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ECONOMICS OF SUGARCANE MARKETING IN ORISSA- THE EVIDENCE FROM VILLAGE LEVEL STUDY

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Abstract
Sugarcane is a major cash crop of India, particularly in UP, Maharastra, Tamil Nadu, Karnataka, Andhra Pradesh, Bihar, Gujurat, and Foot hils of Uttarakhand. Sugarcane crop has an productivity of 70 tonnes/ha and an area of 4.2 mha. plays a pivotal role in the national economy. Sugarcane is considered as one of the best cash crops in Orissa. It is grown in all the 30 districts of Orissa. The selected district Dhenkanal occupied 10th position in area (1.19 thousand ha), 9th position in production (81.46 thousand MTs) and 14th position in yield (68510 kg/ha) in 2004-05. The establishment of a sugar factory in Dhenkanal district has increased the prospect of this crop in the surrounding area. The average size of holding was 2.44 ha. in region-I and 1.89 ha. in region-II. The land was unequally distributed among different categories of farms. The producers selling their produce through channel-I received a better price which resulted in a better share in consumer's rupee. The index of marketing was higher in channel-I making it more efficient due to lower marketing costs and margins.

INTRODUCTION

Sugarcane is the main source of sugar in India and holds a prominent position as a cash crop. It contributes approximately 56 per cent of total sugar production in the world. Sugar is one of the oldest commodities in the world and traces its origin in 4th century AD in India and China. India is the largest consumer (18 million tones) and the second largest producer of sugar after Brazil. The Indian sugar Industry is one of the largest producers of white crystal sugar with massive enterprise of sugar factories located throughout the country with an annual turn over of Rs. 150 billion. The sugar factories located in various parts of the country work as nucleus for development of rural areas by mobilizing rural resources and generating employment, transport and communication facilities. Over 45 million farmers are dependants and a large mass of agricultural labour are involved in sugarcane cultivation, harvesting and ancillary activities. The industry employs over 0.5 million skilled and un-skilled workmen, mostly from the rural areas.

Lack of adequate marketing network cannot protect the interest of producers and there is every possibility of exploitation by the middlemen in depriving the producers of their remunerative share. The challenge is to achieve sugar production target of 50 million tones by 2010 AD to meet the sugar need of about one billion population. Moreover the country needs to export sugar to earn foreign exchange.

In view of the above perspectives, a study on "Economics of sugarcane marketing in Orissa- the evidence from village level study" was undertaken with the following objective.

OBJECTIVE

- To study the resource base of the sample farmers in the study are
- To estimate the producer's share marketing costs, margins in different marketing situations.

MATERIALS AND METHODS

Sample Design

The multi-stage stratified random sampling technique was adopted in the study. In the first stage two blocks namely Dhenkanal Sadar and Kankadahada were selected randomly, in the second stage, 16 villages were randomly selected at the rate of 8 villages per block. This constituted 5 per cent of the total number of villages of two selected blocks. In the final stage, list of sugarcane farmers was prepared separately for both types of sample villages and 10 farm households from each of the 16 sample villages were selected randomly.

Tools Used in Marketing of Sugarcane

(i) Producer's share in Consumer's price

It is the price received by the farmers expressed as a percentage to the retail price (i.e. price paid by consumer). If P_r is the retail price and P_f is the producer price then the producer's share in consumer's rupee P_s may be expressed as:

$$P_S = \frac{P_f}{P_r} \times 100$$

(ii)Marketing Margin of Middlemen

This is the difference between the total payment (cost + purchase price) and receipts (sale price) of middlemen (ith agency).

$$\text{Percent margin of ith middleman} = \frac{P_{R_i} - (P_{P_i} + C_{m_i})}{P_{R_i}} \times 100$$

Where, $\mathbf{P_{Ri}}$ = Total Value of receipts per unit (sale price)

$\mathbf{P_{Pi}}$ = Purchase value of goods per unit (purchase price)

$\mathbf{C_{mi}}$ = Cost incurred on marketing per unit.

(iii)Total Cost of Marketing

The total cost incurred on marketing of sugarcane by the farmers and intermediaries involved in the process of marketing was computed as:

$$C = C_F + C_{M1} + C_{M2} + C_{M3} + \ldots\ldots\ldots\ldots + C_{Mn}$$

Where

C = Total cost of marketing

C_F = Cost incurred by producer in the marketing of sugarcane

C_{M1} = Cost incurred by the middlemen in the market of sugarcane

Marketing margin for the adopted marketing channel was worked out by comparing the prices prevailing at successive stages of marketing. Since used prices were related to a particular point of time and as small concurrent margins were worked out.

