The Rise of Quick Commerce and its Sustainability in Mumbai and Navi Mumbai: Analyzing Consumer Behaviour, Operational Challenges, and Future Prospects

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Abstract – The quick commerce (q-commerce) movement has forced the Indian retail industry to change dramatically which is defined by lightning-fast consumer goods delivery services. This study looks at the factors that influence the adoption of q-commerce, trends in consumer behavior, operational difficulties, and its long-term sustainability. Our analysis is based on a main dataset gathered through consumer surveys and interviews. Key insights into customer preferences, logistical challenges, and strategic opportunities are highlighted by statistical and qualitative methodologies. The results point to a rising customer preference for speed and convenience in contrast to serious operational and environmental issues. This paper concludes potential strategies for q-commerce to attain long-term sustainability in a cutthroat Indian retail industry.

I. INTRODUCTION

With products being delivered minutes after an order is placed, quick commerce has become a disruptive force in the retail industry. Q-commerce, which was invented by start-ups and is being embraced by traditional stores more and more, serves customers who want unmatched convenience. But there are still serious concerns about its long-term viability. The foundations of q-commerce's growth are examined in this study, with a focus on consumer behaviour, business difficulties, and environmental **issues.** Our goal is to present a thorough knowledge of this phenomenon by combining primary and secondary data.

II. LITERATURE REVIEW

Quick commerce's growth and sustainability in India are complex issues that touch on environmental concerns, operational effectiveness, and customer behaviour. A summary of current studies and theoretical frameworks may be found below:

Customer Conduct in Q-Commerce

Convenience, quickness, and special offers are important factors that influence consumer behaviour, according to studies on the adoption of e-commerce in India (Chaffey, 2022).

According to a survey by Bain & Company (2023), urban millennials and Gen Z are the biggest q-commerce consumer base because of their tech-savvy and rapid gratification preferences.

Discounts and delivery speed stimulate frequent switching, making customer loyalty in q-commerce unstable (McKinsey & Company, 2023).

Operational Models and Challenges

Fast order fulfilment is made possible by theoretical frameworks like just-in-time (JIT) inventory management, which are essential to q-commerce success (Porter, 1985).The importance of micro- fulfillment centers in maximizing delivery times is highlighted by

research on logistics in emerging economies (Singh & Kumar, 2022).Constant problems include operational inefficiencies, such as expensive delivery fees and complicated last- mile logistics (Goyal et al., 2023).

Environmental Sustainability

Q-commerce's effects on the environment are coming under more and more scrutiny, especially in India, where carbon emissions and packaging waste are major issues (UNEP, 2023). According to studies on green logistics, reusable packaging and electric cars can reduce environmental expenses, but adoption in India is still slow because of the high upfront expenditures (Sharma et al., 2023). Although consumers are becoming more conscious of sustainability in q-commerce, they are still not prepared to pay more for environmentally friendly services (Rao & Gupta, 2023).

Policy and Regulatory Views

Government programs that encourage trash management and electric vehicles also assist environmentally friendly q-commerce behaviours (Indian Ministry of Environment, 2023). E-commerce regulatory systems, such as labor and tax rules, affect how scalable q- commerce is in India (KPMG, 2023).

Technological Advancements

To improve operational efficiency, demand forecasting and route optimization are using artificial intelligence (AI) and machine learning (ML) more and more (TechSci Research, 2022). Although legal barriers still exist in India, emerging technology like drones and autonomous delivery vehicles have the ability to completely transform q-commerce (Jain et al., 2023).

III. OBJECTIVES

To analyze consumer behaviour of respondents towards Q-Commerce brands in Mumbai and Navi Mumbai.

To examine operational challenges and future prospects in Q-Commerce industry in Mumbai and Navi Mumbai.

IV. HYPOTHESIS

There is an association between the age group and preference of respondents towards Q-Commerce brands in Mumbai and Navi Mumbai.

There is an association between the awareness level and preference of respondents amongst Q-Commerce brands in Mumbai and Navi Mumbai.

