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Research Note

MARKETING SYSTEM OF MARINE FISH IN BANGLADESH: AN EMPIRICAL STUDY

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ABSTRACT

This paper was designed to investigate the present status of marine fish marketing aiming to determine marketing costs, margins and profits of marketing intermediaries both in domestic and export marketing. Primary data were collected by survey method wherein various market intermediaries were interviewed from selected districts for eliciting information at various stages of marine fish marketing. The study revealed that marketing margin as well as marketing profit both were relatively higher in consumer market followed by primary and secondary markets where *beparies* and *aratdars* were involved. Results indicate that high priced fish demanded high marketing cost resulting higher marketing margin and profit compared to low priced fish. In the case of dry fish marketing, irrespective of species of fish marketed, marketing margin and profit were almost doubled compared to frozen fish marketing. Like frozen fish, high valued dry fish also claimed higher marketing cost leaving higher marketing margin as well as marketing profit for intermediaries. In export marketing, both for frozen and dried fish, marketing profit depends mainly on demand for exportable fish in the world market.

I. INTRODUCTION

Bangladesh is considerably rich in extensive fisheries resources. There are two sources of fisheries - inland fisheries and marine fisheries. The inland fisheries again include capture fisheries and culture fisheries. Of these sources, capture fisheries is the most important. In 1997-98, 50, 30 and 20 percent of total catch were obtained from respectively capture fisheries, culture fisheries and marine fisheries (BBS 1998).

As the supply of freshwater fish is declining gradually in Bangladesh, the marine fish is considered to be an important source of protein. Bangladesh acquires a remarkable amount of foreign exchange every year by exporting marine fisheries products. Due to increase in demand and high price of fishes both in domestic and export market, Bangladesh has great potentiality to gain huge foreign exchange by exporting marine fishes.

The entire production of marine, estuarine and freshwater fish is easily marketed domestically except a very small quantity of selected species of fin-fishes. Traditionally,

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people of Bangladesh like to eat fresh fish. Chilled and dried fish are also marketed now a days in large quantities in the towns and cities. Utilization and marketing distribution of fish is around 70 percent fresh fish, 25 percent dried and other forms of locally processed fish including fermentation and the rest are frozen products (Hussain 1994).

The export market of value added products is highly competitive, involving changes in type of products, forms and packaging as well as consumer behaviour. Export of fish, shrimp and other fishery products were non-conventional items before the independence of the country. It has increased many-fold during the last decade and country earned more and more foreign exchange to minimize the balance of trade gap. In this case the dried marine fish, the marine fin-fish and organism even other than fish, could be on the top of the list of export earning items (Kamal and Hussain 1994). Bangladesh exported fish and fisheries products amounted Tk 2036 crores in 2000-2001 of which frozen seafood and shrimp shared more than 90 percent of the total exports of the fishery products (Bangladesh Bank 2002).

The marketing aspects of marine fisheries in Bangladesh is very important. Marine fish marketing in Bangladesh is facing a number of problems like rough handling, improper cleaning and packaging, exploitation of fishermen by traders, insufficient transportation and inadequate storage facilities, shortage of capital, market limitation etc. (Sabur and Rahman 1979). But no systematic measure has been undertaken to quantify the extent of these problems of marine fish marketing in Bangladcsh. It was estimated that 60-80% of the money that the fishermen earn by sePinp their fish goes to the middlemen (Islam 2000). It may be noted that most of the marine fishermen are engaged in artisanal fishing and usually they receive wages and salaries as they can sell their catch in landing centre. In each trip, catch revenue is distributed between boat owners and fishermen through prevailing sharing arrangement (Islam and Miah 2001). Higher catch and competitive (fair) price in landing centre provide higher revenue which can ensure better wage and remuneration for the fishermen. But in marine fish marketing system intermediaries are involved in different levels of market and sales price of fish varies in a greater scale from primary to consumers market. As a result, fishermen become deprived of fair price and hence of due share in total sales revenue. Accordingly a good marketing system is a prerequisite to ensure rational share of sales revenue for the fishermen and also for increasing the domestic supply of marine fish and realizing export potentials. A few surveys (Sabur 1977, Sabur and Rahman 1979, Khalil 1999) were conducted on marine fish marketing, but these researches were based on only domestic market. In this regard, the present study was expected to investigate the present status of marine fish marketing with a view to determining marketing costs and margins, and profits of marketing intermediaries both in domestic and export marketing.

Section II discusses methodology and data sources. Section III deals with marine fish marketing system and profitability of intermediaries. Conclusions are given in the final section.

II. METHODOLOGY AND DATA SOURCES

For marine fish marketing, a preliminary survey was made to get first hand information and then a marketing survey was conducted to have detailed information about marketing system of marine fish. However, data were collected both from primary and secondary sources. Secondary data were collected from various offices and compared with the documents of government and non-government agencies such as BFDC, DOF, marketing cooperatives etc. Primary data were collected by survey method wherein various market intermediaries were interviewed for eliciting information at various stages of marine fish marketing. Apart from these, informal interview with the primary producers, concerned traders and buyers were conducted for cross checking the marketing information.

