



Research Note

Diverging Priorities for Direct Fish Purchase in Mumbai: A Tale of Two Markets Shaped by Market Factors

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Fish is a key protein source in coastal urban diets, yet market-related factors shape consumer purchasing behaviour. This study examines direct fish purchasing behaviour at physical markets in Mumbai City and Mumbai Suburban regions, based on a survey of 180 consumers across eight markets (April–June 2024). Using Rank-Based Quotient and Normalized Response Priority Index methods, taste (92.94), nutritive value (88.22), and freshness (86.63) emerged as the top selection factors. Market hygiene was the leading constraint in Mumbai City (NRPI: 0.84), while market hygiene (0.71) and price fluctuation (0.70) were the leading constraints in Mumbai Suburban markets, with significant regional differences ($p < 0.01$) in hygiene perception. Findings are limited to consumers purchasing fish directly from markets.

Keywords: Consumer behaviour, direct purchase, fish market, market hygiene, price fluctuation, rank-based quotient

Fish is an important source of protein, omega-3 fatty acids, vitamins and minerals and forms a regular part of the diet in coastal urban regions such as Mumbai (Food and Agriculture Organization, 2020). Consumer preference for fish is shaped by attributes such as taste, freshness, nutritive value and market accessibility, with sensory and quality-related factors consistently reported as key determinants of fish-buying behaviour across Indian markets

(Debnath et al., 2012; Debnath et al., 2014). At the market level, hygiene, price stability, overcrowding and irregular supply have also been identified as important constraints influencing consumer purchasing decisions in urban centres such as Delhi NCR and Kolkata (Bunkar, Prakash, Krishnan, & Ramasubramanian, 2022; Toko & Saha, 2024).

Mumbai, a major coastal metropolitan city with an established fish marketing network, comprises distinct city and suburban regions that differ in market conditions and consumer perceptions. However, limited comparative evidence exists on how market-level constraints affecting direct fish purchases vary between these regions. This study therefore examines the factors influencing direct fish purchase and compares consumer-perceived market constraints affecting purchase behaviour in the fish markets of Mumbai City and Mumbai Suburban.

The study was conducted in Mumbai, a major coastal metropolitan city with an established fish marketing system. A multi-stage sampling design was adopted. Mumbai was divided into Mumbai City and Mumbai Suburban districts (90 respondents each). Within each district, wards were ranked by the number of fish markets and two high-density and two low-density wards were purposively selected. One major fish market was subsequently selected from each ward, comprising four markets in Mumbai City (Dadar, Crawford, Lokmanya Tilak Mandai and Dongri) and four markets in Mumbai Suburban (Versova, Ghatkopar, Sakinaka and Ganesh Nagar), giving a total of eight markets. High-density wards were allocated 30 respondents each and low-density wards 15 each, giving 180 consumers overall, selected at the point of purchase via systematic random sampling during April–June 2024 using a structured interview schedule.

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The study covers direct, in-person purchases at physical fish markets only and does not capture purchases through quick-commerce or food-delivery platforms, which are increasingly used in urban centres such as Mumbai (Sajeev et al., 2021). Findings reflect direct-purchase market behaviour and are not generalised beyond this scope.

Consumer preferences for fish selection attributes were analysed using the Rank-Based Quotient (RBQ) technique (Sabarathnam, 1988): $RBQ = [\sum_{i=1}^n f_i(n+1-i) / (N \times n)] \times 100$, where f_i is rank frequency, N is the total number of respondents, n is the number of attributes ranked, and i is the rank position. Market constraints were assessed using the Response Priority Index (Kalidas, Mahendran, & Akila, 2020) on a 0–4 severity scale and normalised for cross-market comparability; regional normalised RPI values were computed from pooled raw responses, rather than averaged market values. Regional differences were tested using the Mann–Whitney U test (Mann & Whitney, 1947) at 1% and 5% significance levels. Analyses were performed using MS Excel and IBM SPSS Statistics.

Taste emerged as the most important factor influencing fish selection (RBQ: 92.94), followed by nutritive value (88.22) and freshness (86.63) (Table 1), consistent with findings from other Indian urban contexts (Debnath et al., 2012; Kumar, Bindu, & Pavan, 2023). Market convenience, tradition, and texture showed moderate influence (RBQ: 52.89, 51.94, 51.56), while ease of cooking, odour, fewer bones, and festival relevance ranked lowest (RBQ < 40), suggesting that fish is treated as a regular dietary staple rather than an occasion-based food in Mumbai.

Table 1. Ranking of attributes influencing fish selection among consumers during 2024

Sl. No.	Attributes	RBQ Score	Rank
1	Taste	92.94	I
2	Nutritive value	88.22	II
3	Freshness	86.63	III
4	Market convenience	52.89	IV
5	Tradition	51.94	V
6	Texture	51.56	VI
7	Ease of cooking	39.50	VII
8	Odour	38.11	VIII
9	Less bones	29.22	IX
10	Festival	18.78	X

NRPI analysis (Table 2) revealed distinct constraint patterns between regions. In Mumbai Suburban markets, price fluctuation (0.70) and market hygiene (0.71) were the leading concerns, followed by overcrowding (0.56), fish origin (0.52), and distance barrier (0.23). In Mumbai City markets, market hygiene was the dominant constraint (0.84), followed by overcrowding (0.68) and price fluctuation (0.65). The elevated hygiene concerns in city markets align with similar findings from Delhi NCR, Haryana, and Punjab (Bunkar et al., 2022; Bunkar & Ananthan, 2023).

