

Meat consumption pattern and its preference in Dharwad district: A socio-economic analysis*

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Abstract: The present study examined the preference for and consumption pattern of meat types by individual households and bulk consumers, while analysing the economics of meat retailing. The primary data for the analysis pertained to the year 2006-07. A majority of the households consumed chicken and mutton in the form of curry, biryani, fry, *etc* followed by beef and pork. In about 64 per cent urban and 70 per cent rural households, meat consumption decisions were made by husbands. The average household meat consumption was more in the case of chicken, which varied from 40 g /day to 384 g /day in urban areas and 25 g /day to 129 g /day in rural areas. Hotels consumed chicken on daily basis followed by mutton and beef. A majority of hostels utilized chicken on weekly basis for preparing curry, biryani, masala, *etc*. While most urban households ranked mutton first and chicken second, it was other way round in rural areas. Both urban and rural households assigned beef and pork third and fourth ranks. The most important factor considered by urban households while purchasing meat was the nutritive value, followed by taste, freshness, tenderness, source, price, fat content and ease of availability. In rural area, the factors in the descending order of importance were taste, nutritional value, price, freshness, source, fat content, tenderness and ease of availability. The average profit margin in retail sale of chicken, mutton, beef and pork was around Rs.10, Rs. 16, Rs.14 and Rs.23 per kg, respectively. The major problems faced by the consumers included high price for Chicken and mutton, fear of chicken disease, poor quality beef *etc*.

Key words: Meat consumption, household preference, consumption frequency, Garrett's ranking technique

Introduction

Meat and meat products are essential components in modern balanced diet as these provide much needed animal proteins to non-vegetarian population in India. Even though country stands foremost in the world with a production of 2,83,104 thousand of livestock, 1,85,827 thousand goats and sheep, 13,519 thousand pigs and 4,89,012 poultry population (2006), the per capita availability of meat is just about 44.39 g / day.

Rearing of animals for meat production was basically a subsidiary enterprise in India with just enough number to cater to the need of the family. Of late, rearing of animals for meat purpose has become a commercial enterprise. A wide range of producers undertake this profession in both organized and unorganized sectors, which supply meat and meat products to the large number of population in urban and rural areas under different types of meat. The much-talked achievements of 'red revolution' would not be possible without the improved breeds and timely policies of the government. The need of the hour is to emphasize on the consumption aspects (Amitha, 1998).

Consumer in any production system plays a vital role around whom the whole system revolves and meat products are no exception to this. With the rising income levels of the consumers and their changing tastes and preferences, the demand for meat is undergoing a change both in quantitative and qualitative terms (Haun and Fu, 1993). In the present study,

an attempt was made to examine the consumption pattern of different meat types, consumer preference for meat types and problems for the same.

Material and methods

The study was based on the primary data. The necessary data required to achieve the objectives of the study were collected directly from the urban and rural households. The study was carried out in Dharwad district of Karnataka state.

A multi-stage sampling procedure was adopted for the selection of respondents. In the first stage, two taluks, namely Dharwad and Hubli taluks were selected since these taluks comprise a large urban conglomeration. In the second stage, Hubli-Dharwad urban conglomeration was purposively selected along with five villages from each taluk. In the third stage, ten households from each selected village and hundred households from the urban conglomeration (50 from Dharwad and 50 from Hubli) was selected randomly. While selecting meat consumers from urban conglomeration, the assistance from local people was sought for covering different locations representing varying socio-economic status of the inhabitants.

The collected data was processed by employing tabular analysis (ratios, frequencies and percentages) and Garrett's ranking was used to arrive at meaningful conclusions. Data was collected from the decision makers of respective consuming units.

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Garrett's Ranking Technique: Garrett's ranking technique was used to rank the factors considered by the households in their meat purchase decisions (Sekar and Senthilnathan 1994).

For this purpose, eight factors considered important ones by a majority of households in their meat purchases were first identified. These factors were identified in consultation with households and retailers. They included nutritive value, taste, freshness, tenderness, source of availability, price, fat content and easy availability. Each of the selected meat consuming households was asked to rank the above eight factors from rank 1 to rank 8. In this analysis, rank 1 meant most important factor and rank 8 meant least important factor. In the next stage, rank assigned to each factor by each individual was converted into per cent position using the following formula,

$$\text{Per cent position} = 100 \times (\text{Rij} - 0.5) / \text{Nj}$$

Where, Rij stands rank given for the i^{th} factor ($i = 1, 2, \dots, 8$) by the j^{th} individual ($j = 1, 2, \dots$ for urban and rural) and Nj stands for number of factors ranked by j^{th} individual. Once the per cent positions were found, scores were determined for each per cent position by referring Garrett's table. Then the scores for each factor were summed over the number of households who ranked that factor. In this way, total scores were arrived at for each of the eight factors and mean scores were calculated by dividing the total score by the number of respondents, who gave ranks. Finally, overall ranking of the eight factors was done by assigning rank 1, 2, 3, ..., 8 in the descending order of the mean scores. The same procedure was followed for urban and rural areas.