The sampling design for marketing survey fall within the purview of stratified random sampling. In the whole marketing channel the intermediaries constitute the different strata from which the individual samples were selected randomly.

The total number of samples depends on the number of intermediaries involved in the marketing channel. In primary market (landing centre or local market) local *paikers, beparis,* and *aratdars* are involved but in secondary market (extended market) inter-district *paiker,* local *paiker* and *aratdars* are also involved. Therefore, from primary to final consumer market, there is a long chain and complicated marketing channel for distribution of marine fish. However, considering the scale of involvement of different kinds of intermediaries, a total of 75 samples were selected for the study, that is, for each of `primary', `secondary, and `consumer' market, 25 samples were selected. For primary market, landing centres in Cox's Bazar, Chittagong and Patuakhali were considered and for that of secondary and consumer market, six major districts in Bangladesh (Dhaka, Mymensingh, Sylhet, Jessore, Rajshahi and Dinajpur) were selected. For export market, data and information were collected from 15 export oriented firms and agencies. For domestic and export markets, a total of 10 major species (frozen and dry) of fish were considered to analysed the market structure and price formation.

For marine fish marketing, intermediaries involved in marketing channel were identified and marketing costs, margins and profits of marketing intermediaries both in domestic and export marketing were determined by us ng tables and flow diagrams.

III. MARINE FISH MARKETING SYSTEM AND PROFITABILITY OF INTERMEDIARIES

Marine fish contributes about 20% of total fish production in Bangladesh. The most common species of fish harvested and consumed are hilsa, catfish, pomfret, shrimp, ribbon and jew fish. Of these, hilsa alone contributes more than 50% of total marine fish marketed (Table 1). Hilsa is the only species which is marketed and consumed all over Bangladesh. But for other species, marketing system is not yet widened and most of them are distributed to

district fish market and consumed by small number of consumers. Except hilsa, other species of marine fish are scarcely available and yet not popular in rural areas of Bangladesh because of underdeveloped marketing system.

Marketing System of Marine Fish

The marketing system operates through a set of intermediaries performing useful commercial functions in a chain formation all the way from the producers to the final consumers. The commercial units composing the fish marketing system can be grouped into three categories - fish suppliers *(beparies),* fish brokers *(aratdars)* and fish retailers.

Beparis (locally called *'Forsay')* obtain their supplies of fish directly from fishermen as they come ashore with their catch. The *aratdars* who operate in small numbers in the district (or extended) markets and in large numbers in big city e.g., Dhaka, usually obtain their supplies from *beparies.* Fish retailers in turn obtain their supplies either from *a aratdar* or *bepari,* or when convenient directly from the producer at the landing points. The entire marketing function of the fishing industry is conducted through these categories of middlemen (Fig. 1). In this chain of commercial relationships linking fish producers with fish consumers, the private sector handles more than 95% of fish produced in the country.

Marketing Channels

Marketing channel is the sequence of intermediaries through which harvested fish passes from producers to consumers. This channel may be short or long depending on kind and quality of fish marketed, available marketing services and the prevailing social and physical environment. In the present study the major species (Table 1) which cover more than 80% of marine fish marketed, were selected to determine the marketing channels, marketing costs, marketing margins, and profits of intermediaries involved in marine fish marketing. In domestic and export markets both frozen and dry fish were considered. The channels of distribution of frozen and dry fish (Fig. I and 2) show that, apart from producers, sellers of different categories participate in the marketing channels of marine fishes in the study areas. The market participants include producers (fishermen), *beparies, aratdars,* retailers, processing plants and export agencies.

Producers

In Cox's Bazar, Chittagong and Barisal-Patuakhali, the fish producers often sell their fish of the boats at the fishery *ghats* or fish landing stations. In few cases the producers who have many boats and have large volume of catch can bring their fish to wholesale markets *(arat)* at the town or district markets. During the peak season, sometimes the producers go to district markets to sell their fish at a higher price. Most of the producers usually sell their products to *beparies* at the landing stations and to some extent, interdistrict *aratdars* and processing nlants and agencies.

Beparies

In marine fish marketing, *beparies* are professional marine fish traders and they purchase fish from producers and sell their consignments to the retailers through *aratdar*s or commission agents. Usually, they purchase fish from the producers in landing centres and bring their products to different *arats* centres for sale. *Beparies* are well organized and they handle about 72% and 52% of frozen and dry fish produced respectively. In every interdistrict wholesale market, there are roughly 10 to 40 parties of such *beparies* and in each party there is at least 12 to 20 persons. They are professional businessmen and have wide experience in fish marketing. Most of the *bepries* employ temporary labourers to be involved in activities of fish marketing. *Beparies,* who purchase fish from the fishery *ghats*/landing centres sell it through the *aratdars* and pay 3-5 % commission to *aratdars* for selling their products.

