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SUBJECT III
SUBSIDIES IN AGRICULTURE AND THEIR IMPLICATIONS ON
TRADE AND ENVIRONMENT

Sugar Sector: Is it Sustained by Subsidies?

Sangeeta Shroff and Jayanti Kajale*

ABSTRACT

The sugar economy is highly regulated in India, starting from sugarcane pricing to the final production and distribution of sugar. Paying unduly high State Advised Price which is fixed higher than Fair and Remunerative Price is unsustainable by mills leading to cane arrears as well as cyclicity in sugarcane production thereby causing fluctuations in sugarcane production and pricing. The price of sugarcane is administered while price of sugar is market-driven and this disconnect has resulted in cane arrears to the tune of ` 12000 crores in 2013-14 and average subsidy of ` 2147 crores per annum, during the period 2007-08 to 2013-14.

Besides paying farmers higher prices, the mills also subsidise the government through levy price to the tune of ` 2416 crores on an average per year over the period 2007-8 to 2012-13. These subsidies given by mills has put them in financial strain thus forcing the government to announce relief measures in the form of interest free loans to the tune of ` 6600 crores besides waiving off purchase tax, commission and entry tax on sugar. Mills have also received huge subsidies while setting up their plants. Finally, when stocks pile up due to excess availability over consumption, the government has offered export subsidy for raw sugar which have been questioned under multilateral trade rules.

Overall it appears that sugar sector has been surviving with the help of subsidies. Hence policy must be addressed towards liberalising this sector from several controls and increasing the yield of sugarcane which has shown no improvement over decades. Inappropriate use of fertiliser and heavy irrigation under canal and lift irrigation command have made the soil alkaline adversely impacting productivity. Increasing productivity through scientific practices will enable sugar mills to obtain sufficient raw material at competitive prices and thus they can have more working days and reap economies of scale.

Keywords: Sugar Sector, Subsidies, Trade.

JEL: Q170, Q11, Q13, H2

I

INTRODUCTION

India ranks second in the production of sugarcane and sugar in the world, after Brazil. The area under sugarcane in Brazil is 8.6 million hectares which is almost double that of India. The production in India is about 40 per cent that of Brazil and while the annual per capita consumption of sugar in Brazil is 61 kg, in India it is only 18 kgs. World trade in sugar reveals that while the share of Brazil in exports is 46 per cent, that of India is only 5 per cent (FAO Stat). Since India has a large and growing domestic demand for sugar, perhaps its share in world trade is still not sizeable.

*Gokhale Institute of Politics and Economics, Pune-411 004 (Maharashtra).

With respect to domestic economy of sugarcane, the area is 5.06 million hectares which is 2.5 per cent of gross cropped area. The major growing states are Uttar Pradesh which occupies 43.68 per cent area and 39.78 per cent of production, followed by Maharashtra which has a share of 18.58 per cent in area and 18.34 per cent of production. Although these two states together have more than half the area and production of sugarcane, Tamil Nadu ranks the highest in terms of yield which is 92.6 tonnes per hectare (Government of India, 2013a). An important point to note however is that although Uttar Pradesh has more than double the area and production of sugarcane than Maharashtra, the production of sugar is higher in Maharashtra than Uttar Pradesh. While the share of production of sugar in Maharashtra is 34.09 per cent that in Uttar Pradesh is 26.47 per cent (2011-12).

After briefly observing the status of sugarcane and sugar in India, it may be noted that government policies, both at the Centre and State levels, have played a major role in the development of the sugar sector. The sugar economy is highly regulated in India starting from sugarcane pricing to the final production and distribution of sugar. Regulation assumes the form of cane reservation area, price fixation of sugarcane, levy sugar obligation, regulated release of free sale (non-levy sugar), trade policy for sugar, etc. The main purpose of regulation is to ensure a fair price to cane growers, reasonable returns to industry and supply sugar to vulnerable sections of the society. However, the process of regulation in the sugar economy besides leading to cyclical nature of sugar production also leads to distortions as there is no market driven relationship between sugar and sugarcane. Government control often gives rise to subsidies to be paid to various stakeholders in the sugar sector such as the sugarcane cultivators and sugar mills. Further, in case there are surplus stocks of sugar, exports are encouraged in order to prevent mills from accumulating inventory by giving export subsidies. Overall, it appears that the sugar economy is marked by distortions due to public intervention at various levels. An attempt is therefore made in this paper to examine the subsidies given to the sugar sector and its impact on the economy.

