

Consumer Preference for Broiler Meat in Urban and Rural Transects of Bengaluru South - A Conjoint Analysis Approach

A. SREE LAKSHMI, M. R. GIRISH AND MAMATHA GIRISH

Institute of Agribusiness Management, College of Agriculture, UAS, GKVK, Bengaluru - 560 065

e-Mail : sreelakshmi.abm@gmail.com

AUTHORS CONTRIBUTION

A. SREE LAKSHMI :
Conceptualization,
investigation, data
collection, data analysis and
manuscript preparation;
M. R. GIRISH &
MAMATHA GIRISH :
Conceptualization, data
curation and editing of draft
research paper

Corresponding Author :

A. SREE LAKSHMI
Institute of Agribusiness
Management, College of
Agriculture, UAS, GKVK,
Bengaluru

Received : September 2022

Accepted : January 2023

ABSTRACT

The present study attempts to analyse the consumer preference for broiler meat in urban and rural transects of Bengaluru South. For the study, 90 consumers were randomly selected by taking 45 each from urban and rural transects. To analyse the consumer preference, conjoint analysis was used which is a statistical technique where respondents ranked preferences for different offers decomposed to determine the person's inferred utility function for each attribute and the relative importance of each attribute. The attributes taken for the study were the type of meat, price of meat, place of purchase, form in which the meat was purchased and frequency of purchase. The results revealed that the type of meat (broiler meat) was the most important factor considered by consumers in both urban and rural transects. The second important factor which influenced the preference was place of purchase for urban consumers while it was price of the meat for rural consumers. The third, fourth and fifth factors were price, frequency, and form for urban consumers while the corresponding factors were frequency of purchase, place of purchase and form for rural consumers. The study revealed that consumers preferred broiler meat over country chicken and layer meat in both urban and rural transects, which highlights the importance of the broiler industry. The findings of the study may be helpful to stakeholders in broiler poultry industry to reorient their strategies for better market positioning in consonance with the attribute-based preferences of consumers.

Keywords : Conjoint analysis, Consumer preference, Broiler, Urban transect, Rural transect

POULTRY is one of the fastest-growing sectors in India with an estimated CAGR of 15.20 per cent for the period - 2021 to 2026. It plays a very important role in the economic development of the country. According to the 20th Livestock Census (2019), the total poultry population in the country was 851.81 million, out of this, commercial poultry accounted for 63 per cent while the remaining (37%) was backyard poultry.

The Indian broiler industry is experiencing rapid growth mainly driven by an increase in per capita consumption. The impressive growth in the poultry sector in general and the broiler industry, in particular, is the result of technological breakthroughs in

breeding, feeding and health and sizeable investments from the private sector. The broiler industry is growing with the backward integration system providing opportunities for the rural masses with all the technical inputs and assured remunerations. However, these efforts have concentrated on productivity and production by neglecting several front-end activities such as wholesaling, processing, retailing and equitable inclusive development (www.icfa.org.in).

The growth in broiler segment is expected to remain strong due to consumer preference for poultry, increasing income levels and changing food habits. Over the years, poultry meat has found broad consumer acceptance, in part due to its low relative

price (Mohan Kumar and Bhat, 2012). The present study analyses the factors influencing consumer preference for broiler meat in urban and rural transects of Bengaluru South.

METHODOLOGY

Study Area

The study was conducted in urban and rural transects of Bengaluru South. For the study, Southern Bengaluru was purposively selected. The distinction between urban and rural transects of Bengaluru was made based on the survey stratification index (Ellen *et al.*, 2017) developed by considering the percentage of built-up area and its linear distance from the city centre. Vidhana Soudha, the building of the State legislature, was used as the reference point to measure the distance (Pooja and Umesh, 2021). Up to about 20 to 25 km away from the city centre, building density was strongly correlated to distance (the closer to the city, the higher the percentage of built-up area). Beyond that, however, the two parameters were negatively correlated (Udaykumar and Umesh, 2019). Accordingly, the urban and rural transects were formed.

