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Fish Consumers' Behaviour at Selected Fish Markets of Tripura, India

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Abstract

Knowledge on preference for fish is important for producers and traders at micro-economic level and also for policy makers and planners at macro-economic level. An attempt has been made to analyse the consumers' preference for fish in Tripura. One hundred and sixty fish consumers were randomly selected from four wholesale-cum-retail fish markets. The frequency, percentage analysis and Rank Based Quotient (RBQ) techniques were used to analyse consumers' preferences and constraints. Highest preference was for freshwater local fishes (96.87% of the consumers). Among the species, 42% of consumers preferred rohu, 26% preferred catla and remaining 32% showed their preferences towards other fishes like mrigal, hilsa, pabda, carpio and tilapia. It was observed that 45% of the consumers was in the age group of 35-45 years and 53.75% had a family size of 5-7 members. Purchasing of fish was done mainly by the male members of the family (86.87%). Price (level & fluctuation) is the major constraint faced by the consumers of the state followed by availability of fish, lack of fresh fish, non availability of preferred species and lack of hygiene.

Keywords: Retail market, micro-economic level, macro-economic level, Rank Based Quotient, consumer preference

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Introduction

Tripura, a North-eastern state of India extends between 22° 56' N & 24° 32' N and 90° 09' E & 92° 10' E, with an area of 10 492 sq.km. The state is bordered on the north, west and south by Bangladesh and is accessible to the rest of India through the Cachar district of Assam and Aizawl district of Mizoram. During the last decades, Tripura showed the most significant growth in fish production among all the North-eastern states to meet the demand of fish in the state (Debnath, 2011).

Fisheries is considered to be an important economic activity for generating income and gainful employment and to ensure nutritional security of rural masses in Tripura (Das, 2012). Fisheries sector of the state is mainly culture based having 22 160 ha water spread area under culture fisheries accounting for 73.76% of total water resources (30 040 ha). Besides, culture fisheries contributed 97.01% of total fish production in 2010 (Govt. of Tripura, 2011). Fish is a favourite food item of majority of the families of Tripura (Anon, 2005). Fish consumption in Tripura is higher than chicken and mutton consumption (Upadhyay & Pandey, 2009). Fish production in Tripura during 2009-10 was 37 000 t against the estimated requirement of 41 000 t (Govt. of Tripura, 2011). Tripura imports fish from states like West Bengal, Andhra Pradesh and from neighbouring country, Bangladesh in order to fill the gap between demand and supply. Under the modern marketing concept, consumer is the fulcrum around which the entire marketing activities revolve (Santhakumar & Sanjeeviraj, 2000). The knowledge of consumer preference, food habits, family income and the nature of the produce are necessary to develop a food chain in any area. In India, most of the studies

on fish markets and marketing have been related to the unorganized retail markets, particularly with reference to gender, age and credit (Tietze, 2004), frozen fish retailing (Agbeja, 2004), marketing facilities, hygiene and sanitation (Bestari, 2004). Studies related to consumer behaviour and changing preferences at state level are limited (Santhakumar & Sanjeeviraj, 2000; Upadhyay & Pandey, 2009). Therefore, it is of interest to know the consumers' preference for fish as it is an integral part of fish market dynamism in Tripura where many producers and traders are involved. The present paper discusses the patterns of consumer behaviour, various parameters affecting purchase of fish, constraints faced by consumers while purchasing fish and suitable suggestions for the development of fish marketing in Tripura.

Materials and Methods

Considering the growth, popularity and market potential of fish, Tripura was selected to study the consumer behaviour and to identify various parameters affecting the purchase decision and constraints being faced by the consumers.

The study was based on primary data collected from 160 fish consumers, selected using multistage stratified random sampling. For the purpose, from each of the identified four districts of Tripura, one major fish market namely Battala (West Tripura), Udaipur (South Tripura), Halhali (Dhalai Tripura) and Kumarghat (North Tripura) were selected. From each of the selected fish markets, 40 fish consumers who visited the markets on the day of the survey were selected randomly for the study. Thus a total of 160 fish consumers were selected for the study. The survey was conducted during June-July, 2011 through personal interview method with the help of pre-tested and specially designed schedule for the study.

Simple statistical tools like frequency, percentage and mean were used to analyse consumer profile (age, family size, sex, education and income) including the nature of consumer's interest and buying behaviour (Mugaonkar et al., 2011). Constraints in fish purchase were studied using Rank Based Quotient (RBQ). Preferential ranking technique was used to identify constraints faced by the respondent/consumer in fish consumption. The quantification of data was done by ranking the constraints from calculated RBQ as given by Sabarathnam (1988).

$$RBQ=\Sigma f_i(n+1-i)/Nx\ n\ x100$$

Where, f_i = Number of consumers reporting a particular constraint under i^{th} rank, N = Number of consumers/ sample size, n = Number of constraints identified.

