J. mar. biol. Ass. India, 1992, 34 (1 & 2) : 18-25

SHARE OF FISHERMEN AND MIDDLEMEN IN CONSUMER PRICE : A STUDY AT MADRAS REGION*

R. SATHIADHAS AND K. K. P. PANIKKAR

Central Marine Fisheries Research Institute, Cochin 682 031

ABSTRACT

An attempt has been made in this paper to discuss the marketing margins, and producer's and middlemen's share in consumer's rupee for commercially important varieties of marine fish in Madras region of Tamil Nadu. Pudumanikuppam which is a major mechanised landing centre as primary market, Chintatripet as wholesale market and Pattalam, Chintatripet, Saidapet and Vadapalani (all in Madras City) as consumer markets were selected for the study. Data on landing, wholesale and retail prices of selected varieties of fish were collected 15 to 20 days in each quarter during April 1984 to March 1985 by following the marketing channel.

The study revealed that the retailer's margin ranged from 19 (pomfrets) to 45% (silverbellies) and the wholesaler's margin 4 (pomfrets) to 27% (sharks) of the consumer price. Marketing expenses including transportation and handling charges ranged from 4 (seerfish) to 14% (silverbellies). The analysis indicated that fisherman's share varied from 32 (rays and silverbellies) to 72% (pomfrets). The fishermen get higher share in consumer's rupee for quality fishes like pomfrets and seerfish for which consumer preference is comparatively high. Maximum quantity of fish was sold through Fishermen-Wholesaler-Retailer-Consumer channel. It has been found that whatever the processing facilities including drying, curing, etc. available in this area, only the middlemen take advantage out of it and its benefit is not at all transferred to the fishermen.

To increase the efficiency of fish marketing system the involvement of too many intermediaries has to be avoided by introducing a co-operative marketing system. Organisation of consumer promotional programmes to create demand for less consumed varieties especially in interior areas, establishment of storage and processing facilities at least in major landing centres, introduction of regulated marketing system in the lines of agricultural crops, support price for at least commercially important varieties of fish and periodical monitoring of prevailing prices of different varieties of fish in major markets are some of the suggestions given for better efficiency of fish marketing.

INTRODUCTION

IN RECENT years the price of marine fish has considerably increased due to higher demand in external and internal markets. But it is widely believed that the fishermen are not receiving legitimate share of the increased price paid by the consumers. One of the main reasons for lower share of producer is the larger magnitude of marketing margins. Generally, higher the value of marketing margin lower is the efficiency of marketing system. The perishable nature of fish, uncertainties in fish landings, assembling of fish from too many coastal landing centres, too many varieties and consequently too many demand patterns and transportation of fish to different regions and interior areas without affecting the quality are some of the key problems in marine fish marketing

* Presented at the 'Symposium on Tropical Marine Living Resources' held by the Marine Biological Association of India at Cochin from January 12 to 16, 1988.

(Rao, 1983). As the fish require the quickest possible movement from the landing centre to retail markets, a number of transactions are involved before it reaches the ultimate consumer. Keeping this in view, an attempt has been made in this paper (*i*) to assess the level of marketing margins of some of the commercially important varieties of marine fish, (*ii*) to examine the share of producer and middlemen in consumer's rupee and (*iii*) to find out the relationship between landing centre, wholesale and retail prices.

Authors are grateful to Dr. P.S.B.R. James, Director, Central Marine Fisheries Research Institute, Cochin for his encouragment and to Shri T. Jacob for his guidance and suggesting improvements in the manuscript. Thanks are also due to Shri S. Chandrasekhar and Mrs. Lata Kambadkar for their help in field data collection and tabulation work.

Materials and Methods

In the Madras region, Pudumanikuppam which is the biggest landing centre has been selected as the primary market to collect data on producer's price. A preliminary investigation was carried out to find out the prominent marketing channels in the movement of fish from the primary market to consumers. Maximum quantity of fish was sold through, fishermen-wholesaler-retailer-consumer channel. Chintadripet, the major wholesale market within Madras city was selected to collect wholesale prices. The retail markets in the city such as Chintadripet, Pattalam, Saidapet and Vadapalani were selected on the basis of distance from the primary market and volume of transactions, to collect data on retail prices.

