

STATUS AND ECONOMICS OF THREE UPAZILLA FISH MARKETS IN MOULAVIBAZAR DISTRICT IN BANGLADESH

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Abstract

A study was conducted on fish marketing system to find out different marketing channels, marketing cost, and margins of fish at different intermediaries in Moulavibazar district, Northeast Bangladesh. It was carried out from August 2012 to July 2013 in six markets through questionnaires method. A large number of intermediaries were involved in fish marketing channel as *aratdar* (commission agent), *paiker* (wholesaler) and retailer. Seven marketing channels were identified. *Paiker* or *bepari* (wholesaler) brought fish from producer and finally sold fish to retailer through *aratdar* with commission. In some cases producer bought fishes to *arat* (wholesale market). Total marketing cost of producer, *aratdar*, *paiker* and retailer were Tk. 8.47 ± 0.225 , 1.39 ± 0.284 , 10.99 ± 0.467 and 3.21 ± 0.186 kg⁻¹ of fish, respectively. Total marketing costs for different intermediaries were Tk. 24.05 kg⁻¹ fish in Moulavibazar district. During peak period, (i.e., November to January) average net profit of *aratdar*, *paiker* and retailer were Tk. 3.48 ± 0.072 , 3.32 ± 0.059 and 6.142 ± 0.075 kg⁻¹ fish, respectively. During lean period (April to July), average net profit of *aratdar*, *paiker* and retailer were Tk. 4.06 ± 0.079 , 3.65 ± 0.073 and 7.14 ± 0.08 kg⁻¹ fish, respectively. Net margin of intermediaries during peak and lean period were Tk. 4.31 and 4.95 kg⁻¹ fish, respectively. This study explores important information about the sustainable and effective fish marketing system in Moulavibazar and other areas of the country.

Keywords: Economic status, marketing channel, marketing cost, marketing margin, peak and lean period

Introduction

Marketing channel is the channel that transfer product from producer to consumer. Shusterman (2013) defines marketing channel as a set of practices or activities necessary to transfer the ownership of goods and to move goods from the point of production to the point of consumption as such, which consists of all the institutions and all the marketing activities in the marketing process. In addition, Shepherd (1996) stated that marketing channel refers to the sequence of stages involved in transferring product from the farm to the consumer. Fish marketing is the act of buying or selling fish or fishery products. Several studies reported that marketing provides the channel of communication between the producers and consumers which passes through a number of intermediaries: *farias* (fish hawkers), *beparies*, retailers, and *aratdars* (Flowra, 2012; Rahman *et al.* 2012; Ali *et al.* 2014). Fisheries marketing comprise all the activities, involved in the movement of fish or fishery products from the farm or industries to the final consumers or final users. Agarwal (1990) affirmed that the fish marketing should not have the object only catching and selling of fish but should have the wide scope for exploitation production, distribution, preservation and transportation of fish in addition to actual sale of fishes by reducing middlemen. Marketing system influenced by number of factors including intermediaries, season of catching, availability and species (Sarker, 1999). Moulavibazar district is recognized as the fisheries zone of the country. Marketing system of Moulavibazar is yet to be understood as there is no previous information due to remote marketing areas and poor communication system. Therefore, the present study was conducted to investigate the existing marketing channel and calculate the marketing cost, marketing margin of intermediaries during peak (November to January) and lean period (April to July).

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Materials and Methods

Six fish markets from Moulavibazar district were selected as research sites, these are Poschim Bazar/Gobindroshree Bazar, T.C. market (Moulavibazar Sadar); Notun Bazar, Hazipur Bazar (Shreemongal); Uttar Bazar and Dhakkin Bazar (Kulaura). The data were collected for twelve months from August 2012 to July 2013. Each research site was visited twice a week. A total of 108 fish traders, 18 producers and 30 consumers were selected for interview in six different markets. They were selected for questionnaire interviews and focus group discussion through simple random sampling method. A well structured questionnaire were prepared and pretested and moderated for collecting the information by interviewing with them. In the present study, the criteria that were used to measuring the efficiency of fish marketing system were marketing cost, marketing margin of the intermediaries, availability of fish and problem faced by intermediaries.