Results and discussion

The important findings of the study are presented and discussed below.

Socio-economic Features of Sample Households: The sample respondents in both rural and urban area were post classified into four income groups viz. Income Group 1 (IG_1), Income Group 2 (IG_2), Income Group 3 (IG_3) and Income Group 4 (IG_4). The ranges of monthly household income for these groups in urban area were: IG_1 : up to Rs.3,500; IG_2 : Rs. 3,501 to Rs.10,000; IG_3 : Rs.10,001 to 18,000, and IG_4 : above Rs.18,000. Similarly, for rural households the income ranges were: IG_1 : up to Rs.2,000; IG_2 :

Table 1. Income wise distribution of households of Hubli and Dharwad taluks

Households income/month	Income group	Number of households	Percent*
Urban			
Up to Rs. 3,500	IG_1	9	9
Rs. 3,501 to 10,000	IG_2	53	53
Rs.10,001 to 18,000	IG_3	23	23
Above Rs. 18,000	IG_4	15	15
All		100	100
Rural			
Up to Rs. 2,000	IG_1	19	19
Rs.2,001 to 4,000	IG_2	43	43
Rs. 4,001 to 7,000	IG_3	30	30
Above Rs.7,000	IG_4	8	8
All		100	100

Note: IG: Income group; * Percentage of total number of households.

Table 2. Socio-economic characteristics of sample households in Hubli-Dharwad cities

Socio-Economic Characteristics	Unit	Income group				Overall
		IG_1	IG_2	IG_3	IG_4	
Average family monthly income	Rs.	2667	7302	14609	35200	12750
Average education of the decision maker	Years	5.63	11.02	13.39	14.33	11.09
Average family size	Nos.	4.8	5.7	6.8	5.9	5.8
Average age of decision makers	Years	29.8	38.7	35.6	37.8	35.47
Average No. of children/family	Nos.	1.4	1.1	1.2	1.3	1.25
Family type:						
Joint	Nos.	1 (11.11)	16 (30.19)	7 (30.43)	3 (20.00)	27(27.00)
Nuclear	Nos.	8 (88.89)	37 (69.81)	16 (69.57)	12 (80.00)	73 (73.00)
Food habit:						
Vegetarian	Nos.	1 (11.11)	9 (16.98)	-	-	10 (10.00)
Non-vegetarian	Nos.	8 (88.89)	44 (83.02)	23 (100.00)	15 (100.00)	90 (90.00)
Occupation of the decision maker for meat consumption:						
Government service	Nos.	-	8 (18.18)	9 (39.13)	6 (40.00)	23 (25.56)
Business	Nos.	3 (37.50)	22 (50.00)	7 (30.44)	7 (46.67)	39 (43.33)
Housewife	Nos.	-	6 (13.64)	1 (4.35)	1 (6.67)	8 (8.89)
Unemployed	Nos.	1 (12.50)	5 (11.36)	6 (26.09)	1 (6.67)	13 (14.44)
Others (watchman, cook, driver)	Nos.	4 (50.00)	3 (6.82)	-	-	7 (7.78)

Note: Figure in the parenthesis indicate percentage to the total number of households in different income groups i.e., 9 for IG_1 , 53 for IG_2 , 23 for IG_3 and 15 for IG_4 .

Rs. 2,001 to Rs.4,000; IG₃: Rs.4,001 to 7,000, and IG₄: above Rs.7,000.

From table 1, it is evident that out of 100 urban households, a majority (53 %) belonged to income group IG₂, while IG₃ comprised 23 per cent households followed by IG₄ (15 %) and IG₁ (9 %). In rural area, a majority (43 %) of households fit into income group IG₂, whereas IG₃ comprised 30 per cent households, IG₁ (19 %) and IG₂ (8 %).

Tables 2 and 3 depict socio-economic characteristics of sample households. As revealed by the table, the income

levels for urban and rural households were Rs.2,667 and Rs.1,684; Rs.7,302 and Rs.3,291; Rs.14,609 and Rs.5,667, and Rs.35,200 and Rs.8,625, respectively for IG₁, IG₂, IG₃ and IG₄. In general, there was a positive relationship between income of the households and their family size, both in urban and rural areas.