V. METHODOLOGY

A. Data Collection

Data was collected through a structured questionnaire from 122 consumers across Mumbai and Navi Mumbai.

B. Data Analysis

Quantitative analysis is done using statistical tools to identify trends in consumer preferences and metrics. Qualitative thematic analysis to extract insights from responses.

VI. HIGHLIGHTS

The long-term viability of quick commerce, or "q-commerce," in India is a complicated issue that depends on a number of interconnected elements, including customer behaviour, market dynamics, technology developments, and environmental concerns.

A. Consumer Demand and Market Dynamics

Growing Urbanization: It is anticipated that India's urban population will increase dramatically, which would increase demand for efficient delivery services.

Customer Preferences: The demand for q-commerce, especially for groceries and necessities, is expected to be sustained by the youthful and technologically literate populace in metropolitan and semi-urban regions.

Difficulties in Smaller Towns: Growing into tier- 2 and tier-3 cities, which have lower densities and purchasing power, might make a business less profitable.

B. Financial Sustainability

High expenses and narrow margins: In India, Q-commerce models depend on extremely narrow profit margins that are frequently supported by venture capital financing. High last-mile delivery costs and discounts make it difficult to turn a profit.

Operational Efficiency: Although innovations like route optimization and micro-fulfillment

centers can lower costs, widespread adoption still requires a lot of resources.

Reliance on Discounts: Indian consumers are extremely price-sensitive. Reducing reliance on steep discounts while maintaining client loyalty is essential for long-term viability.

C. Innovations in Technology and Operations

Automation and AI: Technologies like self- driving delivery trucks and AI-driven demand forecasting have the potential to increase productivity and lower operating expenses.

Growing Micro-Fulfillment Centers: Although it takes a large financial commitment, setting up tiny, well-located warehouses may save delivery costs and delays.

Logistics Infrastructure: Although India's infrastructure is getting better, the scalability of q-commerce may be hampered by unequal rural development.

D. Sustainability of the Environment

Carbon Footprint: Environmental issues are made worse by rapid delivery, which frequently entails fewer truck trips and packaging waste.

Sustainable Practices: These effects may be lessened by using green logistics, such as reusable packaging and electric delivery trucks. But in order to have an effect, these solutions need to be widely adopted and are expensive.

Regulatory Pressure: Sustainability is becoming a bigger concern for Indian lawmakers. Regulations may force q-commerce companies to implement environmentally friendly procedures.

Consolidation and Competition

Market Saturation: As more businesses join metropolitan areas, there is intense rivalry, which reduces profitability.

Trends in Consolidation: As a market becomes oligopolistic, smaller firms may leave or combine with bigger ones, which might increase profitability but limit customer choice.

E. Outlook for the Future

Short-Term Growth: Urban demand and investor enthusiasm are expected to fuel the short-term growth of India's q-commerce industry.

Long-Term Sustainability: Striking a balance between environmental responsibility and economic viability is necessary to achieve long-term sustainability. Businesses that can implement sustainable practices, manage expenses, and innovate operationally have a higher chance of success.

Consumer and Regulatory Shift: Stricter laws and growing consumer awareness of sustainability may encourage businesses to adopt greener business models, even if doing so comes at the expense of early profitability.

IV. HYPOTHESIS TESTING RESULTS

H1 There is an association between the age group and preference of respondents towards Q- Commerce brands in Mumbai and Navi Mumbai

Age Group * Preference of Q-Commerce Platform Cross-tabulation

			Preference of Q-Commerce Platform					Total
			Zepto	Big Basket	Blinkit	Swiggy Instamart	Dunzo Daily	
	18-24	Count	44	3	15	6	3	71
		Expected Count	48.7	2.3	14.7	3.5	1.8	71.0
		% within Age Group	62.0%	4.2%	21.1%	8.5%	4.2%	100.0%
		% within Preference of Q-Commerce	53.0%	75.0%	60.0%	100.0%	100.0%	58.7%

Age Group		Platform						
	25-34	Count	37	0	8	0	0	45
		Expected Count	30.9	1.5	9.3	2.2	1.1	45.0
		% within Age Group	82.2%	0.0%	17.8%	0.0%	0.0%	100.0%
		% within Preference of Q- Commerce Platform	44.6%	0.0%	32.0%	0.0%	0.0%	37.2%
	35-45	Count	2	1	2	0	0	5
		Expected Count	3.4	.2	1.0	.2	.1	5.0

Chi-Square Tests			
	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	15.584[a]	8	.049
Likelihood Ratio	17.891	8	.022
Linear-by-Linear Association	3.014	1	.083
N of Valid Cases	121		
a. 11 cells (73.3%) have expected count less than 5. The minimum expected count is .12.			