(iv)Marketing Efficiency

Shephard has suggested that the ratio of total value of goods marketed to the marketing cost may be used as a measure of efficiency. The higher the ratio, the higher the efficiency and vice-versa.

A better expression for shephard's idea is,

$$M.E. = \frac{V}{I} - 1$$

Where, V = value of goods sold (consumers price)

I = Total marketing cost

M.E. = Index of marketing efficiency.

RESULTS AND DISCUSSION

An analysis of basic characteristics of the sample farms is considered to be of significance as it provides relevant background information against which the analysis is to be attempted. The detailed structures of the sample farms according to farm size groups have been discussed.

Size of Holding

The distribution of holding according to different size groups is given in Table-1.

Table 1:Distribution of holding in different size groups of sample farms of blocks

Size groups	Dhenkanal Sadar (Region-I)		Kankadahada (Region-II)	
	Total No. of sample farms	Average size of operational holding (in ha.).	Total No. of sample farms	Average size of operational holding (in ha.).
I (below 1.00 ha)	18	0.91	26	0.85
II (1.01 to 2.00 ha)	28	1.56	29	1.51
III (2.01 to 4 .00 ha.)	22	2.68	20	2.73
IV (4.00 and above)	12	6.34	5	6.21
Pooled	**80**	**2.44**	**80**	**1.89**

The average size of holding was estimated to be 2.44 ha. for Dhenkanal Sadar (Region-I) and 1.89 ha. in Kankadahada Block (Region-II) of the sample district. The operational size of holding of marginal, small, medium and large farmers are found to be 0.91, 1.56, 2.68 and 6.34 ha. as against 0.85, 1.51,2.73 and 6.21 ha. respectively.

Type of Ownership of Land

Table 2: Distribution of own and leased in land in different size groups of sample farms (in ha)

Size groups	Dhenkanal Sadar (Region-I)			Kankadahada(Region-II)		
	Average size of operational holding	Own land	Leased in land	Average size of operational holding	Own land	Leased in land
I	0.91 (100)	0.76 (83.53)	0.15 (16.48)	0.85 (100)	0.71 (83.53)	0.14 (16.47)
II	1.56 (100)	1.21 (77.56)	0.35 (22.44)	1.51 (100)	1.36 (90.00)	0.15 (9.93)
III	2.68 (100)	2.31 (86.31)	0.37 (13.69)	2.73 (100)	1.58 (57.88)	1.15 (42.12)
IV	6.34 (100)	5.92 (93.38)	0.42 (6.62)	6.21 (100)	5.97 (96.14)	0.24 (3.86)
Pooled	**2.44 (100)**	**1.97 (80.74)**	**0.47 (19.26)**	**1.89 (100)**	**1.49 (78.84)**	**0.40 (21.16)**

(Figures in parentheses are percentages)

It may be noted from the table that more than three-fourth of their total operational holdings accounted for owned land while the remaining were by way of leased in land on a share cropping basis. This clearly indicates that there is negligible extent of tenancy among the farmers in the area under study. On an average, the percentage of owned and leased in land worked out to 80.74 and 19.26 per cent in Dhenkanal Sadar as compared to 78.84 per cent and 21.16 per cent in Kankadahad Block. And between size groups, the proportion of leased in land increased with decrease in size of holding. This was mainly due to the fact that the marginal and small farmers were interested to make their units viable by making labour investments in their farms.

Size of Family

Human labour engaged in farming are generally family members and in the peak season, hired labourers are engaged to assist the operational work. Table 3 shows the average size of family members in different size groups in the study area.

Table 3: Distribution of average size of family

Size groups	Dhenkanal Sadar (Region-I)		Kankadahada(Region-II)	
	No. of family members per farm	No. of family members per hectare	No. of family members per farm	No. of family members per hectare
I	5.62	6.92	5.71	6.65
II	7.81	4.81	6.92	4.87
III	8.01	3.19	7.57	3.14
IV	8.44	3.05	7.92	3.01
Pooled	**7.47**	**4.58**	**6.75**	**4.90**

As can be seen from the table that the size of family per farm increased less than proportionately with the increase in the size of holding. In region-I on an average, the family size worked out to 5.62, 7.81, 8.01 and 8.44 for marginal, small, medium and large farmers respectively. On the other hand in region-II, the average size of the family is worked out to 5.71, 6.92, 7.57 and 7.92 for the above respective farms. The average numbers of family members per farm are 7.47 and 6.75 for region-I and region-II respectively.