Table 1. Major species of marine fish marketed and their share to marine fish marketing system.

Marine fish marketed	Primary market (landing station market)	Secondary market (Extended market/district market)	Consumer market (Local market in district and other areas)
% availability and distribution of fish marketed in different levels of domestic market			
Frozen fish			
Hilsa	50	70	80
Catfish	7	15	10
Pomfret	5	3	3
Tuna (Maittya)	6	1	-
Others species	32	11	7
Dry fish			
Tuna (Maittya)	30	45	55
Ribbon fish	35	25	30
Pomfret	10	15	5
Others species	25	15	10
% availability and distribution of fish marketed in export market			
	Frozen fish	Dry fish	
Shrimp	70	-	-
Hilsa	15	-	-
Giant seaperch (Bhetki/Koral)	2	-	-
Indian Salmon (Lukua)	3	-	-
Others species	-	-	-
Jew fish	-	40	-
Ribbon fish	-	11	-
Hangor	-	5	-
Tuna (Maittya)	-	4	-
Others species	-	40	-

Second, there are some rich *beparies* who own carrier boats and launches and purchase fish from the sea from the fishermen and bring their products to sell the same through the *aratdars*.

Third, there are few local *beparies* who purchase fish from different wholesale markets and sell their products to the retailers at higher prices.

Aratdars

The *aratdar* is a commission agent who has a fixed establishment and helps the *beparies* to sell their products and charges usually a fixed commission of Tk 30 to 40 per thousand taka of sales revenue. Since commission is charged on sales revenue, an *aratdar* tries to sell fish at higher prices. There are 20 to 35 *aratdars* in different district headquarters. They provide short period storage facilities and also perform the function of grading. They make cash payments to *bepries* and supply fish to retailers, in most cases, on credit. *Aratdards* do not share any cost of *beparies* or retailers. They hire labourers and salaried persons for performing various functions such as loading, unloading, weighing, grading, etc. Usually, they handle larger volume of fish than the *beparies.*

The *aratdars* often advance loans to *beparies* on the condition that the *beparies* have to sell fish through them. A bepari may take money from more than one *aratdar* and in this case he divides his products and sells through different *aratdars.*

The *beparies* and *aratdars* reported that about 70% of marine fish produced is sold by auction through *aratdars.* Some *aratdars* in landing stations purchase exportable fish directly from the producers (Fig. 1).

The most important aspect of *aratdars'* business is that *aratdars* do not purchase fish but they facilitate selling fish with the provision of taking commission. *Aratdars* are also organized and they need license for operating the business.

Retailers

The retailers form the last link in the marine fish marketing chain. They buy fish from the *aratdars* mostly on credit and sometimes on cash payment and sell it to the consumers. The customer obtains her/his requirements for fish from the fish retailer who, in turn, obtains supplies from *aratdars* and *beparies* (Fig. 1).

Involvement of Marketing Cost in Different Levels of Markets

Marketing cost in domestic marketing

Marketing costs represent the cost of performing various marketing functions which are needed to transfer a commodity from the place of production to the ultimate consumers.

In marine fish marketing the nature and types of costs at different stages in the marketing process are not identical due to the dissimilarities of marketing functions at various stages. Through marketing channels usually frozen and dry fish of different sizes are marketed in different levels of markets. In each of frozen and dry fish markets, only some marketed species of fish were selected for this study. Accordingly, both in domestic and export markets, costs of marketing of frozen and dry fish at different levels of market were estimated.

Fig. 1 Channels of distribution of frozen fish

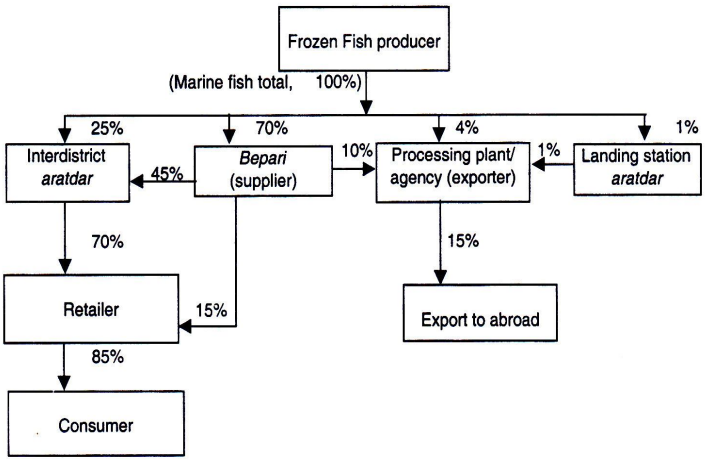
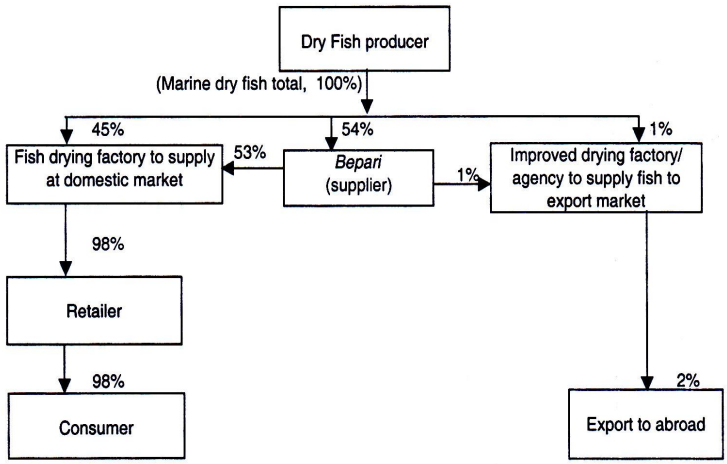


