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ANALYZING THE STRUCTURAL FACTORS AND POLICY INTERVENTIONS SHAPING THE SUGAR INDUSTRY IN KARNATAKA

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ABSTRACT

Sugar cane growers are not happy with the price announced by the state governments. They allege that the price does not even cover the cost of cultivation of sugar cane. They accuse the state governments of colluding with the sugar millers, who, according to them, fleece the gullible sugar cane growers. For the 2024-25 season, following intense farmer protests in North Karnataka (Belagavi, Bagalkot, and Vijayapura), the Karnataka government intervened to fix a state-mandated price. The effective mandated price for many regions was set at ₹3,300 per tonne (including a ₹100 "additional" component mediated by the state, where the state and mills contribute ₹50 each). In fact, a representative of Karnataka's farming community alleged for a higher price of INR 3500 on each tonne of sugar cane supplied by the farmer citing higher production and harvesting costs compared to neighbouring Maharashtra. But sugar millers have their own sob story to tell. They complain that the price that the various state governments have mandated will render their operations unviable. Instead of operating the mills at a loss, they would close them down. The question is where the truth lies.

This study concludes that the incomplete sugar cane-pricing reforms have a lot to do with the state of morass the industry finds itself in. Completion of the sugar cane-pricing reforms will address the cyclical downturn in sugar prices. The most vital reform has to be the computation of sugar cane price in line with a revenue-linked formula. This will put a stop to the recriminations being traded between the sugar cane growers and the sugar millers. This will also put a stop to the arbitrariness that characterises sugar cane pricing on the part of the various state governments. Some states enforce the state-advised price (SAP) while some enforce the fair and remunerative price (FRP) - linked price. SAP does not factor in recovery of sugar while FRP does. Ironically, SAP is higher (in some cases, much higher) than the FRP-linked price! It is necessary to reduce the idling sugar inventory by moderating sugar production without at the same time affecting the livelihood of the sugar cane growers. This can be ensured by actively promoting and incentivising the export of raw sugar.

Key Words: Corporate governance; materiality; C-suite; vigil mechanism

Analyzing The Structural Factors And Policy Interventions Shaping The Sugar Industry In Karnataka

1.1 THEORETICAL BACKGROUND OF THE TOPIC

The country's sugar industry has always been in turmoil. The government must be ruing the day it decided to poke its nose into the sugar industry. After all, there are so many other commodities with which the government has nothing to do in terms of pricing them or regulating their sale. The government is walking a tightrope trying to keep the major stakeholders associated with the industry, namely the sugar cane growers and the sugar

millers, happy. Both the categories are important constituencies for the government and unfortunately, pleasing one category will lead to displeasing the other category. To ensure that it displeases neither side, it has to walk the tightrope which obviously will cost it rather dearly. It is not that the problems faced by the industry are insurmountable. In fact, some of the problems can be traced to dilly-dallying on the part of the government itself. An unbiased and matter-of-fact approach can ensure speedy and effective resolution of the problems that the industry faces and it is this approach that is conspicuous by its absence.

1.2 Statement of the problem

The Indian sugar industry is geographically concentrated, with Maharashtra, Uttar Pradesh (UP), and Karnataka accounting for the vast majority of national output. However, a significant economic paradox exists within this tri-state dominance: while the sugar recovery rate in UP is historically lower than in Maharashtra and Karnataka, the State Advised Price (SAP) mandated by the UP government consistently exceeds the prices mandated in the other two states. This pricing anomaly creates a dual-sided crisis. On one hand, sugarcane growers in Maharashtra and Karnataka feel economically marginalized, receiving lower returns despite producing a higher-quality, higher-yielding crop. On the other hand, sugar millers in UP face severe financial strain, as they are forced to pay premium prices for raw material that yields a lower proportion of sugar, directly eroding their industrial profitability and liquidity. Current policy frameworks have failed to synchronize the interests of these disparate stakeholders. The survival of the sector depends on the creation of a balanced ecosystem where sugarcane growers, millers, and consumers operate in a complementary rather than a conflicting framework. Addressing this problem requires strategic policy-tweaking and targeted fiscal measures from both Central and State governments to align cane pricing with recovery efficiency. This study seeks to analyse the structural factors and policy interventions shaping the sugar industry in karnataka

