

A study on marketed surplus, price spread and marketing efficiency of the winter vegetables in Dhenkanal district of Odisha

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ABSTRACT

The study analysed different aspects of marketing of tomato, cauliflower and cabbage in Dhenkanal district of Odisha with the objectives to estimate the marketable and marketed surplus in the study area in various size groups of farmers and to calculate the price spread and marketing efficiency. A sample of forty farmers was interviewed of which nineteen were marginal, fifteen small and six large. The marketed surplus was highest for marginal farmers in all the three selected vegetables viz tomato, cauliflower and cabbage with corresponding figures of 98.06, 99.29 and 99.36 per cent respectively. The producer's share in consumer's rupee and marketing efficiency were highest in Channel-I (producer – consumer) among the three channels for all the three crops. It was found that producer's share in consumer's rupee and marketing efficiency increased with decrease in the number of market intermediaries. The study suggests increasing marketed surplus through increase in production of farm by using improved agricultural technologies.

Keywords: Marketed surplus; marketing efficiency; producer's share; consumer's rupee

INTRODUCTION

With the suitable agro-climatic conditions prevailing India ranks second in vegetable production in the world next to China and shares about 13 per cent of the world's vegetable production from 2 per cent of cropped area of the country (http://www.fao.org/about/2002/agri_production/). India is gifted with a wide range of agro-climatic conditions which enable the production throughout the year for maintaining a continuous supply of fresh vegetables. Important vegetables grown here are onion, tomato, potato, brinjal, peas, beans, okra, chilli, cabbage, cauliflower, bottle gourd, cucumber, watermelon, carrot, radish etc. The country occupies first position in cauliflower, second in onion and third in cabbage in the world. Vegetables being valuable sources of carbohydrates, proteins, vitamins and minerals play an important role in balanced nutrition especially for majority of Indian population who are vegetarians. The current productivity of vegetables in the country is 17.8 MT per hectare. West Bengal is having highest area under vegetables followed by Uttar Pradesh, Bihar and

Odisha. Total cultivated area is about 61.80 lakh hectares. About 40.17 lakh hectares of cultivable area has acidic soils and 4.00 lakh hectares suffer from salinity. About 3.00 lakh hectares of cultivable area suffer from water logging (Anon 2013).

The problems of vegetable growers are numerous however lack of market infrastructure and price fluctuations seem to be major bottleneck in the sustained development of vegetable production. The vegetable marketing problems in rural areas have not been studied in a systematic way. Presently development of marketing infrastructure to solve the problems of vegetable growers in rural areas is the primary concern of the government. Intensified efforts are needed to identify the specific problems related to vegetable marketing.

The present investigation was undertaken with the objectives to estimate the marketable surplus and marketed surplus in the study area in various size groups of farmers and to calculate the price spread and marketing efficiency of the selected winter vegetables

(tomato, cauliflower and cabbage) in Dhenkanal district of Odisha.

METHODOLOGY

Dhenkanal district of Odisha was purposefully selected for the study of marketing winter vegetables. Dhenkanal Sadar is one of the leading blocks in vegetable production and has better marketing status. Multistage stratified random sampling procedure was followed for selection of samples. Two major vegetable producing villages namely Shankarpur and Parbatia were selected. A list of vegetable growers was prepared and sample households were stratified into three categories namely marginal (less than one hectare of land), small (one to two hectares of land) and large farmers (more than two hectares of land) selected by probability proportional sampling (PPS). The data pertains to the year 2015. General information regarding the sample villages was collected from secondary sources like Panchayat office, block office, census report etc. In total forty farmers were interviewed in the study of which nineteen were marginal, fifteen were small and six were large (Table 1).