Fig. 2 Channels of distribution of dry fish



Note: Marketing channels of frozen and dry fish were constructed depending on information collected from marketing intermediaries involved in different levels of market. Percentage distribution of frozen fish in the market are shown considering the total marine production but in case of dry fish marketing, it was assumed that 5% of marine total are dried up and marketed and accordingly marketing distribution are made.

In domestic marketing, four species viz., hilsa, catfish, pomfret and tuna are mostly consumed as frozen fish and they were selected to estimate the marketing cost and marketing margin and profit of intermediaries involved in marketing channel (Table 2) while in case of dry fish marketing, only three species (tuna, ribbon fish and pomfret) were selected (Table 3).

Marketing of frozen fish

As indicated in section 2 that mainly three types of intermediaries viz., *beparies*, *aratdars* and retailers are involved in marine fish marketing and their marketing costs incurred for different operations in primary, secondary and consumer market are shown in Table 2. These three categories of intermediaries perform different marketing operations and functions and accordingly, there is a large variation in marketing costs incurred by the intermediaries.

Table 2. Average costs incurred for frozen fish in domestic marketing

(Tk/Kg)

Items of marketing cost	Primary market Bepari (supplier)	Secondary market Aratdar (broker)	Consumer market Retailer
Icing	0.88 (18)	-	0.83 (42)
Transportation and loading and unloading	1.14 (23)	0.27 (26)	0.19 (10)
Rent of market place	0.25 (5)	0.20 (29)	0.18 (9)
Market tolls	0.14 (3)	0.15 (15)	0.02 (1)
Weight loss/damaged	0.14 (3)	-	0.49 (25)
Wage and salaries of workers	-	0.31 (30)	-
Aratdar commission	2.13 (43)	-	-
Others	0.21 (4)	0.10 (10)	0.28 (14)
Total marketing cost	5.00 (100)	1.03 (100)	1.99 (100)

Figures within parentheses indicate percentage of total marketing cost.

Note: For frozen fish marketing Hilsa, Catfish, Pomfret and Tuna (Maittya) were selected.

After purchasing fish from landing stations *beparies* carry it by using trucks to interdistrict markets and they perform the marketing functions of assembling, icing, loading and unloading. They also pay for market tolls, electricity and rent for *arat* houses. *Beparies* sell their fish to the retailers through *aratdars* and they have to pay 3 to 4% commission to *aratdars* from their sales revenue.

It may be noted here that payment of commission makes the marketing costs higher for *beparies* than for retailers. However, marketing costs for each Kg of frozen fish were estimated to be Tk 5.00, 1.03 and 1.99 for *beparies*, *aratdars* and retailers respectively. In exchange for taking commission, *aratdars* simply help *beparies* to sell their products and collect buyers (retailers) to purchase it without taking any risk of loss or damage of fish. Accordingly, *aratdar's* marketing cost is lower (Tk 1.03/kg) compared to that of *beparies* and retailers.

Specieswise average marketing costs and sales price of frozen fish in domestic marketing in different locations are shown in Table 3 which reveals that there is small variation in marketing costs at different locations of primary market. *Beparies* in Patuakhali incurred

lower cost (Tk 4.88/kg) and their sales price (Tk 85.25/kg) was also lower compared to that of Cox's Bazar and Chittagong.

