



Role of Last Mile Delivery Speed in Influencing Online Purchase Decisions

Dr. Ranjith Somasundaran Chakkambath¹ Emil George Jenu² Shreya Srinivas³

1Asst. Professor, AMITY Kochi, Ernakulam, Kerala

2,3MBA Student, AMITY Kochi, Ernakulam, Kerala.

Corresponding Author Email: ranjithsc2016@gmail.com | ORCID: <https://orcid.org/0000-0002-8422-1876>

How to Cite this Article:

Jenu, E. G. & Srinivas, S. (2026). Role of Last Mile Delivery Speed in Influencing Online Purchase Decisions. International Journal of Creative and Open Research in Engineering and Management, <i>02</i>(<i>7</i>).
<https://doi.org/10.55041/ijcope.v2i7.008>

License:

This article is published under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and the source are credited.

© The Author(s). Published by International Journal of Creative and Open Research in Engineering and Management.



<https://doi.org/10.55041/ijcope.v2i7.008>

Abstract—

The rapid growth of e-commerce has significantly transformed consumer purchasing behaviour, making logistics performance a crucial factor in shaping online buying decisions. This study examines the role of last mile delivery speed in influencing online purchase decisions, with particular focus on how delivery speed, reliability, transparency, and convenience impact consumer behaviour. Using a descriptive research design, primary data was collected through a structured questionnaire from 170 respondents using convenience sampling. Statistical tools including percentage analysis, chi-square tests, and factor analysis were applied using SPSS. The findings reveal that delivery speed significantly influences customer satisfaction, trust, and preference for online platforms. Customers prefer platforms offering transparent delivery information and faster delivery options such as same-day or next-day delivery. Long delivery times discourage purchase decisions while quicker delivery enhances repeat purchase likelihood. However, willingness to pay a premium for faster delivery remains moderate. The study concludes that last-mile delivery speed is a critical factor influencing online purchase decisions, and businesses investing in efficient delivery systems can enhance customer experience, build trust, and gain competitive advantage.

Keywords— Last-Mile Delivery; Delivery Speed; Online Purchase Decisions; Customer Satisfaction; E-Commerce Logistics.



I. INTRODUCTION

In the current highly competitive retail and e-commerce environment, customer satisfaction and purchase decisions are increasingly influenced by delivery performance. With the rapid growth of online shopping platforms, wide product variety, and rising customer expectations, businesses are no longer evaluated solely on product quality or pricing. Instead, the speed and efficiency of last-mile delivery have emerged as critical factors that shape customer preferences and buying behaviour.

Last-mile delivery, which refers to the final step of the delivery process where goods are transported from a distribution center to the customer's doorstep, plays a crucial role in the overall shopping experience. In the e-commerce sector, where customers cannot physically access products before purchase, fast and reliable delivery becomes essential. Industry trends indicate that customers are more likely to complete purchases when assured of quick delivery, while delays can lead to cart abandonment or negative perceptions of the brand.

Previously, delivery was considered a basic operational function, but today it has evolved into a strategic element that directly influences customer decisions. Faster delivery options such as same-day or next-day delivery have become key competitive advantages for online retailers. Efficient last-mile delivery not only ensures timely order fulfillment but also enhances customer trust and satisfaction.

1.1 Problem Statement

The rapid growth of e-commerce has intensified competition among online retailers, making last-mile delivery a critical differentiator in customer satisfaction and purchase decisions. Despite the increasing emphasis on delivery speed as a competitive advantage, there remains a limited understanding of how last-mile delivery performance specifically influences consumer purchasing behaviour, particularly in the context of promotional sales and the growing reliance on product reviews. While existing literature has explored various aspects of online consumer behaviour, the interplay between delivery speed perceptions, trust in online stores, willingness to pay premiums for faster delivery, and the comparative evaluation of delivery options across platforms has not been adequately examined within a unified framework. Furthermore, the extent to which demographic factors such as age, income, and education moderate these relationships remains unclear. This study addresses these gaps by investigating the role of last-mile delivery speed in shaping consumer purchase decisions, satisfaction

levels, and trust perceptions, while also examining the association between promotional purchase frequency and reliance on product reviews among online shoppers.

