Sugar Co-operatives in Maharashtra: A Political Economy Perspective

Mala Lalvani
Department of Economics
University of Mumbai
INDIA

Abstract

Origin of the powerful sugar lobby in Maharashtra dates back to the 1950s. Post Independence, cooperatives formed an integral part of the Congress vision of 'rural development with local initiative'. A 'special' status was accorded to the sugar cooperatives and the government assumed the role of a mentor by acting as a stakeholder, guarantor and regulator. Persistence of the maze of regulations instituted five decades ago, despite its stated original rationale being thwarted, suggests that it is by active design of entrenched vested interests. The clarion call of the times is a fresh start with minimal regulations. Teething problems and initial market failures that may occur cannot be worse than continuing the saga of government failure.

JEL code: H11, Q13, K23
Keywords: Sugar Sector, Public Choice, Pork Barrel, Regulatory Capture

_____

Sugar Co-operatives in Maharashtra: A Political Economy Perspective

1. INTRODUCTION

The sugar economy in many ways represents a "microcosm of the Indian economy in which there are inter-meshed a wide range of social groups who play an important role in the formulation of economic policy at a wider level" (Baru, 1990 p.2). For an economist, interest in the sugar economy stems from the fact that it is one of the most regulated sectors in the economy. Also, pressure from millers, growers and consumers, make formulation of sugar policy a challenging task for the administrator and the government. The intertwining of economics and politics in the sugar economy provides an exciting terrain for research in the Public Choice tradition.

Economists have traditionally failed to recognise the political dimension of policy prescriptions. This gap between sound economic principles and political reality has sought to be bridged by Public Choice theory. Public Choice theory has contributed significantly to understanding the institutional setup and quantitatively establishing the politico-economic nexus that prevails in society.

The proposed study attempts to take a close look at the deeply entrenched tradition or institution of sugar co-operatives in Maharashtra. A study of sugar co-operatives, particularly in Maharashtra, assumes significance as their leaders, the sugar 'barons', have constituted an important power structure in the state and the sugar co-operatives have played a pivotal role in shaping the socio-economic fabric of the state. It is an accepted fact that no other sector of the economy is as well represented in government as is the sugar sector. Many of the cane growers have occupied important positions in government, with two having reached the position of Chief Minister of the state.

Section 2 below gives a detailed account of how it all began; Section 3 explains the context of the study - the Regulation theory and the Public Choice framework; Section 4 traces the political nexus which underlies the functioning of sugar cooperatives in Maharashtra; Section 5 lays down the rules of the game that is, the regulatory framework and analyses the role of the state in the sugar sector, in practice. The emphasis here being on how the original intent of most regulations initiated in the 50s has undergone a change; Section 6 narrates the financial side of

the story; Section 7 charts out the road ahead – Quo Vadis and finally Section 8 concludes.

2. THE BEGINNINGS

The spread of canal irrigation in the 1920s attracted migrants, especially Malis from Saswad who were experienced with growing irrigated crops, to move into the canal tracts and lease in land from local Maratha cultivators. According to Chitelen (1985) canal irrigation itself contributed to the differentiation process. A contrary view has been expressed by Attwood (1992) who draws attention to the fact that much of the land that was being brought under cultivation was being used for the first time and not taken away from the small peasants and society was already a highly differentiated one. While Attowood (1992) disagrees with Chitelen's view of explotaition, both agree on the fact that the entrepreneurs who made use of canal irrigation did get richer than small peasants.

The idea of a cooperative was first mooted at a conference of irrigators and presided over by eminent economist Dr. D.R. Gadgil in 1945. It was only by the end of 1948 that the first cooperative society to be set up at Pravaranagar was registered. The resounding success of the Pravara resulted in the government taking a decision in 1954 of granting industrial licenses for sugar industry to co-operatives alone. This gave a major fillip to the growth of sugar cooperatives in Maharashtra. The decade of the 1950s alone saw 14 new sugar factories being set up in the cooperative sector. The control of sugar co-operatives soon became a means of acquiring political power for the rich peasant class, the Marathas. The government had begun to assume the role of a mentor by acting as stakeholder, guarantor and regulator.

An important factor which contributed to the success of sugar co-operatives was the encouragement provided by the ruling Congress party to the formation of these co-operatives. After Independence in 1947, India adopted a democratic constitution with universal adult suffrage. For the first time the vast majority of villagers got to vote. This led to a displacement of elite, high-caste urban politicians from state legislatures and resulted in strengthening of the nexus between the sugar cooperatives and government. Caste affiliations worked in favor of cooperatives and they received a variety of financial subsidies from the state government.

The deep rooted political nexus of sugar cooperatives that unfolds as the story progresses opens up a vast area of research in the Public Choice tradition. Before plunging headlong into details of the sugar sector, we contextualise the study and elaborate on regulation theory and Public Choice theory.

3. THE CONTEXT: REGULATION THEORY & PUBLIC CHOICE FRAMEWORK

Broadly speaking, regulation theory can be categorised into (i) Public Interest theory and (ii) Capture theory. *Public Interest theory* sees regulation as a product supplied in response to the demand from the public for correction of inefficient or inequitable markets. The theory of regulation that best describes the sugar cooperatives in Maharashtra is the '*Capture' theory.* There are a number of variants of this theory including the Marxist and the political scientists' version. The variant that is popular with economists and relevant here is that proposed by George Stigler (1971). It insists that economic regulation serves the private interests of politically effective groups. Economic regulation is thus viewed as product whose allocation is governed by the laws of supply and demand. Stigler (1971) identifies four main policies which an industry may seek (a) Cash subsidy (b) Control over entry by new rivals (c) Control on substitutes and complements and (d) Price-fixing.

The industry which seeks political power must go to the appropriate seller that is, the political party. In turn the industry must be prepared to pay with (a) votes and (b) resources in the form of campaign contributions and contributed services. Further, it is a conjecture of the capture theory that if a political party has in effect a monopoly control over the government machine, it could collect most of the benefits of regulation for itself.

The Congress dominance in Maharashtra thus provides the 'natural' setting for 'capture' of regulators and regulation. Mahrashtra has, by and large, been a single party state. So far, only two dents that have been made in what could be termed as Congress monopoly. The first one was in 1979 when the Progresive Democratic Front (PDF) and Janata Party combine formed the government, but then too it was Sharad Pawar, an ex-Congressman, who became the chief minister despite being the minority party in the coalition. The second stint of a non-Congress government occurred in 1995 when the Bharatiya Janata Party (BJP) and Shiv Sena coalition assumed office. Barring these two phases, the Congress 'fortress' has stood tall. Since 1999 the state has reverted to being a Congress loyalist with the

Indian National Congress (INC) and the Nationalist Congress Party (NCP) coalition at the helm.

When there is an interlocking in the positions of the regulator and the regulated, as is observed in the sugar cooperatives in Mahrashtra, the setting is provided for 'pork barrel' politics. Pork barrel spending refers to projects, programmes and grants that concentrate the benefits in geographically specific constituencies but are financed by broad-based taxation (Weingast, Shepsle and Johnsen, 1981). Spending on parochial projects is seen to increase with the number of seats in representative legislatures. Empirical evidence in support of pork barrel politics or what is sometimes referred to as 'Law of 1/n', is well established for the USA (Bradbury and Stephenson, 2003; Gilligan and Matsusaka 1995, 2001; Bradbury and Crain, 2001). Robson (2004) points out that the Queensland sugar industry portrays a classic case of pork barrel politics, when geographically concentrated groups (such as sugar farmers) and local political representatives in key electoral seats demand taxpayer-funded projects or transfers that benefit their own narrow constituency, but diffuse the costs to the general population.

In case of sugar cooperatives in Maharashtra, the more powerful farmers found their way into government hierarchy and occupied offices from where they were in a position to shape policy and indulge in 'pork barrel' politics. Section 4 below looks at the political nexus of sugar cooperatives in Maharashtra.

4. THE POLITICAL NEXUS OF SUGAR COOPERATIVES

The state of Maharashtra has one dominant caste, the Marathas, who span the entire state and also dominate the political scene. The relative solidarity of the Congress party in Maharashtra and its stability is largely attributable to Maratha hegemony. Unlike Maharashtra, none of the other states of India have experienced regional hegemonic dominance equivalent to that of the Marathas (Lele, 1981). In Maharashtra, the Marathas are estimated to constitute 40 per cent of the population and have control over nearly 80 per cent of the positions of political power. Their predominance is felt especially in the western Maharashtra region. Apart from proximity to the state capital, Mumbai and an excellent transport network, it is the power of the sugar lobby or sugar 'barons' as they are often referred to, that gives the western Maharashtra region an edge over others in state politics (Sirsikar, 1995).

The management of a sugar factory rests with a Board of Directors. There is considerable prestige, material gain and patronage that comes along with Directorship and Chairmanship of a sugar cooperative. Baviskar (1980) provides a very lucid account of the status enjoyed by members elected to the board. The status and power that a Chairman and the Directors command makes them highly sought after by the political parties, who offer them tickets to contest in elections - both state and local. These positions are therefore very attractive and highly coveted by local leaders. Consequently, factory elections are intensely contested. Khekale (1999) in his study of the period 1952-72 found that 74 per cent of the Chairmen of sugar cooperatives were elected as legislators and MPs. Controlling big cooperatives, such as sugar factories, helps leaders to rise in party and governmental hierarchy and this in turn helps them to get nominated on the Boards of various other cooperatives especially cooperative banks. Thus a 'two-way' relationship has flowered between cooperatives and other structures of power.

The sugar industry, in turn, has been a huge contributor to election funds during election campaigns. Baviskar (1968) provides ample evidence to substantiate this. Sugar cooperatives have sometimes even played host to election meetings of political parties and provided various facilities. The manpower and vehicles for election campaigns are customarily provided by sugar cooperatives.

The link of the sugar cooperatives with politics in general and the Congress party, in particular, is evident via some statistics provided by Khekale (1999). He finds that 21 Chairmen of sugar cooperatives have held important positions in the Congress party during the 1952-1972 period. The sugar cooperatives are thus clearly a Congress stronghold. On the whole, sugar cooperatives have constituted a rural power structure and have provided an important political recruitment base. In the words of Baviskar 'If sugar cooperatives have been instruments of rural development then politics is the process that has sustained this development' (Baviskar 1980, p. 112).

