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# PRICE SPREAD AND MARKETING EFFICIENCY FOR DIFFERENT SUPPLY CHAIN OF INLAND FISHES IN ALAPPUZHA DISTRICT, KERALA: AN EMPIRICAL ANALYSIS

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**----------ABSTRACT----------**

***The Kerala state tops in fish consumption, and its demand for fish both marine as well as inland increases day by day. Alappuzha district of Kerala is one of the major hubs which distributes both captured and cultured fishes from nearby sea, backwaters and from other waterbodies. When it has been discovered that the population of sea fish is declining owing to climate change, freshwater fish appears to rule the market. The objective of the present study is to find the liveliest supply chains of the area selected for the research, price spread, cost incurred by different intermediaries involved in the marketing of inland fishes and finally to derive its efficiency. For the study of inland fish marketing, 20 samples were collected from each trader involved in the selected supply chain viz, inland fish farmers, wholesalers, and retailers from Alappuzha district during the month of May-June 2022. It was found that retailers are the key actor in both the channel II and III, as they are the one who incur more marketing costs and receives highest marketing margin as well. The transportation charge was the major cost which incurred by the wholesalers whereas for the retailers it was expenses on ice and carry boxes. The study concludes that except direct channel, the supply chain II is more efficient than the supply chain III.***

**KEYWORDS:** ***Inland Fish Marketing, Price Spread, Marketing Cost, Marketing Margin, Marketing Efficiency, Intermediaries, Supply Chain----------***

## INTRODUCTION

In India, fish marketing has gotten minimal attention from government bodies and is primarily handled by the private sector. As a result, there are a huge number of middlemen in the marketing channels, particularly in the freshwater fish sub-sector, diminishing the proportion of the consumer rupee held by fish farmers and leading to high retail prices. In the country, there is a significant distinction between the marketing of seawater and freshwater fish; the earlier is mostly distributed in the local markets, whilst the latter is transported from various place of production to spatially dispersed marketplaces scattered across states (*Kumar, et. al, 2010*). So, creating an efficient domestic fish selling is a bit bigger task. There is a wider scope for the inland fish marketing in India and thereby protect the effort put forwarded by the freshwater fish farmers and a promising price to their produce.

The Kerala state tops in fish consumption, and its demand for fish both marine as well as inland increases day by day. Alappuzha district of Kerala is one of the major hubs which distributes both captured and cultured fishes from nearby sea, backwaters and from other waterbodies. When it has been discovered that the population of sea fish is declining owing to climate change, freshwater fish appears to rule the market. The cost of farm fish and other fish collected from the state's rivers and backwaters remains high due to the great demand for them. The unexpected rains and ensuing bans on fishing in the sea led to the scarcity of fish together with the loss in fish population caused by climate change. Consequently, sea fish are largely transported from the nearby states namely Tamil Nadu, Andhra Pradesh, Goa, and Maharashtra. By the time it gets to Kerala, the fish will be virtually rotten, and this induced in the rise of freshwater fish demand. In this regard, a study has been carried over to know the possible marketing channels involved, marketing costs and margin, price spread, marketing efficiency, and what are all the difficulties that lagging the smooth functioning of a marketing system.

## MATERIALS AND METHODS

The objective of the present study is to find the liveliest supply chains of the area selected for the research, cost incurred by different intermediaries involved in the marketing of inland fishes and finally to derive its

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efficiency. The research was conducted in Alappuzha district of Kerala during the month of May – June 2022. For the study of inland fish marketing, 20 samples were collected from each trader involved in the selected supply chain viz, inland fish farmers, wholesalers and retailers. On the ground of their response, the data has been analysed and the marketing costs, margin, price spread, and efficiency been measured for each supply chain. To fulfil these objectives, the researchers have employed the following tools to calculate marketing cost, margin received by each agent, producer's share in consumer's rupee, price spread and marketing efficiency.