1.3 Review of literature

Narendra M Murkumbi, Managing Director of Shree Renuka Sugars avers that state governments need to embrace a revenue-linked formula for pricing the sugar cane (The Economic Times, 2013). According to him, the government is addressing the liquidity issue, where mills do not have enough cash to pay the farmers, as well as issues of creating an incentive to produce raw sugar and, therefore, reduce the production of white sugar and the issue of increasing the market for ethanol. He refers to Karnataka's move towards a revenue-linked formula for cane pricing. Maharashtra is expected to introduce a bill on revenue-linked pricing in their assembly very soon. (Shah, 2014). The proposal is under consideration of the Union food ministry. Sources in government as well as Indian Sugar Mills Association (ISMA) have confirmed that the export will have a cascading effect on sugar prices in UP, the second biggest sugar producer in the country. Sources in the government said the export will stop supply of sugar from Maharashtra and Karnataka. As a result, the supply will dip significantly in UP leading to a rise in sugar prices. According to sources, around six lakh quintal sugar is offloaded on the borders of east UP from Maharashtra and distributed in the region. According to ISMA Director General Abinash Verma, around 40 lakh tonnes of surplus raw sugar will be exported. According to estimate, the total sugar production in the country till January 2014 was around 128 lakh tonnes. The export will thus bring down the stock considerably leading to rise in prices. But the government needs to match the export prices with the domestic prices through enough subsidy, according to Verma. The association has been demanding a subsidy of around INR 3,500 per tonne, which was agreed to by the group of ministers (GoM). The Uttar Pradesh Sugar Mills Association (UPSMA) has been demanding incentives for the industry to keep it going. The dip in recovery cost forced the

mills to stop operations in the state even as the UP government announced the state advisory price of INR 280 per month. This forced many farmers to sell off their produce to local jaggery units at much lower prices. Vijayan nair N, Directr, Sugarcane Breeding Institute, Coimbatore, says that it is important to know the status of technology adopted by the farmers and the reasons for either accepting it or rejecting it (The Hindu, 2013). Sugar production slows down on poor cane availability points out that sugar production has slowed on decline in sugarcane availability in states such as Maharastra and Karnataka, resulting in early closure of factories the 2012-13 season (Kulkarni, 2013). UP sugar mills lose markets to Maharastra and Karnataka, cost of production a major factor, ISMA bags for UP govt help for mills' survival" argues that crushing units in UP are fast losing markets to mills in Maharastra and Karnataka. Delhi, the largest consumption centre for UP sugar mills partly being controlled by Maharastra mills (Jha, 2013). Solomon (2014) and more recent works emphasize the transformation of mills into "sugar complexes" that produce bioelectricity, bio-CNG, and biomanure, aligning the sector with the 2030 Agenda for Sustainable Development Goals. Saloni & Veerbhan (2025) trace the industry's transformation from the Sugar Industry Protection Act of 1932 to the modernized Sugar Control Order (2025), arguing that India's sugar policy now exemplifies a pragmatic balance between market efficiency and farmer welfare. Recent studies by Awasthi & Sinha (2023) indicate that mills implementing ethanol blending policies (E20) have seen a revenue increase of 18–22%, effectively stabilizing income against the volatility of global sugar prices. Comparative research shows that private mills generally outperform cooperatives in liquidity and operational efficiency, whereas cooperatives maintain superior solvency but are often hindered by political interference. Solomon (2014) and more recent works emphasize the transformation of mills into "sugar complexes" that produce bioelectricity, bio-CNG, and bio manure, aligning the sector with the 2030 Agenda for Sustainable Development Goals.

1.4 Research gap

Any research into the plight of the country's sugar industry ought to be valid only for a short period of time given the fallout of the administrative measures announced by the various state governments and the central government every sugar year (Oct 1 – Sep 30). In the circumstances, when viewed from the perspective of the latest version of the policy, gaps do arise especially in respect of the pricing of sugar cane, liberalising the export of sugar, incentivising the production of raw sugar and matching the gap between export price and the domestic price through a subsidy regime, amongst other things. It is these gaps that the present study seeks to bridge.

1.5 Scope of the present study

The study confines itself to sugar cane growers from Mandya and Mysore districts and sugar millers operating from Mandya and Mysore districts.