Sampling Framework

The study was based on primary data collected from sample respondents using a pre-tested structured schedule through personal survey method. For the study, 45 consumers from urban transect and 45 consumers from rural transect, were drawn randomly, resulting in a total sample size of 90 consumers. The data was collected during the year 2021-22.

Analytical Tool Used

Conjoint Analysis

Conjoint Analysis is a versatile marketing research technique that can provide valuable information for new product development and forecasting, market segmentation and pricing decisions, advertising and distribution, competitive analysis and repositioning. It is a technique used in assessing consumers value judgments. Hence, for the present study, the tool was used to analyse the consumer's preference for broiler meat.

The attributes included in a conjoint analysis experiment correspond to important consumption characteristics or characteristics hypothesized to influence purchase behaviour. The attributes are further divided into levels. The levels are sample classes for each of the selected attributes and should span the realistic range of each attribute (Bellundagi *et al.*, 2016) The conjoint experiment employs a full-profile approach, in which the level of each attribute of the consumption to be rated is specified.

Conjoint analysis helps to identify the factors that matter most to different categories of consumers that are included in the study by estimating the relative importance that each attaches to a given factor in making a purchase decision. Since, the demand functions for various attributes of consumers differ, with households being driven by utility and restaurants by profit, it is expected that the relative importance that each class attached to the attributes will differ. However, despite these differences, conjoint analysis can also provide overall relative importance that all the different categories of consumers attach to a given factor in making a purchasing decision (Kwadzo *et al.*, 2013).

The following seven steps were taken for conducting conjoint analysis.

- Establishing the attributes
- Assigning levels for each attribute
- Selecting the conjoint methodology
- Deciding which profile to present to the respondents
- Establishing preferences for each attribute
- Choosing the presentation method
- Selecting a method for part-worth estimation

Based on the goodness of fit, the additive conjoint model was used in this study. The model has been formulated as:

$$Y = \sum_{i=1}^n \sum_{j=1}^m V_{ij} X_{ij}$$

where,

- Y = Consumers overall evaluation of broiler meat.
 V_{ij} = Part-worth contribution or utility associated with the j^{th} level ($j, j=1, 2, \dots, m$) of the i^{th} attribute ($i, i=1, 2, \dots, n$)

X_{ij} = Dummy variable representing the preference for the j^{th} level of the i^{th} attribute (one, if the j^{th} level of the i^{th} attribute is present, otherwise zero)

n = Number of attributes

m = Number of levels of attribute 'i'

For the present study, a profile describing alternatives was constructed by combining the levels of five attributes. The attributes and their levels (Tables 1 and 2) were identified through discussions with

consumers during preliminary survey and also in consultation with subject matter specialists and accordingly, 16 cards were generated separately for urban and rural consumers with different combinations and the same were used for collection of information pertaining to consumer preferences in the study area. The consumers were requested to rank each card based on their preferences.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Sample Consumers in Urban Transect of Bengaluru South

As mentioned earlier, the sample in urban transect for the study comprised of 45 consumers who consumed meat. The socio-economic characteristics of sample consumers in urban transect are presented in Table 3. It can be observed from the table that majority (62.23%) of the consumers belonged to the age group of 31 to 50 years followed by the age group of 20 to 30 years (24.44%) and the age group of above 50 years (13.33%). Sixty per cent of the respondents were males while the remaining (40%) were females. All the sample consumers were literate with majority (64.44%) of them being graduates followed by those (26.67%) who had studied up to PUC level and those (8.89%) up to high school. With regard to the occupation, it was found that majority (42.23%) of the consumers were employed in the private sector followed by those (24.44%) in Government sector, self-employed (20%) and homemakers (13.33%). With respect to income, it was found that majority (48.89%) of the consumers had monthly income ranging from Rs.20,001 to Rs.50,000 followed by those (40%) who had income of more than Rs.50,000 and those (11.11%) with up to Rs.20,000. It was found that Majority (75.55%) of the sample consumers consumed meat on a weekly basis followed by those who consumed it on a fortnightly basis (17.78%) and monthly basis (6.67%).