The Gross margin, marketing cost and net margin were calculated as;

- (i) Gross margin = Selling price - purchase price;
- (ii) Marketing cost = Labor cost + transportation cost + storage cost etc.;
- (iii) Net margin = Gross margin – marketing cost,

These data were verified and tubular technique was applied for data using simple statistical tools like mean, percentages and ANOVA followed by DMRT.

Results and Discussion

The marketing channel was traditional and remained in the hands of the private traders and the government has no functions in this system. Thus, fish price fluctuates through three intermediaries: *bepari/paiker*, retailer, and *aratdar* in Moulavibazar district. Three intermediaries were also found by Goon (2012) and Jamali (2013) in Mymensingh and Tangail fish market, respectively. Additionally, seven fish marketing channels were found in Moulavibazar district (Fig. 1). Selection of a suitable marketing channel was found to be depended upon the volume and quality of catch, distance of the market and the requirements of the consumers. Fishes are comes with producers from farm site and or *haor* region and passes to consumer through single or combination of all intermediaries (*paiker/aratdar/retailer*). The producers usually contacted with the *paiker* or *bepari* prior to harvest fish and they purchased the fish at the pond site and carry them to the fish markets.

In some cases, fisherman catches fish from producer's pond and sells in the market. In that case fisherman gets some commission by selling fish. Huge amount of fishes were come from *haor* and farms to *Arat*. Retailer collects fish from *Arat* and some cases from farmers. Bahadur (2004) found seven marketing channels in Trisal and Fulbaria upazilla of Mymensingh district which is similar to the present study.

Marketing cost

The prices of fishes were found to be significantly fluctuated in the different marketing process throughout the research sites. This fluctuated from producer to consumer by the involvement of various intermediaries.

Marketing cost of Producer

Major marketing costs of producer in different market were transportation, market toll, loading and unloading, personal expenses, grading and mobile phone cost. Table 1 shows a significant ($P < 0.05$) variation at marketing cost among the producers of different areas in Moulavibazar district.

Marketing cost of Aratdar

Major marketing costs of *Aratdar* in different fish market are shown in Table 2. There was significant ($P < 0.05$) variation in marketing cost among the *Aratdar* of three different area in Moulavibazar district (Fig. 3).

