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PRODUCTION PERFORMANCE AND FINANCIAL SUSTAINABILITY OF MYSORE SUGAR CO. LTD., KARNATAKA: A COST–PROFIT ANALYSIS

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Abstract

The sugar industry plays a vital role in India's agro-based economy by contributing to agricultural development, rural employment, industrial growth, and renewable energy production. However, several public-sector sugar factories have experienced persistent operational and financial challenges due to declining recovery rates, increasing production costs, inefficient utilization of installed capacity, and volatile sugar prices. This study evaluates the economic performance and profitability of Mysore Sugar Company Ltd. (MYSUGAR), Mandya, Karnataka, using secondary data collected from factory records for the period 2009–10 to 2018–19. The analysis focuses on sugar production, by-product generation, sugar losses, production costs, and profitability. The results indicate substantial fluctuations in sugarcane crushing and sugar production throughout the study period. The average sugar recovery rate was only 6.79%, significantly lower than the national average, indicating operational inefficiencies and poor cane quality. Bagasse, molasses, and press mud were produced consistently, with average yields of 29.00%, 5.96%, and 3.13%, respectively, highlighting considerable potential for value addition. Despite this, the factory experienced increasing production costs, primarily driven by rising sugarcane procurement prices and underutilization of installed processing capacity. The study provides valuable insights for policymakers, sugar factory managers, and researchers seeking strategies to improve the sustainability and competitiveness of public-sector sugar industries in India.

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Introduction:-

The sugar industry is one of the most significant agro-based industries in India, serving as a critical link between agriculture and manufacturing while providing livelihood opportunities to millions of farmers, agricultural labourers, transport operators, and industrial workers. India is among the world's largest producers and consumers of sugar, with sugarcane cultivated across diverse agro-climatic regions. Besides producing crystal sugar, modern sugar

factories generate several valuable by-products, including bagasse, molasses, and press mud, which contribute substantially to industrial diversification, renewable energy generation, ethanol production, bio-fertilizer manufacturing, and environmental sustainability. Consequently, the economic performance of sugar factories has become increasingly important in achieving rural development, energy security, and sustainable industrial growth.

Despite its economic importance, the Indian sugar industry faces numerous structural and operational challenges. Fluctuating sugarcane availability, rising production costs, delayed cane payments, ageing machinery, low sugar recovery rates, inefficient utilization of installed capacity, volatile domestic and international sugar prices, and policy interventions significantly influence the financial sustainability of sugar factories. Public-sector sugar mills are particularly vulnerable because of outdated production infrastructure, inadequate modernization, financial constraints, and managerial inefficiencies. These challenges often result in declining productivity, increasing operational costs, and persistent financial losses, thereby reducing the competitiveness of the industry.

Economic evaluation of sugar production has therefore become essential for identifying factors affecting operational efficiency and profitability. Analysing production performance, sugar recovery, by-product generation, production costs, and profitability enables researchers and policymakers to assess the financial health of sugar factories and formulate strategies for improving resource utilization and industrial sustainability. In addition, efficient utilization of sugar by-products has emerged as an important avenue for enhancing profitability through cogeneration of electricity, ethanol production, and value-added industrial products.

Mysore Sugar Company Ltd. (MYSUGAR), established in 1933 in Mandya district of Karnataka, is one of the oldest public-sector sugar factories in southern India. The factory has historically played a significant role in supporting sugarcane cultivation and rural employment in the Cauvery command area. It possesses substantial installed capacity for sugar production, distillery operations, and power cogeneration. However, the factory has experienced considerable operational and financial challenges during the past decade due to fluctuating cane availability, delayed crushing operations, underutilization of installed capacity, increasing production costs, and prolonged periods of non-operation. These issues have adversely affected sugar recovery, production efficiency, and overall profitability.

Although several studies have examined the economics of sugar production in India, relatively few have comprehensively analysed the combined performance of sugar production, by-product generation, sugar losses, production costs, and profitability at the individual factory level. The present study addresses this gap by providing an integrated assessment of the production and financial performance of Mysore Sugar Company Ltd. over the period 2009–10 to 2018–19. The analysis offers practical evidence on the operational constraints affecting public-sector sugar factories and identifies opportunities for improving efficiency through technological modernization, better management practices, and enhanced utilization of by-products.