Table 1. Categorization of sample farmers on the basis of landholding

Type of farmers	Area (ha)	Number of farmers
Marginal	<1.00	19 (47.50)
Small	1.00-2.00	15 (37.50)
Large	>2.00	06 (15.00)

Figures in parentheses are per cent values

Analytical tools used

Marketable surplus: In this study the term marketable surplus was used to denote the quantity

which was a real of the surplus under varying conditions after the consumption and other requirements of the farmer were met. It was computed by the formula:

$$\text{Marketable surplus (MS)} = P - C$$

where P= Gross production, C= Total requirement

Marketed surplus: In this study the term marketed surplus was used to denote the actual quantum of sales by the production irrespective of requirements.

Relation between marketed surplus and marketable surplus: Marketed surplus may be less than, equal to or greater than marketable surplus. Mostly in case of small and marginal farmers marketed surplus is higher than marketable surplus.

Marketing channel: The chain of intermediaries through which the various farm commodities pass between producers and consumers is called a marketing channel. Major marketing channels in the transportation of vegetables from farmer to the ultimate consumer were identified. The volumes of transaction through each channel were estimated to calculate the effectiveness of each channel.

Producer's share in consumer's rupee: It is price received by the farmer to the retail price expressed as percentage. If p_r is the retail price and P_f is the price received by the farmer then the producer's share in consumer's rupee P_s may be expressed as follows.

$$P_s = (P_f / P_r) \times 100$$

Price spread: Price spread is the difference between the price paid by the consumer and the price received by the producer. It mainly consists of marketing cost and marketing margin. The price spread analysis was carried out as follows:

$$\text{Producer's share in consumer's rupee} = \text{Producer's price} / \text{consumer's price} \times 100$$

Marketing margin of the middlemen: This is the difference between the total payments (cost + purchase

price) and receipts (sale price) of the middleman, the i^{th} agency.

$$\text{Percentage margin of the } i^{\text{th}} \text{ middlemen (pmi)} = \text{pri} - (\text{ppi} + \text{cmi}) / \text{pri} \times 100$$

where Pri= Total value receipts per unit (sale price), ppi= Purchase value of goods per unit, cmi= Cost incurred in marketing per unit

Total cost of marketing: The total cost incurred on the marketing either in cash or in kind by the producer-seller and other various intermediaries involved in the

sale and the purchase of the commodity till the commodity reaches the consumers may be computed as follows:

$$C = C_f + Cm_1 + Cm_2 + \dots + Cm_n$$

where C= Total cost of the marketing of the commodity, C_f = Total cost paid by the producer from the time of the produce leaves the farm till he sells it, Cm_i = Cost incurred by the i^{th} middle man in the process of buying and selling the product

Marketing efficiency: Marketing efficiency is the ratio of the market output to market input. An increase in this ratio represents improved efficiency and decrease denotes reduced efficiency. It is effectiveness or competence with which a market structure performs its designed function. Marketing efficiency is represented as follows:

$$ME = V/I - 1 \text{ (Shepherd's formula)}$$

where ME= Index of marketing efficiency, V= Value of goods sold, I= Total marketing cost

RESULTS and DISCUSSION

Marketable and marketed surplus of vegetables in sample farms (Table 2)

The production of tomato was highest in case of large (16.80 q) followed by small (9.76 q) and marginal farmers (7.20 q). As vegetable seeds lose their viability in one year so the farmers did not store vegetables for seed purpose for the next year. The family consumption was more in case of large (0.05 q) followed by small (0.041 q) and marginal farmers (0.037 q).

In case of vegetables the marketable and marketed surplus was mostly equal as farmers kept very small quantity of their produce for consumption purpose as vegetables are perishable in nature. It was observed that marketable surplus was highest (12.54 q) in case of large as compared to small (7.46 q) and marginal farmers (7.17 q). The marketed surplus was more in case of large (12.54 q) followed by small (7.45 q) and marginal farmers (7.17 q). It was also seen that marketable surplus increased with increase in production. A similar finding was seen in case of the marketable surplus and marketing efficiency of vegetables in Indore district of Madhya Pradesh (Pramanik and Prakash 2010).

