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Price Behaviour, Marketing Channels and Efficiency of Marine Fish Marketing in Ramanathapuram District of Tamil Nadu

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ABSTRACT

Marketing plays a key role in the development of marine fisheries sector of the country. A study on price behaviour, marketing channels and efficiency of marine fish marketing in Ramanathapuram district of Tamil Nadu was conducted. Ramanathapuram district was selected since its contribution is maximum (2.11 lakh tonnes) 27.3 per cent of total marine fish production in Tamil Nadu (CMFRI, 2019). The study found that the high value fishes like silver pomfret, seer fishes and shrimp had the highest marketing efficiency and maximum percentage share of fishermen in the consumers rupee. The extent of marketing margins for fishes like silver bellies, rays and goatfishes is higher. The study also suggested that involvement of too many intermediaries needs to be regularized for achieving an efficient fish marketing system.

Key words : Landing centre, market, marketing efficiency, price spread, wholesale retail market,

INTRODUCTION

Tamil Nadu state has a coast line of 1,076 km (1,016 km in east coast, 60 km in west coast), the third largest coastline in India (DoE, 2006). There are 14 coastal districts namely Thiruvallur, Chennai, Chengalpattu, Villupuram, Cuddalore, Mayiladuthurai, Thiruvarur, Nagapattinam, Thanjavur, Pudukottai, Ramanathapuram, Thoothukudi, Tirunelveli and Kanyakumari. Tamil Nadu leads in marine fish production with 7.75 lakh tonnes in the state and contributes for 21.8 per cent of total fish landings in the country during 2019 (FRAD, CMFRI, 2020). The estimated value of marine fish landings during 2019 at landing centre level was ₹ 60,881 crores and at the retail level, was ₹92,356 crores. The marketing efficiency (the producer's share of the consumers rupee) was 65.9 per cent (CMFRI, 2019).

Marine fish marketing in India is characterised by unpredictability in demand and supply of marine fishes, number of marketing channels and intermediaries and price fluctuations (Aswathy, N and Abdussamad, 2013). In agricultural commodities, demand decides the price, whereas in marine fisheries supply plays a crucial role in price determination (Sathiadhas, 1997). Price is determined by the interaction of demand and supply at both landing centre and retail markets. Analysis of price behaviour at landing centres and retail markets helps toassess the efficiency of marketing system. Hence, a study on price behaviour, marketing channels and efficiency of marine fish marketing in Ramanathapuram District of Tamil Nadu was undertaken. The different marketing channels were identified, price behaviour of preferred species of marine fishes as well as data on marketing costs and margins were collected. The

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marketing efficiency was assessed using suitable indicators.

METHODOLOGY

The present study, Ramanathapuram District (Fig 1) was selected, since the parameters like coastal length, number of fishing villages, fishing activities and marine fish production were comparatively higher than other coastal districts in Tamil Nadu. Out of the total marine fish landing of 7.74 lakh tonnes in Tamil Nadu during 2019, maximum contribution was from Ramanathapuram district (27.3%) (CMFRI, 2019).

The data on marine fish prices, marketing channels, intermediaries, marketing costs and margins were collected fortnightly from different landing centres, wholesale and retail markets in Ramanathapuram district (Fig 1) during 2015 to 2020. A total of 22 marine fish species which is commonly landed and marketed were selected for the study.

The operational definition for the market is "A market is a set of buyers and sellers, commonly referred to as agents, who through their interaction, both real and potential, determine the price of a good, or a set of goods".

The operational definition for the Marketing channel is a system which ensures the distribution of the fish from the producer to the consumers by passing it through multiple levels known as middlemen.

Market efficiency indicators are price spread, percentage share of fisherman in the consumers rupee (PSFCR) and the coefficient of variation (CV). Marketing costs consisted of loading and unloading charges, sorting, weighing, icing, packing and final loading on trucks or petty autos.

Price spread or gross marketing margin is the difference between the price received by the producer (landing centre price) and price paid by the consumer (retail price) at a particular point of time in a market.
Gross marketing margin (GMM) = Retail price (RP) - Landing centre price (LP)… (1)

Percentage share of fishermen in the consumer rupee (PSFCR) = (LP/RP) x 100……. (2)

The price stability was analysed using coefficient of variation (CV).