The findings of this study are expected to contribute to the existing literature on sugar industry economics while providing useful policy recommendations for factory managers, government agencies, and researchers interested in improving the long-term sustainability and competitiveness of public-sector sugar enterprises.

2. Objectives of the Study:-

- **To analyze the production performance of sugar and its major by-products** (molasses, bagasse, and press mud) in Mysore Sugar Co. Ltd., Mandya, during the period 2009–10 to 2018–19.
- **To assess sugar recovery and quantify sugar losses** occurring through different by-products and processing stages in order to evaluate the operational efficiency of the sugar manufacturing process.
- **To examine the production cost structure of sugar manufacturing**, including sugarcane procurement costs, conversion costs, and the overall cost of producing one tonne of sugar.
- **To evaluate the profitability and economic sustainability of sugar production** by analyzing cost–profit relationships and identifying measures for improving the operational and financial performance of Mysore Sugar Co. Ltd.

3.Materials and Methods:-

3.1 Study Area

The present study was conducted at Mysore Sugar Company Limited (MYSUGAR), located in Mandya district of Karnataka, India. Established in 1933, MYSUGAR is one of the oldest public-sector sugar factories in the country and has played a significant role in promoting sugarcane cultivation and agro-industrial development in the Cauvery command area. The factory receives sugarcane from a large command area covering several villages in Mandya district and possesses an installed crushing capacity of 5,000 tonnes of cane per day (TCD). In addition to sugar manufacturing, the factory has facilities for the production of rectified spirit, medium-grade alcohol, and cogeneration of electricity through bagasse-based power generation. Despite its historical importance, the factory has faced operational and financial challenges in recent years, making it an appropriate case for analysing the economics of sugar production and profitability.

3.2 Data Sources and Analysis:-

The study is based entirely on secondary data collected from the official records of Mysore Sugar Company Limited, Mandya. Data relating to sugarcane crushing, sugar production, by-product generation, sugar recovery, sugar losses, production costs, and revenue were obtained from factory reports, production registers, annual records, and information supplied by the Chief Chemist and factory management. The study covers a ten-year period from 2009–10 to 2018–19. Additional information regarding factory infrastructure, installed capacity, operational performance, and by-product utilization was collected from factory publications and official reports.

The study evaluates the economic performance of sugar production through an integrated analysis of production efficiency, by-product generation, sugar losses, production costs, and profitability. Descriptive statistical techniques were employed to summarize and interpret the data. The collected data were organized into suitable tables and analyzed using descriptive statistical techniques. Statistical measures such as mean, standard deviation (SD), coefficient of variation (CV), and compound annual growth rate (CAGR) were employed to examine trends, variability, and growth in production cost, profitability, and operational efficiency. Cost analysis was carried out by estimating cane cost, conversion cost, total production cost, gross revenue, profit/loss, and profit margin per tonne of sugar. Operational efficiency was assessed using sugar recovery percentage and the distribution of sugar losses through molasses, bagasse, press mud, and undetermined losses. The analyzed results were presented in tabular form and interpreted to assess the economic performance and profitability of sugar production at Coromandel Sugars Limited.

3.3. Limitations of the Study:-

The study is based on data obtained from a single public-sector sugar factory and therefore the findings may not be directly generalizable to all sugar factories in India. The analysis is confined to the period 2009–10 to 2018–19. Furthermore, certain years contained incomplete operational data due to factory shutdowns and irregular crushing operations. Nevertheless, the study provides valuable insights into the production economics and financial performance of an important public-sector sugar enterprise.