In case of cauliflower total production of large farmer was 21.80 q which was highest followed by small (18.60 q) and marginal (11.40 q) farmers. In case of large farmers payment in kind was 0.53 q. Family consumption varied among marginal, small and large farmers. The family consumption was highest in case of large (0.185 q) as compared to small (0.181 q) and marginal (0.07 q) farmers. There was not much difference in marketable and marketed surplus in cauliflower among different categories of farmers. The marketable surplus was 21.07, 18.40 and 11.31 q in case of large, small and marginal farmers respectively. The marketed surplus was highest in case of large farmers (21.06 q). Similar findings were reported by Bala et al (2013) while studying marketing of off-season vegetables in Himachal Pradesh.

The total production of cabbage of large farmers was 20.12 q which was highest followed by small (16.81 q) and marginal (10.50 q) farmers. In case of large farmers payment in kind was 0.40 q. Family consumption varied among marginal, small and large farmers. The family consumption was highest in case of large (0.18 q) as compared to small (0.16 q) and marginal (0.06 q) farmers. There was not much difference in marketable and marketed surplus in cabbage among different categories of farmers just in case of cauliflower. The marketable surplus was 19.53, 16.64 and 10.43 q in case of large, small and marginal farmers respectively. The marketed surplus was highest in case of large (19.50 q) as compared to small (16.60 q) and in marginal (10.43 q) farmers.

Price spread in vegetables (one quintal) in different channels (Table 3)

In channel-I (producer – consumer) the producer directly sold his produce to the consumer. The net price received by the producer was Rs 593.50, 805.50 and 719 in case of tomato, cauliflower and cabbage respectively. Consumer's purchase price was Rs 602, 816.50 and 728 in case of tomato, cauliflower and cabbage respectively. Similar results were found by Jagtap et al (2014) in marketing of dry chilli in Amaravati district of Maharashtra.

In channel-II (producer – retailer – consumer) in peak season the produce was marketed through retailer. It was seen that the net price received by the producer in case of tomato was Rs 611.50, cauliflower Rs 731 and cabbage Rs 673.20. In case of tomato the cost incurred by the producer was Rs 34.50, expenses

Table 2. Utilization of produce in sample farms of three sizes

Parameter	Quantity of produce (quintals/farm) in sample farms								
	Tomato			Cauliflower			Cabbage		
	Marginal	Small	Large	Marginal	Small	Large	Marginal	Small	Large
Total production	7.20	9.76	16.80	11.40	18.60	21.80	10.50	16.81	20.12
Retained for seed	0	0	0	0	0	0	0	0	0
Payment in kind	0	1.92 (22.01)	4.20 (25.00)	0	0	0.53 (2.46)	0	0	0.40 (1.97)
Family consumption	0.037 (0.41)	0.04 (0.46)	0.05 (0.30)	0.07 (0.68)	0.181 (0.99)	0.185 (0.83)	0.06 (0.63)	0.16 (0.95)	0.18 (0.89)
Marketable surplus	7.17 (99.58)	7.46 (76.50)	12.54 (74.68)	11.31 (99.29)	18.40 (98.97)	21.07 (96.67)	10.43 (99.36)	16.64 (99.01)	19.53 (97.11)
Marketed surplus	7.17 (99.58)	7.45 (76.43)	12.54 (74.68)	11.31 (99.29)	18.38 (98.87)	21.06 (96.64)	10.43 (99.36)	16.60 (98.76)	19.50 (96.89)

Figures in parentheses indicate percentage values of total production of individual crop

Table 3. Price spread (Rs) in tomato, cauliflower and cabbage (one quintal) in different channels