II

REGULATORY SYSTEM IN PRICING OF SUGARCANE

Sugarcane and sugar are both covered by the Essential Commodities Act. The central government announces the Statutory Minimum Price (SMP) for sugarcane which is linked to several factors such as cost of cultivating cane, returns to growers from alternative crops, yield of cane, etc. Since 2009, the SMP has been replaced by Fair and Remunerative Price (FRP) which includes a reasonable margin to growers of sugarcane on account of risk and profits. FRP is the minimum price that sugarcane farmers are legally guaranteed and is linked to basic sugar recovery of 9.5 per cent. State governments however fix a State Advised price (SAP) which is often higher than SMP/FRP. Sugar mills are compelled to pay the SAP to farmers irrespective of the market price of sugar.

In Table 1, the SMP/FRP of sugarcane is indicated for various states and compared with SAP starting from sugar season 2008-09. In the early 2000 period, there was small and gradual increase in SMP but from 2008-09 to 2009-10 there was a sudden increase in the fixed price from ₹ 81.18 per quintal in 2008-09 to ₹ 129.84 per quintal in 2009-10 as SMP was replaced by FRP. It can be observed from Table 1 that for every state and every year, the SAP paid by the state government is much higher than FRP fixed by the centre. Among all states and over the years, the SAP is about 35 to 70 per cent higher than the FRP. In 2012-13, it can be observed that the cane prices are higher in Uttar Pradesh than in Maharashtra, despite a lower recovery rate of 9.1 per cent in Uttar Pradesh compared to that of 11.4 per cent in Maharashtra (Government of India, 2013b).

TABLE 1. STATEWISE COMPARISON OF SMP/FRP WITH SAP

State/Year (1)	2008-09		2009-10		2010-11		2011-12		2012-13		2013-14	
	SMP (2)	SAP (3)	FRP (4)	SAP (5)	FRP (6)	SAP (7)	FRP (8)	SAP (9)	FRP (10)	SAP (11)	FRP (12)	SAP (13)
Uttar Pradesh	81.18	140-160	129.84	165-175	139.12	205-210	145	235-250	170	275-290	210	280
Maharashtra	81.18	158	129.84	214.69	139.12	205	145	235	170	278	210	265
Punjab	81.18	155-165	129.84	170-180	139.12	190-200	145	220-231	170	235-276	210	240
Haryana	81.18	160-170	129.84	175-185	139.12	210-220	145	220-231	170	235-276	210	240
Tamil Nadu	81.18	110	129.84	153.74	139.12	190	145	180-205	170	220-250	210	225

Source : Compiled from <http://gain.fausda.gov>, www.indiansugar.com, www.prsindia.org.

Note : The price is fixed for a recovery rate of 9.5 per cent. SMP-Statutory Minimum Price; SAP-State Advised Price and FRP-Fair and Remunerative Price.

Regulation in sugarcane pricing has brought about several distortions in the overall sugar sector leading to some sort of a vicious cycle. First of all, SAP is an administered price normally fixed higher than FRP often due to political compulsions rather than market pricing. Further, enforcement of cane reservation area and minimum distance criterion leads to virtual monopoly over a large area and adversely impacts competition for purchase of sugarcane. Paying unduly high sugarcane prices is sometimes unsustainable by the mills which leads to cane arrears as well as cyclicity in sugarcane production thereby causing fluctuations in sugar production and prices. The price of sugarcane is administered while the price of sugar is market driven and this disconnect adversely impacts the sugar economy.

The above discussion can be observed from Table 2. It can be observed from Table 2 that production of sugar declined from 2007-08 to 2008-09 by 44 per cent, leading to an increase in ex-mill sugar price of 30 per cent. Since sugar mills benefitted from this price rise the cane arrears to be paid to the farmers declined to ₹ 929 crores in 2008-09 as against ₹ 5133 crores in 2007-08. Since then, the cane arrears have been showing an increasing trend. An important reason for mounting cane arrears is the widening gap between SAP and FRP as well as rising cost of production of sugar. The difference between SAP and SMP/FRP which was ₹ 43.82 per quintal in 2007-08 gradually increased over the years and was as high as ₹ 110 per quintal in 2012-13. This difference in price can also be considered as some kind

of subsidy paid by sugar mills to sugarcane farmers. Although this so called subsidy is paid by sugar mills, the end result is that it is leading them to be unviable and the government has to come to their rescue.