4. Results and Discussion

4.1 Profile of Mysore Sugar Company Limited

Mysore Sugar Company Limited (MYSUGAR), established in 1933 at Mandya, Karnataka, is one of India's oldest public-sector sugar manufacturing enterprises. The factory has an installed sugarcane crushing capacity of 5,000 tonnes per day (TCD), a distillery capacity of 36 KLPD, and a bagasse-based cogeneration plant designed to generate 30 MW of electricity. The command area of the factory extends over approximately 273 villages, supplying sugarcane cultivated on more than 4,900 hectares. Besides crystal sugar, the factory produces molasses, bagasse, press mud, rectified spirit, and medium-grade alcohol, reflecting its integrated production system. However, despite possessing adequate infrastructure, the factory has experienced operational inefficiencies arising from ageing machinery, underutilization of installed capacity, delayed commencement of crushing operations, and financial constraints, which have adversely affected production efficiency and profitability.

4.2 Production Performance of Sugar and By-products

Table 1 presents the production performance of sugar and major by-products in Mysore Sugar Co. Ltd. (MSL), Mandya, during the period 2009–10 to 2018–19. The results indicate considerable fluctuations in sugarcane crushing and sugar production throughout the study period. The factory achieved its highest crushing capacity during 2010–

11 (500,729 tonnes), producing 41,615 tonnes of sugar with a recovery of 8.31 percent. The highest sugar recovery (9.23%) was recorded during 2011–12, indicating improved cane quality and efficient milling operations. Thereafter, sugarcane availability declined substantially, resulting in lower crushing quantities and reduced sugar production.

Table 1:- Production Details of Sugar and By-products in Mysore Sugar Co. Ltd., (MSL)Mandya (Taluk) during 2009-10 to 2018-19.

Year	Sugarcane Crushed (Tonnes)	Sugar Production		Molasses Production		Bagasse Production		Pressmud Production	
		Quantity (Tonnes)	Yield (% cane)	Quantity (Tonnes)	Yield (% cane)	Quantity (Tonnes)	Yield (% cane)	Quantity (Tonnes)	Yield (% cane)
2009-10	122563	9,067.50	7.40	7955	6.49	34440	28.10	4045	3.3
2010-11	500729	41,615.00	8.31	18179	3.63	145712	29.1	15022	3.0
2011-12	411062	37,954.00	9.23	26634	6.48	123730	30.1	11921	2.9
2012-13	283511	24,020.00	8.47	13246	4.67	83352	29.4	9072	3.2
2013-14	223409	19,223.50	8.60	14298	6.40	63672	28.5	6926	3.1
2014 - 15	278237	20,125.00	7.23	17334	6.23	80689	29	9182	3.3
2015-16	NW	NW	NW	NW	NW	NW	NW	NW	NW
2016-17	NW	NW	NW	NW	NW	NW	NW	NW	NW
2017-18	100062	2,250.00	2.25	6234	6.9	29018	29	3102	3.1
2018-19	131686	3,765.70	2.86	8204	6.9	37926	28.8	4082	3.1
Mean	**2,56,407**	**19,752.59**	**6.79**	**14,011**	**5.96**	**74,817**	**29.00**	**7,919**	**3.13**

Source: Compiled from the data collected at the sugar factory during field visit

The production of by-products showed comparatively stable recovery percentages despite fluctuations in cane availability. Bagasse recovery remained almost constant around 29 percent, with an average recovery of 29.0 percent, demonstrating efficient fibre extraction irrespective of production volume. Similarly, press mud recovery varied only marginally between 2.9 and 3.3 percent, averaging 3.13 percent. Molasses recovery exhibited relatively higher variability, ranging from 3.63 to 6.90 percent, with an average recovery of 5.96 percent. Increased molasses recovery during low sugar recovery years suggests incomplete crystallization of sugar and higher residual sugar in molasses.

The factory remained non-operational during 2015–16 and 2016–17 owing to administrative and financial issues, which significantly affected the overall production performance. After resumption of operations, sugar recovery declined drastically to only 2.25 percent in 2017–18 and 2.86 percent in 2018–19 despite maintaining normal bagasse and press mud recovery levels. This indicates deterioration in milling efficiency, delayed cane crushing, or poor-quality cane supplied to the factory.