ROLE OF SUGAR INDUSTRIES IN PROMOTING PRODUCTION AND MARKETING OF SUGARCANE

In Orissa there are six sugar plants, out of which one at Baramba is presently not functional. Hence five plants are in operation. Four of these plants have crushed 4.5 lakh tonnes of sugarcane during the season 2005-06 as against their installed

capacity for crushing around 11 lakh tonnes of sugarcane per annum. Considering an average of 10 per cent recovery of sugar, the state is producing around 45, 000 tonnes of sugar per annum. As per a demand estimate the requirement of sugar in the State of Orissa is more than 4 lakh tonne per annum. The balance requirement is being met from outside of the State.
In Orissa the yield of sugarcane per hectare is around 70-36 tonnes of sugarcane where as in the State like Karnataka the production is as high as 120 tonnes of sugarcane per ha. The all India average for production of sugarcane per ha. is around 70 to 80 tonnes of sugarcane.

The yield in Orissa can be increased is proper farming practices with proper seed can be taken up. Further, the improvement in irrigation system and motivation of farmers can result in more production of sugarcane.

In the past IPICOL had obtained 10 nos. of Letter of Intent (LOI) from Govt. of India with crushing capacity of 2500 TCD of sugarcane.

The above LOIs could not be implemented primary due to uneconomic operation of the then sugar plants in the county. Besides, the banks and other financial institutions were not coming forward to finance the grass root sugar projects. In the present scenario, the price of sugar has improved and the sugar industry is delicenced. Hence, is to be examined about the present viability of new grass root projects by taking fresh data into consideration.

Although agro-climatic condition of Orissa is immensely suitable for cultivation of Sugarcane but till date Orissa has a very few sugar industries. Realising that the agro based sugar projects have immense potential as well as economic spread effect in the rural sector, the Govt. of Orissa is now giving thrust on the implementation of new sugar projects based on the availability of Rabi Irrigation. On this basis new areas are identified such as (1) Balasore and Baripada, (2) Bhadrak and Keonjhar, (3) Jajpur and Cuttack, (4) Boudh and Sonepur (5) Nuapara, (6) Nawarangpur and Koraput, (7) Malkanagiri. Accordingly proposed Master Plan is prepared based on the irrigation potential, cane availability and other infrastructure etc. The estimated cost of each project will be around Rs. 60.00 crore each with employment potential of 500 persons. The implemented and identified sugar industries are shown in the Index Map for reference.

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After having examined the economics of production of sugarcane, an attempt has been made here to analyse the marketing of sugarcane. In the marketing of sugarcane, two main products are involved i.e. sugarcane itself and jaggery (gur after conversion of sugarcane). In the sugarcane market there are three types of buyers. They are sugar factory, commission agents and village merchants. He main channels for marking of sugarcane are

1. Producer →Commission Agent → Wholesaler → Consumer
2. Producer → Village Merchant → Wholesaler / Factory Owner → Consumer

Generally, the market functionaries or institutions move commodities from producers to consumers. Each and every function or service involves some cost called marketing cost. The intermediaries or middlemen make some profit to remain in the trade after meeting the cost of the function performed, called margin. In the marketing of agricultural commodities, the difference in the price paid by the consumer and the price received by the producer for an equivalent quantity is called price spread.

Table 1 :Cluster wise scope and opportunity for establishing new sugar mills in Orissa