Table 3. Average marketing cost and sales price of different species of frozen fish in domestic marketing in different locations

(Tk/kg)

Markets and Locations	Hilsa		Cat fish		Pomfret		Tuna (Maittya)		All species	
	Mktg cost	Sales Price	Mktg cost	Sales Price	Mktg cost	Sales Price	Mktg cost	Sales Price	Mktg cost	Sales Price
1. Primary market (supplier or *Bepari*)										
Cox's Bazar	5.04	83.00	4.20	43.00	6.72	194.00	4.40	54.00	5.09	94.50
Chittagong	5.07	85.00	4.35	45.00	6.50	202.00	3.98	60.00	4.98	98.00
Patuakhali	4.83	81.00	3.79	38.00	6.49	180.00	4.39	42.00	4.88	85.25
Average	4.98	83.00	4.12	42.00	6.57	192.00	4.57	52.00	5.06	92.25
2. Secondary market (Broker or *Aratdar*)										
Dhaka	1.20	78.00	0.65	44.00	1.48	208.00	0.91	60.00	1.06	97.50
Mymensingh	1.20	79.00	0.74	46.00	1.57	191.00	1.07	56.00	1.15	93.00
Sylhet	2.50	96.00	1.23	40.00	2.15	209.00	1.32	58.00	1.80	100.75
Jessore	1.30	79.00	0.69	41.00	1.64	194.00	0.98	56.00	1.15	92.50
Rajshahi	1.40	95.00	0.83	48.00	1.31	194.00	0.98	56.00	1.13	98.25
Dinajpur	1.20	95.00	0.70	49.00	1.39	199.00	1.03	50.00	1.08	98.25
Average	1.43	87.00	0.80	49.00	1.59	199.00	1.05	56.00	1.22	97.75
3. Consumer market (Retailer)										
Dhaka	3.30	95.00	2.84	48.00	3.44	200.00	3.24	60.00	3.21	100.75
Mymensingh	3.34	99.00	3.21	50.00	3.79	210.00	3.11	64.00	3.57	105.75
Sylhet	3.40	102.00	3.50	53.00.	4.19	220.00	3.59	67.00	3.57	110.50
Jessore	2.95	92.00	2.92	52.00	3.39	210.00	2.99	66.00	3.06	105.00
Rajshahi	3.04	98.00	3.08	54.00	3.61	213.00	3.09	67.00	3.21	108.00
Dinajpur	3.14	96.00	3.23	55.00	3.49	207.00	3.04	66.00	3.23	106.00
Average	3.20	97.00	3.13	52.00	3.65	210.00	3.18	65.00	3.29	106.00

In the secondary market, both average marketing costs and sales price were higher in Syhlet. In case of consumer market, both marketing costs and sales price were higher in Sylhet compared to other locations in secondary market and consumer market. Even in case of individual species, small variation was observed in marketing cost as well as in sales price both in secondary market and consumer market. However, for frozen fish, consumers market and secondary market were competitive compared to primary market.

Marketing of dry fish

In dry fish marketing, owners of drying factories purchase fish from fish landing centres or suppliers and bring fish to their own processing/drying plants. They perform different activities in processing plants to make it ready for sale. The costs items of drying factories include loading and unloading, transportation, wage and salaries of staff and use of processing materials. Owners of drying fish factories also pay commission to *aratdars* when they sell fish through *arat* and it claims about 20% of total marketing cost (Table 4).

Table 4. Cost incurred for dry fish in domestic marketing

(Tk/kg.)

Items of marketing cost	Primary market/ Drying factory (*Bepari*)	Secondary market (Aratdar)	Consumer market (Retailer)
Transportation, loading and unloading	0.44 (6)	-	0.25 (7)
Salary of employee	1.19 (17)	1.16 (48)	0.44 (12)
Wage for casual labour	0.89 (13)	0.48 (20)	-
Packaging with polythene	0.48 (7)	-	0.92 (25)
Bleaching powder	0.10 (9)	-	-
Wastage	0.59 (9)	-	1.02 (28)
Commission paid	1.42 (20)	-	-
Others[1]	1.82 (26)	0.78 (32)	1.07 (28)
Total marketing cost	6.93 (100)	2.42 (100)	3.70 (100)

Figures within parentheses indicate percentage of total marketing cost.
Note: For dry fish marketing Tuna (Maittya), Ribbon fish and Pomfret were selected.
[1] Others included electricity, maintenance and rent of processing plant.

In comparison with frozen fish marketing, intermediaries involved in dry fish marketing incur more costs since the fish to be marketed are dried up and processed to sell it in good and hygienic condition. In the present study, estimated marketing costs for per Kg of dried fish for processing plants, *aratdars* and retailers were Tk 6.93, 2.42 and 3.70 respectively.

Marketing cost in export marketing of frozen fish

There are 98 processing plants including 17 drying factories in Bangladesh. Most of the plants are situated in Khulna, Cox's Bazar and Chittagong. These processing plants process both marine and fresh water fish and extend facilities to export fish abroad. In case of marine fish they collect fish from the *beparies* or suppliers. Some of the owners of processing plants own mechanized boats or trawlers from where they can collect fish for their plants. Marketing cost increases if they have insufficient supply of fish for their plants. In that case processing plants have to gather fish from other sources and even sometimes they collect fish from other plants. When required amount of processed fish are stocked, the processors usually export fish abroad. In case of wild (catch) shrimp, both processing and packaging are done in harvesting trawler.