Overall, the mean sugar recovery during the study period was only 6.79 percent compared with stable by-product recoveries. The findings suggest that while by-product generation remained technically consistent, declining cane availability, operational interruptions, and reduced sugar recovery considerably weakened the productive efficiency of MSL. These results emphasize the need for improving cane quality, modernizing processing equipment, and ensuring uninterrupted factory operations to enhance overall productivity.

4.3 Sugar Losses during Processing

Table 2 presents the distribution of sugar losses occurring during processing in Mysore Sugar Co. Ltd. over the study period. The results reveal that the average sugar recovery from cane was 6.79 percent, while the average total sugar loss accounted for 4.57 percent, indicating considerable inefficiency in sugar extraction. The total sugar content in cane averaged 11.36 percent, suggesting that nearly forty percent of the recoverable sugar was lost during processing.

Sugar recovery reached its maximum of 9.23 percent during 2011–12 when total sugar losses were relatively moderate (3.05%), reflecting efficient factory performance. In contrast, after the factory resumed operations following two years of closure, sugar recovery declined drastically to 2.25–2.86 percent, while total losses increased to nearly 9 percent. This clearly demonstrates that the reopening period was characterized by poor extraction efficiency and significant operational constraints.

The findings indicate that although losses through bagasse and press mud remained fairly stable, increasing losses through molasses and particularly undetermined components substantially reduced overall recovery. Reducing these losses through modernization of milling equipment, improved process monitoring, timely cane crushing, and better factory maintenance could significantly improve sugar recovery and profitability. Therefore, minimizing process losses should be considered a priority strategy for enhancing the operational efficiency and financial sustainability of Mysore Sugar Co. Ltd.

Table 2:- Sugar losses in different by-products in Mysore Sugar Co. Ltd., (MSL) Mandya (Taluk) during 2009-10 to 2018-19.

Year	Recovery of Sugar (%)	Percent of Sugar losses (%)					Sugar Content in the Cane (%)
		Molasses	Bagasse	Press mud	Un-determined	Total Sugar Loss (%)	
	1	2	3	4	5	6= (2+3+4+5)	7=(1+6)
2009-10	7.40	1.80	0.40	0.06	0.53	2.79	10.18
2010-11	8.31	2.14	0.40	0.06	0.51	3.11	11.42
2011-12	9.23	1.94	0.50	0.08	0.54	3.05	12.28
2012-13	8.47	2.13	0.48	0.10	0.51	3.22	11.69
2013-14	8.60	2.13	0.49	0.10	0.50	3.21	11.82
2014-15	7.23	2.23	0.50	0.14	0.53	3.40	10.63
2015-16	NW	NW	NW	NW	NW	NW	NW
2016-17	NW	NW	NW	NW	NW	NW	NW
2017-18	2.25	4.62	0.50	0.15	3.71	8.98	11.23
2018-19	2.86	4.26	0.52	0.18	3.81	8.77	11.63
Mean	**6.79**	**2.65**	**0.47**	**0.11**	**1.33**	**4.57**	**11.36**

Source: Compiled from the data collected at the sugar factory during field visit

4.4 Production Cost of Sugar

Table 3 presents the production cost structure of sugar in Mysore Sugar Co. Ltd. during 2009–10 to 2018–19. The analysis demonstrates substantial fluctuations in production costs, largely influenced by changes in sugarcane availability, cane prices, factory utilization, and operational efficiency. The average quantity of cane crushed during the study period was 256,407 tonnes, while the average sugar production was 19,753 tonnes. The average procurement price of sugarcane was ₹2,282.88 per tonne, resulting in an average cane cost of ₹5,620.43 lakh annually.

The cane cost constituted the major component of sugar production cost throughout the study period. The cane cost per tonne of sugar averaged ₹45,650.12, whereas the average conversion cost was comparatively low at only ₹727.50 per tonne. Consequently, the mean production cost of sugar was ₹46,377.62 per tonne. These results confirm that fluctuations in production cost were primarily driven by changes in cane procurement cost and sugar recovery rather than processing expenses.