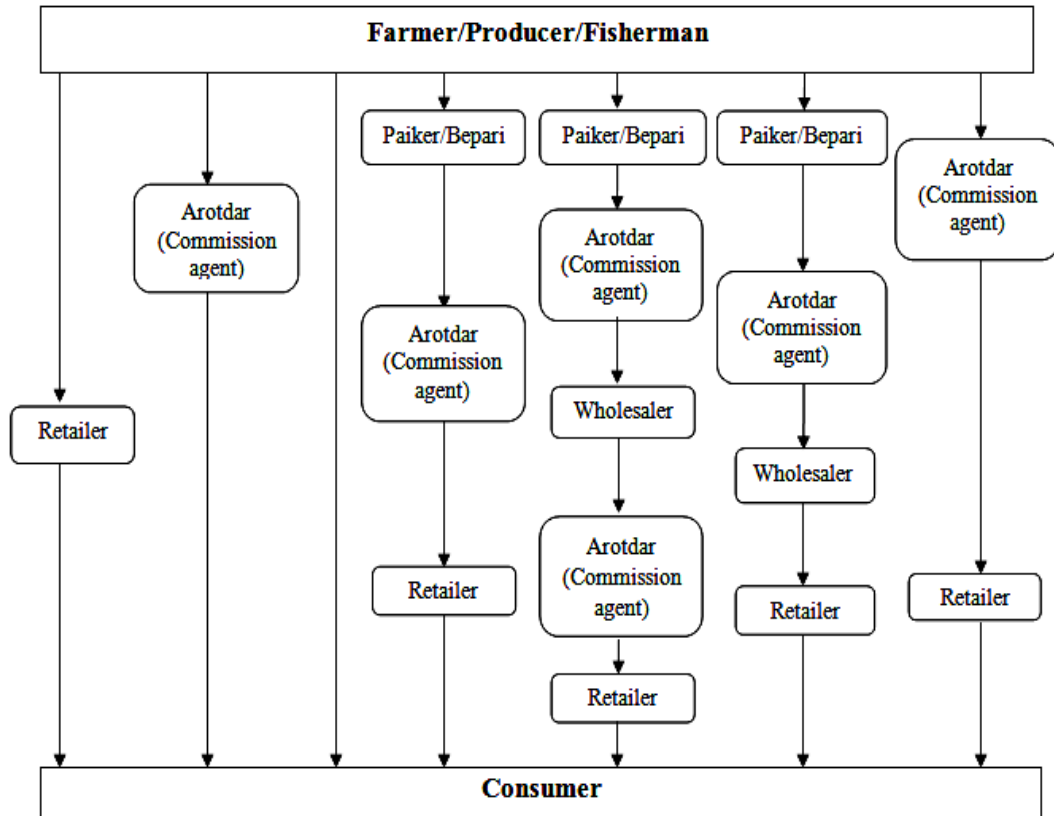


Fig. 1. Fish marketing channel in different upazilla of Moulavibazar district in Bangladesh

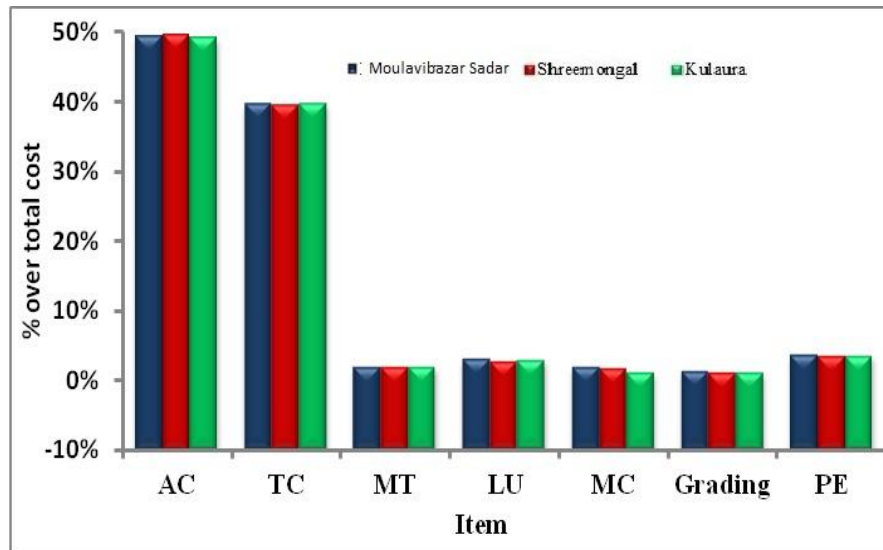


Fig. 2. Percentages marketing cost of producer in different upazilla of Moulavibazar district in Bangladesh; (AC-Arottdar Commission, TC-Transportation Cost, MT-Market Toll, LU-Loading and Unloading Cost, MC-Mobile Phone Expenses, PE-Personnel Expenses)

Table 1. Marketing cost (Mean±SD) of producer at three upazilla fish market in Moulavibazar district

Items	Moulavibazar Sadar	Shreemongal	Kulaura
	Cost (Tk.kg ⁻¹)	Cost (Tk.kg ⁻¹)	Cost (Tk.kg ⁻¹)
Arotdar commission	4.252 ± 0.138 ^a	4.124 ± 0.031 ^b	4.155 ± 0.029 ^b
Transportation cost	3.332 ± 0.044 ^a	3.282 ± 0.030 ^b	3.355 ± 0.022 ^a
Market toll	0.168 ± 0.005 ^a	0.158 ± 0.005 ^b	0.170 ± 0.006 ^a
Loading & unloading	0.2605 ± 0.011 ^a	0.227 ± 0.012 ^b	0.2485 ± 0.005 ^a
Mobile phone cost	0.162 ± 0.007 ^a	0.150 ± 0.0039 ^a	0.097 ± 0.033 ^b
Grading	0.115 ± 0.008 ^a	0.093 ± 0.002 ^b	0.100 ± 0.005 ^b
Personal expenses	0.312 ± 0.005 ^a	0.293 ± 0.006 ^b	0.304 ± 0.004 ^c
Total cost	8.60 ± 0.218^a	8.327 ± 0.089^b	8.4295 ± 0.104^b

*Mean values followed by different superscript letters in each row indicate significantly different ($P < 0.05$); US\$ 1 = 78 BD Taka during study period.