Such being the ties between sugar cooperatives and the politics, one is tempted to attribute the beginning of cooperatives itself to the political clout that the rich Maratha peasants enjoyed. Attwood (1993), however, cautions against 'reading history backwards' and attributing the success of the early cooperatives to the political power of the Marathas at the state level. He views these cooperatives as 'experiments in which commitment and performance of local leaders were all

important' (Attwood, 1992, p.190). In his view, the fact that the State could pass land reform legislation in the late 1950s and early 1960s, which went against the interest of the cane growers, suggests that the cane growers lacked enough political power to prevent the legislation from being passed. That the rich farmers subsequently circumvented the hurdle by reallocating the land amongst family members, is a separate issue.

Contextually, one is inclined to go along with the view that the generous government support and the regulatory mechanism began with 'benign' intentions in the immediate years post Independence. However, when discussing the role of the state and the support it provides to the sugarcane crop and to the sugar cooperatives, in section 5 below we find adequate evidence to suggest that persistence of this maze of regulations is by design of entrenched vested interests.

5. RULES OF THE GAME - THE REGULATORY ROLE OF THE STATE

A sugar cooperative is an agro processing industry, ridden with regulations on both, the output side, that is, sugar and on the input side, that is, sugarcane. An important point to note here is that most of these regulations were initiated in the first decade after Independence – the fifties. But first we take a look at the role that the state in supporting the sugarcane crop itself.

5A. The Sugarcane Crop – Net Subsidised?

Indian agriculture is highly subsidised through cheap fertilisers, free power and irrigation water in various states and that the system can no longer carry on with this burden (Gulati and Narayanan, 2003). A crop-wise estimate of agricultural subsidies is difficult to compute. However, some indications of the magnitude of concessions to sugarcane crop and the channels via which subsidies are offered can be easily discerned.

The tropical climate of Mahrashtra necessitates that he sugarcane crop be cultivated entirely on irrigated land, hence irrigation assumes tremendous importance. A combination of three factors that is, relatively drier climate of western zone, historical factors and policy decisions have resulted in greater development of the irrigation potential in the western zone vis-à-vis the eastern zone. The recommended water application for sugarcane is 274 hectare-cm as compared to a mere 30 hectare-cm for rabi jowar. Sawant (1997) points out that in the 1980s, 50%

to 70% of the incremental volume of irrigation water was diverted to the sugarcane crop alone at the expense of other crops. Table I below compares the yield in Maharashtra vis-à-vis the national average.

Table I
Yield of Sugarcane

(metric tonnes per hect)

	Maharashtra	India	Gap
1986/1987 to 1990/1991	65.38	61.94	3.44
1991/1992 to 1997/1998	60.09	67.67	-7.58
Source: District-wise Agricultural Database for Maharashtra 1960-61 to 1997-98, EPW			

Table I shows that the average sugarcane yield in Maharashtra has been higher than the national average in the mid 1980s (1986/1987 to 1990/1991), but has fallen to below the national average in the 1990s (1991/1992 to 1997/1998). The falling yield has been attributed to the shift to a shorter duration annual crop since there is water scarcity and the longer duration crop faces two dry seasons rather than one (Mishra and Panda, 2006). The regional variation is examined in terms of a west-east classification[i] in Table II below.

Table II

Average Yield per Hectare

	WEST	EAST	GAP West-East
1986/1987 to 1990/1991	74.07	59.36	14.71
1991/1992 to 1997/1998	68.84	54.04	14.80
Source: District-wise Agricultural Database for Maharashtra 1960-61 to 1997-98, EPW			

Table II shows that yields have been lower in both the regions in the 1990s vis-à-vis the mid 1980s, with the gap between the two regions remaining almost constant.

An added dimension of regional variation is that irrigation facilities are much better developed in western Maharashtra than in the eastern region. Undoubtedly, western region of Maharashtra being drier than the eastern region implies that it requires greater development of irrigation facilities. Also, Attwood (1985, 2005)

points out that the construction of Nira Left Bank canal in western Maharashtra began in 1876 as famine relief work. Thus, while both environmental and historical factors provide some explanation for this regional skewness in the development of irrigation potential, the policy dimension cannot be ignored either. Over time the irrigation 'backlog' of eastern Maharashtra has been observed to worsen (Report of Indicators and Backlog Committee, 1997). The Backlog Committee, 1997 welcomed the decision of the state government to invest Rs. 1400 crores annually upto the year 2000 in the Krishna Valley Development as a positive step, but expressed its concern about the impact on regional imbalances. The Committee pointed out that Krishna Basin in Pune division was ahead of all other regions in all sectors of development including irrigation. Hence if a big boost to irrigation was required, then stepping up of irrigation activities in Vidarbha and Marathwada regions would have helped mitigate the growing regional imbalances. This worsening of the 'irrigation backlog' for the eastern region of Maharashtra must therefore be attributed, in some measure, to a conscious policy decision of the state government. Details on the magnitude of irrigation backlog for the eastern region of Maharashtra are provided in section 5D.

In addition to volume-wise distortions, there is also the system of fixing water rates which provides covert subsidies to all the sugarcane growers. Of the assessed amount, a mere 30 per cent was collected in 2002 (World Bank, 2004). As regards the system of fixing water rates, there is no denying that water rates in Maharashtra are among the highest in the country. Also, while most other states charge for water on a per-hectare basis, thus clearly subsidising water intensive crops like sugarcane, Maharashtra is among the few states that has water charges based on volumes consumed. One loophole that still remains is that even though the operation and maintenance (O&M) charges are based on actual usage, the capital cost is divided by scheme area and every beneficiary pays uniformly per hectare. Thus, farmers who grow crops that need very little water like groundnut, jowar have to pay heavily towards the capital cost component and effectively subsidise sugarcane and cotton farmers who consume a much larger volume. Sangal (1991) undertook a case study of a Lift Irrigation Scheme (LIS) and showed that the state policy of fixing water rates favors the sugarcane growers. Rath and Mitra (1989) too show that net income per acre is the highest under sugarcane per acre of water but lowest per Mcft of water (that is in volumetric terms).

Large scale usage of irrigation facilities also implies that cane cultivators are large consumers of power and gain substantially from power subsidies that politicians have often used as a tool for appeasing the rural masses. Sant and Dixit (1996) pointed out that the flat rate tariffs for large LIS, used mostly for sugarcane cultivation and irrigation pump sets (IPS) on wells resulted in much lower effective tariff for cane growers than their counterparts who consumed much less electricity. This distortion has sought to be remedied to some extent since December 2003. The revised tariff for LIS is purely metered. However, IPS still attracts flat rate tariff http://www.mahadiscom.in/tariff/tariff_index.shtm. The prevalent system, which still allows for flat rate tariff in case of IPS users, clearly confers disproportionate benefits to the larger number of cane cultivators in western Maharashtra.

The discussion above leads us to conclude that there has been (a) conscious state policy of developing irrigation potential in the western region while neglecting the east. This has led to sugarcane cultivation having developed far more in the western region of Maharashtra vis-à-vis the east. (b) sugarcane itself is a highly subsidised crop thus a larger proportion of the water and power subsidies are directed to cane growers in western Maharashtra. The big incentive for sugarcane cultivation has of course come from the setting up of sugar cooperatives, primarily western Maharashtra, where too the state has played an active role.

Sub-sections 5B, 5C and 5D discuss some of the important regulations that sugar sector - their original intent when instituted in the fifties and the role that they have come to serve in more recent years. A snapshot picture of the regulatory framework is provided in a flowchart in Figure A1 in the Appendix.

5B. Controls on Sugar

Sugar falls under the Essential Commodities Act, 1955 and hence the government is permitted to impose a levy quota, that is, procure a certain per cent of the sugar at a subsidised price to be sold via the Public Distribution System (PDS) at prices lower than the "free market" price within India. The objective of this compulsory procurement is to supply sugar to the lower strata of society at a subsidised price. Levy price is a cost plus price thus resulting in the government paying more to the high cost inefficient northern factories and effectively imposing a hidden tax on relatively efficient factories of Maharashtra. As a natural consequence of levy procurement, the free sale price, is higher than would have prevailed in its

absence. However, distortions on this front have sought to be reduced in recent years with the share of levy sugar having come down to 10 per cent as compared to 65 per cent where it stood in 1984-1985.

The free sale quota too is controlled by the government via a 'monthly release' mechanism. This provision was made under the Sugar (Control) Order, 1966. The rationale for this control is to ensure stability in sugar prices, since sugar production takes place for about five to six months a year and consumption happens all year round. It has been observed that during periods of good availability, the government via the mechanism of monthly release has assisted the sugar industry with cheap credit and storage facilities and export incentives in the name of providing a 'fair price' to the producer. During periods of poor availability the government increased the free sale releases or deregulated the industry only to re-introduce regulation at the behest of the industry as soon as prices began to fall. The government has thus acted as "cartel manager on behalf of the sugar industry" (Kamath, 1992). Baru (1990) points out that the partial decontrol mechanism, whereby a levy and free sale price prevails simultaneously achieved two interest group objectives (a) to assure a 'reasonable' price to the vocal urban consumer and (b) to ensure 'reasonable' profits to the industry and paying 'reasonable' price to the cane producers lobby. *Thus sugar price controls initiated in the fifties to maintain price stability appears to have been used by the powerful sugar lobby to suit their vested interests.*

The sugar policy is a matter that falls within the purview of the central government and qualitative evidence seems to suggest that interests of the sugar producers (many of them being government officials at the state level) have been protected (Kamath, 1992). Consequently, the centre-state relations too have played a role in shaping of policy decisions pertaining to sugar. Even when the Congress party ruled at the centre and in Maharashtra in the 1970s, the intrusive politics of Mrs. Gandhi created tensions between Congressmen in Maharashtra, so much so that there was even talk of 'nationalisation' of sugar cooperatives (Khekale, 1999 p. 137). Deshpande et. al. (1992) point out that growth of cooperatives in Mahrashtra could be analysed phase-wise. The first phase (1961-1968) was characterised by growth of cooperatives in a regionally concentrated manner. In phase two (1969-1980) there was a marginal reduction in the hold of the sugar lobby. Despite the

political turbulence during this phase, cooperatives continued grow during this phase. The third phase which began in 1980 has been characterised by greater prominence being assumed by the state. Because of the prominence of sugar interest in government no major grievances have been observed in the State Legislature regarding policy on sugar industry. In fact, the state government itself represented the sugar interests forcefully in case of conflict with central government (Khekale 1999).