TABLE 2. SUGAR SCENARIO

Year (1)	Production of sugar (million tonnes) (2)	Ex-mill price of sugar (₹ per quintal) (3)	SMP/FRP (₹ per quintal) (4)	SAP (₹ per quintal) (5)	Cane arrears (₹ crores) (6)
2007-08	26.3	1630	81.18	125	5133
2008-09	14.68	2127	81.18	140	929
2009-10	18.8	2980	129.84	165	2381
2010-11	24.35	2659	139.12	205	3897
2011-12	26.36	3070	145	240	8183
2012-13	25.11	3150	170	280	11990
2013-14	25.0	3023	210	250	12000

Source: Commission for Agricultural Costs and Prices (CACPC), 2013;

Note: SAP is average of prices paid to states.

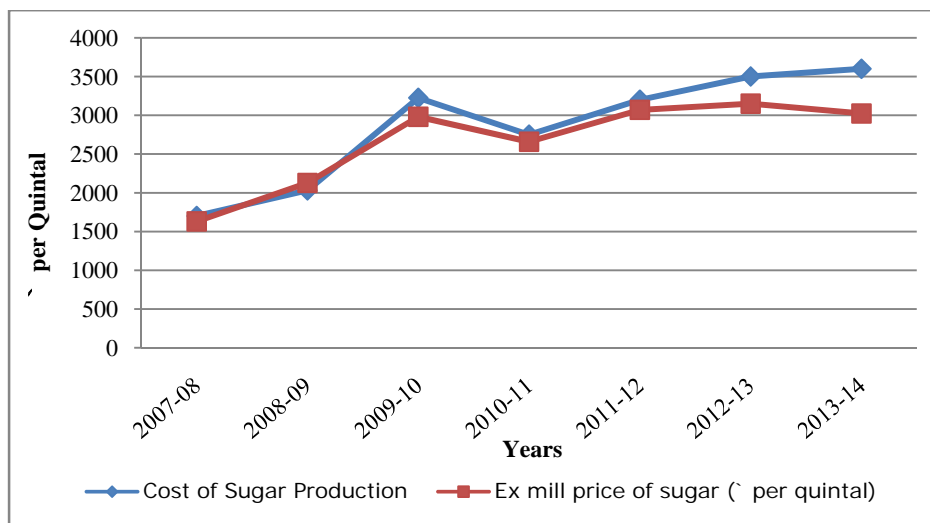
In Table 3, an attempt has been made to calculate the extent to which total subsidies are paid to the cane farmers by sugar mills on account of SAP being higher than FRP.

TABLE 3. SUBSIDIES (CALCULATED) BY SUGAR MILLS TO CANE GROWERS

Year (1)	Production of sugarcane (million tonnes) (2)	Difference between SAP and FRP (₹ per quintal) (3)	Total subsidies paid by sugar mills to cane growers (₹ crores) (4)
2007-08	348.19	43.82	1526
2008-09	285.03	58.82	1677
2009-10	292.30	35.16	1028
2010-11	342.38	65.88	2256
2011-12	361.03	95	3430
2012-13	338.96	110	3729
2013-14	345.92	40	1384

Source : Calculated from Table 2.

It may be noted that Uttar Pradesh which occupies 43.6 per cent of area under sugarcane in the country accounts for 65.39 per cent of cane arrears. The cost of production of sugar in Uttar Pradesh is higher than the Ex-mill price (Graph 1) largely due to high SAP thus leading the sugar sector to be unviable. In 2012-13, Uttar Pradesh had highest cost of production of sugar at ₹ 3500 per quintal while it was lowest in Maharashtra at ₹ 2900 per quintal, followed by Karnataka (₹ 3050 per quintal) and Tamil Nadu (₹ 3150 per quintal) (<http://www.businessstandard.com>). Thus while mills in other states could just about cover costs, mills in Uttar Pradesh made losses. In Uttar Pradesh while SAP increased by 36 per cent from 2010-11 to 2012-13, the FRP increased by 22 per cent and sugar price increased by only 18 per cent during the corresponding period. This steep hike in SAP has largely contributed to the sugar mills becoming unviable. The FRP and SAP as a percentage of value of sugar is indicated in Table 4.



