C H A P T E R V.

CANE PRICE, SUGAR PRICE AND THE RATE OF CAPACITY UTILISATION

5.1 Introduction:

In this Chapter, we examine the correlation between (a) Cane price and the Rate of Capacity Utilisation, (b) Sugar price and the Rate of Capacity Utilisation, and (c) Stoppages and the Rate of Capacity Utilisation, in the case of the factories under study. Similarly, we make an attempt to estimate the supply-elasticities regarding cane supply with reference to sugar price as well as cane price.

5.2 Theoretical Background:

(A) Cane Price & Capacity Utilisation:

Given other things, it can be argued that the supply of cane (cane production in the zone of the factory) will increase in the current year in response to an increase in the cane price in the previous year. To the extent this happens, it will be logical to say that the rate of capacity utilisation of the current year will increase as a result of ~~a rise~~ in the cane price in the previous year, which will cause an increase in the area under sugarcane cultivation leading to a larger supply of cane to the factory in the current year.

(B) Sugar Price & Capacity Utilisation:

So far as sugar price is concerned, we have taken into consideration a longer time lag after which it can have an influence on the area under sugarcane cultivation leading to a change in the sugarcane supply to the factory. More precisely, we feel that an increase in the price of the sugar in the year 1981-82 will cause an increase in the sugar cane supply via an increase in the area under sugarcane cultivation in the year 1983-84, i.e.a time lag of 2 years and vice-versa.

(C) Stoppages & Capacity Utilisation:

The working of a sugar factory is interrupted by various reasons as under:-

1. Problem of sugarcane supply,
2. Mechanical and electrical failures,
3. Problems in processing,
4. Cleaning and Miscellaneous.

The co-operative sugar factories give this information in terms of hours and minutes of working lost. A priori, it can be said that a larger incidence of stoppages will result into a lower rate of capacity utilisation.

Information in respect of cane price and sugar price for each of the factory and each of the years under consideration is given in Appendix 5-A. Similarly, information regarding the incidence of stoppages for all the factories for all the years is given in Appendix 5-B.

5.3 Cane Price & the Rate of Capacity Utilisation:

In Table No.5.1,we have given overtime factory-wise 'r' values for the relationship between the cane price of the previous season and the current year's rate of capacity utilisation.

TABLE NO.5.1

FACTORYWISE 'r' VALUES FOR CANE PRICE AND CAPACITY UTILISATION (1981-82 to 1985-86)

Sr. no.	Factory	'r' values
1.	Daulat	+0.43
2.	Gadhinglaj	-0.13
3.	Shahu	-0.25
4.	Datta	-0.02
5.	Bhogawati	+0.02
6.	Dudhaganga	-0.25
7.	Panchaganga	-0.12
8.	Kumbhi	-0.60
9.	Warana	-0.27

If we consider the 'r' values given in Table no.5.1, it is seen that only in the case of Daulat factory and Bhogawati Factory, the 'r' values are positive but not very strong. However, in the case of the remaining sugar factories, the 'r' values are negative but not very strong except in the case of Kumbhi-Kasari Sugar Factory, where the 'r' value is negative and fairly strong. In other words, our contention that overtime, an increase in the cane price of the previous year increases the rate of capacity utilisation in the current

year is not strongly corroborated by the exercise undertaken by us. One important reason for this may be the nature of sugarcane cultivation. Generally, area under first planting (lavan) continues to remain the same for getting the second crop (Khodva) and the third crop (nidwa). Moreover, for a sugarcane cultivator, increasing area under sugarcane cultivation becomes a little difficult because of his traditional commitment to a given pattern of local crops in the constraints of his total land holding and the availability of the irrigation facilities.

As we have done earlier, if we carry out an exercise to obtain the aggregate average 'r' values for the relationship between the cane price of the previous season and the rate of capacity utilisation for the current season, we get 'r' value = -0.08, which, in a way, supports our argument made above.

5.4 Cross Sectional 'r' Values:

In Table no.5.2, we have given cross-sectional 'r' values between the cane price of the previous season and the rate of capacity utilisation for the current year, for 1982-83 to 1985-86.