CV = (Standard deviation/ Mean) x 100……. (3)

The index of marketing efficiency is worked out using the Shepherd's formula (Shephered Geoffrey, 1972):

$$\text{Marketing efficiency index (MEI)} = \frac{\text{Value of goods sold}}{\text{Total marketing costs and margins}} \quad \ldots\ldots\ldots\ldots (4)$$

Marketing channel

Marine fish passes through different channels and intermediaries until itreaches the ultimate consumer.
The existing marketing channel in Ramanathapuram district of Tamil Nadu is as follows:

Fishermen>Retailers (Domestic Market) > Consumers

Fishermen > Commission Agent (Wholesale) > Vendor / Retailers > Consumers

Fishermen > Company Agent (Wholesale) > Vendor / Retailers > Consumers

Fishermen > Vendor / Retailers > Consumers

Fishermen >Auctioneer > Company Agent (Wholesale) > Retailers (Domestic Market) > Consumers

The main marketing channels for export-oriented items like breams, squid, crabs and lobsters

Fishermen > Company Agent (Wholesale) > Exporters

Fishermen > Auction > Company Agent (Wholesale) > Exporters

Fishermen > Commission Agent > Company Agent (Wholesale) > Exporters

Market price

There are three types of prices based on the levels in marketing channel. They are landing centre, wholesale and retail price.

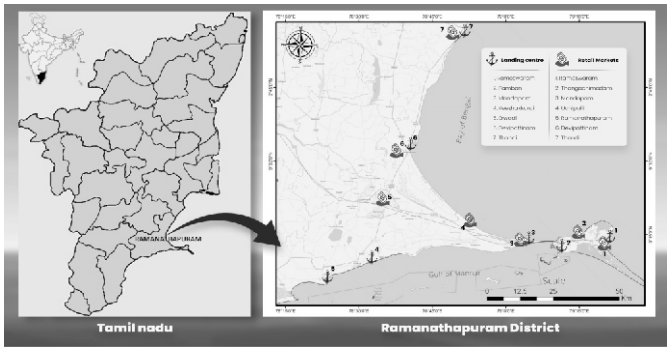

Fig 1. Map showing the study area (Selected districts, landing centres and retail markets)

RESULTS AND DISCUSSION

Price behaviour

The comparative analysis of market price from the year 2015 to 2020 in Ramanathapuram district (Table 1 & 2) indicated that the average landing centre price per kg was high for medium size silver pomfret, which ranged from ₹558/- to ₹678/- with average price ₹628/kg followed by medium size seer fish ranged from ₹480/- to ₹620/- with average price ₹547/kg. The lowest price per kg was recorded for oil sardine ranged from ₹18/- to ₹25/- with average price ₹21/kg.

Based on size, the silver pomfret landed at Ramanathapuram district are classified as Small (250 g below), Medium (250 g to 500 g) & Big (500 g above). Similarly, seer fish are classified as Small (1 kg below), Medium (1 kg to 2 kg) & Big (2 kg above). The prices of medium size silver pomfret and seer fish were recorded, since they were mostly landed and marketed in Ramanathapuram district. At retail level, average price per kg was high for medium size silver pomfret, which ranged from ₹687/- to ₹800/- with average price ₹767/kg followed by medium size seer fish ranged from ₹650/- to ₹768/- with average price ₹687/kg. The lowest price was recorded for oil sardine ranged from ₹35/- to ₹45/- with average price ₹39/kg.

The catch of high value fishes like silver pomfret and seer fish is declining over the period of time. These fishes are fetching good price at landing centre and retail level due its high demand. On the other hand, the oil sardine catch is increasing in last five years and due to more supply, the price is very less in Ramanathapuram district of Tamil Nadu. The average landing centre price per kilogram for other important fishes like export quality shrimp (40-50 counts), medium size black pomfret, crab (2-3 counts), medium size breams and dinning shrimp (85 counts) were ₹523/-, ₹483/-, ₹246/-, ₹228 and ₹183/- respectively (Table 1).