Name of location	Soil type	Soil Reaction	Land Type (ha.)	Rainfall (mm)	Irrigation Potential (ha)	Present sugarcane area (ha.)	Proposed area for Sugar cane (ha.)	Vicinity to road
1. Bhandaripokhari	Coastal alluvium, red, lateritic	Neutral to acidic	High (400) and Medium land (39000)	1428	Major & Medium - 75124 Minor & Lift - 22197	875	12610	N.H. -5
2. Chandikhol	Coastal alluvium, red, lateritic	Acidic	High 26000 Medium 59000	1560	Major & Medium - 58015, Minor & lift 19682	1479	9600	N.H. -5
3. Boriguma	Red, Mixed red and black, Mixed read and yellow	Acidic	Medium (70000)	1567	Major & Medium - 44500, Minor &Lift 21135	11304	11600	N.H.- 201
4. Udala	Alluvial, Mixed red and black, Red	Acidic	High (64000, Medium 53000)	1600	Major & Medium- 10736, lift 34792	25	9740	N.H. - 6
5. Komma	Read and black	Neutral to acidic	Medium (70000)	1286	Major & Medium - 4420, Minor & Lift 21506	68	10000	N.H. -217
6. Malkangiri	Red, Lateritic	Acidic	Medium (28000)	1667	Major & Medium - 70101, Minor & Lift 4961	10	11100	S.H.
7. Manmunda	Red and Black, Lateritic, Red and yellow	Neutral to Acidic	Medium (65000)	1418	Major & Medium - 42157, Minor & Lift 32813	476	15250	N.H. -224
8. Jaleswar	Costal alluvium, Lateritic, Red and yellow	Neutral to Acidic	High 38000, Medium 74000	1592	Major & Medium - Nil, Minor & Lift 33835	150	12300	N.H. -5
9. Bhanjanagar	Black, Lateritic	Acidic	Medium 34000	1276	Major & Medium - 10112, Minor & Lift 1103	617	10000	S.H.
10. Jagatsinghpur	Costal Alluvium	Acidic	High land 14000, Mid land 30000	1514	Major & Medium- 17116, Minor & Lift 6735	1201	10000	N.H. -5 State Highway
11. Dharmagarh	Red, Black, mixed Red and Black	Neutral to Acidic	Mid. Land 42000	1330	Major & Medium - 54323, Minor& Lift 4638	1129	10000	N.H. –201
12. Deogarh	Red & Yellow	Neutral to Acidic	Mid land 50000	1582	Major & Medium - 4605 Minor & Lift 2076	157	10000	N.H.-23 State Highway

13. Pipili/ Charichhak	Coastal alluvium	Acidic	High land 7000, Mid. 49000	1408	Major & Medium - 45342, Minor & Lift 8613	894	10000	N.H.-203 State Highway
14. Kendapara	Coastal alluvium	Acidic	High Land- 12,000, Mid 64000	1556	Major & Medium - 31783, Minor & Lift 7106	224	10000	N.H.-5A State Highway

Source: IPICOL, Govt. of Orissa

The marketing cost, margin and price spread in two most commonly accepted channels have been calculated and presented in Tables 2 and 3.

Table 2: Price Spread per Quintal of Jaggery in Dhenkanal district for Channel-I

Sl.No.	Functionaries/ Items	Cost (Rs.)	% to Consumer's rupee
1.	Net price to the producers	3195.04	84.08
2.	Cost incurred by the producers		
(i)	Transportation	259.54	6.83
(ii)	Brokerage	71.44	1.88
(iii)	Weighment	2.28	0.06
(iv)	Hamaliage	7.22	0.19
	Total	**340.48**	**8.96**
3.	Producer's sale/ commission agent's purchase price	3535.52	93.04
4.	Cost incurred by commission agent		
(i)	Weighment	2.28	0.06
(ii)	Hamilage	7.22	0.19
(iii)	Charity	7.6	0.2
(iv)	Storage	8.74	0.23
(v)	Market fees	36.1	0.95
(vi)	Insurance	0.76	0.02
	Total	**62.32**	**1.64**
5.	Commission agent's margin	43.32	1.14
6.	Wholesaler's purchase price	3641.16	95.82
7.	Wholesaler's margin	23.56	0.62
8.	Wholesaler's sale / Retailer's purchase price	3664.72	96.44
9.	Cost incurred by retailer		
(i)	Transportation	70.68	1.86
(ii)	Hamaliage	7.22	0.19
10.	Retailer's margin	57.38	1.51
11.	Retailer's sale / Consumer's purchase price	3800	100

An examination of the table 39 indicated that the average net price received by the producer was Rs.735.00 (84.08 per cent of consumer's rupee) and incurred a sum of Rs.70.80 per quintal, which formed 8.96 per cent of consumer's rupee. The cost incurred by the commission agent includes his margin i.e. Rs.22.05 which formed 2.78 per cent of the consumer's rupee. The commission agent's selling price or wholesaler's purchasing price was Rs.757.05 (95.82 per cent of consumer's rupee). The retailer's share in the consumer's rupee was 3.56 per cent. The ultimate consumer's price reached to Rs.790.00.