Generally there are three methods (Swarup *et al.*, 1985) used for the calculation of marketing margins such as (*i*) following specific consignments in the marketing channel and then assessing the cost involved at each stage. (*ii*) working out the average gross margins obtained by dividing value of sales minus value of purchase by the number of units transacted for each type of marketing agency and (*iii*) comparison of price at different levels of marketing over the same period of time. The first method was adopted for the present study, because in the case of fish the time gap between the entry into the marketing channel and its disposal to the consumer is narrow unlike the non-perishable commodities. Data have been collected for 15 to 20 days in each quarter during 1984-85. Maximum care was taken to collect the price of same consignments or identical size of the same variety of fish at landing, wholesale and retail points. Information on various marketing expenses such as assembling, sorting, grading, packing, handling and transportation was also collected at each stage.

Tabular as well as functional analysis were carried out to study the pricing efficiency. The average retail price of each variety of fish was the mean retail value of fish at four selected markets. All costs involved for assembling, grading, storing, packing, transportation and handling of fish were included under marketing expenses. The gross marketing margin, middlemen's and fishermen's share were worked out by using the following formulae :

Gross marketing margin (GM) = Retail Price (RP) — Landing Centre price (LP)

Percentage share of middlemen in consumer's rupee =

$$\frac{RP - LP \times 100}{RP}$$

Percentage share of fishermen in consumer's rupee =

$$\frac{LP \times 100}{RP}$$

The functional relationship between wholesale price at Chintadripet and landing centre price for sample varieties from 3 categories namely, quality fish (seerfish), medium quality fish (sharks) and cheaper variety (whitebaits) was estimated by using the linear equation.

Results and Discussion

Price behaviour

The level of supply, consumer's preference, price of other varieties of fish and general price level of vegetables and meat are some of the factors which influence the price of fish. There has been considerable variation in the price of marine fish not only between seasons, but also between different days and even on the same day between morning and evening. The demand for fresh fish is usually high in the morning, because retail buyers are prepared to pay a high price in the morning and do not wait for the increased supply of fish in the later part of the day. The quarterly fluctuations in landing and consumer prices for selected varieties during 1984-85 have been analysed and the minimum and maximum average prices prevalent during the year are given in Table 1.

For seerfish and pomfret minimum prices were recorded during October-December and maximum in January-March. Realisation of higher prices for these varieties during January March as compared to other periods may be attributed to the lesser availability of other quality fish. The shark prices at the landing centre showed a high variation ranging from Rs. 4/- (per kg) during July-September to Rs. 8/- (per kg) during January-March whereas the fluctuation in retail price was not significant, because the supply at the retail level is controlled by diverting the excess production for processing. The landing centre price

Table 1. *Quarterly minimum and maximum average landing centre and retail prices* (1984-85) *for selected varieties of fish (Rs/kg)*

Name of fish (common name)	Landing centre price		Retail Price	
	minimum	maximum	minimum	maximum
Seerfish	15.00 (Oct.-Dec.)	19.00 (Jan.-March)	23.75 (Oct.-Dec.)	29.25 (Jan.-March)
Pomfrets	14.00 (Oct.-Dec.)	19.00 (Jan.-March)	21.00 (Oct.-Dec.)	28.25 (Jan.-March)
Sharks	4.00 (July-Sept.)	8.00 (Jan.-March)	16.25 (Oct.-Dec.)	17.50 (Jan.-March)
Rays	2.00 (July-Dec.)	6.00 (April-June)	8.75 (Jan.-March)	15.00 (April-June)
Threadfin-breams	4.00 (July-Sept.)	9.00 (Jan.-March)	11.00 (April-June)	13.00 (Oct.-Dec. Jan.-March)
Silverbellies	2.00 (April-Dec.)	2.00 (April-Dec.)	5.50 (Oct.-Dec.)	7.50 (July-Sept.)
Whitebaits	4.00 (July-Sept.)	6.00 (Oct.-Dec.)	8.65 (July-Sept.)	9.00 (Oct.-Dec.)

of rays remained more or less invariant at about Rs. 2 per kg during July-December and maximum of Rs. 6/- per kg during April-June. The retail price was also maximum during April-June. However, minimum retail prices were recorded during January-March. For threadfin breams and whitebaits the landing centre price was minimum (Rs. 4 per kg) during July-September due to seasonal abundance in catch. But threadfin breams fetched the average maximum of Rs. 9/- per kg during January-March and whitebaits Rs. 6/- per kg during October-December. The landing centre and wholesale prices of silverbellies remained the same in all seasons, although they fetched better retail price during July-September.