At the level of the state government, however, the crucial issue pertains to setting of the sugarcane price. The 'arms length' principle of Vito Tanzi would suggest that 'capture' would be relatively easier at the state government level given the proximity between the regulator (state government) and the regulated (factory owners).

Government controls on the input side that is, sugarcane are even more stringent. Zoning and setting of the cane price are two sets of controls (imposed by the state government) that we discuss in some detail in the two sub-sections that follow.

5C. Zoning

Zoning refers to reserving a specified area around every factory for that factory alone. The stated rationale for this regulation is that cane is a perishable crop that needs to be crushed soon after harvesting. Reserving an area for a factory would prevent factories from being starved of raw material and cane growers in turn would have an assured market. *Prima facie* the regulation may seem to be in the interest of both cane growers and factory owners, but can we justify this intervention on grounds of market failure? This is a question that we seek to answer here.

The zoning regulation has been amended and we have two phases of zoning, one strict and the other diluted. Empowered with the Sugarcane (Control) Order of 1966 (clause 3) the government of Maharashtra issued the Sugar Factories Order, 1984 and introduced zoning in its 'strict' form. Subsequently, in April 1997, an Amendment Order was passed, wherein zoning order was diluted and it allowed (a) Non-members to supply cane to the factory of their choice and (b) A member was bound to supply to cooperatives only in the ratio of shares held by him and the area under sugarcane. Any excess cane could be sold to other factories. This is the

'diluted' version of zoning. Also, the distance between two factories has been reduced from 40kms to 15kms to allow for greater competition for cane. Thus one could bifurcate the zoning period into strict zoning phase (1984/1985 to 1996/1997) and diluted zoning phase (1997/1998 to 2004/2005). Table III below tabulates the area under sugarcane, production of cane, cane price and sugar price during these two phases.

Table III
Area, Production, Cane Price and Sugar Price in Maharashtra
Strict and Diluted Phases of Zoning

		Area under sugarcane (000 hectares)	Production of sugarcane (000 metric tonnes)	Cane Price [nominal] (Rs. per metric tonne)	Cane Price [real] (Rs.per metric tonne)	Sugar Price [nominal] (Rs. per quintal)	Sugar Price [real] (Rs. per quintal)
Period of Strict zoning	1984/1985 to 1996/1997	392.00	31860.17	417	5.41	879.00	11.40
Period of diluted zoning	1997/1998 to 2004/2005	773.86	50153.71	729	4.86	1382.00	9.32
Note: Real value have been obtained using the WPI (1993-1994 prices)							

Table III shows that area and production of cane have both increased in the diluted zoning phase. It is important to remember that factory owners *qua* farmers wish to have higher cane prices, but *qua* policy makers they need to do a balancing act as they cannot afford to displease the large number of consumers of sugar either. Thus one possible implicit reason of zoning could be to keep the cane price and thereby the sugar price under check.

Table III also shows that in the period of diluted zoning, cane and sugar prices have both risen in nominal terms. However, in real terms, both cane and sugar prices show a reduction. Further, what is also important to notice is that in the diluted zoning phase, sugar prices (in real terms) in fact show a higher fall (18%) as compared to cane prices which fell by 10%. Our simple exercise seems to suggest

that policy makers could set aside their fears that dilution in zoning would lead to undue escalation in sugar prices.

We would like to reiterate that this exercise is on soft ground, as there are many extraneous factors which could have resulted in the cane and sugar prices that prevailed. However, since we are looking at period averages, we do believe that our rather simple exercise does fairly well as a first indicator to suggest that zoning regulation could be safely diluted and in the limit, eliminated without the risk of sugar prices shooting up unduly. We made an attempt to work through the scheme of outcomes and procedures in the absence of zoning. We began by asking a counterfactual question –

What if these zoning laws were not there?

- ➢ Farmers are aware that cane would deteriorate in quality so they will try to dispose off the cane as soon as possible and at the closest factory.
- ➢ Factory A (close factory) requires raw material so it will purchase cane – owner will be compelled to offer a competitive price as the farmer would be free to go elsewhere.
- ➢ If Factory B (distant factory) announces unduly high price – Even if this is not viable from the point of view of the factory, there is no question of farmer suffering, in fact the 'poor' farmer benefits.
- ➢ If Factory B cannot sustain this price it will be financially worse off – provided there is no safety net of government bailouts – factory B will need to make good the loss – improve efficiency or reduce price paid for cane – farmer will not be attracted.

Thus no safety net of bailouts and soft loans is a necessary pre-condition for this scheme to work.

- ➢ In the absence of zoning farmers may come from longer than optimal distances.
- ➢ However, if traveling to the distant factory causes deterioration in quality and reduces price to a greater extent than that offered by the closer Factory A – then farmer would not be motivated to go to B.

The market would fail if farmers come with varying quality of cane (distance causes deterioration in quality) and received uniform price. Thus, a sufficient condition for our scheme to work is that cane quality be measured for individual farmers and prices reflect the variation in cane quality. Way back in 1965 the Sugar Enquiry

Commission noted that payments should be based on sucrose content of the crop obtained from individual farmers. Moreover, the system of individual quality testing is presently being practiced in countries like Thailand and Brazil. It may be argued that cane quality in Maharashtra surpasses the national average hence the larger cost incurred on such testing is avoidable. However, the scheme of setting cane prices based on 'average recovery rate' for the factory as a whole is clearly not incentive compatible. Also, even though cane quality in Maharashtra surpasses the national average, there is always scope for improvement with use of technological innovations. The benefits of incentivising improvements and innovations may well outweigh the greater costs incurred in testing sugarcane samples of a large number of small farmers.

We have thus argued that if cane price paid is based on individual quality, the very basis for zoning rules breaks down. The important question that policy makers need to consider is not how costly individual testing is *per se* but whether the overall benefits exceed the costs of such testing. We do believe that a move in this direction is necessary. One cannot help but wonder whether zoning, even in its diluted form, is serving to protect the interests of a few?

The other set of controls is that on sugarcane price. These controls provide ample opportunities for catering to vested interests, although *prima facie* manipulations on this front would be meaningless as all farmers, large and small, are subject to uniform cane price.

5D. Sugarcane Price

Between 1942 and 1947 sugarcane prices were set by the various state governments. This led to significant regional variation and resulted in the Sugarcane (Control) Order 1950, where the central government fixed a uniform minimum cane price on an all India basis. Since then a statutory minimum price (SMP) is fixed by government of India. *Thus controls on sugarcane price too were instituted in the very first decade post Independence – the fifties.* The SMP is presently linked to a recovery rate of 8.5 per cent[ii]. A specified premium is fixed for every 0.1 per cent increase in recovery rate. This would imply that SMP varies factory-wise. Over and above the SMPs the state governments have been fixing a markup price termed as State Advised Price (SAP). Unlike the SMP this is a flat rate price and does not vary

across factories. These prices are however, not binding. The binding price is the SMP.

Like all other administered prices, the stated rationale for government intervention in setting a statutory minimum cane price is to protect the interests of farmers. Pressure to maintain and raise cane prices has been kept up from farmers movements such as the Shetkari Sangathan. The Sangathan which has been active since 1966 wields considerable clout in the sugar belt. The Swabhimani Shetkari Sanghatana, Lal Nishan, Taluka Sugar Workers Union (TSU) affliated to the Hind Mazdoor Sabha (HMS) are some other farmers organisations active in Western Maharashtra. In addition to this, Attwood (1989) points out that inter-factory competition for cane supply has propelled innovation in Western Maharashtra. Also, big farmers depended on the large number of small farmers for their supply of cane, hence could not afford to displease them. Such alliances worked *against* the small farmers being exploited in the sense of receiving lower cane price. Attwood advocates these as possible reasons behind the success of western Maharashtra and their capacity to pay higher cane price to the farmers.

We would like to point out that while inter-factory competition for cane supply continues, it is no longer the case that higher cane prices reflect financial strength of the factories. We are presently confronted with the peculiar situation (as is shown later in the paper) of even loss making sugar factories paying cane prices much higher than what is mandated by the statutory minimum price (implicitly banking on bailout packages from the government).

Yet another aspect of cane price regulation is that the central government announces the SMP ex-gate, that is, factory owners have to shoulder the responsibility of transporting their cane to the factory gate. In Maharashtra, however, prices are set ex-field that is, harvesting and transportation is undertaken by factory itself. The factories deduct the harvesting and transportation costs from the SMP and consider the net SMP as the binding price. The stated rationale for the factory undertaking harvesting and transportation activity is that it would result in better co-ordination of crushing and economies of scale in transportation. Harvesting and transportation (H&T) being the responsibility of the factory in Maharashtra is often cited as having resulted in more systematic schedules for harvesting which in turn is said to have resulted in enhanced efficiency of sugar factories in Mahrashtra vis-à-

vis haphazard harvesting schedules in states of northern India (Attwood, 1995). The flip side of this practice was presented in an article in a local daily which drew attention to the fact that Chairmen of most sugar factories were also Presidents of transport institutions which carry out the work of H&T. Further, unlike private factories the sugar cooperatives also incurred loans for payment to these workers and shouldered this additional interest burden too (*Lok Satta* 8th Aug. 2006). We may recall from our previous discussion that these Chairmen are also on the Boards of cooperative banks, which makes it simple for them to get loans sanctioned. Thus, factories assuming the responsibility of H&T does serve to enhance the factory efficiency by well plannned schedule of harvesting, but it opens up yet another avenue for rent-seeking.

Further, unlike other states of northern India, cane prices in Maharashtra are legitimately permitted and observed to be higher than net SMP (i.e. SMP net of H&T charges). The factory legitimately pays what is called 'additional cane price'. The rationale being that factories should share their profits from sale of sugar in lieu of dividends not being paid to the cane growers, who are stakeholders in the sugar factories. Factories often compete with each other to announce higher cane prices so as to attract cane growers. Any unhealthy competition is (theoretically) kept under check by the Minister's Committee, headed by the Chief Minister of the state.

