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Marketing of Vannamei (shrimp) in Andhra Pradesh – Management Appraisal

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ABSTRACT: In the transportation of produce (shrimp) from farmers to ultimate customers, marketing plays a dominant and essential role in aquaculture in general and inland fisheries in particular. As a result, a study of the marketing management and efficiency of vannamei (shrimp) in Andhra Pradesh has been undertaken. According to the study, each district has two marketing channels. Among that channel-II seemed to have the widest price range, at Rs. 71.69 per kilogram of shrimp, followed by channel-I at Rs. 57.01. The producers' share of the consumer's rupee was maximum in channel-I, accounting for 77.53 percent, followed by 72.02 percent in channel-II, reflecting that the consumer purchase price in channel-II was higher than that in channel-I. Channel-II was a domestic marketing channel, marketing costs and margins borne by marketing functionaries were higher, which accounted for 13.33 percent of total shrimp marketing. According to Acharya's method, channel-I was the most efficient in terms of marketing efficiency for farmers, because the net price received by farmers in channel-I was greater than in channel-II. As per Shepherd approach, channel-II was the best in terms of market functionaries since the consumer purchase price in channel-II was greater than in channel-I.

Keywords: Marketing costs, Margins, Price spread and Marketing efficiency.

INTRODUCTION

Aquaculture in general, and fisheries in particular, are key food production sectors in India, providing nutritional security, as well as livelihood support and gainful employment to over 14 million people and contributing to agricultural exports. Fisheries are regarded as a major economic activity and a thriving sector in India, with diverse resources and potentials spanning from deep seas to alpine lakes, and accounting for more than 10% of global biodiversity in fish and shellfish species. Since independence, the country has seen consistent and sustained increases in fish production.

India has a long coastline, which allows for extensive use of marine resources. Fishermen in India used to engage in traditional sea fishing till a few years ago. In the 1970s, fisherman began focusing their efforts on gathering prawns, often known as'shrimps,' because of the enormous profit margins available due to their export value. During the 1990s, brackish and inland (fresh) water prawn farming exploded, particularly in the coastal districts of Andhra Pradesh and Tamil Nadu.

Shrimp farming has developed into a small-scale, traditional enterprise in Andhra Pradesh, particularly in coastal districts. Because of their export potential, shrimp culture production systems are more profitable than other culture systems. Tiger shrimp (*Penaeus monodon*) and Pacific white leg shrimp (*Litopenaeus vannamei*) accounted for more than 90percent of the overall Andhra Pradesh's farmed shrimp production.

Fisheries and aquaculture currently provide 1.07 percent to national GDP, whereas agriculture and related industries contribute 5.30 percent, with an average annual value of output of 43,720.98 crore and a quantity of 11,49,510 tonnes for fiscal year 2020-21 (Marine Products Export Development Authority (MPEDA)). The overall fish production in India in 2019-20 is expected to be 14.16 million metric tonnes, with the inland sector accounting for roughly 73.66 percent (10.43 million metric tonnes) and the marine sector accounting for around 26.34 percent (3.72 million metric tonnes). Andhra Pradesh state produces the maximum fish production in the

country, followed by West Bengal and Gujarat (Anon, 2020a). Andhra Pradesh produced 41.74 lakh metric tonnes of fish in 2019-20, including 36.10 lakh tonnes from inland fisheries and 5.64 lakh tonnes from marine fisheries. Total shrimp production in Andhra Pradesh was 4.55 lakh metric tonnes during the year 2019-20, accounting for roughly 16 per cent of the state's total inland production. In the fiscal year 2019-20, the gross return from exports was 13.66 lakh rupees. East Godavari, West Godavari, Krishna, and Nellore are the well-marked inland fisheries cultivating districts. Approximately 90 per cent of the state's total inland fish production was produced in these four areas (Anon, 2020b).

In Andhra Pradesh, the inland fish marketing system is neither efficient nor contemporary, and it is primarily carried out by private traders with a lot of intermediaries between producer and ultimate/final consumer, reducing the producers' (fishermen's) share of the consumer's rupee. The focus of this research was to get a snapshot of marketing costs, margins, and price spread for shrimp.

MATERIALS AND METHODS

East Godavari, West Godavari, Krishna, and Nellore were the four districts chosen based on the largest inland fisheries production among Andhra Pradesh's districts. The districts mentioned above were selected for the study on intentionally. The study was entirely based on primary data acquired from fish farmers, traders, wholesalers, retailers, and vendors via personal interviews using a well-structured and pretested schedule created specifically for the study. Five intermediaries at each level, namely five dealers, ten wholesalers, ten retailers, and five vendors, were chosen from each district to analyse the marketing features. For the study, 30 market functionaries were identified from each district. Marketing channels, marketing expenditures, margin, price spread, and marketing efficiency were all considered in the study. Transportation costs, loading and unloading charges, icing, commission charges, weighing charges, and other charges all went into calculating the cost per kilogram.