**Marketing Efficiency**

According to *Acharya and Agarwal* (2001) a best possible measure of marketing efficiency in order to estimate the market performance by comparing the efficiencies of alternate marketing channels should be taken into account such as:

1. *Total Market Margin (MM)*
2. *Total Marketing Costs (MC)*
3. *Prices received by farmers (FP)*

Modified Marketing Efficiency by Acharya as follows:

$$MME = \frac{FP}{(MC+MM)}$$

**Marketing Cost**

In the marketing process, it is the total cost incurred by the producer and various middlemen involved in the selling and buying of producer till it reaches the ultimate consumer, it may be calculated as:

$$MC = C_P + \sum C_{mn}$$

Where,

MC = Total marketing cost of cultured fish

$C_P$ = Cost paid by the farmers or producer at the time cultured fish leaves the farm till he sale the produce

$C_{mn}$ = Cost incurred by $n^{th}$ intermediaries in the process of buying and selling the product

**Marketing Margin**

Marketing margin of the middlemen can be calculated by taking difference between the total receipts (i.e., sale price) as well as total payments (i.e., cost + purchase price) of the intermediaries ($i^{th}$ agency).

$$MM_n = P_{Rn} - (P_{Pn} + C_{mn})$$

Where,

$MM_n$ = Absolute marketing margin of $n^{th}$ intermediate

$P_{Rn}$ = total receipts per unit (selling price)

$P_{Pn}$ = total payments or purchase price per unit

$C_{mn}$ = per unit marketing cost incurred

**Producer's Share in Consumer's Rupee**

$$\textit{Producer's Share in Consumer's Rupee} = \frac{Price\ received\ by\ the\ farmer\ (PF)}{Price\ paid\ by\ the\ consumer\ (PR)} \times 100$$

**Price Spread**

It is nothing but the difference of price given (or paid) by the ultimate consumer and the price received by the producer or farmer for an equal quantity or amount of farm produce.

$$Price\ Spread = P_C - P_F$$

Where,

$P_C$ = Price paid by the consumer or Consumer paid price

$P_F$ = Price received by the producer or the farmer

Or

*Price Spread = Total Marketing Cost + Total Marketing Margin*

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## RESULTS AND DISCUSSION

### Channels of distribution involved in inland fish marketing

The path in which the final produce passes through from the hands of farmer or producer to the ultimate consumer is known as channel of distribution or marketing channel or supply chain. For the current research, most widely active three marketing channels of various inland fish markets of Alappuzha district have been selected likely:

**Channel I:** Fish Farmer/Producer → Consumer
**Channel II:** Fish Farmer/Producer → Retailer → Consumer
**Channel III:** Fish Farmer/Producer → Wholesaler → Retailer → Consumer

### Major findings of the study

In the process of marketing or distribution of farmed inland fishes in the study area, the farmer as well as the middlemen viz; wholesaler and retailers must have incurred some marketing costs and the price spread of each channel and the marketing efficiency has been derived.

**Table 1: Marketing Cost Incurred by Different Traders in the Supply Chain of Inland Fishes**

**(Rs. / Kg)**

| Cost Incurred | Market Intermediaries | | |
|---|---|---|---|
| | **Fish Farmers** | **Wholesalers** | **Retailers** |
| Labour Charges | 2.48 (100) | 4.17 (24.27) | 4.74 (20.65) |
| Ice and Carry box | - | 1.94 (11.29) | 5.01 (21.83) |
| Spoilage | - | 0.02 (0.12) | - |
| Cleaning | - | 0.23 (1.34) | 0.71 (3.09) |
| Packing Materials | - | - | 2.57 (11.20) |
| Rent | - | - | 1.56 (6.80) |
| Electricity | - | - | - |
| Loading / Unloading Charges | - | 2.13 (12.40) | 1.00 (4.36) |
| Transportation | - | 4.43 (25.79) | - |
| Octroi and other taxes | - | 0.06 (0.35) | - |
| Maintenance of Weighing Machine | - | 0.05 (0.29) | 3.07 (13.38) |
| Marketing Fee | - | 2.93 (17.05) | 1.90 (8.28) |
| Miscellaneous | - | 1.22 (7.10) | 2.39 (10.41) |
| **Total Marketing Cost** | **2.48 (100)** | **17.18 (100)** | **22.95 (100)** |

***Source:*** Primary Survey
***Note:*** Figure in the parenthesis () denotes percentage of each individual cost to the total marketing cost.