Bangladesh exports frozen, dried, salted, and dehydrated fish. In the present study both frozen and dried fish were selected for fish marketing analysis. For each of frozen and dried fish markets four species, as shown in Tables 5 and 8, were selected because these species cover major amount of fish marketed. Table 5 shows that processing plant (or agencies) incurred Tk 36.00 and 58.60 per kg for processing and marketing of marine fish respectively.

Fish drying factory or plant incurred higher cost because more efforts and materials are needed for marketing of dried fish compared with frozen fish. However, both for frozen and dried fish marketing, wage and salaries of employees, packaging, freight and transportation were the main items of marketing cost for export marketing.

Table 5. Average cost of processing plant/agencies for exporting frozen fish and dry fish

Items of processing and marketing cost	Processing and marketing cost, Tk/kg	
	Frozen fish[1]	Dry fish[2]
Transportation, loading and unloading	1.34 (3.72)	4.50 (7.68)
Wage and salaries for employees	8.08 (22.44)	10.30 (17.58)
Use of electricity and freezing	3.73 (10.36)	1.10 (1.88)
Using medicine and salt	-	3.20 (5.46)
Packaging/Drying and packaging	7.09 (19.70)	12.35 (21.08)
Capital cost	2.02 (5.61)	1.60 (2.73)
Commission paid[3]	-	5.15 (8.78)
Freight	4.47 (13.53)	5.50 (9.38)
Others	8.87 (24.64)	14.90 (25.43)
Total cost	36.00 (100.00)	58.60 (100.00

Figures within parentheses indicate the percentage of total cost.

[1] Shrimp, Hilsa, Indian Salmon (Lukua) and Giant Seaperch (Bhetki) were selected.
[2] Jew fish, Ribbon fish, Hangor and Tuna were selected.
[3] costs incurred for commission paid to supplier, charges of clearing and forwarding, shipments etc.

Marketing Margin and Profitability of Intermediaries

Marketing margin and marketing cost are usually used to estimate the profitability of intermediaries involved in marine fish marketing. Marketing margin at a particular stage of transaction is the difference between sales price and purchase price while marketing profit is the difference between the marketing margin and marketing cost for each species of fish marketed. Total marketing margin is the difference between the price received by the producer and the price paid by consumer. Marketing margin is the price for additional activities and functions performed by intermediaries (Kohls and Uhl 1980).

However, marketing cost and marketing margin of respective categories of intermediaries are the main determinants of the profitability in marketing of marine fish. Secondly, marketing margin at a particular level of market is greatly influenced by the supply of and demand for fish marketed. At each level of market, most of the intermediaries act as buyers as well as sellers. Accordingly, their market margins depend on market condition in times of buying and selling.

Domestic marketing

Marketing margins and profitability of different intermediaries, both for frozen and dry fish, were estimated separately and are shown in Tables 6 and 7. Results are presented for individual species and average of all selected species and finally, total marketing margin and profit are estimated for easy understanding and presentation.

In respect of marketing margin and profitability of intermediaries involved at different levels of market, market scenario is different in frozen fish and dry fish markets (Fig. 3 and 4). Table 6 shows that like individual species, marketing margin as well as marketing profit are relatively higher in consumer market followed by primary and secondary markets where

beparies and *aratdars* are involved. Table 6 indicates that high priced fish demand high marketing cost resulting in higher marketing margin and profit compared to low priced fish. It was reported that processing and transportation costs were higher for high valued species compared to other low valued species. Considering all species in frozen fish market the average marketing margins for each Kg of fish were Tk 8.50, 5.00 and 9.50 respectively in primary, secondary and consumer market and the corresponding values for marketing profits for three different markets were Tk 3.44, 3.78 and 6.21 per Kg respectively. Adding up the average values of marketing margin and profits at different levels of market, total marketing margin and profit were estimated at Tk 23.00 and 13.43 per kg respectively.

Table 6. Profitability and marketing margin of frozen fish in domestic marketing

(Tk/kg)

Particulars of marketing	Hilsa	Cat fish	Pomfret	Tuna (Maittya)	Average
Primary Market					
Purchase price (PP)	75.00	35.00	180.00	45.00	83.75
Marketing cost (MC)	4.98	4.12	6.57	4.57	5.06
Sales price (SP)	83.00	42.00	192.00	52.00	92.25
Marketing margin (MM=SP-PP)	8.00	7.00	12.00	2.00	3.44
Marketing profit (MP=MM-MC)	3.02	1.88	5.41	2.43	8.50
Secondary Market					
Purchase price (PP)	83.00	42.00	192.00	52.00	92.25
Marketing cost (MC)	1.43	0.80	1.59	1.05	1.22
Sales price (SP)	87.00	47.00	199.00	56.00	97.25
Marketing margin (MM=SP-PP)	4.00	2.00	7.00	4.00	3.78
Marketing profit (MP=MM-MC)	2.57	1.20	5.41	2.95	5.00
Consumer Market					
Purchase price (PP)	87.00	44.00	199.00	56.00	96.50
Marketing cost (MC)	3.20	3.13	3.65	3.18	3.29
Sales price (SP)	97.00	52.00	210.00	65.00	106.00
Marketing margin (MM=SP-PP)	10.00	8.00	11.00	9.00	6.21
Marketing profit (MP=MM-MC)	6.80	4.87	7.35	5.82	9.50
Total marketing margin and profit					
Total marketing margin[1]	22.00	20.00	30.00	20.00	23.00
Total marketing profit	12.39	7.95	18.17	11.20	13.43