Socio-Economic Characteristics of Sample Consumers in Rural Transect of Bengaluru South

As mentioned, the sample in rural transect for the study also comprised of 45 consumers who consumed

TABLE 1

Attributes and their relative levels for Bengaluru urban transect

| Attributes | Levels |
|------------|--|
| Type | Broiler Country chicken |
| Price | Up to Rs.150 per kg Rs.151 per kg – Rs.200 per kg More than Rs. 200 per kg |
| Purchase | Shop Online |
| Frequency | Weekly Fortnightly Monthly |
| Form | Whole bird (dressed) Specific parts |

TABLE 2

Attributes and their relative levels for Bengaluru rural transect

| Attributes | Levels |
|------------|---|
| Type | Broiler Country chicken Layer |
| Price | Up to Rs. 150 per kg Rs. 151 per kg – Rs. 200 per kg More than Rs. 200 per kg |
| Purchase | Shop Directly from farm |
| Frequency | Weekly Fortnightly Monthly |
| Form | Whole bird (dressed) Specific parts |

TABLE 3
Socio-economic characteristics of sample consumers in urban transect of Bengaluru south (n₁=45)

| Particulars | Number | Per cent |
|--------------------------------------|--------|----------|
| Age (years) | | |
| a. 20 to 30 | 11 | 24.44 |
| b. 31 to 50 | 28 | 62.23 |
| c. Above 50 | 6 | 13.33 |
| Total | 45 | 100.00 |
| Gender | | |
| a. Male | 27 | 60.00 |
| b. Female | 18 | 40.00 |
| Total | 45 | 100.00 |
| Literacy Level | | |
| a. Illiterate | 0 | 0 |
| b. Primary School | 0 | 0 |
| c. High School | 4 | 8.89 |
| d. PUC | 12 | 26.67 |
| e. Degree and above | 29 | 64.44 |
| Total | 45 | 100 |
| Occupation | | |
| a. Private employee | 19 | 42.23 |
| b. Government employee | 11 | 24.44 |
| c. Self-employed | 9 | 20.00 |
| d. Homemaker | 6 | 13.33 |
| Total | 45 | 100 |
| Income Level | | |
| a. Up to Rs. 20,000 per month | 5 | 11.11 |
| b. Rs.20,001 to Rs.50,000 per month | 22 | 48.89 |
| c. More than Rs. 50,000 per month | 18 | 40.00 |
| Total | 45 | 100.00 |
| Frequency of meat consumption | | |
| a. Weekly | 34 | 75.55 |
| b. Fortnightly | 8 | 17.78 |
| c. Monthly | 3 | 6.67 |
| Total | 45 | 100.00 |

meat. The socio-economic characteristics of consumers in rural transect are presented in Table 4. It can be observed from the table that majority (51.11%) of the consumers belonged to the age group of 31 to 50 years followed by the age group of 20 to 30 years (35.56%) and the age group of above 50 years (13.33%). Majority (55.56%) of the respondents were males while the remaining (44.44%) were females. All the sample consumers were literate with majority (40%) of them having studied up to high school level followed by those (26.67%) who had studied up to PUC level, degree and above (22.22%) and up to primary school level (11.11%). In the case of occupation of sample consumers, it was found that about 29 per cent of them were farmers and around 29 per cent of them were homemakers followed by those (20%) who were self-employed, private employees (17.78%) and Government employees (4%). With respect to income, it was found that majority (75.56%) of the consumers had monthly income up to Rs.20,000 followed by those (20%) who had income ranging from Rs.20,001 to Rs.50,000 and those (4.44%) with more than Rs.50,000. Majority (66.67%) of the sample consumers consumed meat on a weekly basis followed by those who consumed it on a fortnightly basis (17.77%) and monthly basis (15.56%).

