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Comparison of Expenditure on Fish, Type of Fish Purchased and Socioeconomic Variables in Rural and Urban Markets in Batticaloa District, Sri Lanka

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Original Research Article

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Abstract: The availability of fish in rural and urban markets directly and indirectly affects the consumption pattern of fish in rural and urban households. Many factors including socio demographics of consumers influence fish purchasing. Batticaloa District has the highest average expenditure on fish in Eastern Province and has the second highest expenditure next to Mannar District Island wide. Abundance of inland and marine water resource availability in this area leads to ample production and consumption of fish. This study was designed to compare different variables in fish purchasing between rural and urban markets. A questionnaire survey was carried out in 3 rural and 3 urban markets among 14 DS divisions of Batticaloa District. Sample selection was done in simple random method and 60 samples for each rural and urban population, altogether 120 fish consumers were interviewed. Data revealed that majority of Batticaloa people eat marine and inland fish collectively. Mean comparison among variables was done to reveal the implication of results. Significant differences were found between the rural and urban markets in household size ($p < 0.05$), total family income of consumers ($p < 0.05$), expenditure on inland fish ($p < 0.05$) and expenditure on marine fish ($p < 0.05$). Even though there were significant differences in marine and inland fish purchases, the total expenditure on fish does not vary between rural and urban consumers.
Keywords: Rural market, urban market, expenditure on fish, means comparison, ANOVA.

INTRODUCTION

The fisheries sector becomes an important economic sector with high potential for growth in Sri Lanka's post-conflict era. It supports National economy of Sri Lanka in sustaining food security, generating export earnings and it empowers the country by providing livelihood for more than 2.5 million coastal communities [1].

Over 96% of Sri Lankan consume fish as fresh or processed fish. About 65 to 70% of the mean annual animal protein intake was supplemented by fish and fish products [2]. An important criterion determining the wholesomeness of fish is the nutritive value of proteins. The consideration set size, attitude, knowledge, convenience, variety seeking, and price consciousness are considered for explaining consumers' choice as well as consumption of fish [3-5]. Seasonal availability, as well as cultural and religious factors, appear to influence fish consumption and are taken into consideration when measuring the intake of fish [6].

Poor people tend to purchase comparatively low price small fish species, whereas, the rich can afford to buy medium and large size fish species. They prefer to consume fish which are tasty, less bony and are their favorite [7]. Although most people prefer fresh fish and larger fish types are not always affordable even for the middle class population due to their high market value [8].

The household income and expenditure survey revealed that the mean household income per month in Sri Lanka was Rs. 62,237, where it varied in urban sector and rural sector as Rs. 88,692 and Rs. 58,137 respectively. Hence, average monthly expenditure on food and drink per month was Rs. 19,114 while it is Rs. 24,108 in urban sector and Rs. 18,183 in rural sector. Among major food, average expenditure in fish purchase per month was Rs. 1,820 while Rs. 2,578 in urban and Rs. 1,716 in rural sector. Average monthly household consumption of fish was 4.1 kg in 2016 and 3.7 kg in 2012/13. Moreover, household expenditure on fish as a percentage of total expenditure on food and drink in Sri Lanka was 9.5% in 2016, 9.1% in 2012/2013 [9].

According to department of census and statistics it was apparent that Batticaloa District has the highest average expenditure on fish (Rs. 3,208) in Eastern Province and has the second highest expenditure on fish next to Mannar District Island wide.

Abundance of inland and marine water resource available in this area leads to ample production and consumption in both inland and marine type fish. This study was designed determine the expenditure and type of fish consumed in study area and compare different variables in fish purchases between rural and urban markets.

METHODOLOGY

The selected study area of this study was Batticaloa District. The encroachment of the sea into the lagoon in Batticaloa District was estimated as 56 km long. The long seacoast with suitable bays at long intervals, rivers, estuaries, innumerable tanks and water holes provide ample scope for fishing industry, thus provide ample marine fish and inland fish availability [10].

Primary data required for this study was collected from the sample of consumers at markets through interviews using structured questionnaire. The questionnaire consisted of questions relating to the socio economic background of the respondents and expenditure incurred on fish purchases.