Marketing efficiency: Kohls and Uhl defined marketing efficiency is the ratio of market output (satisfaction) to marketing input (cost of resources). An increase in the ratio represents improved efficiency and a decrease denotes reduced efficiency.

Acharyas approach: Acharyas approach is an ideal measure of marketing efficiency, particularly for comparing the efficiency of alternate markets/channels, should be such which takes into account of all the following:

MME = FP / (MC + MM)

Measure of Marketing Efficiency (MME)
Total marketing costs (MC)
Net marketing margins (MM)
Prices received by the farmer (FP)

Shepherd Approach: Shepherd has suggested that the ratio of total value of goods marketed to the marketing cost may be used as a measure of efficiency. This method eliminates the problem of measurement of value added. The formula does not explicitly take into account the net margins retained by the intermediaries and net price received by the farmers in assessing the marketing efficiency. Shepherds formula assumes that marketing cost itself includes some fair margins of intermediaries (Acharya and Agarwal 1987).

A better expression for Shepherd's idea is: ME = V/I - 1

Where, ME = Index of Marketing Efficiency
V = Value of fish sold (consumer's price)
I = Total marketing cost

RESULTS AND DISCUSSION

Marketing channels

Inland fish/shrimp were transmitted from producers (farmers) to the final consumer through two marketing channels specified for each district.

Channel-I: Farmer – Commission Agent – Trader – Wholesaler – Retailer – Consumer.

Channel-II: Farmer – Wholesaler – Retailer – Vendor – Consumer.

The common procedure in all four areas was to sell the standing crop to a dealer through a commission agent. A "sale at farm pond" is a type of sale held at a farm pond. The majority of farmers sell their produce to traders via channel I rather than channel II.

Table 1 shows the pattern of shrimp sales through various channels. The data shows that in the case of vannamei (shrimp), the majority of farmers favoured channel-I, with 80 per cent in East Godavari, 93.33 percent in Nellore, and 86.67 percent in each of the West Godavari and Krishna districts. In channel II, 20 percent come from East Godavari, 6.67 percent from Nellore, and 13.33 percent from each of the West Godavari and Krishna districts. Overall, 86.67 percent of shrimp respondents favoured channel-I, while 13.33 percent selected channel-II.

Marketing costs, margins and price spread in marketing of vannamei (shrimp)

Table 2 depicts the marketing costs, margins, and price spread in shrimp marketing in the research area, with the results revealing that producers sold their produce to dealers at the pond gate. In all four districts, channel-I got the farmer a better price than channel-II. In both channels, producers (farmers) did not spend any marketing costs.

Table 1: Sales pattern of vannamei (shrimp) in Andhra Pradesh.

Sl. No.	Channel	East-Godavari		West-Godavari		Krishna		Nellore		Overall	
		No. of farmers	%	No. of farmers	%	No. of farmers	%	No. of farmers	%	No. of farmers	%
Vannamei (shrimp)											
1	Channel – I	24	80	26	86.67	26	86.67	28	93.33	104	86.67
2	Channel – II	6	20	4	13.33	4	13.33	2	6.67	16	13.33

Table 2: Marketing cost, margin and price spread in marketing of vannamei (shrimp) in different channels.