An average maximum price of Rs. 19/- per kg was received by fishermen for seerfish and pomfrets and minimum of Rs. 2 per kg for silverbellies and rays. Barring seerfish and pomfrets, the average consumer price of other varieties is found to be more than double of the landing centre price.

retail price per kg of pomfrets in 1984-85 was Rs. 22.80 as against Rs. 9.00 during 1973-74. The average retail price per kg of sharks and rays during 1973-74 recorded at Rs. 2.50 and Rs. 2.00 respectively went upto Rs. 17.00 per kg for sharks and Rs. 10.85 per kg for rays during 1984-85. Similarly the average retail price per kg of whitebaits during 1973 - 74 was only Rs. 3.00 whereas it became Rs. 8.75 during 1984-85. The increase in retail prices of commercially important varieties from 1973-74 to 1984-85 was from 2 to 7 times, which is comparatively higher than most of the agricultural crops.

Fishermen's share in Consumer's rupee

The fishermen's share in consumer's rupee for the selected varieties of fish at Madras in each quarter during April 1984 to March 1985 is given in Table 2.

There was not much quarterly variation in fishermen's share in consumers rupee for quality fishes like seerfish and pomfrets due to consistent demand and high degree of con-

TABLE 2. *Fishermen's share (Paise) in consumer's rupee in each quarter (1984-85) for selected varieties of fish*

Name of fish	April-June	July-Sept.	Oct.-Dec.	Jan.-March	Overall
Seerfish	66	66	63	65	65
Pomfrets	76	76	67	68	72
Sharks	38	23	37	46	35
Rays	40	19	22	46	32
Threadfin-breams	43	34	62	69	52
Silverbellies	32	27	36	—	32
Whitebaits	49	46	67	—	54

The fish prices showed a steep rise during the last decade. An earlier study conducted in Madras city on fish marketing (Mohan and Rajappan, 1976) indicates that the average retail price per kg of seerfish in Madras region during 1973-74 was Rs. 9/-. It increased to Rs. 27/- per kg during 1984-85. The average-

sumer preference (Panikkar and Sathiadhas, 1985).

For sharks and rays, the fishermen received 35 and 32 paise in consumer's one rupee, the range being 23 to 46 paise for sharks and 19 to 46 paise for rays for different quarters.

The fishermen received the lowest share for these varieties during July-September due to the peak landings. Eventhough sharks and rays had moderate consumer's preference and the retail price was fairly high during this period, the fishermen received lesser share due to wholesaler's complete control over the distribution channel. The factor responsible for this type of price difference was the near-monopolistic or oligopolistic practice of traders in primary markets, quoting lower prices than is justified by the prevailing terminal market price. Such action by wholesale traders led the price in the primary market not moving perfectly in sympathy with the terminal market price. Among the cheaper varieties, for silverbellies, although fishermen received lesser share, there was not much seasonal fluctuations due to steady supply and competitive demand for drying the fish.

The percentage shares of fishermen, marketing costs, wholesalers and retailers in consumer's rupee are given in Table 3. The marketing costs, including handling and transportation, was comparatively higher for cheaper varieties like silverbellies and whitebaits. The wholesalers received better share in consumer's rupee for sharks and rays whereas the retailers received highest share for silverbellies.

During April 1984 to March 1985 the fishermen's share in consumer price ranged from 32% for rays and silverbellies to 72% for pomfrets. Marketing costs including transportation and handling ranged from 4% for seerfish to 14% for silverbellies. The wholesalers margin ranged from 4% for pomfrets to 27% for sharks and the retailers 19% for pomfrets to 45% for silverbellies.

Marketing margins

The marketing margins for selected varieties of fish at Madras region during 1984-85 are given in Table 4. The gross marketing margin ranged from 28 (pomfrets) to 68% (rays and silverbellies) of consumers price. Marketing margins included wholesalers and retailers margins and marketing expenses including handling and transportation charges incurred by the middlemen. The marketing expenses ranged from 12.5% of marketing margin for seerfish to 22% for whitebaits. Of the marketing margins the wholesalers were getting 12.5% (pomfrets and silverbellies) to 41.5% (sharks) and the retailers from 43.8% (sharks) to 73.5% (seerfish). It was observed that among the intermediaries, retailers were getting maximum share of the marketing margins for all varieties of fish.