The important attributes considered for analysing the consumer preference in urban and rural transects of Bengaluru were the type of meat, place of purchase, form in which they purchased the meat, frequency of purchase and price. For each respondent, the part-worth utilities were estimated using OLS regression analysis.

The additive model was found to be a relatively better fit. In the case of urban transect, Pearson's rank correlation yielded a value of 0.950 significant at five per cent level and Kendall's correlation yielded a value of 0.809 significant at 5 per cent level. In the case of rural transect, Pearson's rank correlation yielded a value of 0.912 significant at 5 per cent level and Kendall's correlation yielded a value of 0.880 significant at five per cent level (Table 5). This ensures strong confidence in the suitability of the additive model.

TABLE 4
Socio-economic characteristics of sample consumers in rural transect of Bengaluru south (n₂=45)

| Particulars | Number | Per cent |
|--------------------------------------|--------|----------|
| Age (years) | | |
| a. 20 to 30 | 16 | 35.56 |
| b. 31 to 50 | 23 | 51.11 |
| c. Above 50 | 6 | 13.33 |
| Total | 45 | 100.00 |
| Gender | | |
| a. Male | 25 | 55.56 |
| b. Female | 20 | 44.44 |
| Total | 45 | 100.00 |
| Literacy Level | | |
| Illiterate | 0 | 0 |
| Primary School | 5 | 11.11 |
| High school | 18 | 40.00 |
| PUC | 12 | 26.67 |
| Degree and above | 10 | 22.22 |
| Total | 45 | 100.00 |
| Occupation | | |
| a. Private employee | 8 | 17.78 |
| b. Government employee | 2 | 4.44 |
| c. Self-employed | 9 | 20.00 |
| d. Farming | 13 | 28.89 |
| e. Homemaker | 13 | 28.89 |
| Total | 45 | 100 |
| Income Level | | |
| a. Up to Rs. 20,000 per month | 34 | 75.56 |
| b. Rs.20,001 to Rs.50,000 per month | 9 | 20.00 |
| c. More than Rs.50,000 per month | 2 | 4.44 |
| Total | 45 | 100.00 |
| Frequency of meat consumption | | |
| a. Weekly | 30 | 66.67 |
| b. Fortnightly | 8 | 17.77 |
| c. Monthly | 7 | 15.56 |
| Total | 45 | 100.00 |

The relative importance of the part-worth functions was compared across different attributes within segments to arrive at the relative importance of each attribute. The average part-worth and the relative importance of the attributes for urban and

TABLE 5
Correlation among attributes of consumer preference for broiler meat in Bengaluru

| Correlation | Value | |
|---------------|-----------------|-----------------|
| | Urban consumers | Rural consumers |
| Pearson's R | 0.950* | 0.912* |
| Kendall's tau | 0.809* | 0.880* |

Note: * significant at five per cent level

rural transects of Bengaluru South are presented in Tables 6 and 7.

The results of the conjoint analysis of preference for broiler meat by urban consumers of Bengaluru South is presented in Table 6. The type of meat with a relative importance of 62.512 per cent was the

TABLE 6
Conjoint analysis of preference for broiler meat by urban consumers of Bengaluru south

| Attribute | Level | Utility level | Relative importance |
|-----------|-------------------------|---------------|---------------------|
| Type | Broiler | 0.453 | 62.512 |
| | Country chicken | -0.453 | |
| Price | Up to Rs. 150 per kg | 1.214 | 13.878 |
| | Rs. 151 per kg – | 2.428 | |
| | Rs. 200 per kg | -3.642 | |
| | More than Rs.200 per kg | | |
| Purchase | Shop | 1.188 | 17.200 |
| | Online | -1.188 | |
| Frequency | Weekly | 0.389 | 4.534 |
| | Fortnightly | 0.063 | |
| | Monthly | -0.452 | |
| Form | Whole bird (dressed) | 0.038 | 1.876 |
| | Specific parts | -0.038 | |
| Total | | | 100 |