Simple random sampling technique was used to select the respondents in the study area. Among the 14 DS Divisions, 11 DS Divisions defined as rural areas and the rest 3 DS divisions defined as the urban areas [10]. The major fish markets in rural and urban areas were identified. Among the identified markets along the coastal belt of Batticaloa District, total of 6 markets were selected randomly. It comprised 3 urban and 3 rural markets. An equal number of 20 respondents were allocated for each market for the study, Altogether 120 samples were taken. Interviews with consumers were done from June to August, 2014. Secondary data gathered from different sources from the websites, books and publications. The publications include various annual reports of the Ministry of Fisheries and Aquatic Resources Development, Department of Fisheries and Aquatic Resources, District Planning Secretariat, Batticaloa, Central Bank of Sri Lanka and Department of Census and Statistics, *etc*.

Data analysis including descriptive statistics, cross tabulation and mean comparison were performed in spss ver. 22 package.

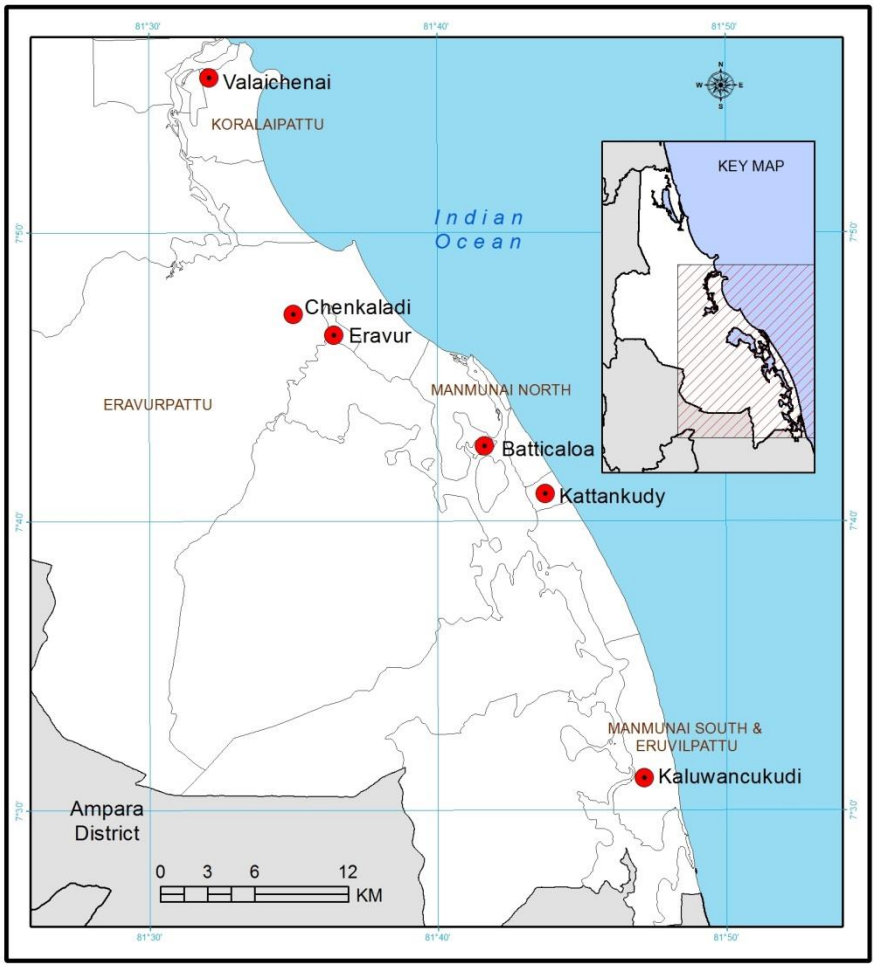

Fig-1: Location of the Markets Selected for the Study in Batticaloa District
(Source: Drawn by Author, 2014)

RESULTS AND DISCUSSION

Fish Purchasing Details

Table-1: Type of Fish Purchased by Consumers

Type of fish	Frequency (Percentage)		
	All Markets	Urban market	Rural market
Marine fish only	29 (24.2%)	17 (14.2%)	12 (10.0%)
Inland fish or Aquaculture fish only	12 (10.0%)	5 (4.2%)	7 (5.8%)
Both type	79 (65.8%)	38 (31.7%)	41 (34.2%)
Total	120 (100.0%)	60 (50.0%)	60 (50.0%)

(Source: Field Survey Data, 2014)

The data obtained in the study area revealed that the majority of the respondents (65.8%) were consuming both marine fish and inland or aquaculture fish. About 24% of the respondents stated that they consume marine fish only and the rest consumed inland or aquaculture fish. According to table it was observed that urban population eat more marine fish than inland fish while rural people eat more inland fish compared to marine fish.