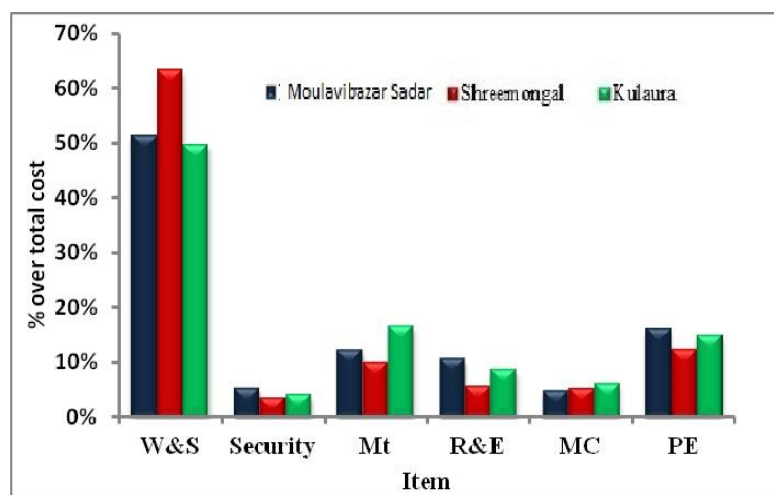


Fig. 3. Percentages marketing cost of aratdar in different upazilla of Moulavibazar district in Bangladesh; (W&S-Wages and Salary, Mt-Market Toll, L&U-Loading and Unloading Cost, MC- Mobile Phone Expenses, PE-Personnel Expenses)

Table 2. Marketing cost (Mean±SD) of Aratdar at three upazilla fish market in Moulavibazar district

Items	Moulavibazar Sadar	Shreemongal	Kulaura
	Cost (Tk.kg ⁻¹)	Cost (Tk.kg ⁻¹)	Cost (Tk.kg ⁻¹)
Wages and salary	0.709±0.108 ^a	0.841±0.091 ^b	0.720±0.096 ^a
Security	0.073±0.009 ^a	0.046±0.003 ^{ab}	0.059±0.025 ^b
Market toll	0.167±0.001 ^a	0.133±0.0067 ^b	0.241± 0.003 ^c
Rent and electricity	0.145±0.028 ^a	0.075±0.007 ^b	0.126±0.070 ^a
Mobile phone cost	0.066±0.010 ^a	0.069±0.011 ^a	0.088±0.012 ^b
Personal expenses	0.221±0.050 ^a	0.165±0.014 ^b	0.217±0.036 ^a
Total cost	1.381 ± 0.206^a	1.329 ± 0.133^a	1.451 ± 0.242^b

*Mean values followed by different superscript letters in each row indicate significantly different ($P < 0.05$).

Marketing cost of Paiker

Major marketing costs of paiker in different markets are shows in Table 3. Significant ($P < 0.05$) variation occur in marketing cost among the paiker of three different areas in Moulavibazar district (Fig. 4).

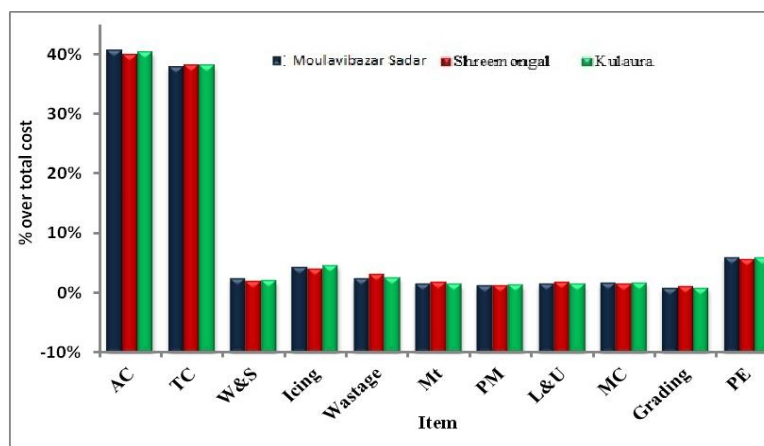


Fig. 4. Percentages marketing cost of paiker in different upazilla of Moulavibazar district in Bangladesh; (AC-aratdar Commission, TC-Transportation Cost, W&S-Wages and Salary, Mt-Market Toll, PM-Packaging material, L&U-Loading and Unloading Cost, MC- Mobile Phone Expenses, PE-Personnel Expenses)