Sr. No.	Particulars	East-Godavari		West-Godavari		Krishna		Nellore		Overall	
		MC-I	MC-II	MC-I	MC-II	MC-I	MC-II	MC-I	MC-II	MC-I	MC-II
1.	Producer price	195.00 (78.00)	185.00 (72.55)	197.17 (77.32)	186.00 (71.54)	196.60 (77.10)	183.50 (71.96)	198.20 (77.73)	183.75 (72.06)	196.74 (77.53)	184.56 (72.02)
2.	Traders purchase price	195.00 (78.00)	-	197.17 (77.32)	-	196.60 (77.10)	-	198.20 (77.73)	-	196.74 (77.53)	-
3.	Cost incurred by trader	13.78 (5.51)	-	15.74 (6.17)	-	16.45 (6.45)	-	15.14 (5.94)	-	15.28 (6.02)	-
4.	Profit margin of trader	5.21 (2.08)	-	5.32 (2.09)	-	5.33 (2.09)	-	5.33 (2.09)	-	5.30 (2.09)	-
5.	Selling price of trader	213.99 (85.60)	-	218.23 (85.58)	-	218.38 (85.64)	-	218.67 (85.75)	-	217.32 (85.64)	-
6.	Purchase price of wholesaler	213.99 (85.60)	185.00 (72.55)	218.23 (85.58)	186.00 (71.54)	218.38 (85.64)	183.50 (71.96)	218.67 (85.75)	183.75 (72.06)	217.32 (85.64)	184.56 (72.02)
7.	Cost incurred by wholesaler	6.60 (2.64)	13.07 (5.13)	8.43 (3.31)	12.33 (4.74)	8.01 (3.14)	12.08 (4.74)	7.82 (3.07)	12.01 (4.71)	7.72 (3.04)	12.37 (4.83)
8.	Profit margin of wholesaler	12.13 (4.85)	17.82 (6.99)	10.20 (4.00)	16.85 (6.48)	11.31 (4.44)	18.58 (7.29)	10.19 (4.00)	17.61 (6.91)	10.96 (4.32)	17.72 (6.91)
9.	Selling price of wholesaler	232.72 (93.09)	215.89 (84.66)	236.86 (92.89)	215.18 (82.76)	237.70 (93.22)	214.16 (83.98)	236.68 (92.82)	213.37 (83.67)	236.00 (93.00)	214.65 (83.77)
10.	Purchase price of retailer	232.72 (93.09)	215.89 (84.66)	236.86 (92.89)	215.18 (82.76)	237.70 (93.22)	214.16 (83.98)	236.68 (92.82)	213.37 (83.67)	236.00 (93.00)	214.65 (83.77)
11.	Cost incurred by retailer	7.02 (2.81)	8.14 (3.19)	7.51 (2.95)	7.80 (3.00)	7.20 (2.82)	7.95 (3.12)	7.19 (2.82)	6.78 (2.66)	7.23 (2.85)	7.67 (2.99)
12.	Profit margin of retailer	10.26 (4.10)	11.20 (4.39)	10.63 (4.17)	12.26 (4.72)	10.10 (3.96)	11.10 (4.35)	11.13 (4.36)	12.10 (4.75)	10.52 (4.15)	11.67 (4.55)
13.	Selling price of retailer	250.00 (100.00)	235.23 (92.25)	255.00 (100.00)	235.24 (90.48)	255.00 (100.00)	233.21 (91.45)	255.00 (100.00)	232.25 (91.08)	253.75 (100.00)	233.98 (91.31)
14.	Purchase price of vendor	-	235.23 (92.25)	-	235.24 (90.48)	-	233.21 (91.45)	-	232.25 (91.08)	-	233.98 (91.31)
15.	Cost incurred by vendor	-	6.16 (2.42)	-	6.95 (2.67)	-	6.65 (2.61)	-	7.10 (2.78)	-	6.72 (2.62)
16.	Profit margin of vendor	-	13.61 (5.34)	-	17.81 (6.850	-	15.14 (5.94)	-	15.65 (6.14)	-	15.55 (6.07)
17.	Selling price of vendor	-	255.00 (100.00)	-	260.00 (100.00)	-	255.00 (100.00)	-	255.00 (100.00)	-	256.25 (100.00)
18.	Purchase price of consumer	250.00	255.00	255.00	260.00	255.00	255.00	255.00	255.00	253.75	256.25
19.	Producer's share in consumer's rupee	78.00	72.54	77.32	71.53	77.10	71.96	77.73	72.05	77.53	72.02
20.	Price spread	55.00	70.00	57.83	74.00	58.40	71.50	56.80	71.25	57.01	71.69
21.	**Marketing Efficiency**										
a.	Acharyas approach	3.54	2.64	3.41	2.51	3.37	2.57	3.49	2.58	3.46	2.58
b.	Shepherd approach	9.12	9.32	8.05	9.60	8.05	9.56	8.46	9.85	8.42	9.58

Figures in the parenthesis indicate percentage to the respective total; MC-Marketing Channel

Producer selling prices in channels I and II in the East-Godavari district are 195.00 and 185.00 per kilogram, respectively. The dealers in channel-I paid 13.78/kg in marketing costs and made a profit margin of 5.21/kg. Wholesalers paid 213.99/kg for produce from traders in channel I and 185.00/kg for produce from farmers (producers) in channel II. In channels I and II, wholesalers spent 6.60/kg and 13.07/kg on marketing, with profit margins of 12.13/kg (channel-I) and 17.82/kg (channel-II). By incurring marketing costs of 7.02/kg and 8.14/kg, retailers got a margin of 10.26/kg in channel-I and 11.20/kg in channel-II. The vendor's selling price to customers in channel II was 255.00/kg after deducting marketing expenditures of 6.16/kg and realizing a margin of 13.61/kg. Producers possessed 78.00 and 72.54 percent of the consumer rupee in channels I and II, respectively. The price spread was between 55.00 and 70.00 rupees. In channels I and II, the Acharyas method had marketing efficiencies of 3.54 and 2.64, respectively, whereas the Shepherd approach had marketing efficiencies of 9.12 and 9.32 (Aswathy, 2014).