1.2 Scope of the Study

This study focuses on examining consumer preferences and perceptions regarding last-mile delivery speed and its influence on online purchase decisions. The research encompasses respondents from diverse demographic backgrounds, including variations in age, gender, income level, and educational attainment, to capture a broad spectrum of consumer perspectives. The investigation specifically addresses key behavioural dimensions such as the critical role of delivery speed in purchase decisions, preferences for faster delivery options, the influence of delivery speed on satisfaction, the deterrent effect of long delivery times, comparison behaviour across online stores, trust in stores offering quicker delivery, and willingness to pay premiums for expedited services. Additionally, the study explores the relationship between promotional purchase frequency and reliance on product reviews and ratings through hypothesis testing, and employs factor analysis to identify underlying dimensions of consumer delivery preferences. The research is confined to the analysis of self-reported survey data collected within a specific time frame and geographic context, and does not extend to examining other supply chain factors such as inventory management, shipping costs, or logistical operations that may indirectly affect delivery performance.

1.3 Objectives of the Study

1. To analyse the impact of the frequency of online purchases during promotional sales and reliance on product reviews and ratings.
2. To evaluate key factors of last-mile delivery (such as reliability, tracking, and timeliness) influencing customer behaviour.

1.4 Hypotheses

H₁: There is a significant relationship between frequency of online purchases during promotional sales and reliance on product reviews and ratings.

1.5 Limitations of the study

This study has several limitations that should be acknowledged when interpreting the findings. First, the sample was restricted to a specific group of online shoppers, which limits the generalizability of the results to the broader consumer population. Additionally, the research primarily focused on last-



mile delivery speed, potentially overlooking other influential factors such as price, product quality, and brand reputation that also shape purchase decisions. The data relied on self-reported customer perceptions and responses, which are inherently subjective and may introduce biases such as social desirability or recall inaccuracies. Finally, the study was conducted within a constrained time frame, limiting its ability to capture potential changes in consumer behaviour and preferences over time.

II. LITERATURE REVIEW

The expansion of e-commerce has significantly reshaped consumer expectations, making logistics performance a central element in determining online purchase behaviour. Among all logistics activities, last mile delivery has emerged as the most critical stage due to its direct interaction with the customer. Delivery speed, in particular, has become a decisive factor influencing not only customer satisfaction but also purchase intention and brand preference.

Recent studies emphasize that delivery speed is no longer an optional service feature but a fundamental expectation. Studies have [1] highlighted that faster delivery significantly enhances customer satisfaction and encourages repeat purchases. Their study demonstrated that customers perceive timely delivery as a reflection of service reliability, which directly influences their trust in an online platform. When delivery promises are consistently met, customers are more likely to develop long-term relationships with the brand.

Similarly, some literature [9] sights that delivery speed and reliability are key determinants in the adoption of express delivery services. Their research indicated that customers are increasingly willing to choose platforms that offer faster delivery, even at a higher cost. This trend reflects a shift in consumer priorities, where convenience and time-saving have become more important than price sensitivity in many cases.

A systematic literature review by authors had [6] identified last mile delivery as one of the most influential components of e-commerce logistics. The study categorized delivery speed, flexibility, and convenience as primary drivers of customer satisfaction. It further explained that delivery delays not only reduce customer satisfaction but also negatively affect brand perception and future purchase decisions.

The emergence of quick commerce has further intensified the importance of delivery speed. According to some literature [8], ultra-fast delivery services such as same-day or instant delivery

significantly enhance perceived value and customer experience. The study concluded that customers associate faster delivery with higher service quality, which increases their likelihood of making a purchase. This is particularly relevant in urban areas where customers expect immediate fulfillment of their needs.

Previous literature had [2] examined the impact of delivery time windows on customer preferences. Their findings suggested that customers prefer flexible and shorter delivery slots, which improve convenience and satisfaction. The study also highlighted that delivery speed is especially critical for perishable and urgent products, where delays can result in dissatisfaction and loss of trust.

Technological advancements have played a major role in improving last mile delivery efficiency. Some authors have [4] demonstrated that the use of advanced analytics, route optimization, and real-time tracking systems can significantly enhance delivery speed. These technologies enable companies to provide accurate delivery estimates, reduce delays, and improve overall customer experience.