The average age of the decision makers varied from 30 years to 39 years and 33 years to 40 years for urban and rural households respectively, and average number of children per family was less than 2 in the case of both urban and rural households. A majority of the urban and rural households were

Table 3. Socio-economic characteristics of sample households in Hubli-Dharwad rural area

Socio-Economic characteristics	Unit	Income group				Overall
		IG ₁	IG ₂	IG ₃	IG ₄	
Average family monthly income	Rs.	1684	3291	5667	8625	4817
Average education of the decision makers	Years	4.8	5.6	5.2	5.3	5.2
Average family size	Nos.	4.1	4.7	6.7	7.25	5.69
Average age of the decision makers	Years	32.5	36.6	39.1	39.6	37
Average No. of children/family	Nos.	1.3	0.9	1.5	1.4	1.3
Family type:						
Joint	Nos.	2 (10.53)	14 (32.56)	20 (66.67)	4 (50.00)	40 (40.00)
Nuclear	Nos.	17 (89.47)	29 (67.44)	10 (33.33)	4 (50.00)	60 (60.00)
Food habit:						
Vegetarian	Nos.	4 (21.05)	14 (32.56)	1 (3.33)	-	19 (19.00)
Non-Vegetarian	Nos.	15 (78.95)	29 (67.44)	29 (96.67)	8 (100.00)	81 (81.00)
Occupation of the decision maker for meat consumption:						
Agriculture	Nos.	11 (73.33)	13 (44.83)	8 (27.59)	1 (12.50)	33 (40.74)
Government service	Nos.	-	-	6 (20.69)	4 (50.00)	10 (12.35)
Business	Nos.	-	7 (24.14)	10 (34.48)	1 (12.50)	18 (22.22)
Unemployed	Nos.	-	3 (10.34)	-	-	3 (3.70)
Others (labors & drivers)	Nos.	4 (26.67)	6 (20.69)	5 (17.24)	2 (25.00)	17 (20.99)

Note: Figure in the parenthesis indicate percentage to the total number of households in different income groups i.e., 19 for IG₁, 43 for IG₂, 30 for IG₃ and 8 for IG₄.

Table 4. Frequency of consumption of meat and meat products by households

Frequency of consumption	(No. of households)							
	Chicken		Mutton		Beef		Pork	
	Home	Outside	Home	Outside	Home	Outside	Home	Outside
Urban								
Daily	5 (5.81)	-	2 (2.33)	-	-	-	-	-
Once in a week	52 (60.47)	5 (14.29)	45 (52.33)	5 (20.00)	10 (33.33)	-	1 (25.00)	-
Once in a fortnight	20 (23.26)	22 (62.86)	27 (31.40)	15 (60.00)	8 (26.67)	1 (100.00)	-	-
Once in a month	9 (10.47)	8 (22.86)	9 (10.47)	5 (20.00)	9 (30.00)	-	2 (50.00)	-
Occasionally	-	-	3 (3.49)	-	3 (10.00)	-	1 (25.00)	-
Total	86 (100.00)	35 (100.00)	86 (100.00)	25 (100.00)	30 (100.00)	1 (100.00)	4 (100.00)	-
Rural								
Daily	-	-	-	-	-	-	-	-
Once in a week	17 (20.99)	-	9 (12.50)	1 (7.69)	-	-	-	-
Once in a fortnight	23 (28.40)	19 (61.29)	28 (38.89)	11 (84.62)	2 (15.38)	2 (50.00)	-	-
Once in a month	27 (33.33)	12 (38.71)	22 (30.56)	1 (7.69)	4 (30.77)	2 (50.00)	-	-
Occasionally	14 (17.28)	-	13 (18.06)	-	7 (53.85)	-	3 (100.00)	-
Total	81 (100.00)	31 (100.00)	72 (100.00)	13 (100.00)	13 (100.00)	4 (100.00)	3.00 (100.00)	-

Note: In the column 'home', the no's in parentheses indicate percentages to the total number of households consuming respective meat at home;

In the column 'outside', the no's in parentheses indicate percentages to the total number of households consuming respective meat outside.

nuclear families and also non-vegetarians across the income groups.

Pattern of meat consumption, meat expenditure and household preferences: As revealed by table 4, a majority of urban households consumed chicken and mutton (86 households) in their dishes followed by beef (30 households) and pork (4 households). In respect of rural areas also, a significant proportion of households consumed chicken (81 households) and mutton (72 households) in their diet. About 13 households consumed beef, and only 3 households used pork.