Table 1: Annual average price for the major species in landing centre of Ramanathapuram district for the year 2015-2020

Fish Name	2015-16 (₹)	2016-17 (₹)	2017-18 (₹)	2018-19 (₹)	2019-20 (₹)	Average (₹)
Seer fish (Vanchiram)	620	558	575	480	500	547
Silver pomfret (Silver Vavval)	558	678	665	620	620	628
Black pomfret (KarumVavval)	423	499	535	500	460	483
Breams (Vellameen)	255	236	260	200	190	228
Grouper (Kalava)	228	227	250	70	90	173
Yellow goat fish (Nagara)	79	83	95	70	90	83
Indian Mackerel (Kumula)	87	87	90	70	80	83
Great Barracuda (Ooli)	225	227	235	180	190	211
Flat head mullet (Manala)	75	76	95	70	70	77
Gold sport mullet (Shiraiya)	80	83	95	80	70	82
Milk shark (Pal sura)	196	255	265	200	250	233
Silver whitings (Kilaikan)	109	110	125	80	80	101
Sardine (Sooda)	26	25	30	22	28	26
Crab (Nandu)	258	228	265	230	250	246
Shrimp (Export)	611	512	560	480	450	523
Tuna (Surai)	103	101	110	90	65	94
Silver bellies (Karal)	44	41	50	40	50	45
Squid (Kannavai)	129	130	205	120	140	145
Ray (Thirukai)	86	71	80	70	80	77
Anchovy (Nethili)	156	120	130	100	120	125
Oil sardine (Pechalai)	19	21	25	18	20	21
Shrimp (Dinning-Eral)	186	176	205	170	180	183

Table 2: Annual average price for the major species in retail fish markets of Ramanathapuram district for the year 2015-2020

Fish Name	2015-16 (₹)	2016-17 (₹)	2017-18 (₹)	2018-19 (₹)	2019-20 (₹)	Average (₹)
Seer fish (Vanchiram)	768	667	700	650	650	687
Silver pomfret (Silver Vavval)	687	760	790	800	800	767
Black pomfret (KarumVavval)	534	593	645	650	600	604
Breams (Vellameen)	336	314	365	300	300	323
Grouper (Kalava)	301	314	335	160	200	262
Yellow goat fish (Nagara)	190	163	190	150	220	183
Indian Mackerel (Kumula)	196	168	180	140	180	173
Great Barracuda (Ooli)	319	308	305	260	300	298
Flat head mullet (Manala)	176	152	175	150	180	167
Gold sport mullet (Shiraiya)	182	158	165	150	180	167
Milk shark (Pal sura)	289	340	345	300	350	325
Silver whitings (Kilaikan)	210	184	205	160	180	188
Sardine (Sooda)	56	50	55	40	50	50
Crab (Nandu)	338	308	340	300	320	321
Shrimp (Export)	768	640	675	650	650	677
Tuna (Surai)	218	186	195	160	160	184
Silver bellies (Karal)	120	86	120	80	100	101
Squid (Kannavai)	234	220	275	200	250	236
Ray (Thirukai)	186	158	160	180	200	177
Anchovy (Nethili)	244	203	200	200	220	213
Oil sardine (Pechalai)	36	38	45	35	40	39
Shrimp (Dinning-Eral)	279	248	275	260	280	268

Price spread or gross marketing margin

The comparative analysis of price spread from the year 2015 to 2020 in Ramanathapuram district revealed that the highest price spread was for export quality shrimp (₹154/-per kg) followed by medium size silver pomfret (₹139/- per kg) and seer fish (₹ 140/- per kg). The lowest price spread was for oil sardine (₹18/- per kg) (Fig 4).