Results and Discussion

Information on the socio-economic profile of the fish consumers, collected in terms of age, gender, family size, education and annual income is presented in Table 1. It was found that maximum consumers were in the age group of 35 to 45 years (45%), followed by 25 to 35 years (40%), more than 45 years (9.37%) and less than 25 years age group (5.62%).

Among the total respondents, 86.87% was male and rest 13.13% was female. This indicates less participation of female in fish purchase compared to other states like Maharashtra, where female participation was 39.3% (Mugaonkar et al., 2011). Majority of the consumers (53.75%) had a family size of five to seven, while 32.5% of consumers having two to four member family and about 13.75% of consumers had a family size of more than seven. About 36.25% of respondents was educated up to middle school, followed by 30% metric pass, 27.5% collegiate and rest 6.25% was illiterate. This indicates that almost all except a few were literate which is expected in the state of Tripura where literacy rate is high. Income is an important factor that influences food consumption (Rana et al., 2005; Rana et al., 2008). To know the influence of income on consumption, the respondents were categorized into three income groups based on their annual income (Rana et al., 2012). The categories were; low income group (having annual income less than Rs. 0.75 lakhs), medium income group (having annual income between Rs. 0.75 lakhs and Rs. 1.5 lakhs) and high income group (having annual income more than Rs. 1.5 lakhs). Perusal of Table 1 indicates that 48.75% of the respondents were in medium income group followed by low income group (28.75%) and high income group (22.5%).

Majority of the fish consumers (87.5%) preferred locally produced fresh fish and remaining 12.5% expressed preference for the fish coming from other states like Andhra Pradesh, West Bengal and Bangladesh which includes marine and brackishwater fishes. Consumers' preference for different fish species was analysed and the consumer preference based on different income group are presented in

Table 1. Socio economic profile of the fish consumers (n=160)

Parameter	Particulars			
Age group	<25 years	25-35 years	36-45 years	>45 years
Number of respondents	9	64	72	15
Percentage	5.62	40	45	9.37
Family size	2-4 members	5-7 members	>7 members	–
Number of respondents	52	86	22	
Percentage	32.5	53.75	13.75	–
Education	Illiterate	Middle school	Matric	High school
Number of respondents	10	58	48	44
Percentage	6.25	36.25	30	27.5
Annual income (Rs.)	Low (<0.75 lakhs)	Medium (0.75-1.5 lakhs)	High (>1.5 lakhs)	–
Number of respondents	46	78	36	
Percentage	28.75	48.75	22.5	–

Table 2. Consumers' preference for different species of fishes (n=160)

Species	Most preferred	Income group Low (<0.75 lakh)	Medium (0.75-1.5 lakh)	High (>1.5 lakh)
Rohu	67 (41.87)	26 (56.52)	35 (44.88)	6 (16.67)
Catla	42 (26.25)	11 (23.91)	23 (29.49)	8 (22.22)
Carpio	16 (10.00)	3 (6.52)	7 (8.98)	6 (16.67)
Hilsa	13 (8.12)	1 (2.18)	5 (6.41)	7 (19.44)
Mrigal	9 (5.62)	3 (6.52)	4 (5.12)	2 (5.56)
Others*	13 (8.12)	2 (4.35)	4 (5.12)	7 (19.44)

*Others (Pabda, magur, shingi, prawn, grass carp, tilapia, etc.)
Figures in paranthesis are in percentage

Table 2. Among the fish species, rohu was most preferred (42%) followed by catla (26%), carpio (10%), hilsa (8.12%), mrigal (5.62%) and others (pabda, magur, shingi, prawn, grass carp, tilapia etc.) were preferred by 8.12% of the consumers. Consumers' preference based on different income groups showed that 56.52% of lower income group consumers and 44.88% of medium income group preferred rohu whereas high income group consumers preferred catla (22.22%). It was also revealed that hilsa was most preferred by high income group (19.44%) followed by medium income group (6.41%) and lower income group (2.12%). It can be concluded that consumers' preference for species varies with their income *viz.,* higher income group mostly prefer high priced fish and lower income group prefer low priced fish like rohu.

Frequency and quantity of purchase per visit was estimated based on income groups and family size and are presented in Table 3. Perusal of the table revealed that 47.82% of low income group consumers, 65.39% of medium income group and 41.66% of high income group consumers visited the market

Table 3. Frequency and volume of purchase (n=160)