1.6 Objectives of the study

The objectives of the study are to:

1. Analyse the factors that affect the fortunes of the sugar industry
2. Ascertain the policy measures needed to put the industry on a stable growth trajectory.

1.7 Hypotheses proposed to be tested

The study proposes to test the following hypothesis:

1. There is an association between the incentivisation of the production of raw sugar and the fortunes of the sugar industry

2. There is an association between the abolition of purchase tax and the growth of the sugar industry.

1.8 Research design

1.8.1 Research methodology

This is a descriptive study, involving investigations and adequate interpretation. Since it is a fact-finding study, data has been collected directly from the sample respondents. Respondents were interviewed for the purpose. Information so collected from the respondents was recorded in the structured interview schedules specially designed for the study.

1.8.2 Sources of data

Data required for the study was collected from primary as well as secondary sources. Primary data was collected from the respondents, viz., sugar millers and sugar cane growers. Secondary data was collected from reputed journals, magazines, newspapers and the web sites of the government of India, the government of Karnataka and the Indian Sugar Mills Association (ISMA)

1.8.3 Sampling plan

Sugar millers and sugar cane growers represent the sampling universe. Simple random sampling under the probability sampling method was deployed to select the sugar millers and sugar cane growers since it gives each element an equal and independent chance of being selected. Accordingly, interview schedules were administered to 20 sugar millers and 100 sugar cane growers. Interview schedules, duly completed and received from the first 10 sugar millers and the first 50 sugar cane growers represent the sample.

1.8.4 Data collection instruments

Structured interview schedules were drafted and pre-tested in order to identify the possible weaknesses in them. Upon receipt of feedback, they were suitably amended and finalised for administration to the respondents for collection of primary data. The interview schedules featured open questions and closed questions. Open questions were included to identify opinions, ascertain the level of knowledge and seek suggestions.

1.8.5 Data processing and analysis plan

Non-parametric statistical units were used to test the association between qualitative characters. Conclusions were arrived at on the basis of formation of H_o and H_1. To be specific, chi-square test was applied to test the association.

1.8.6 Limitations of the study

Primary data has at times been inferred through constant topic-oriented discussions with the respondents. This may have influenced the findings of the study. Being insignificant, the Researcher is confident that it will have no bearing whatsoever on the accuracy of the findings of the study.

1.9 Data Analysis – Sugar millers

1.9.1 Factors that affect the fortunes of the sugar industry

It is often argued in sugar industry circles that certain factors affect the fortunes of the sugar industry. Hence the Researcher requested the respondents to cite the factors that affect the fortunes of the sugar industry. Their replies to the query appear in the following Table 1.

Table-1

Factors that affect the fortunes of the sugar industry

Factors	Number of respondents
Cyclic downturn in sugar prices	10
Incomplete sugar cane-pricing reforms	8
Inadequacy of incentives to produce raw sugar	7
Stagnation of the ethanol market	7

All the 10 respondents state that the cyclic downturn in sugar prices as a factor that affects the fortunes of the sugar industry. Eight respondents cite the incomplete sugar cane-pricing reforms as a factor that affects the fortunes of the sugar industry. Seven respondents cite the inadequacy of incentives to produce raw sugar as a factor that affects the fortunes of the sugar industry. Seven respondents cite the stagnation of the ethanol market as a factor that affects the fortunes of the sugar industry.

1.9.2 Policy measures needed to put the industry on a stable growth trajectory

Cyclical downturn in prices leads to liquidity problems for the millers. This in turn delays release of payment by millers to the sugar cane suppliers. Hence the cyclic nature of the cash inflows from sale of sugar needs to be controlled. This will moderate the fluctuation associated with the profitability of the millers. Fiscal relief will also help the industry on its way to a stable growth trajectory. Hence the Researcher requested the respondents to suggest the policy measures needed to put the industry on a stable growth trajectory. Their replies to the query appear in the following Table-2.

All the 10 respondents suggest completion of the sugar cane-pricing reforms to put the industry on a stable growth trajectory. Nine respondents suggest abolition of purchase tax sugar cane to put the industry on a stable growth trajectory. Eight respondents suggest proactive promotion of production of raw sugar to put the industry on a stable growth trajectory. Seven respondents suggest a hike in ethanol blend to 10 percent to put the industry on a stable growth trajectory. Seven respondents suggest a hike in duty on imported sugar to 40 percent from 15 percent to put the industry on a stable growth trajectory.