Marketing of produced fish will charge some cost to the agents during the time of its distribution. Soon after the catch of farmed fish the next step is to find a way to distribute or sell it to the ultimate consumer. There is a high demand for live fishes catches straight from the pond and will get a better price for the same. Table 1 portrays various costs that incurred by different traders in the selected supply chains of the study area. Retailer must incur more costs (i.e., Rs. 22.95 per Kg) than other traders as they must employ labours for dealing the customers during peak hours, then have to pay rent for the sales outlet, should buy some packing materials to dispose fish to the consumers etc.

In the marketing system, the wholesalers need to bear more cost for transportation (i.e., 25.79 per cent) followed by labour charges (24.27 per cent). But for the retailers they must incur huge proportion of cost for ice and carry boxes i.e., Rs. 5.01 per Kg of fish sold. The verdict clearly supports the study of Hatte et. al, 2017 that the transportation charge was the major cost which incurred by the wholesalers whereas for the retailers it was expenses on ice and carry boxes. The only cost incurred by some fish farmers are the labour charge i.e., Rs. 2.48 per Kg of fish sold and other marketing costs will not be applicable for the farmers as the produce will sell soon after the harvest directly to the consumers, wholesalers and retailers. So, they no need to store the fishes.

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**Table 2: Price Spread of Different Supply Chain involved in Inland Fish Marketing in Alappuzha District (Rs. / Kg)**

| Particulars | Supply Chain or Marketing Channel | | |
|---|---|---|---|
| | **I (F→C)** | **II (F→R→C)** | **III (F→W→R→C)** |
| Net Amount Received by the Fish Farmer | 246.19 | 228.33 | 215.63 |
| Cost incurred by the producer in marketing | - | 2.48 | 2.48 |
| Margin of Producer (Fish Farmer) | - | 20 | 16 |
| Price Paid by the Wholesaler | - | - | 234.11 |
| Total Marketing Cost Incurred by the Wholesaler | - | - | 17.18 |
| Sale Price of Fish by the Wholesaler | - | - | 260 |
| Margin Received for Wholesaler | - | - | 8.71 |
| Price Paid by the Retailer | - | 250.81 | 260 |
| Total Marketing Cost Incurred by the Retailer | - | 22.95 | 22.95 |
| Sale Price of Fish by the Retailer | - | 310.5 | 330.33 |
| Margin Received for Retailer | - | 36.74 | 47.38 |
| **Total Marketing Cost (MC)** | **-** | **25.43** | **42.61** |
| **Total Marketing Margin (MM)** | **-** | **56.74** | **72.09** |
| **Total Price Spread (MC + MM)** | **-** | **82.17** | **114.7** |
| Gross Price Received by the Fish Farmer | 246.19 | 228.33 | 215.63 |
| Price Paid by Ultimate Consumer | 246.19 | 310.5 | 330.33 |
| **Producer's (Fish Farmers) Share in Consumer's Rupee** *(in Percentage)* | **100** | **73.54** | **65.28** |

***Source:*** Primary Survey
***Note:*** F- Fish Farmer; W- Wholesaler; R- Retailer; C- Consumer

Table 2 describes the price spread of different supply chains selected from the Alappuzha district of Kerala. It is obvious from the table that the net return received by the fish farmers decreases as the intermediaries involved in each channel of distribution increases. The fish farmer gets a better price for their output produced when they have a direct dealing with the customers i.e., Rs 246.19 per Kg. The verdict of the current study supports the research conducted by Hatte et. al in Nanded district of Maharashtra during 2017 which say that there exists a direct relation between the length of the supply chain and marketing cost incurred by the traders and an opposite relation between the channel length with the fish farmers share with consumer rupees.