TABLE 3. *Percentage distribution of consumer's rupee*

Name of fish	Percentage share			
	Fishermen	Marketing expenses	Wholesalers	Retailers
Seerfish	65	4	5	26
Pomfrets	72	5	4	19
Sharks	36	9	27	28
Rays	32	11	26	31
Threadfin-breams	52	7	15	26
Silverbellies	32	14	9	45
Whitebaits	54	10	13	23

Relationship of wholesale to landing price and retail to wholesale price

The functional relationship of wholesale to landing centre price and retail to wholesale price has been worked out for quality fish (Seerfish) medium quality fish (sharks) and cheaper variety (whitebaits). In the relationship LP denote landing centre price at Pudumanikuppm. WP denotes wholesale price at Chintadripet and RP_1, RP_2, RP_3 and RP_4 represent retail price at Pattalam, Chintadripet, Vadapalani and Saidapet markets respectively.

$RP_3 = 18.026 + 0.604\ WP\ (r^2 = 85\%)$ 4

$RP_4 = 13.642 + 0.498\ WP\ (r^2 = 76\%)$ 5

Equation 1 explains that one rupee increase in landing centre price of seerfish at Pudumanikuppam led to 0.69 rupee increase in wholesale price at Chintadripet. Equation 2 to 5 explains that one rupee increase in the wholesale price of seerfish led to 0.6 rupee increase in retail price at Pattalam, Rs. 1.85 at Chintadripet, Rs. 0.60 at Vadapalani and Rs. 0.50 increase in Saidapet markets. About

TABLE 4. *Marketing margins for selected varieties of fish at Madras region (1984-85)*

Name of fish	Average price Rs/kg		Marketing margins		Percentage distribution of marketing margins		
	Landing Centre	Consumer market	Amount Rs/kg	B to consumer price	Marketing expenses	Wholesalers margin	Retailers margin
Seerfish	17.60	27.00	9.40	35.00	12.50	14.00	73.50
Pomfrets	16.35	22.80	6.45	28.00	18.00	12.50	69.50
Sharks	6.00	17.00	11.00	65.00	14.70	41.50	43.80
Rays	3.50	10.85	7.35	68.00	16.00	38.40	45.60
Threadfin-breams	6.40	12.20	5.80	48.00	15.20	32.10	52.70
Silverbellies	2.00	6.30	4.30	68.00	20.00	12.50	67.50
Whitebaits	4.75	8.75	4.00	46.00	22.00	28.80	49.20

Since the relationship is based on cross sectional data it is assumed that the short run wholesale price depends on landing centre price which in turn is determined by quantity of catch. Similarly the level of retail price depends on the level of wholesale price. Accordingly LP is regressed on WP and WP is regressed on RP. The relationship of wholesale to landing centre price and to retail prices at the 4 markets for seerfish is gven below :

$WP = 7.434 + 0.692\ LP\ (r^2 = 97\%)$ 1

$RP_1 = 11.404 + 0.596\ WP\ (r^2 = 87\%)$ 2

$RP_2 = 6.995 + 1.846\ WP\ (r^2 = 96\%)$ 3

98% of the variation in the wholesale price and 76 to 97% of the variation in the retail prices of different markets and corresponding regression coefficients were highly significant ($P < 0.01$).

The WP to LP and RP to WP relationship for sharks has been given below :

$WP = 2.724 + 1.159\ LP\ (r^2 = 90\%)$ 6

$RP_1 = 8.200 + 0.600\ WP\ (r^2 = 90\%)$ 7

$RP_2 = 4.135 + 0.904\ WP\ (r^2 = 90\%)$ 8

$RP_3 = 9.027 + 0.637\ WP\ (r^2 = 91\%)$ 9

$RP^4 = 10.366 + 0.519\ WP\ (r^2 = 91\%)$ 10

One rupee increase in the landing centre price of sharks led an increase of 1.16 rupee increase in wholesale price (equation 6). Equation 7 to 10 explains that one rupee increase in the wholesale price of sharks led to Rs. 0.60 increase at Pattalam, Rs. 0.90 at Chintadripet, 0.64 at Vadapalani and Rs. 0.52 at Saidapet markets. The equations (6 to 10) explains about 90% of the variation in the wholesale price and 90 to 91% of the variation in the retail prices of different markets and the corresponding regression coefficients were highly significant ($P < 0.01$).