The other problem associated with fixing of the cane price is that it is based on the *average recovery rate*, which in turn depends not only on the sucrose content of the cane but also on the technical status, that is, the level of efficiency and machines in the factory. The system suffers from a major flaw - it is thus altruistic – based on the 'goodness' of people and does not prevent an individual farmer from free-riding and growing cane of sub-standard quality or maintaining inefficiently performing machinery.

One may argue that inefficiently performing machinery is not expected because growers themselves are owners of the factory and aware of the fact that recovery rates would be lower if factories are inefficient. However, Banerjeee et. al. (2001) and Das and Mookherjee (2004) draw attention to possible rent seeking activities involved in the setting of cane prices. They explain lower cane prices in eastern region vis-à-vis those in the weatern region as a deliberate attempt of the large farmers in the eastern region to suppress cane prices and invest large amounts

of the retained earnings in acts of *dharmodaya,* that is, in schools, hospitals etc. from where the large and powerful 'sugar barons' derive large rents.

We took a look at the participation rates of small and large farmers in the west and east. The participation rate (PR) of small and large farmers is defined as:

Participation Rate of Small farmers (PR_s):

PR_s = Area under cane < 2ha / Gross Cropped area (irrigated) < 2ha

Participation Rate of Large farmers (PR_L):

PR_L= Area under cane > 2ha / Gross Cropped area (irrigated) > 2ha

Table IV
Participation in Sugar Cultivation

(per cent)

	1991 census		1995 census	
	PR_s	PR_L	PR_s	PR_L
West	29.10	15.01	30.80	22.23
East	6.30	7.01	14.76	19.46
Source: Agriculture Census, Maharashtra				

In the East: Participation rate of large farmers exceeds that of small farmers ($PR_s <$ PR_L)

In the West: Participation rates of small farmers exceed that of large farmers ($PR_s >$ PR_L)

Table IV shows that between the 1991 and the 1995 census one observes the participation rate of large farmers is higher in the East and that of small farmers is higher in the West (table IV). However, one finds the gap closing in especially in the West. On the whole, we find that the participation of large farmers in both East and West has risen substantially.

At this juncture we must hasten to add that we cannot lose sight of the ecological differences in climate and soil which, coupled with policy decisions explain to some extent the variation in yield, intensity and participation rates in sugarcane cultivation between the western and eastern regions.

In the organisational framework outlined earlier, we may recall that these large farmers get elected to the Board of Directors and Chairmen of the factory and this position becomes a springboard from where they rise in government hierarchy. The most potent instrument available to the authorities of a sugar factory for

disbursing patronage is cane price. Baviskar (1980) narrates how the cane price in Kopargaon factory, set lower than that offered by its close rival, the Sanjivani factory by a mere Rs.7 per tonne cost the Chairman of Kopergain his position in the 1984 elections. With qualitative evidence of the significance of cane price in shaping electoral fortunes, we sought to examine this empirically via panel data models estimated separately for western and eastern region of Maharashtra.

Our exercise sought to test the significance of cane price in shaping political fortunes. The six year period from 1998-1999 to 2003-2004 was the period of our study. The model was estimated separately for the western (102 factories) and eastern region (57 factories) of Maharashtra. The equations that we estimated are better known as 'vote functions' in the jargon of Public Choice literature.

Vote functions explain the support for the government in terms of economic and political variables. It is an empirical approximation of the social welfare function (Nannestad and Paldam, 1994). The economic voting hypothesis rests on the assumption that voters hold their government responsible for the state of the economy. Consequently, incumbent governments are rewarded for good economic performances and punished for bad ones. In literature, two variables that have emerged as significant determinants of economic voting are inflation and unemployment rate. Growth rate too has been found to be an important factor on many occasions (Lewis-Beck and Paldam, 2000; Nannestad and Paldam, 1994; Paldam, 1997). Following were the two equations that we estimated:

$$SSVS = \gamma_1 + \gamma_2 RPCY + \gamma_3 INF + \gamma_4 CP$$

$$SSZP = \gamma_1 + \gamma_2 RPCY + \gamma_3 INF + \gamma_4 CP$$

The variables are defined as:

SSVS = seat share of Congress in Vidhan Sabha

SSZP = seat share of Congress in Zilla Parishad

CP = cane price (recovery rate and rainfall are the instruments used)

RPCY = Per capita District Domestic Product (1993-1994 prices)

INF = Inflation rate

Data on cane price (CP) was obtained from the office of Commissioner Sugar, Pune. The Vasantdada Sugar Institute publishes two detailed reports pertaining to data on sugar cooperatives in Maharashtra that is, 'Financial Performance of Sugar Cooperatives' and 'Performance of Sugar Cooperatives'. Both

these reports document factory-wise details, but surprisingly the very crucial data of actual cane price paid is conspicuous by its absence[iii]. The District Domestic Product used to compute (RPCY) is published by Government of Maharashtra and inflation (INF) is computed from Wholesale Price Index series.

The electoral data are relatively well documented. The data pertaining to assembly seats in Vidhan Sabha that is, SSVS is available from the website of the Election Commissioner of India[iv]. The local body election data (SSZP) was obtained from Report of State Election Commissioner, Maharashtra for the period 1994-2003. The estimated panel data models used Instrument-Variable technique with cane price, the independent variable as a function of the recovery rate and rainfall. The variable rainfall was included to enable us to control for ecological differences between the western and eastern regions.

An important point that we wish to draw attention to is that we are not looking at the votes/seats obtained by the incumbent party, as is customary in vote functions, but that of the Congress party specifically because of the nexus of sugar cooperatives and the Congress party, irrespective of its incumbency status. It is important to point out that while our model, portrays the Congress and sugar co-operative leadership as a unified bloc, this was not in fact true at all times. For instance, the Maharashtra Congress had developed many factions owing to intense internal conflicts of the sugar barons. Sharad Pawar defected from the Congress and established the Congress (S). He toppled Vasantdada Patil's ministry and formed the Progressive Democratic Front government in 1978. Like all statistical models, our model too suffers from the limitation of missing out on such institutional details. Bearing in mind these limitations, our model attempts to examine the hypothesis that cane prices have played an important role in shaping the electoral fortunes of the Congress. Standard control variables, like real per capita income and inflation were incorporated. Results obtained have been tabulated below in tables V and VI

Table V
Results from Panel Data Model: Western Maharashtra
(1998/1999 to 2003/2004)

	EQ1	EQ2
	SSVS	SSZP
CP	0.69**	0.32**
	(3.34)	(3.08)
RPCY	0.23**	0.07**
	(6.34)	(3.89)
INF	-1.49**	-1.19**
	(-4.13)	(-6.45)
R^2	0.70	0.67
Note: All equations include district intercept dummies; CP uses recovery rate and rainfall as instruments; Figures in parentheses are t statistics; **indicates significance at 5% Data Sources :discussed in text after the variable definitions		

Table VI
Results from Panel Data Model
Eastern Maharashtra
(1998/1999 to 2003/2004)

	EQ1	EQ2
	SSVS	SSZP
CP	0.18	-0.17
	(0.94)	(-0.82)
RPCY	0.002**	0.06**
	(1.92)	(1.86)
INF	-0.27	-0.22
	(-0.82)	-1.02
R^2	0.66	0.50
Note: All equations include district intercept dummies CP uses recovery rate and rainfall as instruments Figures in parentheses are t statistics. **indicates significance at 5% Data Sources: discussed in text after the variable definitions		

Our results (Tables V and VI) show that despite controlling for the economic and climatic factors, cane price, our variable of interest, maintained its positive sign and significance in the two regressions estimated for western region. In the eastern region cane price (CP) is positive but insignificant. The control variables, income and inflation have the expected positive and negative signs respectively, confirming that

the government of the day is rewarded for economic well being indicated by higher income and lower inflation.

Our results suggest that in western Maharashtra, cane price has been an important factor in shaping the political fortunes of the Congress party. In the eastern region, the Congress stronghold is much weaker. In fact, in the Vidhan Sabha elections that fall within our sample range, the seat share of the Congress in the eastern region was less than one third that in the western region. Hence, it comes as no surprise at all, that cane price is insignificant in the eastern region.

A close look at the data series on 'actual cane price paid' for both western and eastern Maharashtra shows that it is higher in western Maharashtra than in the eastern region for all six years under consideration (Table AII in appendix). Data for the earlier period, as tabulated in Jugale (2000) confirms a similar trend. The gap between cane price in western and eastern region is seen to vary. In particular, one finds a sharp reduction in the gap in 2003-2004. A closer look at the data shows that this reduction is attributable not to a sharp fall in cane price in the western region (although there is a marginal fall), but to a sharp rise in the cane price in the eastern region. A possible explanation for this sharp rise in cane prices in the eastern region could possibly reflect the forthcoming Vidhan Sabha elections in 2002-2003 (elections held in April and May of 2004).

Further, even a cursory look at a list of names of prominent leaders in Mahrashtra's politics, who have been associated with sugar cooperatives confirms that all the political heavyweights hail from western Maharashtra, thus strengthening the argument that political clout of western Maharashtra far exceeds that of the eastern region. (see table AI in appendix). These politically powerful sugar personalities when classified regionally makes the skewness appear even more stark: 19 hailed from Marathwada, 6 from Vidarbha and a whopping 68, that is, 73 per cent were from Western Maharashtra region alone!

Results of our panel data model along with the two observations (a) political clout of western Maharashtra is far greater and (b) cane price is higher in western Maharashtra, leads us to conclude that politically important sugar 'barons' or the sugar lobby in western Maharashtra appear to have used cane price as a tool to disburse largess and win electoral support – a case of pork barrel politics. We would, however, like to underline the fact that our econometric exercise, as is indeed the case with all statistical models, suffers from the inherent limitation of not capturing

crucial institutional details and practices. The power of caste affiliations in voting decisions for instance, is missed out. That Sharad Pawar is looked upon as a symbol of Maratha ascendancy more than as a leader of a democratic party is a fact that is simply not possible to capture in simple macro models such as ours. Having said this, we do believe that crucial insights can be gleaned from simple models, such as ours, which approach the problem from a macroeconomic perspective. Our model suggests that *cane price regulations initiated in the fifties and originally intended to protect exploitation of farmers have come acquire a completely new role.*

The new role of cane price and how it has come to serve narrow political interests is further highlighted in the illustrative analysis that follows where we attempt to measure the 'capture' of cane price regulation in politically powerful western Maharashtra.