[1]Total marketing margin and profit covered mostly the variable cost for fish assembling, processing and distribution

In dry fish markets irrespective of species of fish marketed, marketing margins and profits were almost twice as large as the amount in the frozen fish market. Like frozen fish, high valued dry fish also claimed higher marketing cost leaving higher marketing margin as well as marketing profit for intermediaries. It may be noted here that unlike frozen fish marketing, processors (or assemblers) in primary market received higher marketing profit followed by retailers and *aratdars* in consumer market and secondary market respectively. However, considering all selected species, total marketing margin and profit per kg were Tk 23.00 and 13.43 respectively.

In the marketing system, although intermediaries provide services and marketing facilities and incurred cost for them, but still marketing margin and profit in different levels of market were rather higher. From Tables 6 and 7, it can be seen that if purchase price of primary market and sales of price of consumer market are considered, fishermen received 79 and 77% of total final price (sales revenue) respectively for frozen and dry fish in domestic marketing.

Table 7. Profitability and marketing margin of dry fish in domestic marketing

(Tk/kg)

Particulars of marketing	Tuna (Maittya)	Ribbon fish	Pomfret	Average
Primary Market				
Purchase price (PP)	30.00	45.00	400.00	158.30
Marketing cost (MC)	5.71	6.16	8.81	6.93
Sales price (SP)	50.00	66.00	430.00	182.00
Marketing margin (MM=SP-PP)	20.00	21.00	30.00	16.77
Marketing profit (MP=MM-MC)	14.27	14.84	21.19	23.70
Secondary Market				
Purchase price (PP)	50.00	66.00	430.00	182.00
Marketing cost (MC)	2.24	2.31	2.70	2.42
Sales price (SP)	56.00	72.00	439.00	189.00
Marketing margin (MM=SP-PP)	6.00	6.00	9.00	4.58
Marketing profit (MP=MM-MC)	3.76	3.69	6.30	7.00
Consumer Market				
Purchase price (PP)	56.00	72.00	439.00	189.00
Marketing cost (MC)	3.39	3.58	4.10	3.70
Sales price (SP)	70.00	85.00	460.00	205.00
Marketing margin (MM=SP-PP)	14.00	13.00	21.00	12.30
Marketing profit (MP=MM-MC)	10.61	9.42	16.90	16.00
Total marketing margin and profit				
Total marketing margin	40.00	40.00	60.00	12.30
Total marketing profit	28.64	27.95	44.39	33.65

Export marketing

Owners of processing plants and export agencies export fish to different countries of the world. In export marketing, marketing profit depends mainly on demand for exportable fish in the world market. Table 8 and Fig. 5 show marketing margin and profitability of processing plant/agencies in exporting frozen and dry fish. Table 8 shows that frozen fish exporters earned net profit of Tk 44.65 to 69.75 per kg while in case of dried fish, exporters obtained marketing profit of Tk 32.00 to 89.00 by exporting four different species of fish. Per kg value of marketing margin varied from Tk 78.00 for giant seaperch to Tk 104.00 for Indian salmon. The most important species i.e. shrimps were exported with the marketing margin of Tk 100.00 per kg and that raised profit level to Tk 56.82 only.