The Mann–Whitney U test confirmed significant regional differences for market hygiene (Table 3) (MCT: 0.84 vs. MSU: 0.71; $p < 0.001$) and overcrowding (MCT: 0.68 vs. MSU: 0.56; $p = 0.002$), consistent with denser, more congested conditions in the urban core. Price fluctuation, though prominent in both regions, showed no significant difference ($p = 0.261$), suggesting it is a systemic constraint across the Mumbai fish marketing system rather than a location-specific constraint — a pattern also reported in Kolkata and Delhi NCR (Bunkar et al., 2022; Toko & Saha, 2024).

Freshness and quality scored notably lower as market constraints (NRPI: 0.33 MSU, 0.27 MCT) than as a selection criterion (RBQ: 86.63), suggesting consumers distinguish freshness as an inherent purchase expectation rather than a market-level barrier. Interestingly, the origin of fish was of relatively low concern in both regions (0.52 MSU, 0.40 MCT), indicating that source traceability is secondary to hygiene, price, and convenience for direct-purchase consumers.

This study examined direct fish purchase behaviour in Mumbai City and Suburban markets. Taste (RBQ: 92.94), nutritive value (88.22), and freshness (86.63) were the leading selection factors, indicating that sensory and health attributes dominate consumer choice. Market hygiene, price fluctuation and overcrowding emerged as the major purchase constraints, with market hygiene highest in Mumbai City (NRPI: 0.84) and price fluctuation highest in Mumbai Suburban (NRPI: 0.70). Regional differences were significant for hygiene and overcrowding ($p < 0.001$, $p = 0.002$) but not price fluctuation, pointing to targeted, region-specific interventions for hygiene and crowd management alongside city-wide measures to improve price-stability.

Table 2. NRPI of market factors in Mumbai Suburban and Mumbai City fish markets during 2024

(a) Mumbai Suburban				
Market Factors	Versova	Ghatkopar	Sakinaka	Ganesh Nagar
Origin of fish	0.34	0.25	0.15	0.07
Price fluctuation	0.82	0.91	0.71	0.50
Irregular supply	0.36	0.50	0.30	0.25
Freshness & quality	0.79	0.71	0.60	0.71
Distance barrier	0.59	0.70	0.44	0.46
Overcrowding	0.23	0.27	0.25	0.29
Preferable species	0.73	0.71	0.49	0.32
Market hygiene	0.38	0.45	0.38	0.25
(b) Mumbai City				
Market Factors	Dadar	Crawford	LTM	Dongri
Origin of fish	0.07	0.11	0.20	0.33
Price fluctuation	0.62	0.74	0.65	0.56
Irregular supply	0.24	0.33	0.13	0.31
Freshness & quality	0.91	0.83	0.70	0.88
Distance barrier	0.40	0.34	0.32	0.55
Overcrowding	0.47	0.53	0.27	0.31
Preferable species	0.75	0.82	0.38	0.63
Market hygiene	0.34	0.08	0.13	0.44

Table 3. NRPI of market factors influencing fish consumers of Mumbai Suburban (MSU) and Mumbai City (MCT), and Mann–Whitney U test results, 2024

Market Area	Origin of fish	Price fluct.	Irregular supply	Freshness & quality	Distance barrier	Over-crowding	Preferable species	Market hygiene
MSU	0.52	0.70	0.35	0.33	0.23	0.56	0.24	0.71
MCT	0.40	0.65	0.24	0.27	0.42	0.68	0.16	0.84
Top three market factors – Mann-Whitney U test (Grouping Variable: MSU vs MCT)								
Market factor	NRPI (MSU)	NRPI (MCT)	Mann-Whitney U	Z	Asymp. Sig. (2-tailed)	Remarks		
Market hygiene	0.71	0.84	2285.500	-5.463	<0.01	Significant at 1%		
Price fluctuation	0.70	0.65	3695.500	-1.125	.261	Not significant		
Overcrowding	0.56	0.68	3033.000	-3.072	.002	Significant at 1%		

This study is subject to certain limitations. First, the sample of 180 consumers across eight markets, while stratified by market density, remains relatively small and may not fully represent fish-purchasing behaviour across all of Mumbai City and Mumbai Suburban regions. Second, the study is based on the assumption that consumers purchase fish through direct, in-person visits to physical markets; it does not capture the growing share of purchases made via quick-commerce platforms and food-delivery apps, which are increasingly reshaping consumer behaviour in urban centres such as Mumbai. Third, the study did not collect data on the frequency of market visits or the use of alternative purchase sources, which could offer additional insight into overall consumer purchasing patterns. Findings should therefore be interpreted as specific to direct market-purchase behaviour and not generalised to fish-buying behaviour as a whole.

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