

C H A P T E R I V .
CANE IMPORTS, CANE DIVERSION AND
CAPACITY UTILISATION

4.1 Introduction:

In this Chapter, we will examine relationship between cane imports, cane diversion and the rate of capacity utilisation of the co-operative sugar factories under study.

4.2 Conceptual Background:

We have earlier explained the concept of the rate of capacity utilisation. We now explain the concepts of cane imports and cane diversion. Most of the sugar factories generally have to use imported cane for their crushing. The imports of cane are of two types: (1) Cane produced out of the zone of the factory but within the boundaries of Maharashtra, and (b) Cane imported from outside Maharashtra. In our analysis, we have taken together both these items as cane imports of the factory.

Diversion of Cane:

Cane grown within the factory is diverted for various reasons. These reasons are: (i) cane diverted for seed purposes, (ii) cane diverted for making jaggery, (iii) cane diverted for eating purposes, and (iv) cane diverted to other co-operative factories. However, the data given by the sugar

factories covers only diversion of the first two types which we have taken together as cane diversion for our exercise.

The factories give cane diversion figures in hectares of cane diverted. We, therefore, have calculated the quantity of cane diverted by multiplying hectares by per hectare yield of the year of the factory concerned.

4.3 Theoretical Possibilities:

For the purpose of this exercise, we have considered following possibilities:-

- a) Larger cane imports will lead to the higher rate of capacity utilisation,
- b) Larger cane diversion will cause a reduction in the rate of capacity utilisation,
- c) However, if we take the net value of cane imports minus cane diversion, then larger the net positive value, greater will be the rate of capacity utilisation.

For the purpose of this analysis, we have carried out the following exercise.

- 1) Factory-wise Overtime Correlation between:-
 - a) Cane imports & rate of capacity utilisation,
 - b) Cane diversion and rate of capacity utilisation,
 - c) Net cane imports & rate of capacity utilisation.
- 2) Cross-sectional correlation for each year for all the factories between:-
 - a) Cane imports and rate of capacity utilisation,
 - b) Cane diversion and rate of capacity utilisation,
 - c) Net cane imports & rate of capacity utilisation.

3) To make our analysis complete, we have also tried to find out correlation co-efficients in an aggregate fashion also, where we have related:-

- a) Cane imports and rate of capacity utilisation,
- b) Cane diversion and rate of capacity utilisation,
- c) Net cane imports and rate of capacity utilisation.

The data in these respects are given in Appendix 4-A to this Chapter. The data regarding the rate of capacity utilisation is the same as given in Appendix 3-B in Chapter 3.

4.4 Correlation Coefficients Overtime:

In the following Table, we have given correlation co-efficients between the cane imports and rate of capacity utilisation, cane diversion and the rate of capacity utilisation, net cane import and rate of capacity utilisation for each of the factory for the from 1981-82 to 1985-86.

TABLE NO.4.1
CORRELATION CO-EFFICIENTS OVERTIME
(1981-82 to 1985-86)

Sr. No.	Name of the Factory	'r' value for cane imports	'r' value for cane diversion	'r' value for net cane import
1.	Daulat	0.56	N.A.	N.A.
2.	Gadhinglaj	0.66	0.79	0.74
3.	Shahu	0.95	0.22	0.93
4.	Datta	0.50	0.54	0.68
5.	Bhogawati	0.79	0.79	0.82
6.	Dudhaganga	0.36	N.A.	N.A.
7.	Panchaganga	0.96	0.43	0.92
8.	Kumbhi-Kasari	No Imports	0.63	-0.65
9.	Warana	0.92	-0.60	0.13

It is clearly seen that the 'r' values in respect of relationship between cane imports and the rate of capacity utilisation for all the factories are positive and fairly strong, except in the case of Dudhganga Factory, where the 'r' value is positive but somewhat weak. This clearly shows that the rate of capacity utilisation is positively influenced to a significant extent by the changes in the cane imports.

We have earlier said that the cane diversion will reduce the rate of capacity utilisation. If we consider the 'r' values given in Table no.4.1, it is seen that this is true only in the case of Shahu Factory, Kagal; Bhogawati Factory, Parite; and Warana Factory, Warananagar, where the 'r' values are negative and fairly strong particularly in the case of Bhogawati and Warana. However, in the case of Gadhinglaj, Datta, Panchaganga and Kumbhi-Kasari Factories, the 'r' values are positive and fairly strong. This may be due to the more effective operation of the cane yield per hectare coupled with total cane area in the case of these factories.

If we correlate the rate of capacity utilisation with the next cane imports, we get fairly satisfactory 'r' values except in the case of Kumbhi-Kasari factory where there have been no imports but only cane diversion. It is to be noted further that except in the case of Warana Factory, positive 'r' values are very much strong indicating a definite direct relationship between cane imports and the rate of capacity utilisation.

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4.5 Aggregate Average Correlation:

In Table no.4.2, we have given aggregate average 'r' values for the relationships:-

- a) Cane imports and rate of capacity utilisation,
- b) Cane diversion and rate of capacity utilisation,
- c) Net cane imports and the rate of capacity utilisation.

TABLE NO.4.2

AGGREGATE AVERAGE CORRELATION VALUES.