Parameter	Tomato	Cauliflower	Cabbage
Channel-I (producer – consumer)			
Net price received by producer	593.50 (98.58)	805.50 (98.65)	719.00 (98.76)
Cost incurred by producer	8.50 (1.42)	11.00 (1.35)	9.00 (1.24)
Consumer's purchasing price	602.00 (100)	816.50 (100)	728.00 (100)
Channel-II (producer – retailer – consumer)			
Net price received by producer	611.50 (73.01)	731.00 (77.5)	673.20 (76.80)
Cost incurred by producer	34.50 (4.12)	33.20 (3.51)	30.20 (3.45)
Expenses incurred by retailer	57.10 (6.82)	74.60 (7.91)	63.45 (7.24)
Margin of retailer	134.40 (16.04)	103.90 (11.02)	109.60 (12.5)
Consumer's purchasing price	837.50 (100)	943.00 (100)	876.50 (100)
Channel-III (producer –wholesaler – retailer – consumer)			
Net price received by producer	403.00 (42.4)	601.00 (50.04)	545.00 (51.1)
Cost incurred by producer	46.00 (4.82)	51.00 (4.14)	41.80 (3.98)
Expenses incurred by wholesaler	157.00 (16.52)	189.00 (15.45)	158.50 (15.10)
Margin of wholesaler	150.00 (15.68)	166.00 (13.54)	133.80 (12.74)
Expenses incurred by retailer	55.60 (5.85)	71.30 (5.82)	66.80 (6.36)
Margin of retailer	139.00 (14.60)	135.00 (11.02)	113.40 (10.8)
Consumer's purchasing price	950.50 (100)	1225.50 (100)	1050.00 (100)

Figures in parentheses indicate percentage values

Table 4. Indices of marketing efficiency in different channels

Parameter	Indices of marketing efficiency of three vegetables in different channels								
	Tomato			Cauliflower			Cabbage		
	I	II	III	I	II	III	I	II	III
Value of goods	602.00	837.50	950.50	816.50	943.00	1225.50	728.00	876.50	1050.00
Marketing cost and marketing margin	8.50	226.00	547.60	11.00	211.70	612.30	9.00	203.25	514.30
Index of marketing efficiency	69.80	2.70	0.73	73.23	3.45	1.00	79.89	3.31	1.04

incurred by the retailer were Rs 57.10, margin of retailer was Rs 134.40 and the consumer's purchasing price was Rs 837.50. In case of cauliflower the cost incurred by producer was Rs 33.20, expenses incurred by the retailer were Rs 74.60, margin of retailer was Rs 104.00 and the consumer's purchasing price was Rs 943.00. In case of cabbage the cost incurred by producer was Rs 30.20, expenses incurred by the retailer were Rs 63.50, margin of retailer was Rs 109.60 and the consumer's purchasing price was Rs 876.50.

In channel-III (producer – wholesaler – retailer – consumer) the produce reached to the consumer through wholesaler and retailer to consumer. In case of tomato the net price received by producer was Rs 403.00 and the consumer's purchasing price was Rs 950.50 and in case of cauliflower these were Rs 601.00 and 1225.00 and in cabbage Rs 545.00 and 1050.00 respectively. The cost incurred by producer was Rs 46.00, Rs 51.00 and Rs 42.00 in case of tomato, cauliflower and cabbage respectively.

Indices of marketing efficiency in different channels (Table 4)

In tomato the index of marketing showed a decreasing trend from marketing channel-I to channel-III. The marketing efficiency of tomato was highest in channel-I (69.80) followed by channel-II (2.70) and channel-III (0.73). The marketing efficiency for cauliflower in channel-I was higher than channel-II and channel-III due to lower marketing cost and margin. The marketing efficiency index of channels-I, channel-II and channel-III were 73.23, 3.45 and 1.00

respectively. In case of cabbage the marketing efficiency in channel-I was higher than channel-II and channel-III due to lower marketing cost and margin. The marketing efficiency indices of channels-I, channel-II and channel-III were 79.89, 3.31 and 1.04 respectively.

CONCLUSION

The marketed surplus was higher for large farmers than small and marginal farmers. The producer's share in consumer's rupee and marketing efficiency increased with decrease in the number of market intermediaries. The study suggests increasing marketed surplus through increase in production of farm by using improved agricultural technologies.

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