During the initial years of the study, production costs remained relatively moderate because higher quantities of sugarcane were crushed and sugar recovery exceeded eight percent. The lowest production cost of ₹22,361.06 per tonne was observed during 2011–12 when sugar recovery reached the highest level (9.23%). Higher recovery enabled better utilization of cane, thereby reducing the cost of producing each tonne of sugar. Conversely, production costs increased steadily during 2012–13 and 2014–15 due to rising cane prices and declining sugar recovery.

Table 3:- Production Cost of Sugar in Mysore Sugar Co. Ltd., (MSL)Mandya (Taluk) during 2009-10 to 2018-19.

Year	Quantity of Cane Crushed (Tonnes)	Price per Tonne of cane (Rs.)	Total Cane cost (Lakhs)	Quantity of Sugar Produced (Tonne)	Cane Cost Per Tonne of Sugar (Rs) *	Conversion Cost Per Tonne of Sugar (Rs)	Production Cost Per Tonne of Sugar (Rs) *
	1	**2**	**3=(1x2)/10^5**	**4**	**5=(3/ 4)**	**6**	**7=(5+6)**
2009-10	1,22,563.00	1,950.00	2,389.98	9067.50	26,357.63	800.00	27,157.63
2010-11	5,00,729.00	1,900.00	9,513.85	41615.00	22,861.59	680.00	23,541.59
2011-12	4,11,062.00	2,000.00	8,221.24	37954.00	21,661.06	700.00	22,361.06
2012-13	2,83,511.00	2,400.00	6,804.26	24020.00	28,327.49	760.00	29,087.49
2013-14	2,23,409.00	2,650.00	5,920.34	19223.50	30,797.40	800.00	31,597.40
2014-15	2,78,237.00	2,200.00	6,121.21	20125.00	30,415.97	780.00	31,195.97
2015-16	NW	NW	NW	NW	NW	NW	NW
2016-17	NW	NW	NW	NW	NW	NW	NW
2017-18	1,00,062.00	2,550.00	2,551.58	2,250.00	1,13,403.60	650.00	1,14,053.60
2018-19	1,31,686.00	2,613.00	3,440.96	3,765.70	91,376.24	650.00	92,026.24
Total	**20,51,259.00**	**18,263.00**	**44,963.42**	**1,58,020.70**	**3,65,201.00**	**5,820.00**	**3,71,021.00**
Mean	**2,56,407.38**	**2,282.88**	**5,620.43**	**19,752.59**	**45,650.12**	**727.50**	**46,377.62**
S D	**1,43,340.13**	**310.10**	**2,625.94**	**14,657.90**	**35,659.42**	**64.75**	**35,615.82**

Source: Compiled from the data collected at the sugar factory during field visit

The factory remained closed during 2015–16 and 2016–17, and after reopening, production costs increased dramatically. The production cost reached ₹114,053.60 per tonne during 2017–18, which was almost five times higher than the cost recorded during 2011–12. Although the conversion cost remained almost unchanged (₹650 per tonne), extremely low sugar recovery and reduced crushing volumes caused the cane cost per tonne of sugar to escalate to ₹113,403.60. Similar trends continued during 2018–19, when production cost remained exceptionally high at ₹92,026.24 per tonne.

The high standard deviation observed for cane cost per tonne (₹35,659.42) and production cost (₹35,615.82) reflects considerable year-to-year variability in production efficiency. The findings clearly indicate that factory capacity utilization has a direct influence on production economics. Lower cane throughput increases fixed operational expenses per unit of output, thereby significantly raising production costs.

Overall, the results demonstrate that poor utilization of installed crushing capacity, increasing cane procurement prices, factory shutdowns, and declining sugar recovery collectively contributed to a substantial increase in production cost. The findings suggest that improving cane supply, enhancing sugar recovery through technological modernization, ensuring timely maintenance of machinery, and operating the factory at optimal capacity are essential measures for reducing production costs and improving the economic viability of Mysore Sugar Co. Ltd.

4.5 Cost–Profit Analysis

The cost–profit analysis presented in Table 4 reveals a gradual deterioration in the financial performance of sugar production at Mysore Sugar Co. Ltd. during 2009–10 to 2018–19. The results indicate that profitability was positive only during the initial four years of the study, after which continuous financial losses severely affected the economic sustainability of the factory.