Illustrative Analysis to Demonstrate 'Capture' of Regulator by Regulated

From the data available to us for six years (1998-1999 to 2003-2004) we have seen that cane price paid in Maharashtra is higher than the statutory minimum price (SMP). Further, it is also seen that cane price in western Maharashtra (CP_W) is higher than cane price in the eastern region (CP_E). This relationship would then appear as:

$SMP < CP_E < CP_W$

Also, recovery rate (R) in the western region is seen to be higher than in the eastern region that is, $R_W > R_E$

As mentioned previously, SMP is based on recovery rate (R) and a certain premium 'p' is allowed for every 0.1 per cent increase in recovery. SMP is effectively not applicable in Maharashtra (elaborated on earlier), hence we let CP_E and R_E be the benchmark. We then define the variation between the two regions as:

Let $Z_G = R_W - R_E$ where, $Z_G > 0$

Let $CP_G = CP_W - CP_E$ where, $CP_G > 0$

Where Z_G and CP_G refers to gap in Z (recovery rate) and CP (cane price) respectively between the western and eastern region of Maharashtra.

Some proportion of the gap in cane price between western and eastern regions could be accounted for and the rest is unaccountable.

Thus, $CP_W = CP_{WA} + CP_{WU}$

where, CP_{WA} is the cane price of the western region that can be accounted for (and thereby justified) by higher recovery of the factories in the western region could be computed as:
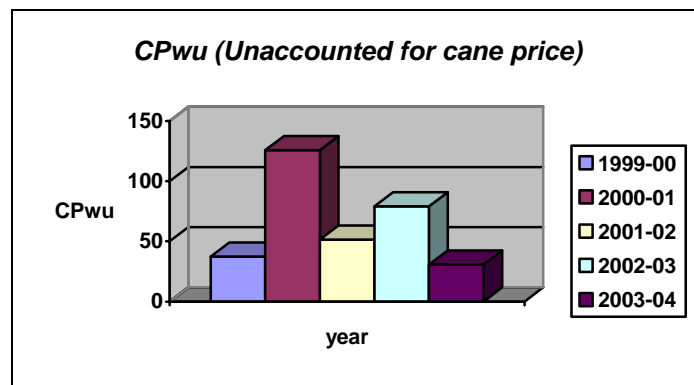
$CP_{WA} = (p/0.1) * Z_G$

Unaccountable CP_{WU} would be defined as:

$CP_{WU} = CP_W - CP_{WA}$

Where $CP_{WU} > 0$ would suggest that extraneous factors have had a role to play in the setting of cane price in the western Maharashtra.

CP_{WU} has ranged from a minimum of Rs. 30.61 in 2003-2004 per ton to a maximum of Rs. 125 per ton in 2001-2002.

Figure I

As mentioned previously, one may still argue that a positive CP_{WU} could be attributable to good financial health of individual factories and may be legitimately justified on the grounds of sharing profits. In 2003/2004, the relevant data on financial and cane price was available for 129 factories. 92 per cent of the factories in the western zone and 93 per cent in the eastern zone recorded accumulated losses (see Table XI). Marginal difference in the proportion of loss making units between the two zones sheds no light on the cane price differential discussed previously. Clearly, there can be no economic justification provided for loss making units paying a cane price higher than mandated by the central government. *This evidence clearly points to regulatory 'capture' and the fact that the original intent of minimum cane price protecting 'poor' farmers from exploitation has been subverted.*

Having established that there is a close link of political factors with the setting of cane price (Table A1), we delve a little further into some of the factors that

influence the cane price. Broadly speaking, one could classify these factors into those which are 'field related' and those which are 'factory related'. Even within field related factors, there would be agro-climatic factors like soil, rainfall etc. which reflect only natural handicaps and those which are to some extent policy related, such as irrigation. A look at the irrigation backlog of the eastern region vis-à-vis the western region is provided in table VII below:

Table VII
Irrigation Backlog

Region	Fact Finding Committee Report 1984		Indicator & Backlog Committee Report, 2000	
	Physical Backlog (000 hect.)	Financial Backlog (Rs. In Crore)	Physical backlog as on 1st April, 2000 (000 hect.)	Financial backlog on 1st April 2000 (Rs. In Crore)
Vidarbha	527.30 (38.05)	527.31	570.74 (72.73)	3956.5
Marathwada	316.71 (22.85)	316.71	284.7 (66.11)	2173.96
Note: Figures in parenthesis indicate percentages Source: http://planningcommission.nic.in/reports/peoreport/peo/peo_msdb.pdf				

The irrigation backlog of Vidarbha and Marathwada region in physical terms is defined as the extent to which the region's irrigation development falls short of the state average. Financial backlog refers to the amount of finances required to overcome this backlog. Backlogs of Vidabha and Marthwad region on many counts (including irrigation) were first identified by the Dandekar Committee in 1983. They were seen to continue and in fact worsen in 2000 (Indicators and Backlog Committee, 2000). While these backlogs do have their roots in political history (migrants who settled along the Nira canal in the western zone) and are to some extent also driven by ecological factors (such as greater and more assured rainfall in eastern region as compared to the drier western region), conscious policy too has played an equally crucial role in exacerbating these backlogs.

The story that unravels itself from the analysis this far is that sugar cooperatives in western Maharashtra have a larger number of representatives as office bearers in government, who are in a position to shape policy. Being politically important, the western Maharashtra sugar cooperatives have been able to use the

political power that they wield to 'capture' the cane price regulation. Cane price appears to have been used as an instrument to disburse patronage and garner votes. The politically powerful western Maharashtra politicians have also been able to shape policy decisions regarding irrigation in their favor – glaring instances of pork barrel politics.

Having observed that the politically effective farmers of western Maharashtra have cornered irrigation policy decisions in their favour, it would be interesting to get some fix on the extent to which field and factory related factors matter in the setting of cane price. This would then give some clue as to where the corrective measures should be directed – field or factory. To do so we did a counterfactual experiment, where we allowed field related factors in the east to be similar to that in the west. Keeping field related factors constant would give us some measure of the extent to which the factory related factors mattered.

Counterfactual Experiment

The counter factual experiment is carried out in the following steps:

Step 1: Regressions of the following form were estimated:

$$\hat{R}_E = \alpha_E POL_E \qquad \text{where } i = E,W \tag{1a}$$
$$\hat{R}_W = \alpha_W POL_W \tag{1b}$$

- R=Recovery rate of factories

- POL = POL% of factories that is an indicator of cane quality. Higher the POL per cent, superior the quality of cane

Step 2: Estimates of the recovery rates from (1a) and (1b) were used to estimate the following regressions:

$$\hat{CP}_E = \gamma_{E1} + \gamma_{E2}\hat{R}_E \qquad \text{where } i=E,W \tag{2a}$$
$$\hat{CP}_W = \gamma_{W1} + \gamma_{W2}\hat{R}_W \tag{2b}$$

Step 3: Set the cane quality in the East = cane quality in West ($POL_E = POL_W$)

Admittedly, this assumption is 'counterfactual', as cane quality is based on ecological factors which are dissimilar in the two zones, as has been discussed at length previously.

Step 4: Use the coefficient from (1a) and compute:

$$\hat{R}_E^* = \alpha_E POL_W \tag{3}$$

$\hat{R}_E^*$ shows the improved recovery rate if ONLY the cane quality in the East was on par with that in the West.

Step 5: Using the estimate of $\hat{R}_E^*$ and the coefficient from (2a) compute:

$$\hat{CP}_E^* = \gamma_{E1} + \gamma_{E2}\hat{R}_E^* \tag{4}$$

Define G$_1$ = $\hat{CP}_E^*$ - $\hat{CP}_E$
G$_1$ provides a measure of the improvement in cane price in the eastern region (CP) if the cane quality in the east is found to be the same as that in the western region that is, POL$_E$=POL$_W$

Define $G_2 = \hat{CP}w - \hat{CP}_E$
G$_2$ refers to the original gap in cane price between western and eastern Maharashtra with their original cane quality (that is, POL per cent)

G$_1$/G$_2$ is the proportion of the gap between west and east bridged by improving POL per cent alone in the east to the level obtained in west. G$_1$/G$_2$ obtained for our sample was 30 per cent.

Our counterfactual experiment points out that field related factors have an impact of 30 per cent on the cane price differential between eastern and western region of Maharashtra. This 30 per cent comprises of both, the agro-climatic factors which are 'natural' and policy variables – such as the irrigation backlog. The remaining that is, 70 per cent of the cane price differential pertains to factory related factors.

A key aspect pertaining to factory related factors is the financial management of the factory. Section 6 below elaborates on the financial management of the sugar cooperatives in general with particular emphasis on the role played by the government.

6. SUGAR COOPERATIVES – FINANCIAL SIDE OF THE STORY

The state governments' involvement as a stakeholder in sugar co-operatives began with the very first co-operative, the Pravara in 1950 when it agreed to invest an amount of Rs. 6 lakhs as redeemable share capital. The government receives no dividends on this investment but the share capital does need to be redeemed. In fact the sugar factories keep aside Re. 1 to Rs. 5 per tonne of sugarcane supplied as

non-refundable deposit which is used to redeem the government share capital. The government is permitted to have a say in the running of the factory till its share capital is not redeemed In 2003 the extent of investment made by the government stood at 56 per cent of the total share capital of those co-operative factories where the government is a shareholder.

In addition to share capital, the state and central government provides guarantees on 50:50 basis for the long term loans that were sanctioned by IFCI. The state also stands guarantor for the medium term working loans obtained from Maharashtra State Co-operative (MSC) Bank. The lending agencies safeguard their interest both by state guarantee and also by appointing their nominees on the Board of Directors, but the ultimate responsibility rests on the shoulders of the state government nominees who are endowed with veto power.