TABLE NO.5.2

CROSS SECTIONAL 'r' VALUES

S.No	Years	'r' Values
1.	1982-83	+0.32
2.	1983-84	+0.48
3.	1984-85	+0.45
5.	1985-86	+0.31

Here it is seen that all the 'r' values are positive and not very weak. In other words, if the rate of capacity utilisation of a number of factories for the same year is related to the cane price of the previous season, our contention that a higher cane price in the previous season causes a greater capacity utilisation is supported. This may be explained by the possibility of some improvement in the per hectare yield of second crop due to application of greater quantity of fertilisers as also a more careful supervision of a crop and greater amount of sugarcane imports in the area of respective sugar factories, mainly influenced by the degree of price differentials.

5.5 Sugar Price & the Rate of Capacity Utilisation:

In Table no.5,3, we have given factorywise overtime 'r' values for the correlation between sugar price of the two years earlier and the current rate of capacity utilisation. Our contention is that an increase in the sugar price of the two seasons earlier will cause an increase in the rate of capacity utilisation via increase in the area under cane cultivation and increased cane supply is not borne out by the 'r' values given in Table no.5.3.

TABLE NO.5.3

FACTORYWISE OVERTIME 'r' VALUES.

S.No	Factory	'r' Value
1.	Daulat	-0.32
2.	Gadhinglaj	-0.07
3.	Shahu	-0.12
4.	Datta	+0.90
5.	Bhogawati	-0.74
6.	Dudhaganga	-0.31
7.	Panchaganga	-0.99
8.	Kumbhi	-0.75
9.	Warana	-0.29

It is seen that it is only in the case of Datta Factory, the 'r' value is positive and very strong which supports our contention, but in the case of the remaining factories, the 'r' values are negative and in the case of Bhogawati, Panchaganga and Kumbhi-Kasari, the negative 'r' values are almost equally strong. Naturally, the contradicting evidence far outweighs the supporting evidence. However, this again can be explained on the basis of points raised earlier in respect of correlation between cane price of the previous season and the rate of capacity utilisation of the current season. This is further strengthened by the negative and very weak 'r' value (-0.2) calculated on the basis of aggregation method.

5.6 Cross Sectional 'r' Values:

In Table no.5.4, we have given cross-sectional 'r' values for the relationship between earlier two years' sugar cane price and the rate of capacity utilisation for the years 1983-84, 1984-85 and 1985-86.

TABLE NO.5.4

CROSS SECTIONAL 'r' VALUES

S.no	Years	'r' Values
1.	1983-84	-0.2
2.	1984-85	-0.5
3.	1985-86	-0.9

It is seen that all these cross-sectional 'r' values are negative and extremely weak. We, therefore, can say that the sugar price of the earlier two years does not have a positive effect on the rate of capacity utilisation of the current year. On the contrary, there must be other stronger influence like limits of irrigation facility, decreasing yield of the third crop and the constraints of traditional cropping patterns.

5.7 Stoppages & the Rate of Capacity Utilisation:

In Table no.5.5, we have givens ~~factory~~wise overtime 'r' value for the relationship between stoppages and the rate of capacity utilisation. It is indeed surprising to see that 'r' values not only are positive but also are fairly

strong. In other words, our contention that greater incidence of stoppages reduces the rate of capacity utilisation is not justified. In fact, the causation must be the other way round, i.e. higher the rate of capacity utilisation, the greater will be incidence of stoppages because of more intensive use of plant and machinery, causing more difficult and more frequent, mechanical, electrical and other difficulties. This contention is further strengthened by the positive and very strong 'r' value (0.79) calculated by the method of aggregation. The 'r' values regarding the relationship between the incidence of stoppages and the rate of capacity utilisation is given in Table no.5.5.

TABLE NO.5.5

FACTORYWISE 'r' VALUES FOR STOPPAGES AND CAPACITY UTILISATION (1981-82 to 1985-86)

S.No	Factories	'r' Values
1.	Daulat	+0.42
2.	Gadhinglaj	+0.63
3.	Shahu	+0.68
4.	Datta	+0.41
5.	Bhogawati	+0.19
6.	Dudhaganga	+0.50
7.	Panchaganga	N.A.
8.	Kumbhi	+0.79
9.	Warana	N.A.