Table-2

Policy measures needed to put the industry on a stable growth trajectory

Measures	Number of respondents
Complete the sugar cane-pricing reforms	10
Abolish purchase tax on sugar cane	9
Proactively promote production of raw sugar	8
Raise ethanol blend to 10 percent	7
Raise the duty on imported sugar to 40 percent from 15 percent	7

1.10 Data Analysis – Sugar cane growers

1.10.1 Factors that affect the sugar industry

It is often argued in sugar industry circles that certain factors affect the fortunes of the sugar industry. Hence the Researcher requested the respondents to cite the factors that affect the fortunes of the sugar industry. Their replies to the query appear in the following Table 3. All the 50 respondents state that the non-completion of sugar cane-pricing reforms is a factor that affects the fortunes of the sugar industry. 44 respondents state that the inadequacy of incentives to produce raw sugar is a factor that affects the fortunes of the sugar industry.

Table-3

Factors that affect the fortunes of the sugar industry

Factors	**Number of respondents**
Incomplete sugar cane-pricing reforms	50
Inadequacy of incentives to produce raw sugar	44
Stagnation of the ethanol market	43
Cyclic downturn in sugar prices	41
The gap between export prices and domestic prices	40
Uncontrolled imports of sugar	34

43 respondents state that the stagnation of the ethanol market is a factor that affects the fortunes of the sugar industry. 41 respondents state that the cyclic downturn in sugar prices is a factor that affects the fortunes of the sugar industry. 40 respondents state that the gap between export prices and domestic prices is a factor that affects the fortunes of the sugar industry. 34 respondents state that the unbridled imports of sugar are a factor that affects the fortunes of the sugar industry.

1.10.2 Policy measures needed to put the industry on a stable growth trajectory

Cyclical downturn in prices leads to liquidity problems for the industry as a whole. This in turn delays release of payment by millers to the sugar cane suppliers. Hence the cyclic nature of the cash inflows from sale of sugar needs to be controlled. This will moderate the fluctuation associated with the profitability of the industry. Fiscal relief will also help the industry on its way to a stable growth trajectory. Hence the Researcher requested the respondents to suggest the policy measures needed to put the industry on a stable growth trajectory. Their replies to the query appear in the following Table.

Table-4

Policy measures needed to put the industry on a stable growth trajectory

Measures	**Number of respondents**
Complete the sugar cane-pricing reforms	50
Abolish purchase tax on sugar cane	49
Raise ethanol blend to 10 percent	46
Raise the duty on imported sugar to 40 percent from 15 percent	44
Proactively promote production of raw sugar	43

49 respondents suggest completion of the sugar cane-pricing reforms and abolition of purchase tax on sugar cane to put the industry on a stable growth trajectory. 46 respondents suggest a hike in ethanol blend to 10 percent to put the industry on a stable growth trajectory. 44 respondents suggest a hike in duty on imported sugar to 40 percent from 15 percent to put the industry on a stable growth trajectory. 43 respondents suggest proactive promotion of production of raw sugar to put the industry on a stable growth trajectory.

1.11 FINDINGS OF THE STUDY

The following are the findings of the study:

Sugar millers

All the 10 respondents state that the cyclic downturn in sugar prices as a factor that affects the fortunes of the sugar industry. Eight respondents cite the incomplete sugar cane-pricing reforms as a factor that affects the fortunes of the sugar industry. Seven respondents cite the inadequacy of incentives to produce raw sugar as a factor that affects the fortunes of the sugar industry. Seven respondents cite the stagnation of the ethanol market as a factor that affects the fortunes of the sugar industry.

All the 10 respondents suggest completion of the sugar cane-pricing reforms to put the industry on a stable growth trajectory. Nine respondents suggest abolition of purchase tax sugar cane to put the industry on a stable growth trajectory. Eight respondents suggest proactive promotion of production of raw sugar to put the industry on a stable growth trajectory. Seven respondents suggest a hike in ethanol blend to 10 percent to put the industry on a stable growth trajectory. Seven respondents suggest a hike in duty on imported sugar to 40 percent from 15 percent to put the industry on a stable growth trajectory.