Much of the cost of sugar factories is borne by the state government. Involvement of the state government in each factory as a share holder is 32.5 per cent of originally appraised cost. As default guarantor (of loans from financial institutions approximately 60 per cent of appraised cost) the government involvement mounts to a whopping 92.5 per cent of the cost of the sugar factory. In addition to this the state government has been giving direct loans as 'last mile assistance' due to cost overruns. This takes the financial involvement of state government to almost 95 per cent of appraised cost of the project (Wadhwa 2000). The fact that the state government receives no dividends on its share capital investment amounts to a capital subsidy. Further, the shareholder farmers also receive loans from the government which enables them to purchase these shares.

The poor financial health of factories has resulted in a significant amount of guarantees of state government being invoked. State government itself is under severe fiscal stress. Consequently, as on 31/03/1998 it defaulted on payment of guarantees worth Rs.161.5 crores[v]. This would adversely affect the credit rating of the state government especially since it is making concerted efforts at tapping the capital market (Godbole Committee, 1999). The Godbole Committee report also provides us with the magnitude of government over dues (Table VIII).

Table VIII
Outstandings as on 31 March 1998

	(Rs. crores)
Government equity yet to be redeemed	3.87
Purchase tax loan	185.00
Other loans	36.04
Total	**254.91**
Guarantees recalled and paid for	63.41
Guarantees invoked but not paid for	161.53
Outstanding guarantees	1604.29
Source: Godbole Committee Report, 1999	

Table VIII informs us that in March 1998 government's investment in the form of share capital, which sugar factories were yet to repay amounted to Rs. 3.87 crores. As per the Sugarcane Purchase Act of 1962, all state governments levy a purchase tax on sugar factories on the purchase of sugarcane to be used in the manufacture of sugar (except Assam, Nagaland, Goa, Orissa and West Bengal). The rates are allowed to vary across states. In Maharashtra the present rate is 3 per cent *ad valorem*. Often factories find themselves in a tight financial situation and plead for waivers. In this context, the Maharashtra government has extended loans to the factories in order to meet their purchase tax dues. In 1998 the amount outstanding under this head was as large as Rs. 185 crores. In addition to loans, the government stands as a guarantor for sugar factories against their loans from financial institutions. As on March 31, 1998 the sugar factories had defaulted on payment of Rs. 224.94 crores, of which the government paid Rs. 63.41 crores but defaulted on Rs.161.53 crores. The total amount of guarantees outstanding was Rs.1604.29 crores.

Information provided in Table VIII is not available anywhere in the public domain, hence an update of it was not possible. From the information that is in the public domain we could get a very rough measure of 'government involvement' as a sum total of (i) accumulated share capital invested (ii) loans and what is termed as (iii) government dues. The measure is imprecise[vi] but the best that was possible from available data. Numbers obtained have been tabulated in Table IX below:

Table IX
Govt. Involvement 2003-04

(Rs. crores)

	Total	Average (per factory)
West	6858.82	82.63
East	3310.71	71.97
Note: govt. involvement is defined as share capital invested + loans + government dues http://mahasugar.maharashtra.gov.in:9080/msisRestWeb/msis/jsp/development/CaneAssmnt/Reports/FinProAllSSK/FinProAllSSK.jsp		

Two observations can be made from Tables VIII and IX. Firstly, outstanding dues point to the fact that the financial health of the sugar factories is poor. Secondly, the government's financial involvement is larger in the western region of the state. Clearly the political clout wielded by the factories in western Maharashtra has translated into larger financial involvement of the government - One more instance of pork barrel politics!

The overall financial involvement in sugar cooperatives is enormous and cannot be explained or justified after five decades of its existence. In view of the large debt burden that the state government itself is reeling under, such large financial involvement in sugar cooperatives is certainly unsustainable. The state government is in no position to act as 'lender of last resort' any more for the financially sick sugar cooperatives. The magnitude of financial 'sickness' of the sugar cooperatives is evident from key financial ratios and reports of the various committees that have been appointed by the government at various times.

Sickness of Sugar Cooperatives

The fact that four committees (Gulabrao, Shivajirao, Godbole and Rane committees) have been appointed by the government of Maharashtra since 1980 to examine the problem of sickness of sugar co-operatives is itself indicative of the fact that the government acknowledges the gravity of the problem. However, the fact is that not many of the suggestions of these committess have been paid heed to and in fact the Godbole Commttee report did not find its way to Parliament. The Rane Committee too submitted its report a year back. The Report still awaits being laid before Parliament.

Various committees have used different indicators to quantify 'sickness' of sugar cooperatives. These findings all make one broad point that the sugar sector as a whole is financially ailing. All committees advocate rehabilitation packages, the latest being the NABARD package, and suggest ways and means of reviving the sugar factories while recommending liquidation of some critically sick factories.

However, one point that these various committees seem to have sidelined (in all probability deliberately) are the flaws inherent in the regulatory mechanisms which chain the sector. Our analysis seems to suggest that the regulatory maze that has been set up for the sugar sector is yet another instance of vested interests being served 'in the name of the poor'!

Financial data is available on public domain for 129 factories for which the factories for the year 2003-2004[vii]. We classified these into four categories based on their financial strength and have presented in table X below:

Table X
Financial Strength of Sugar factories 2003/04

	WEST	EAST
D	24.00 (28.9%)	28.00 (60.9%)
C	09.00 (10.8%)	04.00 (08.7%)
B	41.00 (49.4%)	11.00 (23.92%)
A	07.00 (08.43%)	05.00 (10.9%)
TOTAL	83.00	46.00
Note: Figures in parentheses are proportions of total factories in respective zone http://mahasugar.maharashtra.gov.in:9080/msisRestWeb/msis/jsp/development/CaneAssmnt/Reports/FinProAllSSK/FinProAllSSK.jsp		

Category D: Absolutely Non-viable - factories with negative net worth which is larger than share capital.
Category C: Factories with negative net worth but lower than share capital.
Category B: Net Worth is positive but have accumulated losses
Category A: Factories that are not loss making.

Almost 60 per cent of the factories in the eastern region fall in the D category (that is, financially unviable). In the western region 30 per cent of the factories fall in this category. In addition to the above classification some key financial ratios were also computed and have been tabulated in Table XI.

Table XI
Key Financial Ratios (2003/2004)

	Factories (nos.)	Current ratio = current assets/current liabilities	Accumulated Loss (Total) (lakhs)	Accumulated Profit (Total) (lakhs)	Average Net Worth (lakhs)
West	83	2.3:1	141660.7 (76)	1238.27 (6)	-366
East	46	1.75:1	153302.0 (43)	1107.17 (3)	-2286
Data Source: Same as Table X. Figures in parentheses refer to absolute number of loss/profit making factories					

Tables X and XI leave one in no doubt that sugar factories in both western and eastern Maharashtra are financially sick. Of the two regions, however, the western region is marginally better off in the sense that it has a smaller proportion of factories in the D category with negative net worth exceeding their share capital. The average net worth figures tell us that on a per factory basis, eastern factories are 6 times worse off than their western counterparts. The somewhat better performance of the factories in the western zone may, however, to some extent be thought of as 'artificial' as factories in western Maharashtra receive greater financial support from the state government. Table IX shows that 'government involvement' in per factory terms is 13 per cent greater in the western zone vis-à-vis those in the eastern zone.

7. QUO VADIS

The analysis above builds a fairly strong case for roll back of the state from its role, both a stakeholder and a regulator in the sugar sector. By absolving itself from being a stakeholder and divesting its shares, it would release about Rs. 600 crores to begin with. It would additionally save out on the interest which it would continue to lose on account of this blocked capital and there would be no further addition to the financial burden. Divesting of the existing government shares would materialise only if the present ceiling on individual shareholdings must be lifted. Equity concerns would immediately be raised. However, even staunch proponents of ceilings on individual shareholding in all spheres (sugar factories can be no exception) are aware that those who wish to have a larger stake in any firm circumvent the law by

roping in family members and continue to have a strong hold on the enterprise. The process is prone to corruption and rent seeking activities. To us it appears that lifting the existing ceiling on shareholdings is the only way of substituting government share capital. By doing so we would be legitimising a practice that is already prevalent, as the rich and powerful are adept at circumventing such procedural roadblocks. A positive spillover of legitimising this practice would be to reduce the scope for corruption.

With the government withdrawing, private entrepreneurs would have to run the show. A natural question which comes to mind is, would privatisation work in this sector? The experience of Renuka Sugars Pvt. Ltd. clearly suggests that it would. This six-year old company from Northern Karnataka has been making waves with its revenues having grown at over 42 per cent per year and profit by 118 per cent between 2001 and 2004. For the six months ending March 2005, the company posted sales of Rs 227 crore while profits were to the tune of Rs 19 crore. In Maharashtra, Renuka Sugars took the loss making Ajra factory on lease and the turnaround was almost immediate. An advantage of a private factory is that its cost of borrowing is much less as it is free to borrow from the market and avail of lower rates of interest unlike the cooperatives who are constrained to borrow form IFCI or State government at much higher rates of interest both on account of their poor financial health and rules which bind them. (*Loksatta*, August 8, 2006). Also, private factories can produce sugar from raw sugar that is imported from countries like Brazil, which is not permissible for the cooperative. Yet another plus for a private company is that it can produce sugar that conforms to European standards. This higher grade of sugar commands premium over white sugar and industrial buyers tend to prefer this sugar of superior quality. Companies like Coca Cola, Nestle, Cadbury etc. buy their sugar requirements from Renuka. Dealing with large corporates carries other benefits like committed and timely off-take, reduced price risk, reduced working capital and less dependence on brokers.

What makes this experiment of Renuka Sugars most commendable is that the company has given Rs 1400 per tonne for the sugarcane to its farmers as against Rs 1200 per tonne paid by other sugar mills. Yet another appealing feature of the Renuka Sugars story is that the 9,000 odd farmers from whom the company procures sugarcane, are also the shareholders of the company and are also entitled to get dividends like other shareholders. (Deccan Herald, September 12, 2005).

