

## Marketing efficiency of major vegetables in central vegetable market of Madurai

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**Abstract:** The nature of vegetables, lack of proper storage and processing facilities, lack information, and presence of many middleman in vegetable market lead to a wide range of fluctuation in prices that affected both farmers and consumers. Using Shepherd Index, the marketing efficiency was measured and the marketing cost function analysis facilitated to evaluate relative contribution of various factors to the marketing cost. The marketing cost and marketing margin in relation to consumer's price were higher; marketing efficiency was very low for tomato, followed by brinjal, small onion and bhendi. Quantity marketed and the distance from village to market had significantly increased the marketing cost for brinjal and bhendi. The distance and labour cost for post harvest operations positively influenced the marketing cost of tomato while marketing cost increases with quantity marketed for small onions.

**Key words :** Marketing efficiency, Marketing cost, Marketing margin.

### Introduction

India is the second largest producer of vegetables that accounts about 16 per cent of the world production. Major vegetables grown in India are Potato, Onion, Tomato, Cauliflower, Cabbage and Okra. In Tamil Nadu, Tapioca, Tomato, Onion, Brinjal, Bhendi, Potato, Carrot and Greens are important vegetables. Due to inefficient vegetables marketing systems, consumer's prices do not reflect the producer share (Ranveer Singh and Sharma, 1994). The margins of middleman in private trade channels are so high that producers seldom obtain 40 per cent of consumer's price (Bhupal, 1986). Mostly the small and marginal farmers are affected in fruits and vegetables market. Most of the vegetable growers sold their produce through commission agents and direct sales to retailers were negligible except in the case of okra (Subra-manyam, 1988).

Major assembling market for vegetables is central vegetable market (CM) located in the middle of Madurai city which caters the needs of Southern Tamil Nadu. It acts as primary market by receiving supplies from vegetable growers in Madurai and nearby districts. It also serves as a secondary market by receiving supplies from other assembling market such

as Ottanchadhram, Kodaikannal, Cumbum, Bangalore and Pune for the vegetables like cabbage, potato, tomato, beetroot, beans, carrot, radish etc. There are about 200 wholesalers and commission agents dealing with vegetables in this market and it provides employment for labour engaged in packing, loading and unloading. Women play dominant role in about ten large retail vegetable markets situated in different locations of the city and hundreds of retailers and street vendors operating throughout the city. This study attempts to analyse the cost of marketing for major vegetables in central market.

### Materials and Methods

A sample of 61 farmers growing brinjal, bhendi, tomato and small onion were selected at random from central vegetable market. Data were collected from the farmers and market intermediaries by personal interview, using a pre tested interview schedule. Average and percentage analyses were used to study the marketing cost, margin and price spread.

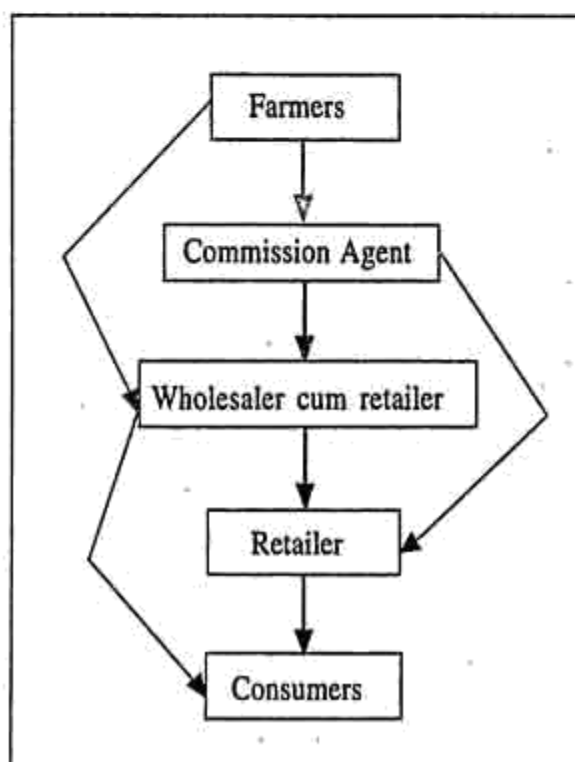
### Price spread

There is an inverse relationship between farmer's net share and the length of marketing

Table 1. Price spread for selected vegetables (Rs. q<sup>-1</sup>)

