

International Journal of Statistics and Applied Mathematics

ISSN: 2456-1452
NAAS Rating (2025): 4.49
© 2025 Stats & Maths
Maths 2025; SP-10(8): 21-24
www.mathsjournal.com
Received: 20-06-2025
Accepted: 23-07-2025

Swati Sharma
Associate Professor, ASPEE
Agribusiness Management
Institute, Navsari Agricultural
University, Navsari, Gujarat,
India

Anjoo Chauhan
HOD, Faculty of Commerce and
Management, Maharishi Arvind
University, Jaipur, Rajasthan,
India

Corresponding Author:
Swati Sharma
Associate Professor, ASPEE
Agribusiness Management
Institute, Navsari Agricultural
University, Navsari, Gujarat,
India

Drivers and deterrents of online fruits and vegetables purchasing: A consumer-centric study in Jaipur city, Rajasthan

Swati Sharma and Anjoo Chauhan

Abstract

This study explores the key factors that influence consumer purchasing decisions and the constraints they face when buying fruits and vegetables (F&V) from online retailers in Jaipur, Rajasthan. With the rapid growth of e-commerce in India, especially in the grocery segment, understanding consumer behavior in this context has become increasingly important. A descriptive research design was adopted, using both primary and secondary data sources. Primary data were collected from 200 purposively selected respondents who actively engage in online grocery shopping, through structured questionnaires administered via personal interviews. Secondary data were obtained from research articles, company reports, books, and verified digital sources. The results indicate that product quality, the ability to save time and energy, and the availability of products are the most significant motivators influencing consumer preference for online platforms. These factors reflect the growing consumer demand for convenience, hygiene, and reliability. However, the study also identifies several critical constraints that hinder consumer satisfaction, including price fluctuations, poor product quality, extra delivery charges, and challenges in returning perishable items. While digital convenience remains a key driver of online F&V purchases, issues related to operational inefficiencies and lack of trust reduce overall satisfaction and repeat buying behavior. Based on these insights, the study suggests several strategic measures for online retailers, such as ensuring consistent product quality, maintaining stable pricing, offering flexible delivery options, strengthening customer service, and enhancing transparency and reliability. These steps can significantly improve the consumer experience and promote long-term loyalty in the competitive online grocery market.

Keywords: Factor influencing, online shopping, fruits and vegetables, constraints, e-commerce

Introduction

The digital revolution has fundamentally reshaped consumer behavior, particularly within the retail sector. While e-commerce has long been a dominant force in metropolitan areas, its expansion into India's tier-2 cities marks a significant and ongoing shift in the national retail landscape. This phenomenon is largely driven by a combination of factors, including increasing internet penetration, widespread smartphone adoption, and a growing consumer demand for convenience (Gupta & Arora, 2022) [3]. Within this evolving marketplace, the online grocery segment especially for perishable items like fruits and vegetables has emerged as a critical and fast-growing frontier. The current online retailing environment is highly competitive, characterized by innovative delivery solutions, a strong emphasis on cold-chain logistics, and a focused effort on building customer trust through quality assurance (Verma & Yadav, 2020) [19]. As consumers in cities like Jaipur increasingly rely on these digital platforms for their daily essentials, it becomes crucial to understand the driving forces behind this behavioral change. This study seeks to enhance the existing body of knowledge by examining the factors that influence consumer decisions to purchase fruits and vegetables online, as well as identifying the key challenges they encounter during the online shopping process in Jaipur City, Rajasthan. The specific objectives of the study are:

1. To examine the factors influencing consumers' decisions to purchase fruits and vegetables from online retailers

2. To identify the key constraints faced by consumers in the online purchase of fruits and vegetables

Research Methodology

This study adopted a descriptive research design to investigate consumer behavior towards online purchasing of fruits and vegetables in Jaipur city, Rajasthan. To fulfill the research objectives, both primary and secondary data were employed. Primary data were gathered through a structured questionnaire, administered via personal interviews with 200 purposively selected respondents who actively engage in online shopping for fruits and vegetables. Secondary data

were sourced from company websites, published research papers, previous project reports, books, and credible online databases. The purposive sampling method was used to specifically target respondents with relevant experience in online purchasing. Data analysis was conducted using basic descriptive statistical tools, including averages, ranking, cumulative score etc. The findings were systematically presented in tabular format to facilitate clear interpretation and meaningful insights.