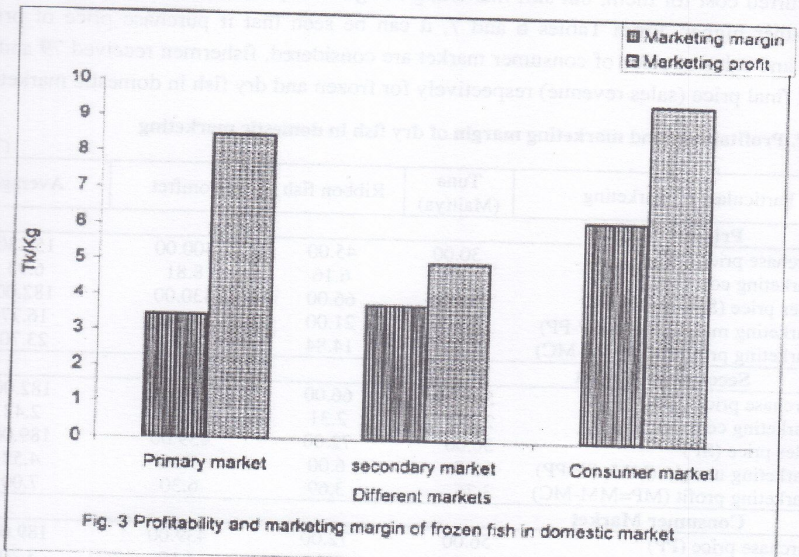


Fig. 3 Profitability and marketing margin of frozen fish in domestic market

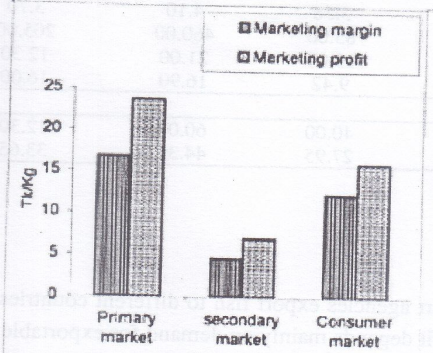


Fig. 4 Profitability and marketing margin of dry fish in domestic marketing

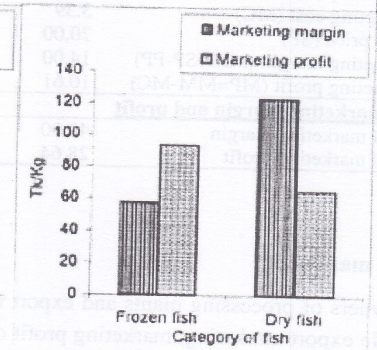


Fig. 5 Marketing margin and profitability of processing plant/agencies in exporting frozen and dry fish

Table 8. Marketing margin and profitability of processing plant/agencies in exporting frozen and dry fish

(Tk/kg)

Particulars of marketing	Selected species for export marketing				
	Shrimp	Hilsa	Indian salmon	Giant seaperch (Bhetki)	Average cost
Export Market (Frozen fish)					
Purchase price (PP)	600.00	83.00	96.00	72.00	212.75
Marketing cost (MC)	43.18	33.98	34.25	33.35	36.20
Sales price (SP)	700.00	175.00	200.00	150.00	306.25
Marketing margin (MM=SP-TC)	100.00	92.00	104.00	78.00	57.30
Marketing profit (MP=MM-MC)	56.82	58.02	69.75	44.65	93.50
Export Market (Dry fish)	Jew fish (Poya)	Ribbon fish (Churi mach)	Hangor	Tuna (Loyatta)	Average cost
Purchase price (PP[1])	473.00	53.00	88.00	88.00	175.50
Marketing cost (MC)	104.00	30.00	50.00	50.00	58.60
Sales price (SP)	770.00	165.00	220.00	275.00	357.50
Marketing margin (MM=SP-TC)	193.00	82.00	82.00	137.00	123.50
Marketing profit (MP=MM-MC)	89.00	52.00	32.00	87.00	65.00

[1] On an average 3.5 kg = 1 kg dried fish. Accordingly, purchase price considered the value of 3.5 kg fish for 1 kg dried fish.

In dried fish export marketing, jew fish is the most important species followed by tuna, ribbon fish and hangor. Although there was big difference of purchase price between jew fish and tuna but their marketing profits were almost same that is Tk 87.00 for tuna and 89.00 for jew fish respectively. By exporting the shark fins, exporters earned profit only Tk 32.00/kg which was the lowest among the species exported. Moreover, it can be noticed from Table 8 that usually in the export market high valued species of fish are exported which also claimed higher cost for its processing and marketing but again, marketing margin and marketing profit were very high which goes to the intermediaries and fishermen received only 60 and 49% of total final price (sales revenue) respectively for frozen and dry fish in the export market.

IV. CONCLUSIONS

The study has revealed some valuable information regarding marine fish marketing which have great policy implications. With regard to marketing system and price formation, it seems that the fish assembling in the primary market and fish retailing in the secondary markets are less competitive and accordingly, marketing profit is very high specially in case of dry fish in the domestic market and for both frozen and dry fish in the export market. In such marketing system intermediaries receive higher marketing profit which on the other hand, deprive the fishermen because they could have received higher sales revenue if they could sell the catch in fair (real) price in the primary market in landing station. In this respect, primary market should be free from the control of *aratdars* to make the market competitive so that fishermen could receive fair price to increase their sales revenue.

There is variation in profits earned by various types of assemblers due to *aratdars* commission on selling fish in the secondary markets. Marketing costs and marketing margins also influence the marketing profits. Policy should be aimed at rationalizing or eliminating *aratdars* commission through state monitored restructure of the marketing arrangement. It would help reduce the market price of fish where commissioning system is involved. Concerning the distribution of marine fish, marketing system is yet not developed in Bangladesh and as a result, fish harvested are mostly available in coastal regions and in some other towns and cities. Only hilsa as a popular fish is available all over Bangladesh. However, marketing system should be developed to make available other marine fishes at each of the district markets and if possible, at some village markets so that people from all corners can consume marine fish which are cheap but nutritionally rich and good for health.

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