Table 3: Price spread for the major fish species in Ramanathapuram district for the year 2015-2020

Fish Name	2015-16 (₹)	2016-17 (₹)	2017-18 (₹)	2018-19 (₹)	2019-20 (₹)	Average (₹)
Seer fish (Vanchiram)	148	109	125	170	150	140
Silver pomfret (Silver Vavval)	129	82	125	180	180	139
Black pomfret (KarumVavval)	111	94	110	150	140	121
Breams (Vellameen)	81	78	105	100	110	95
Grouper (Kalava)	73	87	85	90	110	89
Yellow goat fish (Nagara)	111	80	95	80	130	99
Indian Mackerel (Kumula)	109	81	90	70	100	90
Great Barracuda (Ooli)	94	81	70	80	110	87
Flat head mullet (Manala)	101	76	80	80	110	89
Gold sport mullet (Shiraiya)	102	75	70	70	110	85
Milk shark (Pal sura)	93	85	80	100	100	92
Silver whitings (Kilaikan)	101	74	80	80	100	87

Sardine (Sooda)	30	25	25	18	22	24
Crab (Nandu)	80	80	75	70	70	75
Shrimp (Export)	157	128	115	170	200	154
Tuna (Surai)	115	85	85	70	95	90
Silver bellies (Karal)	76	45	70	40	50	56
Squid (Kannavai)	105	90	70	80	110	91
Ray (Thirukai)	100	87	80	110	120	99
Anchovy (Nethili)	88	83	70	100	100	88
Oil sardine (Pechalai)	17	17	20	17	20	18
Shrimp (Dinning-Eral)	93	72	70	90	100	85

Percentage share of fishermen in the consumer rupee

During the year 2015-2020, fishermen earned 78-89 per cent of consumer rupee for medium size silver pomfret, whereas only 37-50 per cent was received for silver bellies (Fig 2). The fish processing company is directly procuring the high value fishes like silver pomfret, seer fish and shrimp from the landing centre for export. Hence, fishermen receive major consumer rupee share, as there is a smaller number of intermediaries in these marketing channel. Whereas, for low value fishes like silver bellies, there are many intermediaries from fishermen to the consumer. Hence, the fishermen share is very less in terms of consumer rupees. Moreover, the silver bellies are preferred for dry fish units.

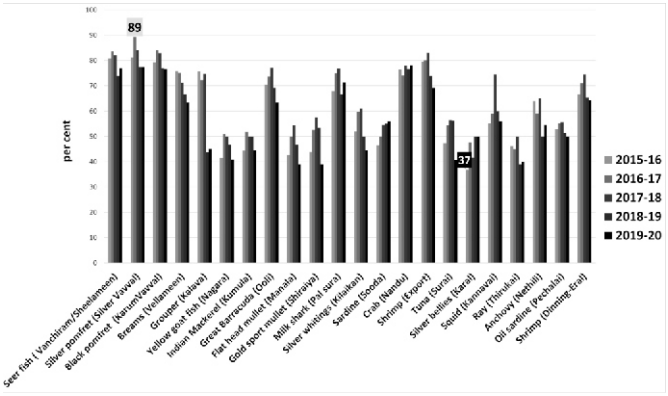

Fig 2. Average Percentage of Fishermen's Share to the Consumer's Rupee for the major species in Ramanathapuram district of Tamil Nadu for the year 2015 -2020

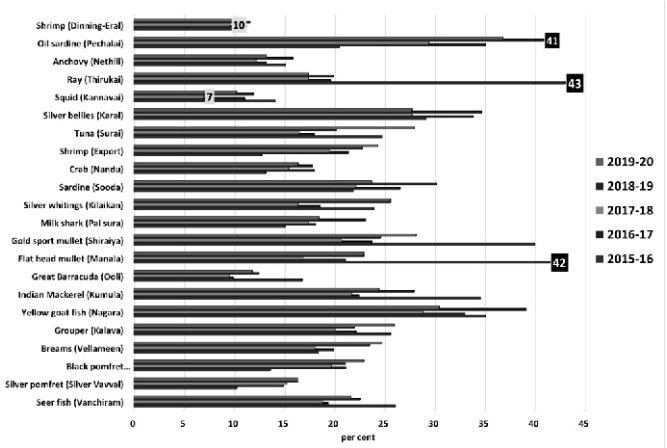

Fig 3. Coefficient of variation in percentage for the major species in landing centres of Ramanathapuram district for the year 2015 - 2020