Results and Discussion

Table 1: Factors influencing consumer to purchase F&V from online retailers

Factors	Highly important(5)	Important (4)	Moderately Important (3)	Less important (2)	Not Important (1)	CS	Mean	Rank
Wide range of product available	85 (425)	77 (308)	38 (114)	0	0	847	4.23	5
Availability of product	95 (475)	72 (288)	33 (99)	0	0	862	4.31	3
Convenient payment option	90 (450)	62 (248)	48 (144)	0	0	842	4.21	6
Can repeat previous order	90 (450)	74 (296)	33 (99)	3 (9)	0	854	4.27	4
Online customer service	57 (285)	62 (248)	66 (198)	15 (30)	0	761	3.8	11
Quality of product available	136 (680)	59 (236)	5 (15)	0	0	931	4.65	1
Save time, energy & fuel	106 (530)	55 (220)	39 (117)	0	0	867	4.33	2
Easy return policy	62 (310)	70 (280)	60 (180)	5 (10)	3 (3)	783	3.91	9
Can avoid long queues at the counter	71 (355)	63 (252)	61 (183)	3 (6)	2 (2)	798	3.99	7
On time delivery	63 (315)	65 (260)	72 (216)	0	0	791	3.95	8
Information provided online is trustworthy	70 (350)	56 (224)	58 (174)	16 (32)	0	780	3.9	10
Packaging of product	52 (260)	65 (260)	68 (204)	15 (30)	0	754	3.77	12
Product of same group displayed together	50 (250)	55 (220)	68 (204)	27 (54)	0	728	3.64	15
Discount, scheme & offers	55 (275)	68 (272)	61 (183)	16 (32)	0	741	3.7	13
Affordable price	51 (255)	70 (280)	48 (144)	26 (52)	5 (5)	736	3.68	14

The study identifies and ranks fifteen critical factors that shape consumer behavior when purchasing fruits and vegetables (F&V) online, using composite scores and mean ratings to evaluate their significance. The findings suggest that consumer preferences are predominantly influenced by quality, convenience, and trust. Topping the list is the quality of the product available (Mean = 4.65, Rank = 1), as consumers prioritize freshness, hygiene, and damage-free items—key attributes that build trust and encourage repeat purchases, especially in the absence of physical examination (Srinivasan & Batra, 2021) ^[15]. The second most important factor is the ability to save time, energy, and fuel (Mean = 4.33, Rank = 2), highlighting the convenience of online platforms, which aligns with the digital lifestyle of modern urban consumers (Chatterjee, 2020) ^[3]. Product availability (Mean = 4.31, Rank = 3) also plays a pivotal role; stockouts can lead to consumer dissatisfaction and migration to other platforms (Bansal & Kapoor, 2021). The option to repeat previous orders (Mean = 4.27, Rank = 4) enhances user convenience, particularly for routine buyers, while a wide range of available products (Mean = 4.23, Rank = 5) increases platform utility and consumer satisfaction (Verma & Sharma, 2022) ^[17]. Other operational conveniences, such as flexible payment options (Mean = 4.21, Rank = 6), the ability to avoid long queues (Mean = 3.99, Rank = 7), and on-time