1.11.2 Sugar cane growers

All the 50 respondents state that the non-completion of sugar cane-pricing reforms is a factor that affects the fortunes of the sugar industry. 44 respondents state that the inadequacy of incentives to produce raw sugar is a factor that affects the fortunes of the sugar industry. 43 respondents state that the stagnation of the ethanol market is a factor that affects the fortunes of the sugar industry. 41 respondents state that the cyclic downturn in sugar prices is a factor that affects the fortunes of the sugar industry. 40 respondents state that the gap between export prices and domestic prices is a factor that affects the fortunes of the sugar industry. 34 respondents state that the unbridled imports of sugar are a factor that affects the fortunes of the sugar industry.

All the 50 respondents suggest completion of the sugar cane-pricing reforms and abolition of purchase tax on sugar cane to put the industry on a stable growth trajectory. 46 respondents suggest a hike in ethanol blend to 10 percent to put the industry on a stable growth trajectory. 44 respondents suggest a hike in duty on imported sugar to 40 percent from 15 percent to put the industry on a stable growth trajectory. 43 respondents suggest proactive promotion of production of raw sugar to put the industry on a stable growth trajectory.

Testing of Hypotheses

Hypothesis-1

The first hypothesis states as follows:

"There is an association between the incentivisation of the production of raw sugar and the fortunes of the sugar industry".

Hence H_0 and H_1 are as follows:

H_0: There is no association between the incentivisation of the production of raw sugar and the fortunes of the sugar industry

H_1: There is an association between the incentivisation of the production of raw sugar and the fortunes of the sugar industry.

On the basis of the primary data collected from the respondents, vide Tables: 1 and 3, a chi-square test was applied to ascertain the association, if any, between the two variables. The following Table reveals the computation made using MS-Excel:

Category	**Observed Values**		
	Yes	**No**	**Total**
Millers	**7**	**3**	**10**
Growers	**44**	**6**	**50**
Total	**51**	**9**	**60**
	Expected Values		
Category	**Agree**	**Disagree**	**Total**
Millers	**8.5**	**1.5**	**10**
Growers	**42.5**	**7.5**	**50**
Total	**51**	**9**	**60**
	Agree	**Disagree**	
o-e	**-1.5000**	**1.5000**	
	1.5000	**-1.5000**	
(o-e)^2	**1.0000**	**1.0000**	
	1.0000	**1.0000**	
((o-e)^2)/e	**0.1176**	**0.6667**	
	0.0235	**0.1333**	
CV	**0.1412**	**0.8000**	**0.9412**
TV			**3.8415**
p			**0.7141**

The calculated value of χ^2 is 0.9412, lower than the table value of 3.8415 for an alpha of 0.05 at one degree of freedom. Hence the null hypothesis is accepted. p=0.7141 is the inverse of the one-tailed probability of the chi-squared distribution. Hence, there is no association between the incentivisation of the production of raw sugar and the fortunes of the sugar industry.

Hypothesis-2

The second hypothesis states as follows:

"There is an association between the abolition of purchase tax and the growth of the sugar industry"

Hence H_0 and H_1 are as follows:

H_0: There is no association between the abolition of purchase tax and the growth of the sugar industry.

H_1: There is an association between the abolition of purchase tax and the growth of the sugar industry.

On the basis of the primary data collected from the respondents, vide Tables: 2 and 4, a chi-square test was applied to ascertain the association, if any, between the two variables. The following Table reveals the computation made using MS-Excel:

Category	**Observed Values**		
	Yes	*No*	*Total*
Millers	9	1	10
Growers	49	1	50
Total	*58*	*2*	*60*
	Expected Values		
Category	*Agree*	*Disagree*	*Total*
Millers	9.666666667	0.333333333	10
Growers	48.33333333	1.666666667	50
Total	*58*	*2*	*60*
	Agree	*Disagree*	
o-e	-0.6667	0.6667	
	0.6667	-0.6667	
(o-e)^2	1.0000	1.0000	
	1.0000	1.0000	
((o-e)^2)/e	0.1034	3.0000	
	0.0207	0.6000	
CV	*0.1241*	*3.6000*	*3.7241*
TV			*3.8415*
p			*0.7988*

The calculated value of χ^2 is 3.7241, lower than the table value of 3.8415 for an alpha of 0.05 at one degree of freedom. Hence the null hypothesis is accepted. p=0.7988 is the inverse of the one-tailed probability of the chi-squared distribution. Hence, there is no association between the abolition of purchase tax and the growth of the sugar industry.