Table 4:- Details of Cost-profit of Sugar Production in Mysore Sugar Co. Ltd., (MSL)Mandya (Taluk) during 2009-10 to 2018-19.

Year	Quantity of Sugar Produced (Tonnes)	Product Cost per Tonne of Sugar (Rs)	Ex-mill Price per Tonne of Sugar (Rs)	Profit per Tonne of Sugar (Rs)	Total Production Cost of Sugar (Lakhs)	Total Gross Revenue of Sugar (Lakhs)	Total Profit/Loss of Sugar (Lakhs)	Profit/Loss Margin (%)
	1	2	3	4=(3-2)	5=(1x2)/10^5	6=(1x3)/10^5	7=(6-5)	8=(7/6)x100
2009-10	9,067.50	27,157.63	28,745.00	1,587.37	2,462.52	2,606.45	143.93	5.52
2010-11	41,615.00	23,541.59	25,134.00	1,592.41	9,796.83	10,459.51	662.68	6.34
2011-12	37,954.00	22,361.06	26,196.00	3,834.94	8,486.92	9,942.43	1,455.51	14.64
2012-13	24,020.00	29,087.49	30,774.00	1,686.51	6,986.82	7,391.91	405.10	5.48
2013-14	19,223.50	31,597.40	27,572.00	-4,025.40	6,074.13	5,300.30	-773.82	-14.60
2014-15	20,125.00	31,195.97	27,714.00	-3,481.97	6,278.19	5,577.44	-700.75	-12.56
2015-16	NW	NW	NW	NW	NW	NW	NW	NW
2016-17	NW	NW	NW	NW	NW	NW	NW	NW
2017-18	2,250.00	1,14,053.60	35,541.00	-78,512.60	2,566.21	799.67	-1,766.53	-220.91
2018-19	3,765.70	92,026.24	30,566.00	-61,460.24	3,465.43	1,151.02	-2,314.41	-201.07
Total	**1,58,020.70**	**3,71,021.00**	**2,32,242.00**	**-1,38,779.00**	**46,117.04**	**43,228.75**	**-2,888.29**	**-417.17**
Mean	**19,752.59**	**46,377.62**	**29,030.25**	**-17,347.37**	**5,764.63**	**5,403.59**	**-361.04**	**-52.15**
S D	**14,657.90**	**35,615.82**	**3,272.03**	**32,917.80**	**2,724.05**	**3,727.54**	**1,268.67**	**98.68**
C V	**74.21**	**76.80**	**11.27**	**-189.76**	**47.25**	**68.98**	**-351.40**	**-189.24**
CAGR	**-9.30**	**14.52**	**0.68**	**-250.12**	**3.87**	**-8.68**	**-236.15**	**-249.10**

Source: Compiled from the data collected at the sugar factory during field visit

During 2009–10 to 2012–13, ex-mill sugar prices remained higher than production costs, enabling the factory to earn modest profits. The highest profit per tonne of ₹3,834.94 was recorded during 2011–12 when sugar recovery reached its maximum and production cost was the lowest. Consequently, the factory generated a total profit of ₹1,455.51 lakh with a healthy profit margin of 14.64 percent. These results demonstrate the strong influence of production efficiency on financial performance.

From 2013–14 onwards, however, production costs exceeded ex-mill sugar prices, resulting in persistent losses. Rising cane procurement costs combined with declining sugar recovery substantially increased production costs, while sugar prices showed only marginal improvement. Consequently, losses amounted to ₹773.82 lakh during