delivery (Mean = 3.95, Rank = 8), further reinforce consumer preference for digital grocery platforms (Joshi & Awasthi, 2021; Singh & Dey, 2021) ^[4, 13]. A hassle-free return policy (Mean = 3.91, Rank = 9) provides a safety net against product dissatisfaction, while the presence of trustworthy online information (Mean = 3.90, Rank = 10), such as reviews and accurate descriptions, supports informed decision-making (Kumar *et al.*, 2020) ^[5]. Supporting infrastructure, including efficient customer service (Mean = 3.80, Rank = 11) and secure packaging (Mean = 3.77, Rank = 12), also contributes to a positive customer experience (Yadav & Singh, 2020) ^[19]. Interestingly, discounts, schemes, and offers (Mean = 3.70, Rank = 13) and affordable pricing (Mean = 3.68, Rank = 14), though traditionally strong motivators, are now secondary to quality and service reliability in the F&V segment (Bansal & Kapoor, 2021; Chatterjee, 2020) ^[2]. Lastly, the grouping of similar products (Mean = 3.64, Rank = 15), while helpful, ranks lowest, indicating that consumers value functional efficiency over aesthetic or organizational aspects of the platform interface (Patel & Chauhan, 2019) ^[7]. Overall, the study underscores that online grocery consumers place the highest value on product quality, convenience, and operational reliability when choosing a digital platform for purchasing fresh produce.

Table 2: Constraints Faced by Consumers while Purchasing of Fruits & Vegetables from Online Shopping

Factors	Highly Agree	Agree	Moderately Agree	Disagree	Strongly Disagree	CS	Mean	Rank
Price Fluctuation of fruits & vegetables	133 (665)	67 (268)	0	0	0	933	4.66	1
Payment of purchase item is faulty due to technical issue	14 (70)	22 (880)	48 (144)	116 (232)	0	534	2.67	13
Extra charge for home delivery	78 (390)	85 (340)	37 (111)	0	0	841	4.2	3
Delivery at odd time	90 (450)	47 (188)	63 (189)	0	0	827	4.13	4
Online customer service	22 (110)	30 (120)	43 (129)	105 (210)	0	569	2.84	12
Non availability Fresh fruits & vegetables	85 (425)	55 (220)	35 (105)	25 (50)	0	800	4.0	7

Poor Packaging of product	87 (435)	53 (2120)	35 (105)	25 (50)	0	802	4.01	6
Mismatching between product order & delivered	62 (310)	35 (140)	62 (186)	41 (82)	0	718	3.59	9
Refund issue	22 (110)	38 (152)	41 (123)	109 (218)	0	603	3.01	11
Variety of choice not available	78 (3900)	60 (240)	24 (72)	38 (76)	0	778	3.89	8
Difficulty in returning fruits & vegetables	95 (475)	52 (208)	33 (99)	20 (40)	1	823	4.11	5
Poor Quality of fruits & vegetables	88 (440)	91 (364)	15 (45)	0	0	849	4.24	2
On time product are not delivered	25 (125)	38 (152)	76 (228)	61 (122)	0	627	3.13	10

Table 2 highlights the major challenges consumers face when buying fruits and vegetables through online platforms. The constraints are ranked based on composite scores (CS) and mean values, revealing the intensity of each issue. The most pressing concern identified is price fluctuation (Mean = 4.66, Rank = 1), with 100% of respondents either agreeing or highly agreeing. This reflects the volatile nature of online pricing for perishable goods, often driven by supply-demand dynamics or lack of price transparency. Similar findings by Kumar *et al.* (2020) ^[5] and Patel & Chauhan (2019) ^[7] emphasize that inconsistent pricing reduces trust and satisfaction in e-grocery shopping. The second-ranked issue is the poor quality of fruits and vegetables (Mean = 4.24, Rank = 2), suggesting that despite digital convenience, consumers still struggle with substandard or damaged produce. As confirmed by Srinivasan and Batra (2021) ^[15], the inability to physically assess quality before purchase is a significant deterrent for online F&V shoppers. Extra charges for home delivery (Mean = 4.20, Rank = 3) are also a major concern, particularly for frequent or low-value orders. Studies by Bansal and Kapoor (2021) ^[1] report that hidden or additional charges lead to negative post-purchase experiences. Another notable issue is delivery at odd times (Mean = 4.13, Rank = 4), which disrupts consumers' routines and raises concerns about product freshness. Similarly, difficulty in returning items (Mean = 4.11, Rank = 5) ranks high, underscoring a lack of streamlined return mechanisms for perishable items. Poor packaging (Mean = 4.01, Rank = 6) and non-availability of fresh produce (Mean = 4.00, Rank = 7) are also critical concerns, suggesting that logistics and supply chain gaps still hinder consumer satisfaction (Yadav & Singh, 2020) ^[19]. Consumers also expressed dissatisfaction with limited product variety (Mean = 3.89, Rank = 8) and mismatches between ordered and delivered products (Mean = 3.59, Rank = 9). These concerns reflect operational inefficiencies and a lack of personalization or accuracy in order fulfillment (Verma & Sharma, 2022) ^[17]. On-time delivery failures (Mean = 3.13, Rank = 10) further aggravate these issues, especially for time-sensitive grocery orders (Singh & Dey, 2021) ^[13]. Lower-ranked constraints include refund issues (Mean = 3.01, Rank = 11), inefficient customer service (Mean = 2.84, Rank = 12), and payment-related technical faults (Mean = 2.67, Rank = 13). While less prevalent, these still impact the overall user experience and influence repurchase intentions. Rathore and Ilavarasan (2021) ^[10] note that unresolved refunds and delayed grievance redressal contribute to customer churn in digital grocery platforms.