The flip side of this success story is a despair story of private factories in the state of Uttar Pradesh. In 2004, a bailout of Rs. 490 crores was given by the state government to these private factories. The moral of the story that emerges therefore is that privatisation alone will not work. The success of Renuka sugars clearly demonstrates that it is the rules of the game – the regulatory framework that requires to be changed. The safety net of government bailouts needs to withdrawn from all sectors, more so the sugar sector which has so far been accorded a very 'special' status. In sum, the link between government and cooperatives has to be weakened at every stage. Welcome signs are noticeable from the recent announcement by the government to make use of ethanol, a by-product of sugar, in the petroleum sector. This set in motion a chain reaction of Reliance Industries expressing an interest in setting up a sugar plant and promising to pay a much higher cane price than is currently prevalent. A concrete step forward in the direction of privatisation, is that we have started trading in sugar futures.

Sugar Futures: A Promising Future

Market-based tools such as futures and options that insure against price volatility, already exist and are widely used in high-income countries. Some studies which have drawn attention to the benefits of futures trading in agricultural commodities include Gemmill (1985) who argued that futures markets for cocoa, coffee, and sugar would provide an attractive mechanism for hedging export-earnings risks and that forward contracts could be substantially cheaper than buffer-stock operations. Rolfo (1980) investigated the use of futures for cocoa producer prices and calculated the optimal hedge ratio in the presence of both production (output) and price volatility.

Futures trading could serve as a good substitute for the 'monthly release quota' that exists for free sale sugar. We did a small exercise to compare the volatility of spot and future prices during the year 2004/2005. Data was obtained for four futures that matured during this year. The procedure followed is based on Pethe and Karnik (2000). This simple procedure was preferred over the more sophisticated measures of volatility as we were considering a small sample and the exercise is merely indicative.

➢ The daily trading futures price was available at www.mcxindia.com. An average of the high and low prices obtained for daily trading was considered.

- A three year moving average was obtained for this series to smoothen the series.
- A rolling 7 day period standard deviation was obtained for the smoothened series.
- The coefficient of variation was obtained for the same rolling 7 day period.
- The variance of this series of coefficient of variation is indicative of volatility.

Our results, as expected showed the volatility in the future prices to be much lower at 1.18 vis-à-vis 3.24 for the spot prices (month end figures are available) that prevailed during the same year. Apart from reducing price volatility in the sugar market, futures trading would serve the all important purpose of weakening the nexus between the factory and the government.

We are hopeful that sooner rather than later a sea change awaits this sector. Our optimism stems from the fact that financial compulsions, despite political hindrances, will compel a roll back of the state from the sugar sector. For the moment, however, the existing scenario is very aptly summed up in this quote 'Every election at every level in western Maharashtra, is not about water or electricity. It is about one thing: sugarcane'. http://www.rediff.com/election/2004/oct/08spec1.htm

8. SUMMING UP

The word that comes to mind when summing up this study is 'travelogue'. Sugar cooperatives in Maharshtra have come a long way since their inception in the fifties. They originally formed an integral part of the Nehruvian and Congress vision – in the spirit of Fabian Socialism - of state led rural development immediately after independence. They were star performers in the first decade after independence – the fifties. In hindsight, however, one could say that the seeds of trouble of large scale state intervention were sown in that very first decade when special treatment was accorded to the cooperative form and the private sector was not allowed a level playing field. The 'special' status and assured government support, irrespective of performance, took away from the sector any incentive to perform. This led to the almost foregone conclusion of poor performance, both in technical and in financial terms.

The interlocking of important positions in sugar cooperatives and members of state and local governments, not to mention other social institutions, has perpetuated and kept a dysfunctional system going. Policy decisions like greater development of

irrigation facilities and greater financial support from the government have all gone in favour of the politically stronger western Maharashtra at the expense of eastern Maharashtra – a case of pork barrel politics. Cane price has become a potent weapon that factory owners have used to lure voters and win mass support. Cane prices are found to be higher in western Maharashtra than what can be justified by any possible and known economic reasons, suggesting a 'capture' of the regulators by the regulated. *A significant point that one wishes to re-iterate here is almost the entire regulatory framework can be traced back the first decade of independence – the fifties.*

The financial assistance and the existing regulatory framework initiated in the fifties, have clearly outlived their justification. The continuance/propagation of *status quo* may be rationalised naively in terms of inertia. This, we believe, would be incorrect as it needs to be understood in terms of active design by the entrenched vested interests.

The way out of this financial mess that the sugar cooperatives are in cannot be small time tinkering around with the regulatory mechanism like increasing the distance between factories to nullify zoning or even rehabilitation packages provided by agencies like NABARD, which are in effect an arm of the government. A gradualist approach is passé and will not work. The clarion call of the times is to start afresh with minimal regulations. In keeping with the current ethos, a level playing field must be provided to the private sector. Greater scope for market forces such as trading of sugar futures is possibly the only road ahead. Here too, teething problems are bound to exist, but 'market failure', even if it does occur initially, cannot be worse than continuing the saga of 'government failure'.

****

Appendix

Figure A1

Rules of the Game - Regulatory System

GOVT.
- Regulator
- Stakeholder

Cane → **Sugar Factory** → Sugar

Sugarcane (Control) Order, 1966 - permission
Sugar Factories Order, 1984 - strict
Sugar Factories Order, 1997 - diluted
Zoning
Sugarcane (Control) Order, 1955
Statutory Min. Price (SMP)
State Advised Price (SAP)
Actual Price Paid-sharing profits
- *Minister's Committee*
- *Payment in Installments*

Domestic price   **International price**

Essential Commodities Act, 1955
- **Levy price**
- **Monthly release quota**

Sugar Protection Order, 1932
Import tariffs

Table Al

List of Political Personalities Associated with Sugar Cooperatives

Table 8.13: **Linkage between Politics and Sugar Cooperatives**

Name of the District	No. of Sugar Co-op. Factories	Name of MLAs, MPs, etc. who are connected with one or more sugar factories
1. Ahmednagar	13	Vikhe Patil, Kale, Kolhe, Tanpure, Patil, Kadam, Nimbalkar, Gadakh, Nagwade, Pachpute, D.M Pawar, Rohanmare, Zaware.
2. Dhule	4	Shivaji Patil, P.K. Anna Patil, S.H. Naik.
3. Jalgaon	3	Bapusaheb Patil, G.T. Mahajan, B.D. Rathod, G.R. Sarode
4. Nashik	7	Venkatrao Hiray, B.D. Kawale, Kakasaheb Wagh, Mrs. Pushpa Hiray, T.S., Mogal M.S. Didhole
5. Satara	7	Yeshwantrao Mohite, Naik, Nimbalkar, D.B. Kadam, Pisal and V.B. Patil
6. Sangli	7	Vasantdada Patil, Dinkar Rao Patil, R.A. Patil, F.A. Naik, N.R. Naikwadi
7. Pune	7	Mohol, Sambhaji Rao Kakde, Sharad Pawar, S.N. Taware, A.K. Tapkir, V.B. Tupe.
8. Kolhapur	13	Ratnappa Kumbhar, V.S. Kore, Ghorpade, H.B. Patil, G.T. Kalikate, Gaikwad, Desai, Mrs Khanjire, J.G. Awale, S.D. Mutalik.
9. Sholapur	7	S.N. Mohite-Patil, V.S. Mohite-Patil, B.R. Mahadik, T.S. Jadhav, A.N. Deokate, S.S. Patil, Paricharak, M.K. Patil, B.C. Chakote, R.B. Patil
10. Aurangabad	5	Balasaheb Pawar, R.J. Patil S.P. Kasane, C.S. Ghodke, M.S. Palodkar, Shamrao Kadam, Shivajirao Deshmukh.
11. Jalna	2	S.A. Pandit, V.Y. Akat, A.S. Chavan.
12. Parbhani	3	S.G. Nakhate, A.D. Ghatge, V.Y. Akat.
13. Beed	4	S.P. Thorve, S.A. Pandit, B.A. Dhonde
14. Nanded	--	
15. Osmanabad	3	Sharmrao Kadam
16. Latur	2	A.G. Gore, M.A. Mote
17. Buldhana	3	S.G. Maknikar, S.S. Hussain
18. Akola	1	T.T. Kayande
19. Amaravati	1	
20. Yavatmal	1	
21. Bhandara	1	
22. Wardha	1	M.S. Shivankar
23. Nagpur	1	
24. Chandrapur	1	R.A. Deshmukh
25. Gadchiroli	--	
26. Raigad	--	

Source: This has been compiled from the *Legislative Who's Who* and the published documents of sugar cooperatives.

Source: Sirsikar (1995)

Table AII

Cane Price Differential

Year	Region	Cane Price (Rs. Per M.T.)
1999-2000	WEST	679.0
	EAST	542.6
	GAP=W-E	**136.4**
2000-2001	WEST	782.6
	EAST	621.8
	GAP=W-E	**160.9**
2001-2002	WEST	736.2
	EAST	611.8
	GAP=W-E	**124.4**
2002-2003	WEST	730.0
	EAST	601.9
	GAP=W-E	**128.1**
2003-2004	WEST	715.8
	EAST	681.4
	GAP=W-E	**34.5**
Average	**WEST**	**728.72**
	EAST	**611.9**

Table AIII
Illustrative Analysis of Capture

		RECOVERY %	Actual cane price Paid	As per GOI permissible Premium for 0.1% hike in recov.	Let Cane Price of E be benchmark — Hike attributable to higher recov. In W	Cane Price West would have paid if only higher recovery was the criteria	GAP = actual - permissible rate on acct. of recovery (INDICATES CAPTURE)
			(per M.T)	(Rs. Per M.T.)	(Rs. Per M.T.)	(Rs. Per M.T.)	(Rs. Per M.T.)
		(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
1999-2000	W	11.6	679.0			641.6	37.40
	E	10.1	542.6			-	-
GAP=W-E		**1.5**	**136.4**	6.6	99	-	-
2000-2001	W	10.8	782.6			656.8	125.80
	E	10.3	621.8			-	-
GAP=W-E		**0.5**	**160.9**	7.0	35.0	-	-
2001-2002	W	11.4	736.2			684.8	51.40
	E	10.5	611.8			-	-
GAP=W-E		**1**	**124.4**	7.3	73.9	-	-
2002-2003	W	11.2	730			651.1	78.90
	E	10.6	601.9			-	-
GAP=W-E		**0.6**	**128.1**	8.2	49.2	-	-
2003-2004	W	11	817.21			786.60	30.61
	E	10.1	710.10			-	-
GAP=W-E		**0.9**	**107.11**	8.5	76.5	-	-

Note: M.T. refers to metric tones
Data Source: Office of Commissioner Sugar, Pune (where it is compiled from annual reports of sugar factories)
Col 3: premium as announced by GOI
Col 4: (computed): premium announced as in col. 3 per M.T*0.1/gap in recov. Between W&E
[eg: In 1999-00: (6.6*0.1)/1.5=99]
Col. 5 (computed): cane price of E from col. 2+col.4
[eg. In 1999-00: 542.6+99=641.6]
Col. 6: Gap between actaul price paid in W (Col.2) and Permissible price based on recov.(Col.5)
[eg. In 1999-00: 679-641.6]

Endnotes:

[i] Pune, Dhule, Jalgaon, Nashik, Ahmednagar, Solapur, Sangli, Kolhapur and Satara districts comprise Western Maharashtra and Beed, Aurangabad, Jalna, Nanded, Osmanabad, Parbhani, Akola, Amravati, Buldhana, Yavatmal and Wardha districts are Eastern Maharashtra

[ii] Recovery rate refers to the amount of sugar obtained as a percent of sugarcane crushed that is, the amount of finished product obtained per unit of raw material.