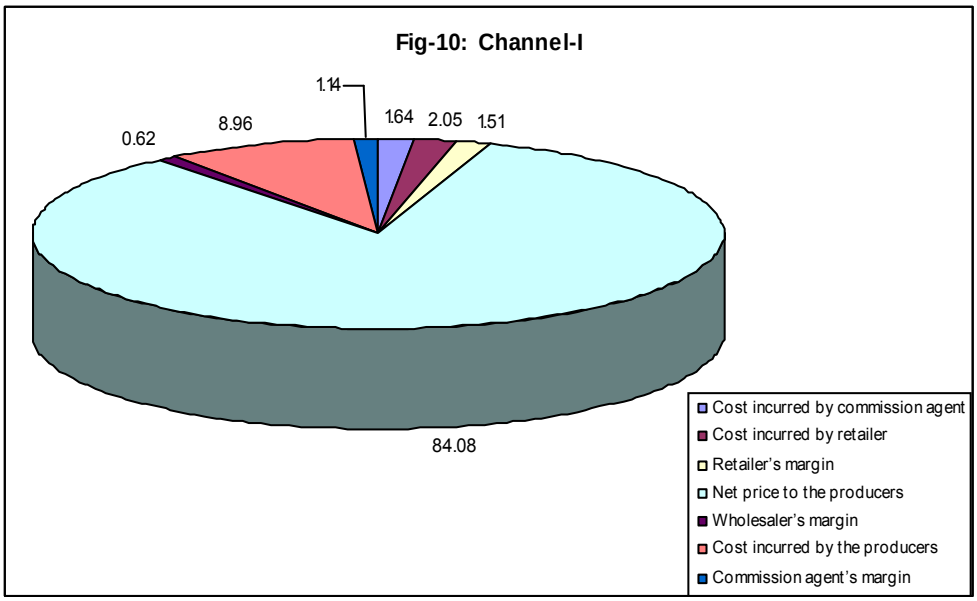

Table 2 revealed that the producer received on an average Rs.659.68 which constituted 87.96 per cent of the consumer's rupee after meeting his cost of weighment and loading. The share of village merchant accounted for Rs.37.34 including his margin which was 4.98 per cent of the consumer's rupee. The wholesaler had a margin of 1.45 per cent of the consumer's rupee. The retailer's share was estimate to be Rs.39.95 including his margin.

It is therefore, evident from the analysis that in channel-I the consumer gets a higher price than in channel-II sharing a higher percentage of the consumer's rupee. This confirms our last hypothesis.

Table 3: Price spread per quintal of Jaggery in Dhenkanal district for Channel-II

Sl. No.	Functionaries/ Items	Cost (Rs.)	% to Consumer's rupee
1.	Net price to the producer	3173.00	83.5
(i)	Weighment and loading	10.64	0.28
2.	Producer's sale price/ Village merchants purchase price	3183.64	83.78
3.	Cost incurred by village merchant		
(i)	Transportation	273.22	7.19
(ii)	Un-loading, weighment	10.64	0.28
4.	Village merchant's margin	88.16	2.32
5.	Village merchant's sale price/ Wholesaler's purchase price	3555.66	93.57
6.	Wholesaler's margin	52.44	1.38
7.	Wholesaler's sale price/ Retailer's purchase price	3608.10	94.95
8.	Cost incurred by retailer		
(i)	Transportation	63.46	1.67
(ii)	Hamaliage	7.22	0.19
9.	Retailer's margin	121.22	3.19
10.	Retailer's sale price/ Consumer's price	3800.00	100

Marketing Efficiency

The marketing efficiency was calculated and presented in Table 4. for the two channels.

Table 4 :Indices of marketing efficiency in the selected channels

Particulars	Channel-I	Channel-II
Value of goods sold (V)	3195.04	3173.00
Marketing cost (I)	604.96	627.00
Index of marketing efficiency	4.28	4.06

The index of marketing efficiency was estimates to be higher in channel-I than channel-II indicating higher efficiency in channel-I. The higher marketing costs and margins in channel-II indicate the inefficiency in marketing process.

CONCLUSION

The analysis revealed that in the marketing of Jaggery the producer received the highest share in consumer's rupees in channel-I over channel-II in both the regions. The margin of wholesalers and retailers were also high in channel- II as compared to channel- I.

Thus the producers who disposed off their produce through channel- I, could command a better price, which resulted a better share in consumer's rupee than those who sold their produces to village merchant in the village itself.

The index of marketing efficiency was higher in channel-I. Hence channel-I is more efficient than channel-II. The higher marketing costs and margins indicated that inefficiency in the marketing process of channel-II.

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