Price stability

During 2015-2020, the analysis of the landing centre prices of fish varieties indicated that the coefficient of variation was high for ray and flat head mullet (17-43%) (Fig 3), which signifies that the price fluctuation is high. Since, the average price per kilogram varied between ₹50/- to ₹160/- for ray and ₹50/- to ₹150/- for flat head mullet. The price fluctuation was less for squid & dinning shrimp (7-14%), which signifies that price was stable for squid (₹110/- to ₹155/- per kg) and dinning shrimp (₹160/- to ₹220/- per kg). Similarly, comparing the retail centre price (Fig 4), the coefficient of variation was high for sardine (28-54%), which signifies that the price fluctuation is high (₹30/- to ₹100/-per kg) and less for dinning shrimp (4-10%) with stable price of ₹240/- to ₹270/-per kg. During the west coast ban, fishes like ray are targeted in Ramanathapuram district, since it fetches more price in Kerala market. In other season, the price is less since the catch is more. This might be the reason for price fluctuation of rays in Ramanathapuram district. Similarly, there is a fluctuation in sardine catch, which results in price fluctuation. The shrimp catch is constant over the period of time and hence there is no price fluctuation.

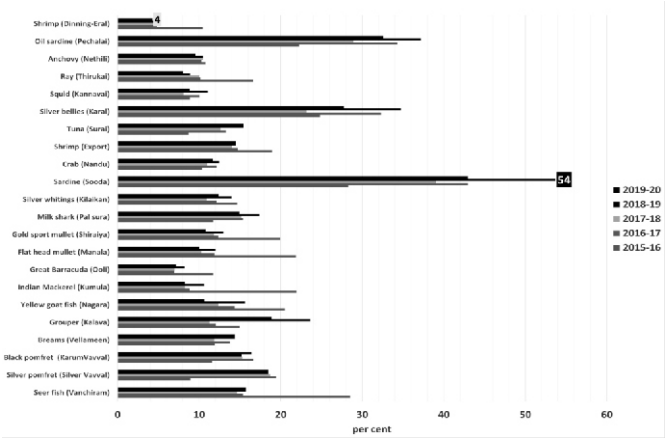

Fig 4. Coefficient of variation in percentage for the major species in retail centres of Ramanathapuram district for the year 2015 - 2020

Market efficiency

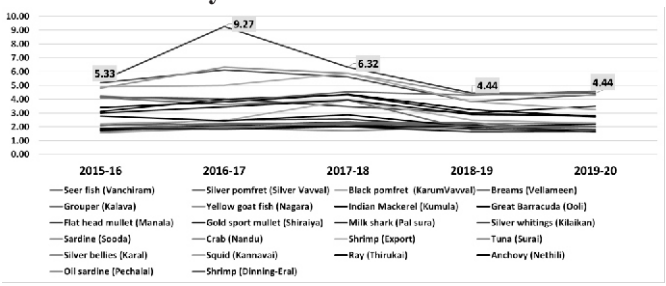

Fig 5. Marketing efficiency for the major species marketed in Ramanathapuram district for the year 2015-2020

It is evident from overall analysis that the marketing efficiency in Ramanathapuram district (Fig 8) for different species showed that for silver pomfret the marketing efficiency was highest (MEI – 4.44 to 9.27) and lowest for silver bellies (MEI –1.58 to 2.00). This is in conformity with the findings of Sathiadhas *et al.,* 1988 & 2011, Aswathy *et al.,* 2014, who reported that the marketing efficiency is better for high value fishes in comparison to low value fishes.

CONCLUSION

It can be concluded through this study in Ramanathapuram district markets that the high value fishes like silver pomfret, seer fishes and shrimp had the highest marketing efficiency and maximum percentage share of fishermen in the consumers rupee. The extent of marketing margins for fishes like silver bellies, rays and goatfishes indicates that the huge margin is grabbed by the intermediaries. Most of the markets in Ramanathapuram district is controlled by the local bodies and there is lack of infrastructure facilities like parking area, freezer and icing. Hence, there is a need for institutional support for improving the efficiency of fish marketing by creating adequate infrastructural facilities for storage and hygienic handling. The policy implications based on this study was smaller the marketing channel for medium sized high value fishes greater the marketing efficiency. More the intermediaries with high marketing margins are indicators of less efficient marketing system. The involvement of too many intermediaries needs to be restricted in order to increase the efficiency of fish marketing system and ensure lucrative price to the fishers.

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