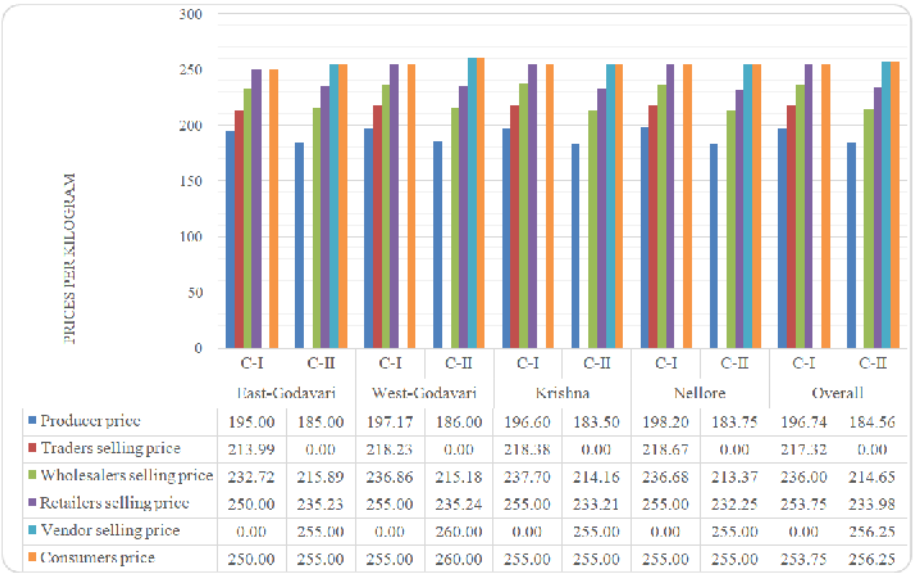
Traders paid 197.17/kg for shrimp from growers in the West-Godavari district, while wholesalers paid 186.00/kg (Channel-II). The traders in channel-I incurred marketing expenditures of 15.74/kg and realized margins of 5.32/kg, respectively. Wholesaler marketing expenses were 8.43/kg and 12.33/kg in channels I and II, respectively, with respective profit margins of 10.20/kg (channel-I) and 16.85/kg (channel-II) (channel-II). Retailers paid 236.86/kg to wholesalers in channel-I and 215.18/kg to wholesalers in channel-II. By aiming for a margin of profit of 10.63/kg (channel-I) and 12.26/kg (channel-II), they incurred a marketing expense of 7.51/kg in channel-I and 7.80/kg in channel-II. Vendors paid 235.24 per kilogram for the shrimp from channel-II retailers. The marketing expenditures were 6.95/kg, with a profit margin of 17.81/kg and a final selling price of 260.00 per kilogram. The producers' share of the consumer rupee was 77.32 percent (channel-I) and

71.53 percent (channel-II), while the price spread was 57.83 and 74.00 rupees, respectively. According to the Acharyas approach, marketing efficiency in channels I and II was 3.41 and 2.51, respectively, whereas according to the Shepherd approach, it was 8.05 and 9.60, respectively.

In Krishna district, the traders paid 196.60 per kilogram in channel-I, with marketing costs and profit margins of 6.45 (16.45/kg) and 2.09 (5.33/kg) accordingly, and he sold it to the wholesaler for 218.38/kg. Wholesalers marketing expenditures and margins of profit in channel-I were 8.01/kg and 11.31/kg, respectively, with a selling price of 237.70/kg to retailers. The retailer bought the produce from the wholesaler and sold it to the final customer for $255.00 per kg. The retailer's marketing costs were 7.20/kg, and the profit margin was 10.10 per kg as a result of this approach. With a price spread of 58.40 rupees per kg, the producers share of the consumer rupee was 77.10 percent. The channel marketing efficiency was 3.37 (Acharyas approach) and 8.05 (Shepherd approach). The wholesalers' purchase price, marketing costs, and margins for channel-II were 183.50, 12.08, and 18.58/kg, respectively. Retailers bought the produce from wholesalers for 214.16 per kg, with a cost of 7.95 and a profit margin of 11.10 per kg, and he sold it to the vendor for 232.21/kg, with costs and margins of 6.65 and 15.14/kg, respectively. The final consumer price in the channel was 255 per kilogram, with a producer share of 71.96 percent in consumer rupees and a price spread of 71.50 rupees per kilogram. The marketing efficiency was 2.57 (Acharyas approach) and 9.56 (Shepherd approach).