Sl. No.	Particulars	Brinjal	Bhendi	Tomato	Small Onion
1.	Cost incurred by farmer	81.13 (6.14)	81.16 (7.83)	90.86 (14.15)	80.77 (8.14)
	Commission paid by farmer	82.81 (6.26)	74.64 (7.20)	29.47 (4.59)	69.90 (7.05)
	Net price received by farmer	664.14 (50.24)	590.64 (57.01)	174.33 (27.15)	548.31 (55.27)
2.	Whole saler cum retailer cost	39.74 (3.01)	30.33 (2.93)	0.00 (0.00)	0.00 (0.00)
	Wholesaler cum retailer margin	95.51 (7.22)	24.94 (2.41)	0.00 (0.00)	0.00 (0.00)
3.	Retailer cost	101.51 (7.68)	101.56 (9.80)	104.02 (16.20)	102.53 (10.34)
	Retailer margin	257.18 (19.45)	132.73 (12.81)	243.32 (37.90)	190.49 (19.20)
4.	Consumer's price	1322.00 (100.00)	1036.00 (100.00)	642.00 (100.00)	992.00 (100.00)
5.	Producer's share	50.24	57.01	27.15	55.27
6.	Price spread	49.76	42.99	72.85	44.73
7.	Shepherd index	2.01	2.33	1.37	2.24

Figures in parentheses are percentages to consumer's price.



channel (Sarker *et al.* 1992), i.e. the larger the marketing channel, the lower the farmer's net share.

1. Net price received by the farmer = (Gross price received/unit) - (Average per unit cost incurred on marketing/unit)
2. Price spread = Price paid by consumer - Net price received by farmer
3. Producer's share in consumer's price = Net price received by producer / Consumer's price  $\times 100$
4. Margin in consumer's price = Net price received by producer / Consumer's price  $\times 100$

#### Marketing efficiency

Hugar and Hiremath (1984) evaluated marketing efficiency by marketing margin, price received by the producer, cost of marketing and profit share of traders. Shepherd (1972) used the ratio of total value of goods marketed

Table 2. Estimates of regression model for marketing cost of brinjal

Vegetables / variable	Brinjal		Bhendi		Tomato		Small Onion	
	Co-efficient	Marginal value	Co-efficient	Marginal value	Co-efficient	Marginal value	Co-efficient	Marginal value
Quantity marketed in quintals ( $X_1$ )	0.379*** (0.122)	0.75	0.971*** (0.215)	1.39	-0.038 <sup>NS</sup> (0.067)	-0.061	0.438*** (0.125)	0.710
Distance from village to market in Km ( $X_2$ )	0.194*** (0.074)	3.93	0.467*** (0.102)	9.47	0.371*** (0.058)	7.52	-0.070 <sup>NS</sup> (0.081)	1.42
Labour in post harvest operations ( $X_3$ )	0.162* (0.099)	0.17	-0.077 <sup>NS</sup> (0.137)	-0.059	0.159*** (0.052)	0.129	0.104* (0.056)	0.148
Intercept		1.751		1.245		1.560		2.056
Co-efficient of multiple regression ( $R^2$ )		0.483		0.516		0.453		0.380

Figures in parenthesis are standard errors;

\* Significant at one per cent level;

Significant at ten per cent level;

<sup>NS</sup> = Non significant

to the marketing cost as a measure of marketing efficiency. Higher the ratio, higher will be the efficiency and vice versa.

$$\text{Marketing efficiency} = \frac{\text{Value of goods sold or price paid by the consumers}}{\text{Total marketing cost plus margin}}$$

#### Marketing cost function

Different types of models has been performed to analyse the influence of various factors on marketing cost, finally a double log regression model of the following type was fitted.

$$\ln MC = \ln a + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + e_1$$

Where,

MC = Marketing cost incurred by farmer (Rs./q.)

$X_1$  = Quantity of vegetable marketed in quintal

$X_2$  = Distance transported in km.

$X_3$  = Number of labour days engaged in post harvest operations.

a = Constant term

$e_1$  = Disturbance term

$b_1, b_2$  and  $b_3$  are regression coefficients.

#### Results and Discussion

##### Price spread

Marketing channel started with farmer flowed through commission agent, wholesaler cum retailer, retailer and at last ended with the consumer who was selected for studying the price spread. The cost incurred by the commission agent and his profit margin were not included in working out the price spread to avoid double counting since these items were covered by the commission paid by the farmers. Wholesaler cum retailer participated in auction to buy brinjal and bhendi in bags ranging from 25 kg to 60 kgs and sold in small quantity to the retailers while tomato and small onion were available at 10 kgs onwards to retailer directly from commission agents.

Farmers sold in central market incurred cost on grading, packing, transport, and commission

of 10 per cent on the value of sales to the commission agent who arranged for the sales. Commission charges constituted a larger share (Nawadkar *et al.* 1991) varying from 4.59 per cent for tomato to 7.21 per cent for bhendi, of the consumer's price. Cost incurred by farmers per quintal of vegetables ranged from 14.15 per cent for tomato to 6.14 per cent for brinjal of consumer's price. Low consumer preference, higher frequency of picking and less area under bhendi led small quantity to market and commission agents might not have much interest on its marketing. In this case, farmers sold bhendi directly to wholesalers cum retailers or retailers or consumers and had to pay commission of 10 per cent to commission agents for utilizing space for keeping the product.