Suggestions

Based on the findings from the study on online purchase behavior of fruits and vegetables (F&V) in Jaipur, Rajasthan, the following suggestions are recommended for online retailers to enhance consumer satisfaction and reduce constraints:

1. **Prioritize Product Quality Assurance:** Ensure freshness, hygiene, and damage-free items through strict

quality checks. Offer replacements/refunds to build trust and encourage repeat purchases.

2. **Offer Transparent and Stable Pricing:** Stabilize prices and clearly communicate any changes to avoid consumer distrust. Introduce price-lock features or subscription plans for regular buyers.
3. **Enhance Logistics for Timely and Flexible Deliveries:** Provide scheduled delivery slots and ensure efficient last-mile logistics. Use real-time tracking to improve delivery accuracy and customer satisfaction.
4. **Reduce or Waive Delivery Charges Strategically:** High delivery charges discourage purchases, especially for low-value orders. Offer free delivery above a threshold or via membership benefits.
5. **Simplify Repeat Orders and Returns:** Add "Buy Again" options to ease reordering for frequent users. Streamline return policies, especially for damaged or wrong items.
6. **Improve Packaging Standards:** Poor packaging affects product quality and perception. Use tamper-proof, eco-friendly packaging and train staff in proper handling.
7. **Broaden Product Range and Ensure Availability:** Maintain diverse, seasonal inventory and avoid stockouts. Adopt AI-driven systems to manage inventory effectively.
8. **Strengthen Customer Support Services:** Enhance support with 24/7 assistance, chatbots, and clear resolution pathways. Quick and helpful service increases user satisfaction and loyalty.
9. **Increase Platform Reliability and Trust:** Ensure accurate product listings and reliable order fulfillment. Leverage verified reviews and barcode-based dispatch systems.
10. **Incentivize Loyalty without Overemphasizing Discounts:** Discounts matter less than quality; focus on loyalty-building tools. Offer rewards, referrals, and helpful extras like recipes or tips.
11. **Educate Users on Payment and Technical Issues:** Minimize transaction failures with user-friendly guidance and secure systems. Provide multiple payment options like UPI, wallets, and COD.

Conclusion

This study set out to examine the factors influencing consumer decisions and the key constraints faced during the online purchase of fruits and vegetables (F&V) in Jaipur, Rajasthan. Through a descriptive research design involving 200 purposively selected respondents, the study identified quality, convenience, and product availability as the most significant factors motivating online purchases. Consumers value the ability to save time and effort, trust in product quality, and the ease of navigating digital platforms. The findings underscore that a seamless, reliable, and high-quality experience is central to consumer satisfaction in the online F&V segment. Conversely, the research revealed that several constraints significantly affect consumer trust and repeat purchasing behavior. These include price fluctuations, poor