In the channel I, the producer's share in consumer rupee is 100 per cent, as the fish farmer sells the produced fish directly to the consumers. The fact is that while selling fishes to the direct consumers, the producer can demand high price for their produce. As the live fishes will get more price. Here for the study, the average price received by the inland fish farmers been taken. In normal parlance the farmer in direct channel can get a price higher than the market price. Whereas in channel II and III, the farmers share is 73.54 and 65.28 percentage respectively. The present study reveals that the retailers involved in the distribution of inland fishes in the study area are the most benefited, as the district of Alappuzha is one of the places especially Kuttanad region stands top in the tourism field and most of the tourist prefers for houseboat ride package will wish to have freshwater fishes. As a result, the retailers will get price for fishes what they demand. The middlemen in the area of study argues that the peak season for marketing the inland fishes is when there is a trawling restriction for marine fishes. At that time there will be having huge market value for freshwater fishes.

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**Table 3: Marketing Efficiency of Different Supply Chain for Inland Fishes in Alappuzha District**

| Particulars | Supply Chain | | |
|---|---|---|---|
| | I | II | III |
| Net Price Received by the Producer in Rs. Per Kg (FP) | 246.19 | 228.33 | 215.63 |
| Total Marketing Cost (MC) | - | 25.43 | 42.61 |
| Total Marketing Margin (MM) | - | 56.74 | 72.09 |
| Price Spread in Rs. Per Kg (MM + MC) | - | 82.17 | 114.7 |
| **Marketing Efficiency** ***(Acharya and Aggarwal's Method)*** **ME = FP/ (MM + MC)** | - | **2.78** | **1.88** |

***Source:*** Calculated Data (Field Survey)
***Note:*** ME - Marketing Efficiency; MM - Market Margin; MC - Marketing Cost; FP - Farmer's Price

Marketing efficiency helps to find how effectively the produced fish can be marketed in a given channel of distribution. Table 3 describes the efficiency analysis of selected marketing channels which reveals that the channel II is more efficient than the third one i.e., 2.78 and 1.88 respectively. As the former consists only a smaller number of middlemen than the latter. The efficiency of marketing channel I not been taken, because there were no intermediaries in between the producer and the consumer. The efficiency of a channel depends upon its length, net amount received by the fish farmers, margin of the traders and the cost incurred by each trader in the marketing.

## LIMITATIONS OF THE STUDY

In the study area, there were many varieties of freshwater fish present in the market, so for the current research average price of selected marketed inland fishes been taken for analysis. The data collected from the traders, mainly from the wholesalers and retailers are during the marketing hours and that is only the time they are available to approach. Due to this, the collected information may be biased.

## CONCLUSION

The study concludes that except direct channel, the supply chain II is more efficient than the supply chain III. It was found that retailers are the key actor in both the channel II and III, as they are the one who incur more marketing costs and receives highest marketing margin as well. It was observed that the transportation charge was the major cost which incurred by the wholesalers whereas for the retailers it was expenses on ice and carry boxes. The problem of unorganized marketing system in the study area needs to be addressed for the reduction of costs. So, the suitable strategies for reducing those marketing costs which need to be adopted by the concerned authorities by increasing number of marketing outlets in nearby area, ensuring effective role of cooperatives and introduction of other institutional agents into the marketing of inland fishes for the betterment. As the fishes are perishable in nature, by increasing the outlets in the study area can ensure reduction in the cost of ice as well as transportation and also the consumer can get fresh fishes and thereby a lucrative price for the farmers.

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