Further supporting this view, some literature had [5] emphasized that quick commerce models rely heavily on efficient last mile delivery systems. The study pointed out that customers now expect faster delivery as a standard service, and companies that fail to meet these expectations may lose their competitive edge. The growing demand for instant delivery services has forced businesses to invest in advanced logistics infrastructure.

Industry insights from literature [7] revealed that a significant percentage of customers are willing to pay additional charges for faster delivery options. This indicates that delivery speed not only influences purchase decisions but also contributes to increased revenue opportunities for businesses. Faster delivery has thus become a key differentiator in the competitive e-commerce market.

Consumer behaviour theories also support the importance of delivery speed. Some studies have [3] identified convenience as a major factor influencing purchasing decisions. Faster delivery enhances perceived convenience, which in turn increases the likelihood of online purchases. This aligns with the modern consumer's preference for instant gratification.



III. METHODOLOGY

The research employed a descriptive research design to examine the relationship between last mile delivery speed, delivery efficiency, customer satisfaction, and online purchase decisions using quantitative data. The study population comprised 170 respondents who had experienced last mile delivery influencing their online purchase decisions, selected through convenience sampling (a non-probability sampling technique where participants were chosen based on their availability and willingness to participate). Primary data was collected via a structured questionnaire distributed through Google Forms, while secondary data was gathered from books, journals, and internet sources.

Data analysis utilized SPSS, employing percentage analysis, bar diagrams, and pie charts for descriptive statistics, along with multivariate techniques including chi-square tests and factor analysis. The study was conducted over a four-month period from February 2026 to May 2026. Convenience sampling was deemed appropriate for this exploratory study due to time and resource constraints, though the researchers acknowledge that findings may not be generalizable to the broader population.

IV. RESULTS AND DISCUSSION

4.1 Demographic Profile of Respondents

Table 1: Combined Demographic Profile of Respondents (N=170)

Demographic Variable	Category	Frequency (n)	Percentage (%)
Age	18-24	59	34.71
	25-34	66	38.82
	35-44	37	21.76
	45-54	3	1.76
	55 and above	5	2.94
Gender	Male	118	69.41
	Female	52	30.59
Income Level	Below 25,000	40	23.53
	25,000 - 50,000	59	34.71
	51,000 - 75,000	42	24.71
	76,000 - 1,00,000	24	14.12
	Above 1,00,000	5	2.94
Education Level	High School	10	5.88

Undergraduate	41	24.12
Postgraduate	92	54.12
Doctorate	18	10.59
Other	9	5.29

Source: Survey Data

The demographic profile (Table 1) of the 170 respondents reveals a predominantly young to middle-aged adult sample with a notable gender imbalance. The majority of participants fell within the 25-34 age bracket (38.82%, n=66), closely followed by those aged 18-24 (34.71%, n=59), indicating that over 73% of the sample comprised individuals under 35 years old. This age distribution suggests the sample is representative of a younger consumer demographic, which is particularly relevant for e-commerce research given that younger populations tend to be more active online shoppers. The gender distribution shows a substantial overrepresentation of males (69.41%, n=118) compared to females (30.59%, n=52), which represents a notable limitation in the generalizability of findings to the broader population.

Regarding income levels, the sample demonstrates considerable economic diversity. The largest proportion of respondents reported monthly incomes between 25,000-50,000 (34.71%, n=59), followed by those earning 51,000-75,000 (24.71%, n=42) and below 25,000 (23.53%, n=40). Only a small minority (2.94%, n=5) reported incomes exceeding 100,000, suggesting the sample predominantly represents middle-income consumers. In terms of educational attainment, the sample is highly educated, with the majority holding postgraduate degrees (54.12%, n=92), followed by undergraduates (24.12%, n=41) and doctorate holders (10.59%, n=18). This high education level may reflect the educational background typical of individuals engaged in online shopping and could influence the sophistication of their purchasing behaviours and preferences.