The commission agents did not take the title to the produce and they merely negotiated the purchase and/or sale (Bilonikar, 1998; Naik *et al.* 1996). The cost incurred by commission agents was about Rs.21 per quintal of vegetables while his margin ranged from Rs.9 per quintal for tomato to about Rs.62 for brinjal. The commission agent met the cost of providing services and earned the profit from the commission paid by the farmers. The wholesaler cum retailers took the title to the goods they handled, they bought and sold on their own gain or loss depending on the difference in the sale and purchase prices. They bought brinjal and bhendi through commission agent and sold it to retailers and bulk consumers sometime purchased bhendi directly from farmers and sold to the retailers and bulk consumers in small quantities. The total marketing cost incurred by the wholesaler cum retailer was Rs.39.74 for brinjal and Rs.30.33 for bhendi while their margin was Rs.95.51 and Rs.24.94 respectively.

Retailers purchased tomato and small onion from the farmers through commission agent, since these vegetables were sold in small quantities. The average marketing cost incurred by retailers for tomato was Rs.104 per quintal and Rs.102 for brinjal, bhendi and small onion. The profit margin earned by retailers was highest for brinjal

followed by tomato, small onion and bhendi with about Rs.257, Rs.243, Rs.190 and Rs.133 respectively. The percentage of marketing margin earned by retailers in consumer's rupee was as high as 38 per cent for tomato, 19 per cent for brinjal and small onion while it was 13 per cent for bhendi. Among the three intermediate the marketing cost incurred and the profit margin earned were the highest for retailers for all the four vegetables.

#### *Price spread*

The producer's share in consumer's rupee was lowest for tomato (27.15%), followed by brinjal (50.24%), small onion (55.27%) and bhendi (57.01%) while the price spread was 72.85 per cent, 49.76 per cent, 44.73 per cent and 42.99 per cent respectively. The high amount of price spread for tomato was due to perishability and high fluctuation in prices. On an average price paid by consumers was Rs.13.22, Rs.10.36, Rs.6.42 and Rs.9.92 per kg of brinjal, bhendi, tomato and small onion respectively. The total marketing cost and marketing margin was highest for brinjal with Rs.657.88 followed by tomato with Rs.467.67. Since the marketing cost and marketing margin in relation to consumer's price were higher, the Shepherd Index of marketing efficiency was very low for tomato, followed by brinjal, small onion and bhendi.

#### *Marketing cost function*

To evaluate factors influencing the marketing cost of farmers at central market, a double log type of marketing cost function was fitted and the results of the regression analysis are presented in the following tables.

Table 2 revealed that 48 per cent of variation in marketing cost of brinjal was explained by selected independent variables. Regression co-efficient for quantity marketed and the distance were 0.379 and 0.194 respectively and significant at one per cent level of probability. The marginal values imply that for every quintal increase in quantity marketed from mean level the marketing cost would increase by Rs.0.75 and for every km increase in distance from mean level, marketing

cost would increase by Rs.3.93 per quintal of brinjal.

In the case of bhendi about 52 per cent of variation in marketing cost of bhendi was explained by the variables included in this model. Regression coefficients were 0.971 and 0.467 for quantity marketed and distance and it was significant at one per cent level of probability. Marginal values implies that one-quintal increase in quantity marketed from mean level leads to increase Rs.1.39 in marketing cost and for every km increase in distance from mean level would increase the marketing cost by Rs.9.47 per quintal for bhendi.

It could be seen from the table 2 that about 45 per cent of variation in marketing cost of tomato was explained by the selected variables. The variables, distance and labour engaged in post harvest operation were significant at one per cent level of probability and their regression co-efficient was 0.371 and 0.159 respectively. The marginal value of distance implies that for every km increase in distance from mean level the marketing cost would increase by Rs.7.52 per quintal. For one unit increase in labour for post harvest operation from mean level, the marketing cost would increase by Rs.0.129 per quintal.

Labour engaged in post harvest operation of small onion has limited role in marketing cost. Table 5 revealed that about 38 per cent of the variation in marketing cost of small onion was explained by the variables included in this function. The variable quantity marketed was highly significant at one per cent level of probability and its marginal value implies that for every one-quintal increase in quantity marketed from mean level, the marketing cost would increase by Rs.0.710 per quintal.

### Conclusions

Marketing efficiency was high for bhendi followed by small onion, brinjal and tomato.

Quantity marketed and distance from village to market significantly increased the marketing cost for brinjal and bhendi. The distance and labour cost in post harvest operations positively influenced the marketing cost of tomato while for small onion the quantity marketed highly influenced the marketing cost.

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