Table 3. Marketing cost (Mean±SD) of paiker at three upazilla fish market of Moulavibazar district

Items	Moulavibazar Sadar	Shreemongal	Kulaura
	Cost (Tk.kg ⁻¹)	Cost (Tk.kg ⁻¹)	Cost (Tk.kg ⁻¹)
Arottdar commission	4.49±0.026 ^a	4.35±0.117 ^b	4.43 ± 0.122 ^a
Transportation cost	4.19± 0.028 ^a	4.147±0.050 ^b	4.19 ± 0.006 ^a
Wages and salary	0.258±0.015 ^a	0.212±0.033 ^b	0.221±0.031 ^b
Icing	0.465±0.081 ^a	0.437±0.046 ^a	0.501±0.028 ^b
Wastage	0.259±0.148 ^a	0.341±0.025 ^b	0.283±0.030 ^a
Market toll	0.165±0.019 ^a	0.196±0.013 ^b	0.158±0.016 ^a
Packaging material	0.139±0.0126 ^a	0.129±0.011 ^b	0.143±0.013 ^a
Loading and unloading	0.168±0.016 ^a	0.191±0.009 ^b	0.159±0.008 ^c
Mobile phone cost	0.177±0.005 ^a	0.163±0.007 ^b	0.188±0.009 ^c
Grading	0.091±0.014 ^a	0.119±0.023 ^b	0.088±0.006 ^a
Personal expenses	0.656±0.031 ^a	0.608±0.042 ^b	0.644±0.0194 ^a
Total cost	11.058±0.396^a	10.893±0.376^b	11.005±0.2884^a

*Mean values followed by different superscript letters in each row indicate significantly different (P<0.05).

Marketing cost of Retailer

Major marketing costs of Retailer in different markets shown in Table 4. It is revealed that there was significant (P<0.05) variation in marketing cost among the Retailer of three different upazillas in Moulavibazar district (Fig. 5).

Table 4. Marketing cost (Mean±SD) of retailer in three upazilla market of Moulavibazar district

Items	Moulavibazar Sadar	Shreemongal	Kulaura
	Cost (Tk.kg ⁻¹)	Cost (Tk.kg ⁻¹)	Cost (Tk.kg ⁻¹)
Transportation cost	1.35±0.023 ^a	1.32±0.021 ^b	1.34±0.0104 ^a
Icing	0.360±0.012 ^a	0.328±0.0205 ^b	0.367±0.025 ^a
Market toll	0.258±0.006 ^a	0.265±0.007 ^a	0.242±0.0203 ^b
Wastage	0.395±0.085 ^a	0.369±0.008 ^a	0.452±0.0086 ^b
Rent and electricity	0.263±0.023 ^a	0.213±0.005 ^b	0.243±0.018 ^c
Packaging materials	0.213±0.004 ^a	0.188±0.023 ^b	0.193±0.021 ^b
Personal expenses	0.434±0.005 ^a	0.417±0.0161 ^b	0.423±0.0155 ^b
Total cost	3.273±0.157^a	3.1±0.101^b	3.26±0.124^a

*Mean values followed by different superscript letters in each row indicate significantly different (P<0.05).

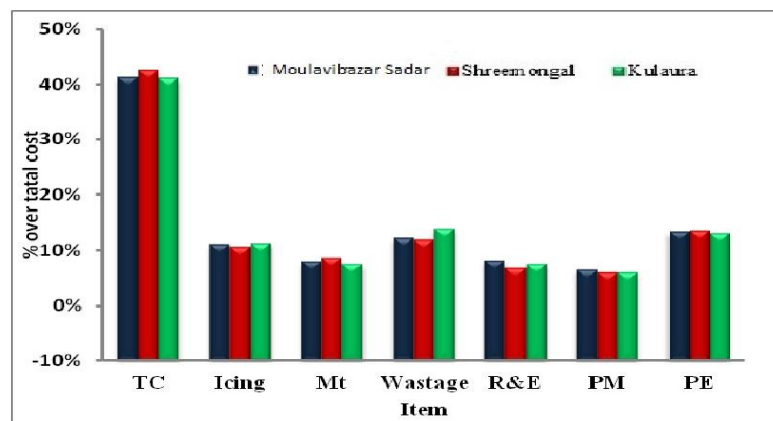


Fig. 5. Percentages marketing cost of retailer in different upazilla of Moulavibazar district in Bangladesh; (TC-Transportation cost, Mt-Market Toll, R&E-Rent and Electricity, PM- Packaging material, PE-Personnel Expenses)