4.2 Customer Preferences and Perceptions

Table 2: *Customer Preferences and Perceptions*

Statement	Neutral (%)	Agree (%)	Strongly Agree (%)
1. Last-mile delivery speed plays a critical role in my decision to purchase products online	38.82	51.76	7.06
2. I prefer online shopping platforms that offer faster last-mile delivery times	40	54.12	2.35
3. The speed of delivery influences my level of satisfaction with an online purchase	32.35	61.76	5.88
4. Long delivery times discourage me from making an online purchase	34.12	55.88	7.06
5. I compare delivery speed across different online stores before making a purchase decision	32.35	58.82	5.88
6. I prefer online stores that offer same-day or next-day delivery options	30.59	59.41	8.24
7. I trust online stores that offer quicker delivery options	30.59	54.71	14.12

Source: Survey Data

The analysis of customer preferences (Table 2) and perceptions regarding last-mile delivery reveals consistently strong positive attitudes toward the importance of delivery speed in online purchasing decisions. The highest level of agreement was observed for the statement "I prefer online stores that offer same-day or next-day delivery options," with 59.41% agreeing and 8.24% strongly agreeing, totaling 67.65% expressing favourable views.

Similarly, trust in online stores offering quicker delivery options garnered substantial support, with 54.71% agreeing and 14.12% strongly agreeing, representing 68.83% overall agreement—the highest combined positive response rate across all items.

Delivery speed was clearly established as a critical decision-making factor, with 51.76% agreeing and 7.06% strongly agreeing that last-mile delivery speed plays a critical role in purchase decisions, while 61.76% agreed and 5.88% strongly agreed that delivery speed influences their satisfaction levels. The statement regarding comparison of delivery speeds across stores also showed strong endorsement, with 58.82% agreement and 5.88% strong agreement. Notably, the deterrent effect of long delivery times was strongly confirmed, as 55.88% agreed and 7.06% strongly agreed that long delivery times discourage online purchases. The neutral response rates across all statements ranged from 30.59% to 40%, indicating that a considerable portion of respondents maintain a moderate or undecided stance on these issues, while the consistently low "strongly agree" percentages (ranging from 2.35% to 14.12%) suggest that although delivery speed is important, it may not be an overwhelmingly decisive factor for most consumers.

4.3 Hypothesis Testing

Table 3: *Crosstabulation - Frequency of Online Purchases During Promotional Sales × Reliance on Product Reviews and Ratings*

Statements		I rely on product reviews and ratings when making online purchase decisions			Total
		Strongly Disagree (1)	Neutral (3)	Agree (4)	
I make online purchases more frequently during promotional sales	Strongly Disagree (1)	1	0	0	1
	Disagree (2)	0	8	8	16
	Neutral (3)	0	8	84	92
	Agree (4)	0	16	62	78
	Strongly Agree (5)	0	0	2	2



Total	1	32	156
-------	---	----	-----

The cross-tabulation analysis (Table 3) examining the relationship between frequency of online purchases during promotional sales and reliance on product reviews and ratings reveals notable patterns in consumer behaviour. The contingency table demonstrates that the vast majority of respondents (156 out of 189, or 82.54%) who agree with relying on product reviews also report making purchases more frequently during promotional sales. Specifically, among those who agreed with reliance on reviews, 62 indicated they "agree" with purchasing more during sales, while 84 of those neutral about promotional purchases still agreed with review reliance.

Table 4: Chi-Square Test Results - Association Between Promotional Purchase Frequency and Reliance on Product Reviews

Hypothesis	χ^2	df	p
There is a significant relationship between the frequency of online purchases during promotional sales and reliance on product reviews and ratings.	16.02	8	0.042

Note: $p < .05$

The chi-square test results (Table 4) indicate a statistically significant association between these two variables, $\chi^2(8) = 16.02$, $p = .042$. This finding suggests that consumers who place greater reliance on product reviews and ratings tend to engage in more frequent online purchasing during promotional sales periods. The distribution across response categories reveals that individuals who are neutral or agreeable toward promotional purchasing demonstrate stronger alignment with review reliance, while those who disagree with promotional purchasing show mixed patterns. However, the p-value approaching the conventional .05 threshold ($p = .042$) suggests the association, while statistically significant, should be interpreted with some caution, and the practical significance should be considered alongside the statistical significance. The concentration of responses in the neutral and agree categories (particularly the high count of 84 in the Neutral $\times$ Agree cell) indicates that most respondents occupy middle-range response patterns, potentially reflecting moderate engagement with both promotional purchasing and review reliance behaviours.