product quality, extra delivery charges, inconvenient delivery timings, and difficulties in returning products. Lower-ranked but still impactful issues such as technical payment problems, weak customer service, and refund delays also contribute to consumer dissatisfaction. To address these challenges, the study proposes practical recommendations for online retailers, including improving product quality assurance, stabilizing pricing, optimizing delivery systems, simplifying returns, and enhancing customer support. Retailers are also advised to build trust through transparent operations and to invest in loyalty-building strategies beyond just discounts. In summary, while online platforms offer clear advantages in terms of convenience and efficiency, the success of digital F&V retail depends heavily on product quality, operational reliability, and responsive service. Addressing these areas can help online retailers cultivate lasting consumer relationships and build a more resilient, user-centric grocery ecosystem.

References

1. Bansal S, Kapoor H. Family demographics and their impact on online grocery shopping patterns in India. *South Asian J Bus Manag Cases*. 2021;10(3):289-298.
2. Chatterjee S. Income effect on digital grocery purchase behavior: Evidence from Indian metros. *Int Rev Retail Distrib Consum Res*. 2020;30(2):173-189.
3. Gupta A, Arora S. The rise of e-grocery in tier-2 cities: A study of consumer adoption and challenges. *J Retail Consum Serv*. 2022;18(2):112-125.
4. Joshi R, Awasthi A. Consumer perception towards online grocery shopping during COVID-19. *J Retailing Consum Serv*. 2021;61:102561.
5. Kumar R, Sharma M, Gupta S. Trust and perceived risk in online grocery shopping: An Indian perspective. *J Internet Commerce*. 2020;19(4):314-332.
6. Kumar V, Dixit A, Javalgi R, Dass M. Digital trust in e-commerce: A multi-dimensional framework. *J Bus Res*. 2020;116:403-412.
7. Patel D, Chauhan V. A study on consumer satisfaction in online vegetable marketing. *Asian J Manag*. 2019;10(3):293-298.
8. Patel K, Chauhan R. Consumer perception towards online grocery shopping. *Int J Res Anal Rev*. 2019;6(2):497-501.
9. Rao KS, Singh R, Sharma P. Online payment systems and consumer satisfaction: A study of Indian consumers. *Int J Manag*. 2020;11(5):23-31.
10. Rathore H, Ilavarasan PV. A return-friendly online market: Influence of return policy on consumer behavior. *Inf Syst Front*. 2021;23:877-888.
11. Rathore S, Ilavarasan PV. E-grocery platforms and post-purchase experience: Understanding refund and return challenges. *Technol Soc*. 2021;67:101722.
12. Sharma R, Gupta S. Role of customer support in e-grocery platforms: A consumer perspective. *Int J E-Bus Res*. 2019;15(3):34-46.
13. Singh N, Dey S. Last-mile delivery in e-grocery: Indian consumer expectations. *Supply Chain Manag Rev*. 2021;25(1):18-26.
14. Singh R, Dey BL. Timely delivery and logistics challenges in e-grocery: Evidence from emerging markets. *Int J Retail Distrib Manag*. 2021;49(11):1551-1566.
15. Srinivasan V, Batra R. Factors affecting online fruit and vegetable shopping among urban consumers. *J Retail Consum Stud*. 2021;12(4):55-66.
16. Srinivasan V, Batra S. Perceived risks and trust in online grocery shopping. *J Bus Res*. 2021;134:132-142.
17. Verma A, Sharma M. Customer satisfaction in online fruit and vegetable retailing: A study of tier-2 cities. *Int J Retail Distrib Manag*. 2022;50(3):289-307.
18. Verma P, Sharma S. Product assortment and its influence on online grocery shopping behaviour. *Indian J Mark*. 2022;52(3):8-21.
19. Verma R, Yadav K. The impact of digital transformation on India's grocery retail sector: A post-pandemic analysis. *Int J E-Commer Stud*. 2020;15(4):301-318.
20. Yadav R, Singh B. Assessing packaging concerns in online retailing of perishables. *Food Mark Q*. 2020;37(2):130-144.
21. Yadav R, Singh M. Understanding the importance of packaging in online food retail. *Packaging Technol Sci*. 2020;33(9):435-446.