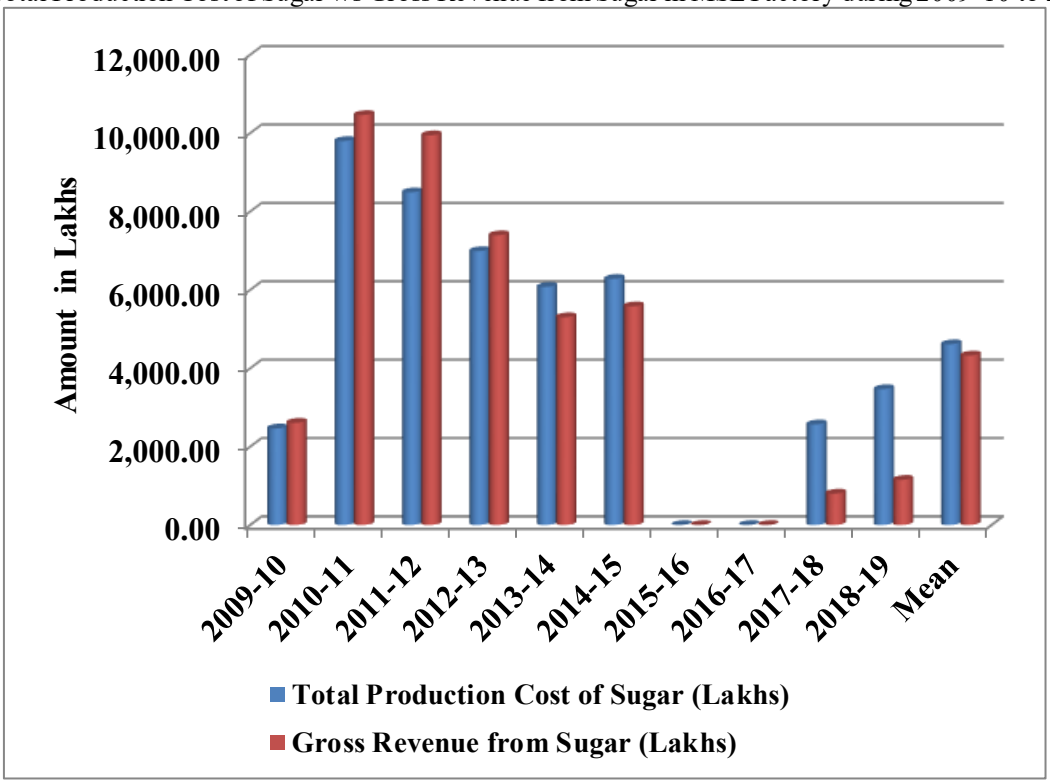
2013–14 and ₹700.75 lakh during 2014–15. The factory closure during 2015–16 and 2016–17 further weakened its financial position.

Following the reopening of the factory, profitability deteriorated drastically. Extremely low sugar recovery, reduced crushing capacity, and underutilization of machinery caused production costs to rise sharply. During 2017–18, production cost reached ₹114,053.60 per tonne against an ex-mill price of only ₹35,541 per tonne, resulting in a loss of ₹78,512.60 per tonne and a negative profit margin of 220.91 percent. Although production costs declined slightly during 2018–19, losses remained extremely high, indicating that factory operations were economically unsustainable under existing conditions.

The average production cost during the study period was ₹46,377.62 per tonne, whereas the average ex-mill price was only ₹29,030.25 per tonne, resulting in an average loss of ₹17,347.37 per tonne. Similarly, the average annual loss amounted to ₹361.04 lakh with a negative profit margin of 52.15 percent. The compound annual growth rates further reveal a sharp increase in production cost (14.52%) alongside negligible growth in sugar prices (0.68%), leading to severe declines in profit per tonne, total profit, and profit margin.

These findings clearly demonstrate that the economic viability of MSL has been undermined by declining sugar recovery, rising production costs, inadequate capacity utilization, and increasing financial liabilities. To restore profitability, the factory must improve operational efficiency through modernization of machinery, enhanced cane procurement strategies, higher recovery rates, better financial management, and greater utilization of value-added by-products such as bagasse-based cogeneration, molasses-based ethanol, and press mud-based biofertilizers. Diversification of revenue sources, together with efficient cost management, is essential for ensuring the long-term sustainability of the enterprise.

Fig. 1:- Total Production Cost of Sugar v/s Gross Revenue from Sugar in MSL Factory during 2009-10 to 2018-19.