TABLE 7
Conjoint analysis of preference for broiler meat by rural consumers of Bengaluru south

| Attribute | Level | Utility level | Relative importance |
|-----------|---------------------------|---------------|---------------------|
| Type | Broiler | 2.020 | 47.749 |
| | Country chicken | 1.791 | |
| | Layer | -3.821 | |
| Price | Up to than Rs. 150 per kg | 1.903 | 33.169 |
| | Rs.151 per kg – | 3.806 | |
| | Rs. 200 per kg | -5.709 | |
| | More than Rs.200 per kg | | |
| Purchase | Shop | 0.423 | 7.289 |
| | Directly from farm | -0.423 | |
| Frequency | Weekly | 0.481 | 10.119 |
| | Fortnightly | 0.004 | |
| | Monthly | -0.485 | |
| Form | Whole bird (dressed) | 0.970 | 1.674 |
| | Specific parts | -0.970 | |
| Total | | | 100 |

most important attribute considered by consumers in urban transect while making purchasing decisions pertaining to meat. Most urban consumers preferred broiler meat (utility level of 0.453) while few preferred country chicken. Though country chicken is free from steroids, antibiotics & hormones and hence a better option from the health point of view, most of the urban consumers preferred broiler meat due to relatively lesser price, tenderness of the meat and availability. The place of purchase of meat with a relative importance of 17.200 per cent was the second important factor. Majority of the consumers preferred to buy meat from shops (utility level of 1.188) while few preferred to buy online. Most consumers prefer to buy broiler meat dressed at shops in their presence. Now-a-days, meat is also ordered through online platforms such as Fresh to Home, Licious, fipola *etc.* are available. Moreover, consumers can check comparative prices online and often get various discounts and offers. Due to these reasons, consumers are finding it convenient to get it ordered online and delivered home. The relative importance of price was 13.878 per cent which revealed that price was the third important factor considered by consumers in urban transect.

Majority preferred a price ranging from Rs.151 per kg to Rs.200 per kg (utility level of 2.428). A research study by Aral *et al.* (2013) in Turkey indicated that consumers top consideration while buying broiler meat was its price. The relative importance for frequency of purchase was 4.534 per cent. In the Indian context, majority of the households cook and consume meat on weekends, *i.e.*, Sundays as they don't cook on most of the weekdays due to cultural reasons. Moreover, the entire family is generally available on Sundays which makes it more conducive for having non-vegetarian food. The relative importance of the form in which the meat is purchased was 1.876 per cent. Urban consumers preferred whole birds (dressed) as well as specific parts of chicken meat depending upon the dishes to be prepared.

The results of the conjoint analysis of preference for broiler meat by rural consumers of Bengaluru South is presented in Table 7. Even in the case of rural consumers, the type of meat (relative importance of 47.749 per cent) was the most important attribute considered while purchasing meat. Majority of consumers preferred broiler meat (utility level of 2.020) while the remaining consumers preferred consuming country chicken and layer meat.

A research study by Salawu *et al.* (2014) in Ghana also found that broiler meat was largely preferred by consumers compared to other types of poultry meat (cockerel, layer and turkey). The price of meat was ranked as the second most important factor by rural consumers, with a relative importance of 33.169 per cent. Majority of the consumers preferred a price ranging from Rs.151 to Rs.200 per kg (utility level of 3.806). The consumers willingness to pay was substantially influenced by their income level, tastes and preferences. The frequency of purchase with a relative importance of 10.119 per cent was the third factor which influenced the purchase decision of rural consumers. Majority of the rural consumers also preferred consuming meat on a weekly basis (utility level of 0.481) mainly due to cultural reasons. The relative importance of the place of purchase and form were 7.289 per cent and 1.674 per cent respectively. The rural consumers purchased broiler meat from a meat shop or a nearby farm and invariably bought

whole birds (dressed) and hardly bought specific parts of chicken.