Graph 1. Cost of Production and Ex Mill Price of Sugar in Uttar Pradesh (₹ per quintal)

TABLE 4. FRP AND SAP AS PERCENTAGE OF VALUE OF SUGAR

Year (1)	FRP as per cent of value of sugar (2)	SAP as per cent of value of sugar (3)	Per cent difference between SAP and FRP (4)
2008-09	42.41	65.49	23.08
2009-10	45.86	54.28	8.42
2010-11	55.07	75.8	20.73
2011-12	49.72	76.12	26.4
2012-13	56.81	86.55	29.74
2013-14	70.18	77.30	7.12

Source: CACP, August 2013 for FRP as per cent of value of sugar. SAP as per cent of value of sugar is calculated by the authors.

It can be observed from Table 4 that in several years the payment of SAP as percentage of value of sugar was much higher than FRP. Besides payment of SAP, the mills also have to incur other costs of ₹ 5 to ₹ 6 per kg to convert sugarcane into sugar. The rising SAP along with conversion cost is leading to financial strain for sugar mills. From 2010-11 to 2013-14, SAP was three-fourth or more of the value of sugar.

In view of the ailing sugar sector facing huge financial crunch, the government is forced to announce relief measures. As rescue operations for millers, the Uttar Pradesh government for the 2013-14 sugar season, waived off entry tax on sugar worth ₹ 219 crores, purchase tax on cane taken at the rate of ₹ 2 per quintal which amounts to ₹ 160 crores, and finally bear the entire financial burden of the commission which is 3 per cent of FRP given to cane societies which works out to ₹ 500 crores (<http://www.thehindu.com>). Hence about ₹ 879 crores of relief measures

which are more or less like subsidies were pumped into the sugar sector in Uttar Pradesh. In addition to this, the Cabinet Committee on Economic Affairs (CCEA) also extended interest free loans to the sugar industry worth ` 6600 crores. Banks would provide these loans to the sugar mills solely for the purpose of making sugarcane payments to farmers including arrears, to be repaid by mills within 5 years (<http://www.cmie.com>). In Maharashtra the sugar factories would get an interest of ` 2750 crores waived off from a loan of ` 6600 crores.

Besides the above, it is well known that the sugar mills have received huge subsidies while setting up their plants. In Uttar Pradesh, the government's new sugar industry policy in 2004 offered 10 per cent capital subsidy on investments, reimbursement of transport cost of sugar from factory up to a distance of 600 kms, reimbursement of purchase tax on cane and cane society commission. Besides, remission of stamp duty and registration charges on land purchase and waivers on administrative charges were other incentives. Such concessions were to be given for five years to a company investing a minimum of ` 350 crores and for 10 years in case of investment of ` 500 crores and above (Business India, January 6th 2013). In the state of Maharashtra there is huge financial involvement of the state government to the sugar co-operatives in the form of, contribution to their equity (share capital), loans extended to them from the state exchequer, default guarantee for all loans raised by them from banks and financial institutions and deferral of purchase tax.

Sugar Levy

Out of 609 sugar mills in the country, 23 per cent are in Uttar Pradesh and 32 per cent in Maharashtra which means that a little above 50 per cents mills are located in these two states. From the above, it is clear that increasing prices of sugarcane without corresponding rise in price of sugar is making the sugar sector unviable. However, yet another factor draining mills is their obligation to supply 10 per cent of their production to the government as levy sugar in order to meet its requirement for public distribution to households below poverty line. The government buys sugar from mills at below market prices and the total requirement of levy sugar for distribution in the Public Distribution System is about 28 lakh tonnes. The price of levy sugar was fixed at ` 13.50 per kg in 2002 and never revised over the years. In Table 3 the status of levy sugar is indicated.

It can be observed from Table 5 that government control on the sugar sector in the form of levy had a huge impact on their sustainability and the magnitude of total subsidies given by mills to central government showed a rising trend due to increase in levy price.

The subsidy given by sugar mills to central government at a price less than market price negatively impacts the capacity of sugar mills to pay cane growers which finally leads to cane arrears. The subsidies given by sugar mills to the central government which were ` 826 crores in 2007-08 have increased and were to the

TABLE 5. STATUS OF LEVY SUGAR AND SUBSIDIES INVOLVED

Year (1)	Levy price (average of all states) ₹ per quintal (2)	Issue price (₹ per quintal) (3)	Ex-mill price (₹ per quintal) (4)	Subsidy given by mills to Govt. (₹ per quintal) (4-2) (5)	Subsidy given by Central Govt (for PDS per quintal) (2-3) (6)	Total subsidies given by mills to Govt (₹ crores) (7)	Total subsidies given by Central Govt. for PDS (₹ crores) (8)	Total subsidies (7+8) as per cent of total value of sugar produced (9)
2007-08	1335	1350	1630	295	-150	826	140	2.2
2008-09	1335	1350	2127	792	-150	2217	140	7.8
2009-10	1787	1350	2980	1193	437	3340	1783	9.5
2010-11	1877	1350	2659	782	527	2189	2035	6.7
2011-12	1904	1350	3070	1166	554	3264	2111	6.9
2012-13	2200	1350	3150	950	850	2660	2940	7.3