5.8 Cross Sectional 'r' Values:

In Table no.5.6, we have given cross-sectional 'r' values for the period under study for all the factories regarding relationship between incidence of stoppages and the rate of capacity utilisation.

TABLE NO.5.6

CROSS SECTIONAL 'r' VALUES FOR STOPPAGES

S.No	Years	'r' Values
1.	1981-82	+0.21
2.	1982-83	-0.81
3.	1983-84	+0.05
4.	1984-85	-0.002
5.	1985-86	+0.03

Here also it is seen that except for two years, the 'r' values are positive though not very strong. In the year 1982-83, however, the 'r' value is negative but very strong which supports our initial contention that a greater incidence of stoppages causes a reduction in the rate of capacity utilisation. However, on the whole, it would be more appropriate to say that a higher rate of capacity utilisation causes a greater incidence of stoppages rather than the other way round.

5.9 Supply Elasticities:

Here we discuss price elasticity of cane supply with referenceto cane price.

Cane Price & Cane Supply:

In computing price elasticity of cane supply, we have considered cane price of t^{th} year and cane supply of t + 1th year. As given earlier in Chapter-II, the formula for measuring supply elasticity is,

$$Es = \frac{\% \text{ Change in Supply}}{\% \text{ Change in Price}}$$

or $$Es = \frac{q}{p} \times \frac{p}{q}$$

where 'p' stands for price and 'q' stands for quan--tity supplied.

The basic information regarding cane price and cane supply is given in Appendix 5-C. The price elasticity of cane supply values are given in Table no.5.7 on the next page. We have calculated elasticity of cane supply values for each factory separately and also by aggregation.

It is seen that in the case of Daulat, Shahu and Warana Co-operative Sugar Factories, the price elasticity of cane supply values are positive for all the years of computation. In the case of remaining factories, for the second and the third year of computation, we get negative values of price elasticity of cane supply. The factories concerned are Gadhinglaj, Datta, Bhogawati, Dudhaganga, Panchaganga and Kumbhi-Kasari. So far as the first year of computation is concerned, the price elasticity of supply values for all the factories under consideration are positive, with the average value of 4.29. The Warana factory gives us the highest value for price elasticity of cane supply for the first year of computation. For the second year of computation, the Daulat

factory gives us the highest positive value for the price elasticity of cane supply (20.61). However, the highest negative value for the price elasticity of cane supply is given by Gadhinglaj Factory (-724.93). For the second year of computation, the highest positive value for the price elasticity of cane supply is again given by the Daulat factory (36.74) whereas this value is again negative and very large for Gadhinglaj factory. For the third year, the price elasticity of cane supply values are relatively very low. The highest positive value being (0.23) in the case of Datta factory and the highest negative value being (0.41) in the case of Gadhinglaj factory. The aggregate average value for the price elasticity of cane supply in the first year of computation is 4.29 and for the third year of computation 1.06. However, for the second year of computation, the price elasticity of cane supply value is negative and quite large (-16.13). It is, of course, very evident that this is because of extraordinary negative values of the price elasticity of cane supply in respect of Gadhinglaj and Datta factories. The problem, therefore, is to explain why in the second year of computation, particularly the values of price elasticity of cane supply are negative. The negative values of price elasticity of supply theoretically indicate two things:

a) A decrease in the price of a commodity leads to an increase in the supply of the commodity, or

b) An increase in the price of commodity leads to a decrease in the price of the commodity.

In our opinion, both these possibilities may be greatly dependent on the availability of adequate water supply in the season subsequent to a change in the price of sugarcane. In other words, if after rise in the price of sugarcane in the previous year, the rainfall or the irrigation water decreases in the current year, there will be a decrease in the sugarcane supply, despite an increase in the price of sugarcane in the previous year. Alternatively, if there is a decrease in the price of sugarcane in the t^{th} year, but there is increased irrigation water or more rainfall in the t+1th year, the cane supply will increase despite a decrease in the cane price in the earlier year. It should be noted that the year 1983-84 was almost a drought year in the whole of Kolhapur district. Another proof for this contention of ours is the fact that in the case of all the factories under consideration, the rate of capacity utilisation was significantly less in 1983-84 than for the other years.