Particulars	Income group*			Family size			
	Low (n=46)	Medium (n=78)	High (n=36)	2-4 (n=52)	5-7 (n=86)	>7 (n=22)	Overall (n=160)
				Frequency of visit (No.)			
Once a week	22 (47.82)	17 (21.79)	12 (33.34)	23 (44.23)	21 (24.42)	7 (31.82)	51 (31.87)
Twice a week	12 (26.09)	51 (65.39)	15 (41.66)	20 (38.46)	55 (63.95)	3 (13.64)	78 (48.75)
More than twice a week	5 (10.87)	8 (10.26)	9 (25.00)	3 (5.78)	8 (9.31)	11 (50.00)	22 (13.75)
Fortnightly	7 (15.22)	2 (2.56)	0 (0.00)	6 (11.53)	2 (2.32)	1 (4.54)	9 (5.62)
				Quantity of purchase (kg visit^{-1})			
0.5-1	9 (19.57)	4 (5.12)	0 (0.00)	11 (21.15)	2 (2.32)	0 (0.00)	13 (8.12)
1-2	35 (76.09)	67 (85.90)	21 (58.34)	39 (75.00)	80 (93.02)	4 (18.18)	123 (76.87)
>2	2 (4.34)	7 (8.98)	15 (41.66)	2 (3.85)	4 (4.66)	18 (81.82)	24 (15.00)

* Low (<0.75 lakh), Medium (0.75-1.5 lakh), High (>1.5 lakh)
Figures in paranthesis are in percentage

Table 4. Purchasing behaviour of consumers (n=160)

Particulars	Income group*			Family size			
	Low (n=46)	Medium (n=78)	High (n=36)	2-4 (n=52)	5-7 (n=86)	>7 (n=22)	Overall (n=160)
				Specificity			
Species specific	32 (69.57)	13 (16.67)	4 (11.11)	3 (5.76)	39 (45.35)	7 (31.82)	49 (30.62)
Whole fish	9 (19.57)	41 (52.56)	8 (22.22)	17 (32.70)	29 (33.72)	12 (54.54)	58 (36.26)
Cut pieces	5 (10.86)	24 (30.77)	24 (66.67)	32 (61.54)	18 (20.93)	3 (13.64)	53 (33.12)
				Form of purchase			
Fresh fish	35 (76.09)	73 (93.59)	32 (88.89)	46 (88.46)	82 (95.35)	12 (54.55)	140 (87.50)
Frozen fish	11 (23.91)	5 (6.41)	4 (11.11)	6 (11.54)	4 (4.65)	10 (45.45)	20 (12.50)

* Low (<0.75 lakh), Medium (0.75-1.5 lakh), High (>1.5 lakh)
Figures in paranthesis are in percentage

twice a week which indicates that annual income of fish consumers has influenced the frequency of visit to fish market. Frequency of visit based on family size indicated that majority (44.23%) of small size family visited the market once in a week, while 63.95% of medium size family visited twice a week and about 50% of large size family visited more than twice a week. This clearly indicated that family size also influenced the frequency of visit to the fish market. Overall, it was found that 76.87% of the consumers bought 1-2 kg of fish per visit to the market. Quantity purchased per visit showed that 76.09% of low income group, 85.90% of medium income group and 58.34% of high income group bought 1-2 kg per visit which clearly indicates that annual income does not have significant impact on quantity purchased per visit which is only related with frequency of visit. Quantity purchased per visit was also compared with family size. With the increase in family size, the quantity purchased per visit has also increased. This indicates that family size had a direct influence on quantity of fish purchased per visit.

The fish consumption is positively influenced by purchasing power of consumer. Purchasing behaviour based on income group and family size was analysed and presented in Table 4. The low income group consumers were very specific to species and their preference was to purchase whole fish or cut pieces depending on the species, whereas medium income group consumers preferred whole fish and consumers belonging to high income group preferred cut pieces. Family size had no effect on specificity. Generally, the consumers were from the medium income group and they accorded more emphasis to fresh fish (93.59%) than frozen fish. It was interesting to note that most of the respondents (87.5%) preferred to purchase fresh fish but large size family preferred to buy frozen fish that originated from other states like Andhra Pradesh, West Bengal and the neighbouring country, Bangladesh.

Table 5. Constraints faced by fish consumers

Constraints	RBQ	Rank
Availability	76.22	II
Price (price level & fluctuation)	87.88	I
Lack of fresh fish	69.98	III
Non-availability of preferred species	67.54	IV
Lack of hygiene	60.04	V

Fish consumers faced several problems during purchase of fish. Major constraints identified by consumers were fish price (level and fluctuation) followed by availability of fish, lack of fresh fish, non-availability of preferred species and lack of hygiene in market (Table 5). As a result, consumption of fish was below the desired level. Debnath et al. (2012) found that price was the most important attribute for consumers of Tripura which is supported by this study.

Since there is a high demand for locally produced fish, there is a need to increase fish production in the state. For this purpose, Govt. of Tripura needs to take necessary steps to promote scientific aquaculture by imparting training to farmers in improved package of practices of fish culture. Boosting local fish production will reduce the price of fish. Fish marketing facilities in the state are very poor and premises are very unhygienic which are not only discouraging people from purchasing of fish but also may cause health hazards. There is a need to improve the infrastructural facilities in the market to make it more hygienic.

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