[iii] Obtaining a data series such as actual cane price, which should have been readily available on the public domain required several visits to the office of Commissioner Sugar, Pune. After several requests and applications we managed to obtain the data for only six years.

[iv] www.eci.gov.in

[v] Updated information on this figure was not made available despite repeated requests to various officers.

[vi] No explanation is provided on the website as to what the financial categories listed include or do not. Via personal communication it was ascertained that 'govt. dues' did include guarantee fees due but did not include government overdues in the form of purchase tax deferrals, outstanding guarantees. The figure thus serves as an approximate magnitude of govt. involvement.

[vii] We were informed that not all the factories for which financial data was available on wbesite were in fact operational in the season 2003/04.

References

Attwood, D.(1992) *Raising Cane: The Political Economy of sugar in Western India* (Delhi: Oxford University Press).

Attwood, D.(1995) Does Competition Help Cooperation? in*: B.S. Baviskar and D. Attwood (ed) Finding The Middle Path* (New Delhi: Vistaar Publications), pp. 199-216.

Banerjee, A. et. al. (2000) Inequality, Control Rights, and Rent Seeking: Sugar Co-operatives in Maharashtra. *Journal of Political Economy*, 109(1), pp.138-190.

Baviskar, B.S. (1968) Co-operatives and Politics, *Economic and Political Weekly*, March 23, pp. 490-495.

Baviskar, B.S. (1980) *The Politics of Development: Sugar Co-operatives in Rural Maharashtra* (Bombay: Oxford University Press).

Bradbury, J.C. and Crain (2001) Legislative Organisation and Government Spending: Cross-Country Evidence, *Journal of Public Economics*, 82(3), pp.309-325.

Bradbury, J.C. and E.W. Stephenson (2003) Local government structure and Public Expenditures, *Public Choice,*115(1-2), p.185-198.

Chitelen, I. (1985) Origins of cooperative sugar Industry in Maharashtra, *Economic and Political Weekly*, April, 6.

Das, S. and Mookherjee, D. (2004) Ownership Form And Contractual Ineficiency: Comparing Performance of Cooperative and Private Factories in the Indian Sugar Industry, Discussion Papers in Economics 04-06, ISI Delhi.

Baru, S. (1990) *The Political Economy of Indian Sugar: State Intervention and Structural Change* (New Delhi: Oxford University Press).

Chakradeo, A. (2005) Sugaring the profit pill of cooperative movement. Deccan Herald, 12 September. http://www.deccanherald.com/deccanherald/sep122005/eb171272005911.asp

Dehn, J. (2004) Commodity Price Volatility, Draft chapter for *Managing Volatility and Crises: A Practitioner's Guide* March 2004. http://www1.worldbank.org/economicpolicy/documents/mv/pgchapter05.pdf

Deulgaonkar, A. (2003) Crisis in Sugar Industry, *Frontline*, 20 December to 02 January 2004. http://www.hinduonnet.com/fline/fl2026/stories/20040102003703100.htm

Emmons, W. and T. Yeager (2002) The Futures Market as Forecasting Tool: An Imperfect Crystal Ball, *Regional Economist*, January 2002, The Federal Bank of St. Lois. http://www.stlouisfed.org/publications/re/2002/a/pages/futures.html

Gilligan, T.W. and J.G. Matsusaka (1995) Deviations from Constituent Interests: The Role of Legislative Structure and Political Parties in the States, *Economic Enquiry*, vol. 33 (3), pp. 383-401.

Gilligan, T.W. and J.G. Matsusaka (2001) Fiscal Policy, Legislative Size and Political Parties: Evidence from state and Local Governments in the First Half of the Twntieth Century, *National Tax Journal*, vol. 54(1), p. 57-82.

Gemmill, G. (1985) "Forward Contracts or International Buffer Stocks? A Study of their Relative Efficiencies in Stabilising Commodity Export Earnings." *Economic Journal,* 95 (378), pp. 400-17.

GIPE (Gokahale Institute of Economics and Politics) (1975): *Writings and Speeches of Professor D.R. Gadgil on Co-operation*, (Bombay: Orient Longman, Bombay)

Gulati, A. and Narayanan (2003) The Subsidy Syndrome in Indian Agriculture, (New Delhi: OUP).

Jugale, V.B. (2000) Sugarcane Pricing: Policy, Procedure and Operations, (New Delhi: Atlantic Publishers and Distributors)

Kamath, S.J. (1992): The Political Economy of Suppressed Markets: Controls, Rent Seeking and Interest Group Behaviour in the Indian Sugar and Cement Industries, (Bombay: OUP)

Khekale, N.R. (1999) *Pressure Politics in Maharashtra* (Mumbai: Himalaya Publishing House).

Lele, J. (1981) *Elite Pluralism and Class Rule: Political Development in Maharashtra* (Bombay: Popular Prakashan).

Lewis-Beck, M.S. and Paldam, M. (2000) Economic voting: an introduction, *Electoral Studies,* 19(2-3), pp. 113-121.

Lewis-Beck, M.S. and Stegmaier, M. (2000) Economic Determinants of Electoral Outcomes, *Annual Review of Political Science*, 3 pp. 183-219.

Mishra, S. and Panda, M. (2006) *Growth and Poverty in Maharashtra*, IGIDR WP-2006-01

Mueller, D. (2003): *Public Choice III* (U.K.: Cambridge University Press).

Nannestad, P. and Paldam, M. (1994) *The VP-Function: A Survey of the Literature on Vote and Popularity Function after 25 Years*, *Public Choice*, 79( ), pp. 213-45.

Paldam, M. (1997) Political Business Cycles, in: D. C. Mueller (ed) Perspectives on Public Choice: A Handbook, (Cambridge: Cambridge University Press).

Pethe, A. and Karnik, A. (2000) Do Stock Markets Matter? Stock Market Indices and Macro Variables, Economic and Political Weekly, January 29.

Posner, R. (1974) Theory of Economic Regulation, *Bell Journal of Economics and Management Science*, 5(2), pp. 335-358.

Robson, A. (2004) Sweet and Sour Pork Barrelling: The Case of Queensland Sugar, Issue Analysis in: *Issue Analysis* no. 45, Centre for Independent Studies, Sydney.

Rolfo, J. (1980) "Optimal Hedging Under Price and Quantity Uncertainty: The Case of a Cocoa Producer." *Journal of Political Economy* 88(1) :100--16.

Sawant, S. et. al. (1997) Agricultural Development in Maharashtra: Problems and Prospects, Department of Economics & NABARD, Mumabi

Sirsikar, V.M. (1995) Politics of Modern Maharashtra, Orient Longman, 1995

Stigler, G. (1971) Theory of Economic Regulation, *Bell Journal of Economics and Management Science*, 2(1) pp. 3-21.

Wadhwa, D.C. (2000) Zoning for Sugar Co-operatives: Note of Dissent, June 7, *Economic and Political Weekly.*

Weingast, B., Shepsle, K. and Johnsen, C. (1981) The Political Economy of Benefits and Costs: A Neoclassical Approach to Distributive Politics, *Journal of Political Economy*, 89(4), pp.642-664.

World Bank (2002) *Maharashtra: Reorienting Government to Facilitate Growth and Reduce Poverty*, Vol. I & II,.(USA, World Bank).

World Bank (2004) *India: Re-energising the Agricultural Sector to Sustain Growth and Reduce Poverty* (USA, World Bank).

Government Publications and Reports

Godbole Committee Report (1999) Report of the Committee on Co-operative Sugar Factories in Maharashtra, Government of Maharashtra.

Mahajan Committee Report (1997) Report of the High Powered Committee on Sugar Industry, Vols I and II, Ministry of Food and Consumer Affairs, GOI.

ShivajiRao Committee Report (1990) Report of the Committee for Recommending a Package for Rehabilitation of Sick Sugar Factories in Co-operative Sector, GoM.

Tuteja Committee Report (2004) Report on Revitalisation of the Sugar Industry, Government Of India, Ministry Of Food, Consumer Affairs & Public Distribution, Department Of Food & Public Distribution, New Delhi

World Bank (2005: Summary of The Financing of Maize Production and Price Risks in Tanzania, Note no. 12 Wo**rld Bank Group Africa Region, Private Sector Unit**
http://siteresources.worldbank.org/EXTAFRSUMAFTPS/Resources/note_12 _screen.pdf

Data Sources:

❖ Cooperative Sugar (various issues), NFCSF, New Delhi
❖ Indian Sugar (Various issues), ISMA, New Delhi
❖ Sugar Co-operative Directory and Yearbook, NFCSF (various years)
❖ Performance of Sugar Cooperatives (various issues) Vasant Dada Sugar Institute, Pune
❖ Financial Performance of Sugar Cooperatives (various issues), Vasant Dada Sugar Institute, Pune
❖ Indian Sugar Yearbook, 2004-05, ISMA, New Delhi.
❖ Annual Reports of various cooperative sugar factories
❖ Agricultural Database, EPW