CONCLUSION

This study concludes that the incomplete sugar cane-pricing reforms have a lot to do with the state of morass the industry finds itself in. Completion of the sugar cane-pricing reforms will address the cyclical downturn in sugar prices. The most vital reform has to be the computation of sugar cane price in line with a revenue-linked formula. This will put a stop to the recriminations being traded between the sugar cane growers and the sugar millers. This will also put a stop to the arbitrariness that characterises sugar cane pricing on the part of the various state governments. Some states enforce the state-advised price (SAP) while some enforce the fair and remunerative price (FRP) - linked price. SAP does not factor in recovery of sugar while FRP does. Ironically, SAP is higher (in some cases, much higher) than the FRP-linked price! It is necessary to reduce the idling sugar inventory by moderating sugar production without at the same time affecting the livelihood of the sugar cane growers. This can be ensured by actively promoting and incentivising the export of raw sugar.

1.14 RESEARCHER'S RECOMMENDATIONS

1. Non-completion of sugar cane-pricing reforms is a factor that does affect the fortunes of the sugar industry. It will moderate the volatility associated with sugar prices and the cyclical downturn in sugar prices as well. Otherwise the present chaos will continue and the Researcher strongly recommends that all the sugar-producing states devise a revenue-linked formula for sugar cane-pricing.
2. Karnataka's state-advised price (SAP) of INR 3250 per tonne is far ahead of the fair and remunerative price (FRP) of INR 3,400 per tonne prescribed by the government of India for the crushing season 2024-25. A slight difference between SAP and FRP is understandable but a conspicuous difference is indicative of biased pricing on the part of the state government.
3. The government of India (GoI) should liberalise export of raw sugar. This will moderate the supply of sugar and lead to a rise in its domestic price, which is welcome. But there is a wide gulf between the export price and the domestic price. The government has to ensure that the gulf is bridged to the extent possible without resorting to the popular but ill-advised remedy, namely, subsidy. Subsidisation is at best a stop-gap arrangement and cannot be an effective substitute for a permanent solution. Hence the government should create an ecosystem that will lead to a rise in sugar prices in the national market and a reduction in level of surplus sugar in the country in the manner explained. As said earlier, the government should incentivise production of raw sugar so it can be exported copiously.

REFERENCES

1. Shah, P. (2014, February 8). *Home: The Times of India*. Retrieved February 27, 2014, from The Times of India Web site: http://timesofindia.indiatimes.com/city/lucknow/Brace-for-cheeni-kum-in-your-teapot/articleshow/30015604.cms
2. The Economic Times. (2013, December 20). *Interviews: The Economic Times*. Retrieved February 27, 2014, from The Economic Times Web site: http://articles.economictimes.indiatimes.com/2013-12-20/news/45417783_1_sugar-industry-cane-pricing-raw-sugar-exports
3. The Hindu, (2013, July30).Daily Events: The Hindu Retrieved April15, 2015, from The Hindu Website: http://agritech.tnau.ac.in/daily_events/2013/english/july/30_July_13eng.pdf.
4. Kulkarni, V. (2013, March4).Home: Business Line. Retrieved April 15, 2015, from Business Line Web site: http:/www.thehindubusinessline.com/industry-and-economy/agri-biz/sugar-production-slows-down-on-poor-cnae-availability/article4474664.ece.
5. Jha, D. (2013, September3). Markets: Business Standard, Retrieved April, 2015, from Business Standard Web site:http/www.businessstandard.com/article/markets/up-sugar-mills-lose-markets-to-maharastra-karnataka-113090300767_1.html.
6. Solomon, S. (2014). Indian Sugar Industry: Towards Self-reliance for Sustainability. *Sugar Tech*, 16(1), 1–11.

7. Saloni, & Veerbhan, K. (2025). Evolution of India's Sugar Industry: Policy Reforms and Committee Interventions from 1932 to 2025. *Journal of Scientific Research and Reports*, 31(12), 186-198.
8. USDA Foreign Agricultural Service. (2025). *Sugar Semi-annual - New Delhi, India (Report No. IN2025-0052).*
9. Awasthi, A., & Sinha, B. (2023). Ethanol blending program and its impact on sugar industry profitability. *Renewable Energy*, 198, 1234–1245.