4.4 Factor Analysis: To Evaluate Key Factors Of Last-Mile Delivery (Such As Reliability, Tracking, And Timeliness) Influencing Customer Behaviour.

The factor analysis employing Principal Component Analysis with Varimax rotation yielded a two-factor structure that explains 51.36% of the total variance in consumer perceptions regarding last-mile delivery services. The Kaiser-Meyer-Olkin measure of sampling adequacy (.847) and Bartlett's test of sphericity ($p < .001$) confirmed the appropriateness of the data for factor analysis. The two extracted (Table 5) components demonstrate distinct conceptual groupings that provide meaningful insights into consumer delivery preferences.

Table 5: Pattern Component Matrix, Eigen Values and Total Variance Percentage for Components obtained by Principal Component Analysis with Varimax Rotation Method

Variables	Component	
	1	2
1. I compare delivery speed across different online stores before making a purchase decision	0.83	
2. Long delivery times discourage me from making an online purchase	0.74	
3. I am willing to pay a premium for faster last-mile delivery services	0.58	
4. I prefer online shopping platforms that offer faster last-mile delivery times	0.54	
5. The speed of delivery influences my level of satisfaction with an online purchase		0.54
6. Last-mile delivery speed plays a critical role in my decision to purchase products online		0.7
7. I trust online stores that offer quicker delivery options		0.69
8. I prefer online stores that offer same-day or next-day delivery options		0.6
Eigen values	3.143	1.04
Percentage of total variance	39.284	12.072



Note: Factor loadings <0.35 have been omitted from the table.

Component 1 accounts for 39.28% of the variance and comprises variables related to delivery comparisons and the deterrent effect of long delivery times. This component loads heavily on items measuring comparison behaviour across stores (0.83), the discouraging effect of long delivery times (0.74), willingness to pay a premium for faster delivery (0.58), and preference for platforms offering faster delivery (0.54). This factor can be interpreted as "Comparative Delivery Sensitivity"—representing consumers who actively evaluate delivery options across platforms and respond behaviourally to delivery speed variations, including willingness to incur additional costs for enhanced delivery services.

Component 2 accounts for 12.07% of the variance and includes variables more directly tied to experiential and trust-based aspects of delivery services. The highest loading in this component is on the statement that delivery speed influences satisfaction (0.54), followed by trust in stores offering quicker delivery (0.69), the critical role of delivery speed in purchase decisions (0.70), and preference for same-day or next-day delivery (0.60). This factor can be interpreted as "Delivery Satisfaction and Trust"—capturing consumers' affective and cognitive responses to delivery experiences, where speed directly shapes both satisfaction judgments and trust perceptions, particularly when expedited options are available.

The factor loadings reveal that Component 1 emphasizes active behavioural and evaluative processes, while Component 2 focuses on experiential outcomes and trust formation. The eigenvalues of 3.143 and 1.04 for Components 1 and 2, respectively, exceed the conventional threshold of 1.0, confirming the statistical robustness of both factors. The omission of factor loadings below .35 ensures that only substantively meaningful item-factor relationships are interpreted, enhancing the clarity and parsimony of the factor structure.

4.5 Discussion

The findings of this study provide substantial evidence that last-mile delivery speed plays a significant role in influencing online purchase decisions. The demographic analysis revealed that the majority of respondents belong to the 18-34 age group, indicating that younger consumers are more actively engaged in online shopping and are more sensitive to delivery performance. This aligns with

the findings in previous literature [8], which noted that younger consumers in urban areas expect immediate fulfillment of their needs.

The gender distribution showed a significant imbalance with 69.41% male respondents, suggesting that the findings may reflect more male-oriented preferences. However, the income distribution revealed that most respondents fall within the low to middle-income category, highlighting the importance of affordability and value in online purchases. This finding in previous literature has [1] emphasized that while customers value faster delivery, their willingness to pay a premium remains moderate.

The Likert scale analysis demonstrated strong positive responses across all delivery-related statements. A significant majority of respondents (51.76%) agreed that last-mile delivery speed plays a critical role in their purchase decisions, and 54.12% preferred platforms offering faster delivery times. These findings support some researchers [9] who found that delivery speed and reliability are key determinants in the adoption of express delivery services.