The results suggested that most of the chicken and mutton consuming urban households (61 per cent and 52 per cent respectively) and 33.33 per cent of beef and 25 per cent of pork consuming households consumed these meats once in a week at home. A significant proportion of the urban households consumed chicken (63 per cent), mutton (60 per cent) and beef (100 per cent) once in a fortnight outside. With regard to rural areas, a maximum number of around 33 per cent households consumed chicken once in a month and around 39 per cent households consumed mutton once in a fortnight.

In respect of rural areas, a majority of around 54 per cent beef consuming households and all the pork consuming households consumed these meats on occasional basis. In the case of outside consumption in rural areas, around 61 per cent households consumed chicken and 85 per cent consumed mutton once in a fortnight. Further, 50 per cent of the households, which consumed beef outside did so once in a fortnight, while the remaining 50 per cent consumed it monthly. In respect of pork, all pork consuming households consumed it

on occasional basis at home, and no household consumed pork outside the home.

The pattern of household expenditure on meat types is presented in table 5. The table reveals that the proportion of meat expenditure in total food expenditure increased with increase in income both in urban and rural areas. High income groups spent larger proportion of their budget for food on meat and meat products than lower income groups.

The findings further revealed that the average expenditure on chicken ranged from Rs.3.62 per day (IG₁) to Rs.34.64 (IG₄) in urban household and from Rs.2.13 per day (IG₁) to Rs.11.46 (IG₄) in rural households. In respect of mutton, the average expenditure per household was Rs.5.39 per day (IG₁) to Rs.37.67 (IG₄) in urban area and from Rs.3.28 per day (IG₁) to Rs.14.38 (IG₄) in rural area. Similarly, the average daily household expenditure for beef in the case of IG₁ and IG₄ was Rs.1.67 and Rs.11.33, respectively for the urban households, and Rs.3.00 and Rs.3.33 for rural households. Finally, it was noticed that high income group (IG₄) did not consume pork either in rural or in urban area. The daily household expenditure for this meat in rural and urban areas ranged in general between Rs.2 and Rs.3. These findings thus, implied that the daily meat expenditure on chicken, mutton and beef had a positive relationship with income level in both rural and urban households, while the money spent on pork by IG₁, IG₂ and IG₃ had no such general pattern

With regard to households' preferences for meat types, it can be seen from table 6 that in urban areas, mutton was the most preferred and pork was the least preferred meat. Preference for chicken and beef was in the second and the third position.

Table 5. Pattern of household expenditure on meat

Particulars	Urban household income groups					Rural household income groups				
	IG ₁	IG ₂	IG ₃	IG ₄	Overall	IG ₁	IG ₂	IG ₃	IG ₄	Overall
Average monthly household expenditure on meat (Rs.)	229	706	1150	2778	1123	148	217	632	866	453
Proportion of meat expenditure in food expenditure (%)	11.00	16.72	18.07	24.27	100	10.62	9.65	17.40	17.98	100
No. of households consuming chicken	7 (8.14)	42 (48.84)	22 (25.58)	15 (17.44)	86 (100)	15 (18.52)	29 (35.80)	29 (35.80)	8 (9.88)	81 (100)
Average household expenditure on chicken (Rs./day)	3.62	8.26	13.70	34.64	13.88	2.13	3.39	8.07	11.46	5.63
No. of households consuming mutton	8 (9.30)	41 (47.67)	22 (25.58)	15 (17.45)	86 (100)	13 (18.06)	22 (30.56)	29 (40.28)	8 (11.10)	72 (100)
Average household expenditure on mutton (Rs./day)	5.39	13.13	21.52	37.67	18.84	3.28	4.69	11.03	14.38	8.07
No. of households consuming beef	3 (10.00)	17 (56.67)	6 (20.00)	4 (13.33)	30 (100)	2 (15.38)	4 (30.77)	6 (46.15)	1 (7.70)	13 (100)
Average household expenditure on beef (Rs./day)	1.67	3.92	6.00	11.33	5.10	3	3.25	3.50	3.33	3.33
No. of households consuming pork	2 (50.00)	1 (25.00)	1 (25.00)	-	4 (100)	1 (33.33)	1 (33.33)	1 (33.33)	-	3 (100)
Average household expenditure on pork (Rs./day)	2.00	1.33	3.33	-	2.17	2.5	2.0	3.0	-	2.50

Table 6. Household preferences for meat types and body parts

Particulars	Urban				Rural			
	Chicken	Mutton	Beef	Pork	Chicken	Mutton	Beef	Pork
Order of preference for meat type	II	I	III	IV	I	II	III	IV
Household preference for body parts of respective meat*								
Heart	10.47	8.14	3.33	-	7.41	6.94	-	-
Liver	13.95	36.05	63.33	-	13.58	43.06	61.54	-
Leg	41.86	1.16	-	-	30.86	-	-	-
Bony parts	18.60	8.14	3.33	-	22.22	4.17	-	-
Any Fleshy part	15.12	26.74	30.00	100.00	25.93	23.61	38.46	100.00
Brain	-	8.14	-	-	-	12.50	-	-
Shoulder	-	11.63	-	-	-	9.72	-	-
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Numbers indicate percentages of the total number of households consuming respective meat types.