Data for various prices collected from <http://dfpd.nic.in>. Note : Total subsidies calculated by the authors is on the basis of 280 lakh quintals purchased for PDS distribution. In case of subsidies given by central government, an amount of ₹ 200 per quintal as transport and incidental charges is added.

tune of ₹ 2660 crores in 2012-13. The subsidies as percentage of total value of sugar produced which was 2.2 per cent in 2007-08 has increased to 7.3 per cent in 2012-13 and was the highest at 9.5 per cent in 2009-10. In view of the financial strain to the mills as well as difficulties faced by centre in lifting, transporting and distributing levy sugar the government through a Gazette Notification in May 2013 rescinded the control over sugar industry with respect to sugar sale in the open market and public distribution system. As a result, the regulated release mechanism under which sugar quantity for open market sale is fixed by the government has been abolished and it is not mandatory for mills to supply 10 per cent of their production to the government at levy price. Further, the sugar to be supplied for public distribution to below poverty line households will be purchased by the state governments and the entire subsidy cost, i.e., the difference between the issue price of ₹ 13.50 per kg and ex mill price of ₹ 32 per kg which is capped for two years will be borne by the centre and given to states. In view of this, the subsidy borne by the central government is likely to further increase to about ₹ 5300 crores (<http://www.livemint.com>).

III

TRADE IN SUGAR AND EXPORT SUBSIDIES

India's share in world sugar trade has always been small in relation to Indian production and world trade. A broader pattern which emerges from Indian sugar trade clearly indicates that when sugar production exceeds consumption, stocks build up, and the government removes controls that suppress exports and if needed has also provided export subsidies to boost exports and reduce inventory. Conversely, if consumption is moving ahead of production, the government has relaxed import controls or reduced tariffs in order to facilitate sugar imports.

In Table 6 the status of exports and imports of sugar is indicated. Since 2007-08 was a good production year, exports were facilitated by the Directorate of Sugar and the country exported 22.05 per cent of production. However, in view of the fall in production in 2008-09 and 2009-10, exports were negligible. Sugar production improved from 2010-11 season and due to comfortable stocks of sugar, exports gathered momentum. However, in 2013-14 season, domestic sugar prices showed a declining trend and declined from ` 3150 per quintal to ` 2800 per quintal during the period October 2013 to January 2014 due to excess supply in the domestic market. The situation was aggravated with exports being unviable by ` 2 -2.5 per kg due to low international prices coupled with high cost of production for domestic mills. Hence in order to provide relief to sugar mills, the government approved subsidy on raw sugar export up to four million tonnes over a period of two years, a move aimed at reducing excess inventory and relieving financial stress for the mills. Subsidy for the sugar season 2013-14 was fixed at ` 3333 per tonne for raw sugar that was exported due to rising stock of white sugar (<http://crisil.com>).

TABLE 6. TRADE IN SUGAR

Year (1)	Production of sugar (2)	Consumption of sugar (3)	Exports (4)	<i>(lakh tonnes)</i>	
				Exports as per cent of production (5)	Imports (6)
2007-08	263	220	58.0	22.05	-
2008-09	146	230	2.10	1.44	10.8
2009-10	188	210	0.42	0.22	25.1
2010-11	243	207	17.11	7.04	11.98
2011-12	264	220	27.38	10.37	0.99
2012-13	251	226	27.91	11.12	11.21
2013-14	250	235	21.08	8.43	8.78

Source : CACP 2011 ; <http://agricoop.nic.in>.

In view of the export subsidy announced by government in February 2014, countries such as Australia, Brazil, etc. had questioned the validity of the subsidies under multilateral trade rules and noted that it would distort trade. India however has justified its stand on the ground that the subsidy was for raw sugar with a view to lower production of white sugar of which there was excess stocks in the country. The incentive provided by the government would help mills to pay cane arrears which were mounting.