From **fig. 1,** it was clear that among the ten years of study, initial four year ie from 2009-10 to 2012-13 showed some marginal profit from sugar production. But, from 2013-14 onwards my sugar had showed losses in the production sugar.

The financial performance deteriorated significantly after 2013–14, when production costs increased faster than market prices. Extremely high production costs during 2017–18 and 2018–19, coupled with reduced sugar production, generated exceptionally large financial losses. Negative compound annual growth rates in profitability indicators further confirm the declining financial sustainability of the enterprise.

Several factors contributed to this adverse economic performance, including underutilization of installed capacity, ageing machinery, irregular factory operations, delayed commencement of crushing seasons, rising cane procurement prices, increasing maintenance expenditure, and low sugar recovery rates. These findings emphasize that operational efficiency is closely linked with financial performance in sugar manufacturing industries.

5. Conclusion and Policy Implications:-

5.1 Conclusion:-

This study evaluated the production performance, sugar recovery, by-product generation, production cost, and profitability of Mysore Sugar Company Limited (MYSUGAR), Mandya, Karnataka, using secondary data for the period 2009–10 to 2018–19. The findings reveal that although the factory possesses substantial installed capacity and integrated processing facilities, its operational and financial performance has deteriorated considerably over the study period.

The analysis showed that sugarcane crushing and sugar production fluctuated significantly due to irregular factory operations, inadequate cane supply, and prolonged shutdowns. The average sugar recovery rate of 6.79% was considerably below the national average, indicating inefficiencies in both raw material quality and processing operations. Although by-products such as bagasse, molasses, and press mud were generated in substantial quantities, their economic potential has not been fully utilized because of the underperformance of the cogeneration and distillery units.

Production cost analysis demonstrated that sugarcane procurement accounted for the largest share of manufacturing cost, contributing nearly 98% of the total production cost per tonne of sugar. Declining crushing volumes further increased unit production costs because fixed operating expenses were distributed over lower production levels. Consequently, the average production cost substantially exceeded the average ex-mill selling price of sugar, resulting in persistent financial losses throughout much of the study period. The factory also experienced prolonged operational interruptions during 2015–16 and 2016–17, which further weakened production efficiency and financial performance.

Overall, the analysis demonstrates that modernization of processing facilities, timely crushing operations, improved sugarcane quality, efficient utilization of cogeneration and distillery units, and better financial management are essential to restore the long-term economic viability of MYSUGAR. Enhanced value addition through by-products such as bagasse, molasses, and press mud could further strengthen revenue generation and improve the financial sustainability of the enterprise. Without comprehensive technological modernization and financial restructuring, continued losses may further reduce the competitiveness and viability of the enterprise.

5.2 Policy Implications

Based on the findings, the following policy measures are recommended:

- **Modernization of Plant and Machinery:** The ageing milling, boiling, and processing equipment should be upgraded to improve operational efficiency, reduce downtime, and increase sugar recovery.
- **Improvement in Sugarcane Quality:** Strengthening collaboration with farmers through extension services, improved varieties, and scientific crop management can enhance cane quality and increase recoverable sugar.
- **Timely Crushing Operations:** Harvesting and crushing schedules should be synchronized to minimize sucrose losses caused by delays between harvesting and processing.
- **Optimal Capacity Utilization:** Increasing sugarcane availability and ensuring uninterrupted factory operations will improve capacity utilization, reduce fixed cost per unit of output, and enhance profitability.
- **Efficient Utilization of By-products:** Greater emphasis should be placed on commercial utilization of bagasse for power generation, molasses for ethanol and industrial alcohol, and press mud for organic manure production to diversify revenue sources.
- **Financial Restructuring:** Reducing debt burden, improving working capital management, and strengthening financial planning are essential for restoring the financial health of the factory.

- **Adoption of Digital and Smart Manufacturing Practices:** The implementation of process automation, real-time monitoring systems, predictive maintenance, and data-driven production planning can improve operational efficiency and reduce processing losses.
- **Policy Support:** Government support through technology upgradation schemes, concessional finance, and incentives for renewable energy and ethanol production would strengthen the competitiveness and long-term sustainability of public-sector sugar factories.

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