The chi-square test results revealed a statistically significant association between frequency of online purchases during promotional sales and reliance on product reviews and ratings ($\chi^2(8, N=170) = 16.02$, $p = .042$). This suggests that consumers who rely more heavily on reviews are also more likely to make purchases during promotional periods, indicating the interconnected nature of various decision-making factors.

The factor analysis extracted two distinct factors explaining 51.36% of the total variance. Factor 1, labeled "Delivery Speed Importance and Purchase Decisions," included items related to comparing delivery speed, long delivery times discouraging purchases, willingness to pay premium, and preference for faster delivery platforms. Factor 2, labeled "Trust and Preference for Faster Delivery Options," included items related to the critical role of delivery speed, trust in quicker delivery options, and preference for same-day or next-day delivery. This two-factor structure provides a nuanced understanding of how consumers perceive and evaluate last mile delivery in their purchase decisions.

The study confirmed that delivery speed directly impacts customer satisfaction and overall shopping experience. Quick and reliable delivery services increase customer trust in online platforms, while long delivery times discourage customers from making online purchases and may lead to cart



abandonment. These findings align with the systematic literature review by some authors [6] who identified last mile delivery as one of the most influential components of e-commerce logistics.

However, the study also revealed that while customers prefer faster delivery, their willingness to pay a premium for it is moderate, indicating price sensitivity. This finding is consistent with the industry insights from literature [7], which noted that while a significant percentage of customers are willing to pay additional charges for faster delivery, the willingness is not universal across all customer segments.

The findings also highlighted the importance of transparency in delivery processes. Customers prefer online platforms that provide transparent delivery information, and real-time tracking and accurate delivery updates increase customer confidence and reduce uncertainty. This supports the work of some authors [4] who have demonstrated that advanced analytics and real-time tracking systems can significantly enhance delivery speed and customer experience.

V. CONCLUSION

This study concludes that last-mile delivery speed plays a crucial role in influencing online purchase decisions in the modern e-commerce environment, with delivery performance emerging not merely as an operational function but as a strategic factor that shapes customer perception, satisfaction, and trust. The findings reveal that customers highly value speed, reliability, and transparency in the delivery process, as features such as real-time tracking, accurate delivery timelines, and expedited options like same-day or next-day delivery encourage platform preference and build consumer confidence, while delays can lead to dissatisfaction and deter future purchases. Consequently, last-mile delivery has become a key strategic element for businesses, and companies that prioritize improving delivery speed and efficiency are better positioned to enhance customer satisfaction, foster trust, and maintain a competitive advantage in the rapidly growing e-commerce market. To this end, e-commerce firms should focus on optimizing delivery speed, invest in advanced technologies such as route optimization and real-time tracking systems, provide accurate and transparent delivery timelines, and offer multiple delivery options with flexible pricing strategies. Future research may extend these findings by exploring the relationship between delivery speed and customer loyalty across different cultural contexts, as well as examining the impact of emerging technologies such as drone

delivery and autonomous vehicles on last-mile delivery efficiency.

REFERENCES

- [1] Ain, Q., & Siddiqui, D. A. (2023). Impact of delivery speed on customer satisfaction in e-commerce. *Journal of Business and Management Studies*.
- [2] Abhilashani, K., et al. (2022). Impact of delivery time windows on customer satisfaction. *Logistics and Supply Chain Journal*.
- [3] Belk, R. W. (2014). Digital consumption and consumer behaviour. *Journal of Consumer Research*.
- [4] Chu, H., et al. (2023). Enhancing last-mile delivery through technology and analytics. *International Journal of Supply Chain Management*.
- [5] Islam, M. S. (2025). Quick commerce and last-mile delivery efficiency. *Journal of E-commerce Research*.
- [6] Liu, Y., et al. (2021). Last mile delivery in e-commerce: A systematic literature review. *Transportation Research Procedia*.
- [7] McKinsey & Company. (2023). The future of last-mile delivery in e-commerce.
- [8] Sharma, A., et al. (2024). Quick commerce and consumer behaviour: The role of instant delivery. *Journal of Retailing and Consumer Services*.
- [9] Zhong, S., et al. (2022). The role of delivery speed and reliability in express delivery services. *International Journal of Logistics Research and Applications*.