Marketing cost of fish for different intermediaries

The total marketing cost of producer, *aratdar*, *paiker* and retailer were estimated as Tk. 8.468±0.225, Tk. 1.386±0.284, Tk. 10.99±0.467 and Tk. 3.207±0.186 for kg⁻¹fish, respectively (Table 5). Marketing cost of *paiker* was the highest because they had to pay higher commission to *aratdar* and high transportation charges as they took fish from primary market to the long distance in terminal market.

Table 5. Total marketing cost (Mean±SD) of fish for different intermediaries (Tk.kg⁻¹) in Moulavibazar district

Cost items	Producer (Tk.kg ⁻¹)	Arotddar (Tk.kg ⁻¹)	Paiker (Tk.kg ⁻¹)	Retailer (Tk.kg ⁻¹)	Total (Tk.kg ⁻¹)	Percent (%)
Arotddar commission	4.184±0.102	-	4.43±0.11	-	8.614±0.212	35.817
Transportation	3.326±0.044	-	4.176±0.038	1.336±0.0218	8.838±0.103	36.748
Security	-	0.059±0.02	-	-	0.059±0.02	0.245
Wastages	-	-	0.292±0.099	0.403±0.061	0.694±0.16	2.886
Icing	-	-	0.467±0.063	0.352±0.026	0.819±0.089	3.405
Wages and salary	-	0.76±0.11	0.233±0.033	-	0.993±0.143	4.129
Market toll	0.166±0.007	0.179±0.046	0.173±0.023	0.255±0.016	0.773±0.092	3.214
Rent and electricity	-	0.114±0.051	-	0.238±0.026	0.352±0.077	1.464
Packaging materials	-	-	0.137±0.013	0.198±0.0205	0.335±0.034	1.393
Loading & Unloading	0.247±0.017	-	0.173±0.017	-	0.42±0.034	1.746
Mobile phone cost	0.137±0.035	0.074±0.014	0.176±0.012	-	0.387±0.061	1.609
Grading	0.104±0.011	-	0.099±0.021	-	0.203±0.032	0.844
Personal expenses	0.304±0.009	0.20±0.043	0.637±0.038	0.425±0.0148	1.566±0.105	6.511
Total	8.468 ±0.225	1.386±0.284	10.99±0.467	3.207±0.186	24.05	100

*Mean values followed by different superscript letters in each treatment indicate significantly different (P<0.05).

The Retailer earned the highest amount of profit because of their lower marketing cost and assuming more risk compared with other intermediaries. They pay Tk. 30-40 less on total amount during purchasing fish from *aratdar* which helped to minimize their marketing cost of sold fish. Jamali (2013) found marketing cost of producer, traders and *paiker* as Tk. 0.893, Tk. 2.3 and Tk. 6.167 kg⁻¹ of fish, respectively in Tangail. Goon (2012) found marketing cost of producer, *arotddar*, *paiker* and retailer as Tk. 0.89, Tk. 1.32, Tk. 6.05 and Tk. 1.82 kg⁻¹ of fish, respectively in Mymensingh town. Mollah (2002) found that the marketing cost per quintal of fish for *aratdar*, *beparies* and retailers as Tk. 12.45, Tk. 61.32 and T k.26.32, respectively in Rajshahi district.