H1A - There is an association between the awareness level and preference of respondents amongst Q-Commerce brands in Mumbai and Navi Mumbai.

Awareness of Q-Commerce Platform * Preference of Q-Commerce Platform Crosstabulation								
			Preference of Q-Commerce Platform					Total
			Zepto	Big Basket	Blinkit	Swiggy Instamart	Dunzo Daily	
	Zepto	Count	77	0	6	1	1	85
		Expected Count	58.3	2.8	17.6	4.2	2.1	85.0
		% within Awareness of Q-Commerce Platform	90.6%	0.0%	7.1%	1.2%	1.2%	100.0%
		% within Preference of Q-Commerce Platform	92.8%	0.0%	24.0%	16.7%	33.3%	70.2%
		Count	0	3	2	1	1	7
		Expected Count	4.8	.2	1.4	.3	.2	7.0

Awarene ss of Q-Commerce Platform	Big Basket	% within Awareness of Q-Commerce Platform	0.0%	42.9%	28.6 %	14.3%	14.3%	100. 0%
		% within Preference of Q-Commerce Platform	0.0%	75.0%	8.0 %	16.7%	33.3%	5.8 %
	Blinkit	Count	2	1	16	0	0	19
		Expected Count	13.0	.6	3.9	.9	.5	19.0
		% within Awareness of Q-Commerce Platform	10.5%	5.3%	84.2 %	0.0%	0.0%	100. 0%
		% within Preference of Q-Commerce Platform	2.4 %	25.0%	64.0 %	0.0 %	0.0%	15.7 %
	Swiggy Instamart	Count	3	0	1	4	0	8
		Expected Count	5.5	.3	1.7	.4	.2	8.0
		% within Awareness of Q-Commerce Platform	37.5 %	0.0%	12.5 %	50.0 %	0.0%	100. 0%
		% within Preference of Q-Commerce Platform	3.6 %	0.0%	4.0 %	66.7 %	0.0%	6.6 %
	Dunzo Daily	Count	1	0	0	0	1	2
		Expected Count	1.4	.1	.4	.1	.0	2.0
		% within Awareness of Q-Commerce Platform	50.0 %	0.0%	0.0 %	0.0 %	50.0%	100. 0%
		% within Preference of Q-Commerce Platform	1.2 %	0.0%	0.0 %	0.0 %	33.3%	1.7 %
Total		Count	83	4	25	6	3	121
		Expected Count	83.0	4.0	25.0	6.0	3.0	121. 0
		% within Awareness of Q-Commerce Platform	68.6 %	3.3%	20.7 %	5.0 %	2.5%	100. 0%

	% within Preference of Q-Commerce Platform	100.0 %	100.0%	100. 0%	100.0 %	100.0%	100. 0%

Chi-Square Tests			
	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	164.337[a]	16	.000
Likelihood Ratio	105.490	16	.000
Linear-by-Linear Association	42.087	1	.000
N of Valid Cases	121		
a. 21 cells (84.0%) have expected count less than 5. The minimum expected count is .05.			

V. DATA ANALYSIS AND INTERPRETATION

A. Age Group & Q-Commerce Platform Preference

The most popular platform among all age groups

In the age Group 18–24: Zepto is most preferred (62%), followed by Blinkit (21.1%), Zepto leads the 25–34 age group with 82.2% preference, for age Group 35–45: Blinkit and Zepto are equally favored (40% each).