The LP to WP and RP to WP relationship for whitebaits has been worked out for selected markets except Vadapalani and given below :

$$WP = 1.915 + 0.870\ LP\ (r^2 = 84\%) \ldots\ldots 11$$

$$RP_1 = 1.055 + 1.093\ WP\ (r^2 = 85\%) \ldots\ 12$$

$$RP_2 = 1.775 + 1.900\ WP\ (r^2 = 79\%) \ldots\ 13$$

$$RP_4 = 0.434 + 1.395\ WP\ (r^2 = 88\%) \ldots\ 14$$

With regard to whitebaits, one rupee increase in the landing centre price at Pudumanikuppam led a rise of Rs. 0.87 in the wholesale price at Chintadripet (equation 11). Due to one rupee increase in the wholesale price of whitebaits at Chintadripet the increase in retail price was Rs. 1.1 at Pattalam, Rs. 1.9 at Chintadripet and Rs. 1.4 at Saidapet markets. The functional relationship (eq. 11 to 14) explains that 84% of the variation in the wholesale prices, 79 to 88% of the variation in retail prices at different markets and the corresponding regression coefficients were highly significant ($P < 0.01$).

Conclusion

The fishermen's share in consumer's rupee ranged from 32 to 72 paise for different varieties. The share of marketing expenditure in consumer's rupee ranged from 4 to 14 paise. The wholesaler's margin is minimum (4 paise) for pomfrets and maximum (27 paise) for sharks. The retailers got the highest margin for silverbellies (45 paise) and minimum (19 paise) for pomfrets. Barring seerfish and pomfrets, the average for all varieties, market margins were almost equal to landing prices. It was observed that the retailers were getting higher margins than wholesalers for all varieties of fish. The fish prices showed a steep rise during the last decade. The increase in retail prices of commercially important varieties from 1973-74 to 1984-85 in Madras region was 2 to 7 times which is comparatively higher than most of the agricultural crops. The regression equations representing the relationship between landing centre — wholesale and wholesale-retail prices indicates that the effect of landing centre price on wholesale price and wholesale price on retail price was significantly high for the selected varieties.

To protect the interests of both producers and consumers it is essential to reduce the magnitude of marketing margins. The level of marketing margin in respect of many varieties is high mainly due to higher margins received by the middlemen and the level of marketing expenditure was comparatively low. Even at the time of glut in the landing centre of certain varieties, the wholesale and retail prices were maintained comparatively at a higher level either by controlling the supply by making use of the processing facilities or by diverting it to different interior retail markets. It has been found that whatever the processing facilities including drying, curing etc. available in this area, only the middlemen take advantage out of it and its benefit is not at all transferred to the fishermen. This may be the reason for the higher marketing margin for fishes like sharks, rays and silverbellies. Hence it is essential not only to establish storage and processing facilities at least in major landing centres, but also make it available to fishermen for its fuller utilisation. To increase the efficiency of fish marketing system

the involvement of too many intermediaries has to be avoided by introducing a co-operative marketing system. In Karnataka, in the major landing centres the Fish Marketing Federation has very successfully reduced the importance of middlemen. In the Madras region also fish marketing co-operatives may be established with a view of vertical integration of marketing so that it will help the fishermen to get a remunerative price and the consumer to get the fish at a reasonable price. Futher it is necessary to have a support price policy as already prevailing in the case of jute, cotton, etc. For each season a minimum floor price should be declared at least for the major varieties. However this can be implemented only when there is a public agency to enter into the market with adequate storage and processing facilities to purchase the quantity of fish supplied in excess of demand. There has been no regulation even in major fish markets, which usually helps only the middlemen. There is no proper grading, weighing and quality control at any level of fish marketing. Most of the existing malpractices in fish marketing can be avoided by introducing regulated marketing system. Further both the producers and consumers are not aware of the current price structure of different varieties of fish in various markets of the country. The periodical dissemination of the prevailing price of commercially important varieties of fish in different markets will be much useful to the fishermen, traders and consumers.

References

MOHAN KRISHAN, P. AND K. RAJAPPAN 1976. Fish Marketing in Madras City. CIFE Souvenir, Bombay, 6 : 36.

PANIKKAR, K. K. P. AND R. SATHIADHAS 1985. Fishermen's share in consumer's one Rupee — A Case Study. *Proc. Symp. Harvest and Post-harvest Technology of fish*, pp. 704-707.

RAO, P. S. 1983. *Fishery Economics and Management in India*. Pioneer Publishers and Distributors, Bombay, p. 201.

SWARUP, R., B. K. SIKKA, C. S. NADDA AND C. S. VAIDYA 1985. Price spread and marketing margins for Himachal Apples : Temporal and Spatial analysis. *Indian J. Agricul. Econ.*, 40 (3) : 376-381.