IV

CONCLUSIONS AND POLICY IMPLICATIONS

The sugar economy is highly regulated by the government with a dual objective of sustaining the income of farmers and at the same time protecting consumers from sugar price inflation. However, reconciling these objectives has led to huge subsidies at each level. First of all, the subsidies paid by mills to sugarcane farmers

due to much higher SAP over FRP, has averaged ` 2147 crores per annum, during the period 2007-08 to 2013-14. This has led to cane arrears as sugar factories are caught in a price-cost squeeze with low sugar prices but relatively high price to be paid to cane farmers. Further, disconnect between sugarcane and sugar prices is also responsible for the cyclical nature of sugarcane production. Out of 158 sugar mills in Uttar Pradesh about 13 per cent have not been operational even once in the last five years while in Maharashtra out of 222 sugar mills about 7 per cent have not been operated in the last five years and in Bihar about 61 per cent mills have been out of operation (Government of India, 2013c). Besides paying farmers higher prices, the mills also subsidise the government through levy price to the tune of ` 2416 crores on an average per year over the period 2007-08 to 2012-13. These subsidies given by mills has put them in financial stress thus forcing the government to announce relief measures in the form of interest free loans to the tune of ` 6600 crores besides waiving off purchase tax, commission and entry tax on sugar. Mills have also received huge subsidies while setting up their plants. Finally, when stocks pile up due to excess availability over consumption, the government has offered export subsidy for raw sugar which have been questioned under multilateral trade rules.

Overall it appears that the sugar sector has been surviving with the help of subsidies. However, it can be observed that during the period 1992-93 to 2012-13, the compound growth rate of area under sugarcane was 1.51 per cent per annum, production growth rate was 1.85 per cent per annum while yield growth rate was a miniscule 0.33 per cent per annum. The answer thus lies in increasing the yield of sugarcane which has showed no improvement over the decades. In Uttar Pradesh which is a major producer of sugarcane in the country, the yield is below the national average. The yield in Maharashtra is also subject to huge fluctuations with not much improvement over the years. A number of factors have been responsible for low yields such as lack of availability of quality seed cane and inappropriate farm practices. The sugarcane crop consumes maximum fertilisers and while fertiliser consumption across all crops is 136 kg per hectare, in case of sugarcane it is 208.4 kg per hectare (*Fertiliser Statistics*, 2010-11). It has been observed that the farmers use fertilisers more than the standard requirement of crops particularly in case of sugarcane which has led to adverse soil health causing the soil to become saline and alkaline. Such factors are responsible for decline in crop productivity (<http://shodhganga.inflibnet.ac.in>). Sugarcane is also a very water intensive crop and it takes 812 litres of water in Bihar, 1049 litres in Uttar Pradesh compared to 2940 litres in Karnataka, 2515 litres in Maharashtra and 3066 litres in Tamil Nadu to produce one kilogram of sugar (Government of India, 2013b). The heavy irrigation under canal and lift irrigation command are responsible for addition of huge amounts of salts to the soils. These soils are ill drained and do not have any provision for drainage, thus causing water logging and adversely impacting yield levels. It is clear that the cultivation of sugarcane involves the use of huge amounts

of fertilisers and water in an inappropriate manner and both these inputs are subsidised by the government. While calculating the magnitude of these subsidies in the economics of sugarcane cultivation is out of the scope of this paper, it is obvious that without these subsidies, sugarcane cultivation may lose some profitability. In the state of Maharashtra, the share of fertiliser and irrigation each are about 13 per cent in the operational cost of production and together are about one-fourth the operational cost of cultivation.

The main policy issues that need to be addressed in the sugar sector are basically to invest in research and development so that yield levels of sugarcane increase along with more accumulation of sucrose and higher recovery rates. Further, the price of sugarcane should be determined by market forces rather than administered. This will enable sugar mills to obtain sufficient raw material at competitive prices and thus they can reap economies of scale and have more working days. Market forces allow efficient firms to survive but government intervention such as fixation of administered price, cane area reservation and maintenance of minimum distance between mills constitute barriers to entry and create monopoly power for mills. Indian sugarcane prices are the highest in the world, about 70 per cent higher than Australian prices which are the lowest in the world. However, Indian sugar prices are the lowest in the world, about 140 per cent lower than US which is the highest in the world (<http://www.fao.org>). Regulations therefore bring about distortions in the sugar economy, breed inefficiencies for sugar mills and inhibit their incentive to invest in research and development. Finally they have to depend upon government subsidies for survival and a vicious circle is created.

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