Marketing margin

During peak period, the gross margin and net margin of *aratdar* were Tk. 4.865±0.0717 and 3.478±0.0717, *paiker* were Tk. 14.307±0.059 and 3.321±0.059 kg⁻¹ fish, respectively (Table 06). The gross margin and net margin of retailer were Tk. 9.35±0.075 and Tk. 6.14±0.075 kg⁻¹ fish, respectively (Table 06). During lean period, the gross margin of *aratdar*, *paiker* and retailer were calculated at Tk. 5.44±0.079, 14.63±0.07 and 10.35±0.08 kg⁻¹ fish, respectively and net margin of *aratdar*, *paiker* and retailer were Tk. 4.06±0.079, Tk. 3.646±0.073 and Tk. 7.134±0.08 kg⁻¹ fish, respectively (Table 07).

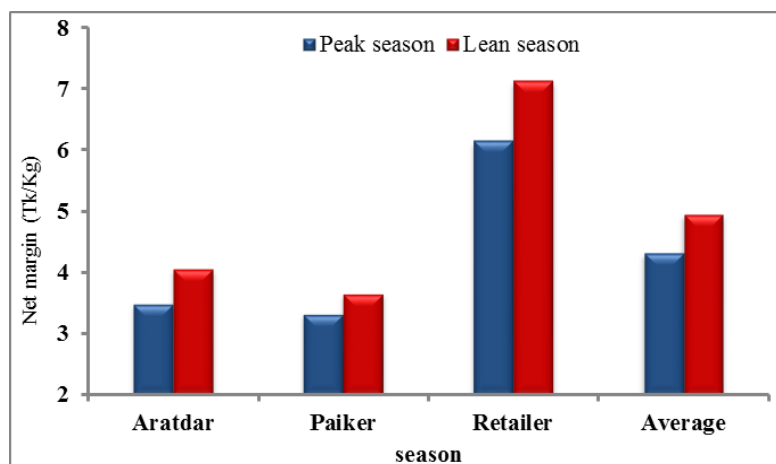


Fig. 6. Net margin of fish for intermediaries in both peak and lean period in different upazilla of Moulavibazar district in Bangladesh

Table 6. Total marketing cost (Mean±SD) and marketing margin during peak period for intermediaries in Moulavibazar district

Peak period (Tk.kg ⁻¹ fish) at Moulavibazar Sadar			
Intermediaries	Gross margin	Marketing cost	Net margin
Arottdar	5.496 ± 0.099 ^a	1.381± 0.206	4.115 ± 0.099 ^a
Paiker	14.90 ± 0.066 ^a	11.058 ± 0.396	3.842 ± 0.065 ^a
Retailer	9.58 ± 0.0795 ^a	3.273±0.157	6.307 ± 0.08 ^a
Total	29.976	15.712	14.264
Peak period (Tk.kg ⁻¹ fish) at Shreemongal			
Arottdar	4.581± 0.051 ^b	1.329± 0.133	3.252 ± 0.051 ^b
Paiker	14.14 ± 0.049 ^b	10.893 ± 0.376	3.247 ± 0.049 ^b
Retailer	9.26 ± 0.0734 ^b	3.1 ± 0.101	6.16 ± 0.074 ^b
Total	27.981	15.322	12.659
Peak period (Tk.kg ⁻¹ fish) at Kulaura			
Arottdar	4.519 ± 0.065 ^b	1.451± 0.242	3.068 ± 0.065 ^c
Paiker	13.88 ± 0.061 ^c	11.005 ± 0.2884	2.875 ± 0.061 ^c
Retailer	9.22 ± 0.073 ^b	3.26±0.124	5.96 ± 0.07 ^c
Total	27.619	15.716	11.903

*Mean values followed by different superscript letters in each treatment indicate significantly different (P<0.05).

Goon (2012) found that during peak period, net margin of *aratdar*, *paiker* and retailer were Tk. 1.63, Tk. 2.91, Tk. 5.35 kg⁻¹ fish, respectively while in lean period net margin *aratdar*, *paiker* and retailer were Tk. 1.31, Tk. 2.05 and Tk. 5.09 per kg fish, respectively in Mymensingh town. Ara *et al.* (2010) reported that the average marketing margin quintal⁻¹ of fish for fishermen was Tk. 305.56 taka and for *aratdar*, *paiker* and retailer were Tk 334.65, 515.80 and 340.40, respectively in Khulna Region. Mollah (2002) found the net marketing margin quintal⁻¹ of fish was calculated at Tk. 157.04, Tk. 204.21 and Tk. 724.49, respectively for *aratdar*, *paiker* and *bepari* in Rajshahi district. Alam *et al.* (2010) reported that the consumers pay higher price due to the participation of too many intermediaries in the marketing channel, but the actual fishers do not get the perfect price. Although per unit profit was the lower

for *aratdar* than retailer, their total profit would be the highest as *aratdar* handle the largest quantity of fishes per unit of time compared with other traders. *Paiker* in different upazilla earned less profit compared to *aratdar* and Retailer because of marketing cost (Table 8).

