

Household Fish Consumption in Peri-urban Areas of Cochin

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Household consumption expenditures of fish in peri-urban areas of Cochin are examined in this paper. Food consumption expenditure as a percentage of household income fell as income increased but the total expenditure per capita on food increased with increasing income. At micro-level, average fish consumption expenditure increased with rising income but percentage consumption expenditure on fish did not show much variation between different income classes. Households in these areas were observed to spend a greater share of the food consumption expenditure on other animal products like meat and milk as income levels increased. Limited choice varieties through a few marketing channels reflecting the general neglect of interior markets and consumers were the main reason for this trend.

Key words : Household income, consumption expenditure, per capita, peri-urban, engel elasticity, household size elasticity

As an important source of protein, fish will be a chief food item in the overall scheme of national food security to meet the nutritional needs of the increasing population. In India, the per capita consumption of fish was estimated to be 9 kg against the world average of 16 kg. The proportion of fish eating population, which was 39.7% in 1996-97, is expected to increase to 50 per cent by 2020 (Murthy, 1997 & Pillai, 2000). In a maritime state like Kerala with a strong fishing tradition, fish has been an important part of the diet. This paper attempts to study the household fish consumption in peri-urban areas of Cochin.

Materials and Methods

Cross sectional data of 325 randomly selected households from peri-urban areas of Ernakulam district, Puthuvypin, Mulanthuruthy and Piravam, lying within a radius of 20-40 kms of Cochin city, collected during the period 2000-02 were used for this study. Data on household income, family size, expenditure pattern on food commodities like staple food, fish, meat, milk and eggs were collected through personal interviews. The households have been classified into seven groups based on per capita household income (Pradhan *et al*, 1998).

Standard statistical tools were used to analyse the data. The log linear form given below was used to measure the elasticities (Pradhan and Panda, 2000) as it was observed that semi-log and double-log forms were more successful than other functional forms in cross sectional studies (Widjajanti and Li, 1996).

$$\text{Log } (Y_i) = \alpha_i + \beta_i \log (X) + \gamma_i \log n$$

where,

Y_i = Consumption expenditure on i^{th} commodity

X = Household Income

n = Family size

β_i = Engel elasticity, and

γ_i = Household size elasticity

Results and discussion

Table 1 presents the food consumption expenditure of the various income classes. The average monthly household income per capita ranged from Rs. 238.32 in income class 1 to Rs. 2814.70 in income class 7 (Table 1).

The average monthly food consumption expenditure ranged from Rs. 835.78 to Rs. 1384.46 across the various income classes. Food consumption expenditure as a percentage of household income was as high as

Table 1. Average monthly expenditure on food across income groups

S. No.	Income class (Per capita income Rs/Month)	Per capita monthly income (Rs/Month)	Household monthly income (Rs/Month)	Household food consumption expenditure (Rs/Month)	Per capita food consumption expenditure (Rs/Month)	Food consumption expenditure as % household income	Per capita food consumption expenditure as % household income
		Mean±SD	Mean±SD	Mean±SD	Mean±SD		
1	1 (Upto 300)	238.32±50.55 (21.21)	1197.22±461.82 (38.57)	835.78±388.20 (46.45)	164.64±46.08 (27.99)	69.51	15.16
2	2 (301-400)	359.37±25.30 (7.04)	1720.65±481.04 (27.96)	1093.79±333.47 (30.49)	232.77±55.41 (23.81)	64.84	14.80
3	3 (401-600)	516.11±57.02 (11.05)	2565.96±841.14 (32.78)	1156.29±434.65 (37.59)	243.64±88.66 (36.39)	47.54	10.99
4	4 (601-800)	703.30±56.93 (8.09)	3327.19±1065.03 (32.01)	1187.57±508.10 (42.78)	262.98±108.19 (41.14)	37.67	9.32
5	5 (801-1200)	955.90±98.41 (10.30)	4240.81±1370.38 (32.31)	1355.41±425.36 (31.88)	325.79±128.94 (39.58)	34.25	9.11
6	6 (1201-1800)	1455.58±191.24 (13.14)	5594.57±1513.50 (27.05)	1304.46±459.64 (35.24)	351.94±126.00 (35.80)	24.50	7.12
7	7 (1801 & above)	2814.70±1008.99 (35.85)	9303.85±4598.74 (49.43)	1384.46±653.88 (47.23)	439.77±231.67 (49.63)	17.05	5.91

Figures in parentheses CV in %

69.51 per cent for class 1 and fell, as income increased, to 17.05 per cent for class 7. This follows the most well known negative relationship between income and the proportion of expenditure on food, Engel's law. The share of per capita consumption expenditure fell from 15.61 per cent in class 1 to 5.91 per cent in class 7.

Although the share of expenditure on food decreases with income, total expenditure per capita on food does rise as income per capita rises, as people tend to consume higher value products. The per capita food consumption expenditure in class 7, Rs. 439.77, is three times that of class 1, Rs. 164.64.

It is observed that the standard deviations in household food consumption expenditures are high. As the coefficients of variation clearly shows there is high intra-class variation, ranging from 30.49 to 47.23 percent, in consumption expenditures across all income classes. In per capita consumption, the CV was as high as 49.63 per cent in class 7. Households thus exhibit considerable variation in their expenditure on food.