Sr. No.	Factors	'r' Values
1.	Cane Imports	+0.82
2.	Cane Diversion	-0.80
3.	Net Cane Imports	+0.97

It is clearly seen from this table that so far as the relationship between cane imports and the rate of capacity utilisation is concerned, the 'r' value is positive and very strong as expected. This strengthens our earlier conclusion based on factory-wise correlation overtime.

So far as correlation between cane diversion and the rate of capacity utilisation is concerned, the 'r' value is negative and very strong as expected. This also further strengthens our contention that greater the cane diversion, ~~reduces~~ the rate of capacity utilisation.

So far as correlation between net cane imports and the rate of capacity utilisation is concerned, here also as expected, the 'r' value is positive and almost unity (+0.97) supporting our contention that greater the net cane imports, greater will be the rate of capacity utilisation.

4.6 Cross Sectional 'r' Values:

TABLE NO.4.3
CROSS SECTIONAL 'r' VALUES

Years	Cane Import	Cane Diversion	Net Cane Import
1981-82	+0.09	+0.12	+0.25
1982-83	-0.87	-0.46	-0.15
1983-84	-0.37	-0.03	-0.29
1984-85	-0.24	-0.34	-0.34
1985-86	-0.32	-0.07	-0.30

In Table no.4,3, we have given cross sectional 'r' values for each year for all the factories together regarding the effect of cane imports, cane diversion and the net cane imports separately on the rate of capacity utilisation. Here, however, the 'r' values are a little confusing. So far as the relationship between cane imports and the rate of capacity utilisation in aggregate is concerned, except for the year 1981-82, the 'r' values for the remaining years are negative and fairly strong, whereas for the year 1981-82, the 'r' value is positive but very weak. A priori, we have said that greater cane imports will increase the rate of capacity utilisation. The explanation for this inconsistency of the present 'r' value with the earlier respective 'r' value may be explained if in the respective years the cane diversion figures happen to be relatively larger than in the previous year.

This is to a certain extent substantiated by the 'r' values regarding the aggregate relationship between cane diversion and the rate of capacity utilisation, which are negative for all the years except for the year 1981-82. However, in this case, the 'r' value for the year 1981-82 is positive but very weak.

We expected to get positive and fairly strong 'r' values for the relationship between net cane imports and the rate of capacity utilisation. For the years 1981-82 and 1982-83, the cross sectional 'r' values are positive but not very strong and for the remaining years, they are in fact negative but again not very strong.

Ultimately, when we consider 'r' values overtime, aggregate 'r' values and cross sectional 'r' values together we can say that apparently, we have to accept that gross cane imports tend to increase the rate of capacity utilisation, gross cane diversion tends to decrease the rate of capacity utilisation and the net cane imports tend to increase the rate of capacity utilisation. However, the inconsistencies particularly in respect of cross sectional 'r' values need further critical examination. The more pertinent question here is to find out the inter-factory movement of cane from within Maharashtra and more particularly, the relative proportions of cane imported from outside Maharashtra to the total cane crushed of the respective factory in the respective years.

APPENDIX 4-A

FACTORY-WISE CANE IMPORTS, DIVERSION & NET CANE IMPORTS

Year	Factors	Daulat m. tonnes	Gadhing- laj. m. tonnes	Shahu m. tonnes	Datta m. tonnes	Bhoga- wati. m. tonnes	Dudha- ganga. m. tonnes	Pancha- ganga. m. tonnes	Kumbhi- Kasari m. tonnes	Warana m. tonnes
1981-82	a) Cane Import	42,400	1,00,491	1,67,885	15,667	22,332	93,113	1,10,270	-	2,00,514
	b) Cane Diversion	NA.	2,204	8,500	15,194	16,151	NA.	18,918	7,744	76,360
	c) Net Cane Imports	-	+98,287	+1,59,385	483	6,181	-	91,352	-7,744	1,24,154
1982-83	a) Cane Import	7,988	1,03,343	1,79,611	27,879	26,146	83,064	1,42,803	-	2,36,143
	b) Cane Diversion	NA.	1,325	11,098	10,205	16,116	NA.	17,226	21,774	10,133
	c) Net Cane Imports	-	1,02,018	1,68,513	1,767	10,030	-	1,25,577	-21,774	1,34,810
1983-84	a) Cane Imports	2,495	81,309	1,04,558	19,462	7,823	69,434	48,047	-	1,15,219
	b) Cane Diversion	NA.	9,348	8,160	17,348	28,890	NA.	18,008	14,706	1,30,043
	c) Net Cane Imports	-	71,961	96,398	2,114	-21,607	-	30,039	-14,706	-1,48,224
1984-85	a) Cane Import	3,913	52,421	84,650	6,949	25,080	35,580	77,629	-	94,852
	b) Cane Diversion	NA.	3,400	15,120	14,739	18,789	NA.	15,369	15,823	67,260
	c) Net Cane Imports	-	49,021	69,530	-7,790	6,291	-	62,260	-15,823	27,592
1985-86	a) Cane Import	14,914	47,615	82,010	28,916	22,793	31,648	60,761	-	30,365
	b) Cane Diversion	NA.	14,592	13,054	17,031	17,374	NA.	13,439	22,015	48,020
	c) Net Cane Imports	-	33,023	68,956	11,885	5,419	-	47,322	-22,015	-17,655