Producers in the Nellore district sold their produce to dealers for 198.20/kg (channel-I) and wholesalers for 183.75/kg (channel-II). The traders in channel-I incurred marketing expenditures of 15.14/kg and realized margins of 5.33/kg. Wholesaler marketing expenses were 7.82/kg and 12.01/kg in channel-I and II, respectively, with respective profit margins of 10.19/kg (channel-I) and 17.61/kg (channel-II). Meanwhile, in channel-I and II, retailer marketing expenditures were 7.19/kg and 6.78/kg, respectively, while profit margins were 11.13/kg (channel-I) and 12.10/kg (channel-II), with a selling price of 255.00/kg (channel-I) and 232.25/kg, respectively (channel-II). In channel-II, the vendors' marketing expenditures and margins were 7.10 and 15.65 per kilogram, accordingly, with a selling price to the public was ₹ 255/kg. Producers held 77.73 percent (channel-I) and 72.05 percent (channel-II) of the consumer rupee, while the price spread was 56.80 and 71.25 rupees, respectively. The marketing efficiency of the Acharyas method in channel I and II was 3.49 and 2.58, respectively, while the Shepherd method was 8.46 and 9.85.

Overall producer selling prices in channels I and II were 196.74 and 184.56 per kilogram, respectively. The dealers in channel-I paid 15.28/kg in marketing costs and earned a profit margin of 5.30/kg. Wholesalers paid 217.32/kg for produce from traders in channel I, and 184.56/kg for produce from farmers (producers) in channel II. Wholesaler marketing expenses were 7.72/kg and 12.37/kg in channel I and II, respectively, with profit margins of 10.96/kg (channel I) and 17.72/kg (channel II). Retailers made a profit of 10.53/kg in channel I and 11.67/kg in channel II, with marketing costs of 7.23/kg and 7.67/kg, respectively. In channel-II, the vendor's selling price to customers was 256.25/kg, with marketing expenditures of 6.72/kg and a profit margin of 15.55/kg (Mahalakshmi, 2011). Producers' share of consumer rupee was 77.54 percent in channel I and 72.02 percent in channel II, respectively. Similarly, the price spread was 57.01 and 71.69 rupees. The Acharyas method had 3.46 and 2.58 marketing efficiency in channel I and II, accordingly the Shepherd method had 8.42 and 9.58.



	East-Godavari		West-Godavari		Krishna		Nellore		Overall	
Producer price	195.00	185.00	197.17	186.00	196.60	183.50	198.20	183.75	196.74	184.56
Traders selling price	213.99	0.00	218.23	0.00	218.38	0.00	218.67	0.00	217.32	0.00
Wholesalers selling price	232.72	215.89	236.86	215.18	237.70	214.16	236.68	213.37	236.00	214.65
Retailers selling price	250.00	235.23	255.00	235.24	255.00	233.21	255.00	232.25	253.75	233.98
Vendor selling price	0.00	255.00	0.00	260.00	0.00	255.00	0.00	255.00	0.00	256.25
Consumers price	250.00	255.00	255.00	260.00	255.00	255.00	255.00	255.00	253.75	256.25

Marketing of vannamei (shrimp) through different channels in Andhra Pradesh.

CONCLUSION

Farmers in the research area often sold their first crop to dealers and their second harvest to wholesalers, resulting in a greater price for channel-I farmers than for channel-II farmers. In all the districts, the producer's share of consumer rupee was found to be highest in channel-I, where traders involved in marketing channel, accounting for roughly 86.67 percent in shrimp. In price spread, however, the situation was reversed, with channel-II being higher than channel-I. Because it was a domestic marketing channel with local wholesalers, marketing expenditures and margins borne by marketing officials were higher in channel-II, which accounted for 13.33% of shrimp sales. In terms of marketing efficiency, channel-I was the best channel for farmers, according to Acharya's method, because the net price received by farmers in channel-I was higher than in channel-II. According to Shepherd's method, channel-II was the ideal channel for market functionaries because consumer buy prices on channel-II were higher than on channel-I.

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