It has been reported that in general at micro-level, average fish consumption expenditure increases with rising income (Bhatta, 2001 and Nikita & Annamalai, 2001). This is evident from the observations of the per capita expenditure on different food commodities (Table 2). The per capita monthly expenditure on most food commodities was increasing with increasing incomes. For fish the per capita monthly expenditure was Rs. 25.58 in class 1 and Rs. 62.13 in class 7. The per capita expenditure on meat, milk and eggs also showed an increasing trend with increasing income.

Table 2. Per capita monthly food consumption expenditure on various commodities

Income class	Per capita consumption expenditure (Rs./month)				
	Staple food	Fish	Meat	Milk	Eggs
1	108.49	25.58	14.62	11.78	4.16
2	142.35	28.73	23.01	33.34	5.33
3	152.47	32.17	23.01	28.62	7.38
4	140.20	39.85	32.89	41.01	9.04
5	166.59	49.90	41.17	60.49	7.64
6	175.80	47.81	51.58	67.83	8.91
7	196.32	62.13	66.97	98.50	15.85

The expenditure share for individual commodities is presented in table 3. While 64.91% of the food consumption expenditure of the lowest income class is spent on staple food it gradually fell to 45.07% in the highest income class. For milk the percentage was 8.19% in class 1 and it rose to 21.19% in class 7. The proportion spent on eggs did not show much variation with the range being 2.40 to 3.99% across the various income classes.

Table 3. Expenditure shares for individual commodities-selected households

Income Class	Percentage household monthly expenditure for individual commodities				
	Fish	Staple food	Meat	Milk	Eggs
1	15.18	64.91	9.25	8.19	2.48
2	12.16	61.36	9.52	14.57	2.40
3	13.04	62.25	9.47	12.25	2.99
4	14.99	53.24	12.62	15.78	3.36
5	14.86	51.08	12.93	18.62	2.50
6	14.06	48.98	15.48	19.00	2.48
7	13.39	45.07	15.64	21.91	3.99
All	14.02	54.48	12.34	16.30	2.86

The proportion of household expenditure on fish was more than that spent on meat in the lower and middle income classes ranging from 15.18% in class 1 to 14.86% in class 5 as compared to meat, which ranged from 9.25% in class 1 to 12.93% in class 5; thereafter a greater proportion of the expenditure was on meat than fish. For all the income classes taken together, the percentage share for fish was 14.02%.

Interestingly, there is certain uniformity in the proportion of expenditure for fish in the various income classes which fell within the range 12 to 16 per cent. While for all other animal products higher income households spent a greater proportion of the food consumption expenditure, for fish the proportion did not vary much, indicating that fish is equally important in the lower income households as in the higher income ones. Another reason could be the limited choice of varieties for the consumers in these

peri-urban areas, limiting their expenditure on fish.

Two major channels of fish marketing were observed in these areas. One was the local retail market and the other was the door-to-door vendors on mopeds and cycles or head-loaders. While a wider variety of fish was available in the market, the choice of fish was limited in the door-to-door vending channel. However, many households preferred the door-to-door vendor, even though it limits the choice of varieties, as the distance to the retail market increased. Availability of fish *per se* does not seem to be the only criterion in fish consumption as much as the availability of the choice varieties in the sufficient quantities. This trend was also reported in other semi-urban and rural areas of the country (Sathiadas *et al*, 2000) indicating the general neglect of interior markets.

It has been postulated that household's consumption expenditure of a specific commodity is a linear homogeneous function of its income and its size (Pradhan and Panda, 2000). Table 4 depicts the regression parameters for the households studied. It is observed that the Engel elasticity is less than unity for all food items. Thus, as expected, they fall into the category of 'necessaries'. Higher elasticities are observed for superior foods like meat, milk and eggs, as compared to staple food. The elasticities of these animal

Table 4. Commodity-wise Engel and household size elasticities

Commodity	β	t	γ	t
Staple food	0.11** (0.0267)	4.0039	0.41** (0.0562)	7.2169
Fish	0.16 (0.0983)	1.6418	0.35 (0.2071)	1.6986
Meat	0.32** (0.0609)	5.2052	0.21 (0.1256)	1.6614
Milk	0.39** (0.0545)	7.1726	0.18 (0.1040)	1.7100
Eggs	0.40** (0.0654)	6.0882	0.33* (0.1404)	2.3538

Figures in parentheses indicate standard errors
** Significant at 1% level and * Significant at 5% level

products are also greater than fish, which has an Engel elasticity next only to staple food. Thus income and family size are not the major factors influencing the household's expenditure decision on the purchase of fish. Factors like preferences and tastes of family members and other cultural and social reasons influence consumption patterns.

High significant positive elasticity with respect to household size was observed for staple food. The Engel elasticity and household size elasticity tend to move in opposite directions. While the Engel elasticity was low for 'inferior goods' or 'necessaries', the household size elasticity was high. Within necessities like food, superior foods had lower household elasticities than staple food.

In conclusion it can be noted that fish consumption expenditure in peri-urban areas of Cochin increased with increasing household incomes but was less than that spent on other animal products, especially in the higher income classes. However, income alone did not influence the expenditure on fish. Restricted choice of varieties through limited marketing channels in these areas as compared to better-developed urban markets has been the major reason for higher income groups spending a lesser proportion of their consumption expenditure on fish. Since availability of fish at the right place seems to be a criterion in fish consumption, development of suitable marketing systems to cater to the tastes of consumers in the interior areas must be paid greater attention. Consumers have specific tastes with respect to varieties and are willing to pay a premium price for them, especially in higher income groups.

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