Table 7. Factors considered in meat purchase decisions

Sl. No.Particulars	Urban households		Rural households	
	Mean	Rank	Mean	Rank
	Garrett's score	Garrett's score		
1 Nutritional value	99.74	1	99.69	2
2 Taste	99.72	2	99.70	1
3 Freshness	99.67	3	99.49	4
4 Tenderness	99.40	4	99.20	7
5 Source of Availability	99.34	5	99.28	5
6 Price	99.33	6	99.68	3
7 Fat content	99.25	7	99.25	6
8 Easy availability	98.95	8	99.10	8

In rural areas, on the other hand, it was chicken that was most preferred followed by mutton, beef and pork.

With respect to households' preferences for animal body parts, the table reveals that a large number of urban and rural households preferred body parts like leg piece in chicken, liver in mutton and beef, and any fleshy part in pork.

Table 7 shows that in the purchase of meat, the urban households were concerned most about the nutritional value followed by taste, freshness and tenderness. The urban households bothered the least about easy availability of meat. In respect of rural households, taste of meat, nutritional value, meat price, freshness and source of availability were ranked 1st

Table 8. Problems faced by households in the purchase of meat

Problems	Number of urban households				Number of rural households			
	Chicken	Mutton	Beef	Pork	Chicken	Mutton	Beef	Pork
	(No. of households)	(No. of households)	(No. of households)	(No. of households)	(No. of households)	(No. of households)	(No. of households)	(No. of households)
High price	35 (40.70)*	76 (88.37)	2 (6.66)	1 (25.00)	78 (96.30)	71 (98.61)	1 (7.69)	-
Lack of availability	-	1 (1.16)	-	3 (75.00)	29 (35.80)	29 (40.28)	5 (38.46)	3 (100)
Poor quality	2 (2.33)	1 (1.16)	11 (36.67)	1 (25.00)	-	-	4 (30.77)	-
Non-availability of desired portion of meat	1 (1.16)	3 (3.49)	6 (20.00)	-	-	-	2 (15.38)	-
Fear of diseases	41 (47.67)	-	1 (3.33)	-	20 (24.69)	-	-	-

to 5th. Fat content and tenderness were ranked 6th and 7th, and easy availability was ranked last.

Problems in the purchase of meat: The problems experienced by households in the purchase of meat are presented in table 8. A majority of the urban and rural households felt that high price was a major problem for purchasing chicken and mutton followed by fear of diseases for purchasing chicken, poor quality for beef and non-availability for pork. In rural areas, more than 35 per cent of households reported lack of availability of all meat types

as an important problem on account of existence of very few meat retail shops.

Overall, the findings of the study revealed that a majority of the households consumed chicken and mutton followed by beef and pork for the preparations like curry, biryani, fry, kabab *etc.* Meat consumption decisions were made by the husbands in a majority of rural and urban households across all income groups. The average household consumption of meat showed a positive relationship with income. The positive

relationship was high in the case of chicken, where the consumption varied from 40 g/day (urban) and 25 g/day (rural) in lower income group (IG₁) to 384 g/day (urban) and 129 g/day (rural) in higher income group (IG₄). However, the consumption of beef in rural areas and pork in both urban and rural areas showed a negative relationship with income because these meats are consumed only by certain groups due to religious considerations. The most important reasons for consumption of meat included family tradition, taste and nutritive value.

With respect to liking for body parts, a majority of the urban and rural households preferred leg in the case of chicken, liver in mutton and beef, and any fleshy part in pork. For most of the urban households, mutton was the first choice with chicken being the second choice. For rural households, chicken was the

first choice followed by mutton. Both urban and rural households ranked beef and pork third and fourth, respectively. For urban households, nutritive value was the most important factor and for rural households, taste was the most important factor while purchasing meat.

The major problems faced by the households included high price for chicken and mutton, lack of meat availability in rural areas, fear of diseases for chicken, and poor meat quality in the case of beef. The findings of the study call for initiating organized meat retailing in the twin cities to address the issues such as poor meat quality, non-availability of desired meat portion etc. With regard to chicken, there is a need to create proper awareness about bird flu among consumers. Animal husbandry department, poultry associations and mass media have an important role to play in this regard.

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