Intermediaries earned more profit in the lean period than peak period (Aktar et al. 2013; Goon, 2012) and the availability of fish in winter season is comparatively higher than summer (Ali et al. 2008). In Moulavibazar district Retailer earn higher during lean period than peak period. Fish price was higher during March to early September when fish supply was less. Usually the crisis and price of the fish become maximum in April to July. The lowest in pre-winter and winter season (November to January) and during harvesting of both culture and captured fishes. Jamali (2013) stated that the prices of the fishes are higher in April to July when the fishes are in short supply. Quddus (1991) concluded that during November to February lower price was observed because of fish availability from both capture and culture fishery. Prices remain low during November to January due to increased availability of both capture and cultured fishes.

Table 7. Total marketing cost and marketing margin (Mean±SD) during lean period (April-June) for intermediaries in Moulavibazar district.

Lean period (Tk.kg ⁻¹ fish) at Moulvibazar Sadar			
Intermediaries	Gross margin	Marketing cost	Net margin
Aratdar	6.046 ± 0.11 ^a	1.381 ± 0.206	4.665 ± 0.11 ^a
Paiker	15.20 ± 0.066 ^a	11.058 ± 0.396	4.142 ± 0.066 ^a
Retailer	10.554 ± 0.087 ^a	3.273 ± 0.157	7.281 ± 0.087 ^a
Total	31.80	15.712	16.088
Lean period (Tk.kg ⁻¹ fish) at Shreemongal			
Aratdar	5.15 ± 0.064 ^b	1.329 ± 0.133	3.821 ± 0.064 ^b
Paiker	14.46 ± 0.062 ^b	10.893 ± 0.376	3.567 ± 0.062 ^b
Retailer	10.27 ± 0.072 ^b	3.1 ± 0.101	7.17 ± 0.071 ^a
Total	29.88	15.322	14.558
Lean period (Tk.kg ⁻¹ fish) at Kulaura			
Aratdar	5.13 ± 0.064 ^b	1.451 ± 0.242	3.679 ± 0.063 ^b
Paiker	14.234 ± 0.091 ^c	11.005 ± 0.2884	3.229 ± 0.093 ^c
Retailer	10.21 ± 0.081 ^b	3.26 ± 0.124	6.95 ± 0.081 ^b
Total	29.574	15.716	13.858

*Mean values followed by different superscript letters in each treatment indicate significantly different (P<0.05).

Table 8. Total marketing cost and marketing margin (Mean±SD) for intermediaries in Moulavibazar district

Peak period (Tk.kg ⁻¹ fish)			
Intermediaries	Gross margin	Marketing cost	Net margin
Arottdar	4.865 ± 0.07167	1.387 ± 0.284	3.478 ± 0.07167
Paiker	14.30667 ± 0.0587	10.9853 ± 0.467	3.3213 ± 0.0587
Retailer	9.35333 ± 0.0753	3.211 ± 0.186	6.14233 ± 0.0753
Total	28.525	15.5833	12.942
Average	9.508	5.194	4.314
Lean period (Tk.kg ⁻¹ fish)			
Arottdar	5.442 ± 0.07933	1.387 ± 0.284	4.055 ± 0.07933
Paiker	14.631 ± 0.073	10.985 ± 0.467	3.646 ± 0.073
Retailer	10.34467 ± 0.08	3.211 ± 0.186	7.133667 ± 0.08
Total	30.418	15.5833	14.83467
Average	10.139	5.194	4.945

The producers and intermediaries could be more benefited financially, if efficient marketing was done. Despite many problems these markets are still regard as important and government get huge amount of taxes. Thus, government intervention and public-private relationship is necessary for commercial implementation and improvement of the existing system of fish marketing in Moulavibazar district and surrounding areas in Bangladesh.

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