The study found that among the various attributes considered, the type of meat was the most important factor that influenced the preference of consumers in both urban and rural transects. Broiler meat was preferred by consumers in both urban and rural transects. The consumption of country chicken by the sample consumers was relatively more in rural transect as compared to that in urban transect. The consumers in rural transect prioritised price more than consumers in urban areas while making purchases. The urban consumers ranked place of purchase (meat shops or online platforms) as the second most preferred factor whereas the rural consumers have ranked it as the third factor. The frequency of purchase and the form in which the meat is purchased were the factors which influenced the consumers the least while making purchase decisions. Based on the findings of the study, the stakeholders in the broiler poultry industry may reorient their strategies for better market positioning in consonance with the attribute-based preferences of consumers. Given the robust growth of the broiler sector mainly driven by increase in consumer demand, the Government may act accordingly to sustain the atmosphere required for the same and thereby safeguard the interests of all stakeholders in the industry.

Acknowledgement : The article is a part of the sub-project entitled 'Effects of Urbanization on Value Chains and Livelihoods of Farmers and other Stakeholders (Poultry and Sheep/Goat Value Chains)' under the Indo-German Collaborative Research Project entitled 'The Rural-Urban Interface of Bangalore: A Space of Transitions in Agriculture, Economics and Society'. The Department of Biotechnology (DBT), GoI, New Delhi, India (Sanction order: BT/IN/German/DFG/14/BVCR/2019-Phase-II dated 19-03-2021) is duly acknowledged for the financial support provided to this project.

REFERENCES

GEORGE, T. M. KWADZO, FIDELIS DADZIE, YAW, B. OSEI-ASARE AND JOHN, K. M. KUWORNU, 2013, Consumer preference for broiler meat in Ghana: A conjoint

analysis approach. *International Journal of Marketing Studies*, **5** (2) : 66 - 73.

ELLEN, M. H., MONISH, J., NILS, N. AND THOMAS, M., 2017, Construction and use of a simple index of urbanization in the rural-urban interface of Bangalore, India. *Sustainability*, **9** (11) : 1 - 21.

MOHAN KUMAR, H. T. AND JAYARAMA BHAT, B., 2012, Technical efficiency of contract broiler farming in Karnataka. *Mysore Journal of Agricultural Sciences*, **46** (4) : 842 - 845.

POOJA AND UMESH, K.B., 2021, Why do farm households migrate? Evidence from rural-urban interface of Bengaluru. *Mysore Journal of Agricultural Sciences*, **55** (3) : 132 - 141.

SALAWU, M. B., IBRAHIM, A. G., LAMIDI, L. O. AND SODEEQ, A. E., 2014, Consumption and consumer preference for poultry meat types in Ibadan Metropolis. *Journal of Economics and Sustainable Development*, **5** (28) : 20 - 25.

UDAYKUMAR, M. S. AND UMESH, K. B., 2020, Investment and crop diversity: empirical evidence from rural-urban interface of Bengaluru. *Current Journal of Applied Science and Technology*. **39** (30) : 1 - 10.

VEERABHADRAPPA BELLUNDAGI, UMESH, K. B., ROOPA, H. S. AND RAVI, S. C., 2016, Application of conjoint analysis for consumer preference evaluation in ragi in Karnataka. *Indian Journal of Economics and Development*: **4** (10) : 1 - 6.

YILMAZ ARAL, EROL AYDIN, PINAR DEMIR, AHMET CUMHUR AKIN, YAVUZ CEVGER, ÇAĞLA YÜKSEL KAYA KUYULULU AND MEHMET SALTUK ARIKAN, 2013, Consumer preferences and consumption situation of chicken meat in Ankara Province, Turkey. *Turkish Journal of Veterinary and Animal Sciences*, **37** (1) : 582 - 587.