Statistic Importance

p-value = 0.049, Pearson Chi-Square Value = 15.584

There is a statistically significant association between platform preference and age group, as indicated by the p-value (0.049), which is just below the significance level of 0.05.

Important Takeaways

With a significant preference in the 25–34 age range (82.2%), Zepto is the most popular platform across all age groups. The 18–24 age group has a greater preference for Blinkit, whilst older age groups have a lower preference. Dunzo Daily and Swiggy Instamart are the platforms that are generally least preferred.

B. Knowledge of the Q-*Commerce Preference & Platform*

Platform of Choice Based on Awareness

Ninety-point six percent of users who are aware of Zepto say they prefer it. Blinkit is strongly preferred by those who are aware of it (84.2%). Only 42.9% of users who are aware of Big Basket choose it, indicating that their choices are the most varied. Users of Swiggy Instamart have a divided preference; 37.5% prefer Zepto, while 50% prefer Swiggy Instamart. Dunzo There are only two cases of daily awareness.

Statistical Importance

p-value = 0.000, Pearson Chi-Square Value = 164.337.

A highly significant association between awareness and preference is indicated by the p- value of less than 0.05.

Important Takeaways

Preference is heavily influenced by awareness; people are more likely to favor the platform they are most familiar with. With 90.6% awareness and preference alignment, Zepto leads the pack. Similar patterns are displayed by Blinkit, but with fewer users. Swiggy Instamart, Dunzo Daily, and Big Basket are less well-known and have a range of tastes.

C. Final Insights

Zepto dominates all age groups and consciousness levels, but its dominance is greatest in the 25–34 age range. The second most popular platform is Blinkit, which is primarily used by younger users (18–24). People prefer what they already know; therefore, awareness has a big impact on platform preference. Significant correlations between awareness and preference (p = 0.000) and age group and preference (p = 0.049) are confirmed by statistical analysis.

VI. RESULTS

A. Consumer Behaviour Trends

Demographics: Young adults (18-34 years) constitute the majority of q-commerce users.
Key Drivers: Convenience (13.1%), time savings (75.4%), Cost savings (9.8%) and promotional offers (1.6%) were the top motivators.
Purchase Patterns: High-frequency purchases of groceries, snacks, and personal care items dominate.

B. Operational Challenges

Cost Efficiency: High delivery costs and thin margins pose profitability challenges.
Logistics: Dependence on dense urban networks and micro-fulfillment centers.
Sustainability: Increased packaging waste and carbon emissions are major concerns.

C. Environmental Sustainability:

Carbon Footprint: Delivery methods primarily rely on motorized vehicles, contributing significantly to urban emissions.
Packaging Waste: Single-use plastics and cardboard dominate, with limited adoption of reusable options.

significant hurdle.

The environmental costs associated with q-commerce—including increased carbon emissions and packaging waste—are significant. However, consumer awareness and regulatory pressures are likely to push operators towards adopting greener practices. Collaboration among stakeholders, including policymakers, logistics providers, and consumers, will be essential to achieving sustainability.

VIII. CONCLUSION

The need for speed and convenience among consumers has led to a fundamental change in retail known as "quick commerce." Despite its enormous growth potential, its long-term survival will depend on resolving operational inefficiencies and sustainability concerns.

Green Initiatives: Few operators have begun piloting electric vehicles and reusable packaging, but scalability remains an issue.

D. Future Prospects:

Technological Integration: Use of AI for demand forecasting, automated inventory management, and drone delivery systems.
Expansion Opportunities: Growth in suburban and tier-2 cities, although logistical complexities increase.
Sustainability Initiatives: Adoption of electric vehicles, renewable energy-powered warehouses, and circular economy packaging solutions.

VII. DISCUSSION

The results underscore the twofold challenge encountered by q-commerce operators: fulfilling consumer expectations for rapidity and convenience while tackling operational inefficiencies and promoting environmental sustainability. Although innovations in technology and logistics have the potential to mitigate some challenges, achieving widespread adoption of sustainable practices remains a

The effectiveness of new technologies, the effect of regulatory frameworks on sustainability, and longitudinal studies to monitor the sector's development should be the main topics of future study.

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