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APPENDIX 5-A
FACTORYWISE CANE PRICE AND SUGAR PRICE

Year	Particulars	Daulat	Gadhing-laj.	Shahu	Datta	Bhoga-wati	Dudha-ganga	Pancha-ganga	Kumbhi-Kasari	Warana
1981-82	a) Sugar Price Rs.per Quintal	331.42	326.46	369.78	311.44	336.81	326.65	340.24	337.38	332.70
	b) Cane Price Rs.per Tonne	200.00	257.00	231.00	218.00	264.00	207.00	250.00	243.50	268.50
1982-83	a) Sugar Price Rs.per Quintal	317.65	324.27	371.79	309.31	314.61	305.65	309.71	308.94	308.84
	b) Cane Price Rs.per Tonne	185.00	241.00	214.00	205.70	244.00	195.00	240.00	208.00	257.50
1983-84	a) Sugar Price Rs.per Quintal	332.70	379.52	464.44	333.40	328.97	328.35	329.47	330.71	330.87
	b) Cane Price Rs.per Tonne	189.00	240.00	234.00	205.00	237.00	175.00	222.00	204.00	267.00
1984-85	a) Sugar Price Rs.per Quintal	388.22	432.63	419.21	383.76	385.45	377.96	392.12	386.70	380.77
	b) Cane Price	230.00	313.50	310.50	280.00	313.50	256.00	335.00	282.00	346.00
1985-86	a) Sugar Price Rs.per Quintal	431.35	434.07	447.09	425.09	424.05	415.07	429.51	424.67	428.50
	b) Cane Price	280.00	320.00	345.00	315.00	361.00	288.00	358.00	320.00	336.00

APPENDIX 5-B

STOPPAGES

(Hours & Minutes)

Years	Daulat	Gadhing-laj.	Shahu	Datta	Bhoga-wati	Dudha-ganga	Pancha-ganga	Kumbhi-Kasari	Warana
1981-82	593.15	562.35	496.40	647.90	421.25	685.25	NA.	564.05	NA.
1982-83	630.00	402.35	344.15	435.25	583.00	1,006.25	NA.	680.15	NA.
1983-84	469.00	310.10	270.20	357.45	682.10	604.75	NA.	363.45	NA.
1984-85	554.10	303.15	297.50	449.55	533.55	521.50	NA.	482.40	NA.
1985-86	265.25	352.05	168.40	296.65	332.40	414.30	NA.	452.55	NA.

APPENDIX 5.C

FACTORYWISE CANE PRICE & CANE SUPPLY.

Particulars	Daulat	Gadhing-laj.	Shahu	Datta	Bhoga-wati	Dudha-ganga	Pancha-ganga	Kumbhi-Kasari	Warana	Average
Cane Price of 1981-82 (Rs)	200	257	231	218	261	207	250	244	269	237.78
Cane Supply of 1982-83 (M.Tonnes)	2,78,725	3,01,295	2,71,940	4,74,489	5,09,419	4,21,598	9,87,056	3,51,051	6,22,177	4,68,638.89
Cane Price of 1982-83 (Rs)	185	241	214	206	244	195	240	208	258	221.22
Cane Supply of 1983-84 (M.Tonnes)	1,56,935	1,78,245	1,52,098	3,56,663	3,82,253	2,58,957	7,11,172	3,50,472	4,10,753	3,28,616.44
Cane Price of 1983-84 (Rs)	189	240	234	205	237	175	222	204	267	219.22
Cane Supply of 1984-85 (M.Tonnes)	2,26,881	2,33,126	1,68,635	3,40,857	4,29,084	2,44,707	8,43,284	4,58,409	4,43,873	3,76,539.56
Cane Price of 1984-85 (Rs)	230	313	311	280	314	256	335	282	346	296.33
Cane Supply of 1985-86 (M.Tonnes)	2,31,324	2,03,901	15,80,097	4,33,386	2,15,514	7,48,755	4,44,395	4,24,624	3,69,264	5,16,806.67