Mean Comparison of Variables between Rural and Urban Markets

Table-2: Mean Comparison between Rural and Urban Markets

Markets	Household Income	Household Size	Quantity of fish purchased per month (kg)	Marine fish Expenses (Rs.)	Inland Fish Expenses (Rs.)	Total Fish Expenses (Rs.)
Rural markets	32925.00 (16448.64)	4.51 (1.34)	9.21 (4.56)	2610.46 (1446.06)	1249.71 (1019.69)	3860.17 (1780.26)
Urban markets	40516.66 (21082.35)	(4.06) (1.08)	9.13 (3.92)	3473.63 (2192.30)	884.21 (852.32)	4357.83 (1884.57)
All markets	36720.83 (19210.33)	4.29 (1.23)	9.17 (4.24)	3042.04 (1899.34)	1066.96 (953.60)	4109.00 (1842.46)

(Source: Data Analysis SPSS Output, 2014) (Within brackets are Std. Deviations)

Average household size in Batticaloa District was about 4 person per household. Average Household income of Batticaloa District was Rs. 36,720 and it varied in urban areas as Rs. 40,516 and in rural area as Rs. 32,925 per month. Total quantity of fish purchased by a respondent in study area was 9.17 kg per month. In rural markets, it was observed as 9.21 kg per month and in urban markets, it was 9.13 kg per month. The average expenditure on marine fish in study area was Rs. 3,042 per month and it differ between rural markets and urban market respondents as Rs. 2,610 and Rs. 3,474 per month. The average expenditure on inland fish in study area was Rs. 1,067 per month for a family and it differ between rural and urban markets as Rs. 1,250 and Rs. 884 per month respectively. The total expenditure on fish in study area was Rs. 4,109 per month for a family and it differ between urban market respondents and urban market respondents as Rs. 4,357 and Rs. 3,860 per month respectively.

To find out the significant differences between the mean values of the variables in rural and urban markets the one-way ANOVA test was performed.

ANOVA Test

Table-3 shows the results of ANOVA test, which was performed to find out the significant differences between the markets studied. Socioeconomic variables *viz.* household size, total monthly income of family and expenditure variables *viz.* total quantity of fish purchased, frequency of fish purchases per month, marine fish expenditure, inland fish expenditure and total expenditure on fish were tested in one way ANOVA.

H_0 : There are no difference in variables between rural and urban markets.
$H_{1:}$ There are differences in variables between rural and urban markets.

Table-3: ANOVA for the Studied Markets

		Sum of Squares	df	Mean Square	F	Sig.
Household size	Between Groups	6.075	1	6.075	4.056	0.046***
	Within Groups	176.71	118	1.498		
	Total	182.79	119			
Total Monthly income	Between Groups	1729002083.33	1	1729002083.33	4.836	0.030***
	Within Groups	42186395833.33	118	357511829.09		
	Total	43915397916.66	119			
Expenditure on Marine fish	Between Groups	22351700.833	1	22351700.83	6.481	0.012***
	Within Groups	406938998.95	118	3448635.58		
	Total	429290699.79	119			
Expenditure on Inland Fish	Between Groups	4007707.50	1	4007707.50	4.538	0.035***
	Within Groups	104206219.79	118	883103.55		
	Total	108213927.29	119			
Total Expenditure on Fish	Between Groups	7430163.33	1	7430163.33	2.211	0.140
	Within Groups	396535454.16	118	3360469.95		
	Total	403965617.50	119			
Total Kg of fish purchased per month	Between Groups	0.23	1	0.230	0.013	0.911
	Within Groups	2137.24	118	18.112		
	Total	2137.47	119			
Frequency of fish purchases per month	Between Groups	6.51	1	6.510	0.994	0.321
	Within Groups	772.99	118	6.551		
	Total	779.50	119			

(Source: Data Analysis SPSS Output, 2014)

*** $p < 0.05$

It was apparent that household size and total family income of consumers show significant differences between rural and urban markets ($p<0.05$). Expenditure on inland fish and expenditure on marine fish showed significant differences ($p<0.05$) between the rural and urban markets in study area.

The results of ANOVA revealed that, the total quantity of fish purchased per month and the frequency of fish purchased per month and total expenditure on fish between the rural and urban markets had no significant differences.

CONCLUSIONS

Majority of the respondents consuming both marine fish and inland fish in the study area. Significant differences were found between the rural and urban markets in household size, total family income of consumers, expenditure on inland fish and expenditure on marine fish. Even though there were significant differences between marine and inland fish purchases, the total expenditure on fish does not vary between rural and urban consumers.

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