not stem the decline in soil fertility. On lands that had been devoted to sugar cane every other year, yields were reported to have fallen from 120 maunds per acre to 80, a decline of thirty-three per cent.[19]

In North Arcot, the costs of water and manure made the cultivation of sugar cane prohibitive for all but rich cultivators. According to one source, it was such "an expensive crop to raise […] that only the richer ryots attempt it". Even so, sugar cane "was

[17] Andrew James Ratledge, "From Promise to Stagnation: East India Sugar 1792–1865" (Ph.D., University of Adelaide, 2004), pp. 207–208.

[18] Robertson, *Reports on the Agricultural Conditions*, pp. 127–128.

[19] *Ibid*.

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not the fashion, so that though there may be wealthy farmers, little or no sugarcane is seen".[20]

Conclusion

The commodity frontiers framework describes well the movement of sugar cultivation across the Mediterranean, Atlantic, and Caribbean. But it is less effective when explaining the evolution of sugar in nineteenth-century Tamil Nadu. In Tamil Nadu, the high costs of cultivation, which were found across the region, discouraged many peasants and landowners from planting sugar cane. As a consequence, despite British pressure to plant more cane, there was little increase in the crop before the twentieth century.

In Tamil Nadu, sugar made from palmyra juice was a viable and popular substitute for cane sugar and this further discouraged the expansion of cane cultivation. The jaggery made from palm juice satisfied the demand for sweetener from most consumers in the region. From the mid-nineteenth century, palm jaggery was the raw material for making white sugar and distilling arrack in the sugar mills that were built in Tamil Nadu.

Regional conditions shaped the development of sugar cultivation and manufacturing in Tamil Nadu. It is not a story of interaction between the local and the global as is found in the commodity frontiers framework. The region is a scale of activity that possesses great explanatory power, as the case of nineteenth-century South India shows.

[20] Arthur F. Cox, *Manual of the North Arcot District in the Presidency of Madras* (Madras, 1881), p. 326.

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