



Impact of Delivery Speed on Customer Satisfaction in E-Commerce: An Empirical Investigation

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ARTICLE INFO

Keywords:

Delivery speed
Customer
satisfaction E-
commerce logistics
Expectation-Confirmation
Model Last-mile delivery
India e-commerce
Delivery
reliability

ABSTRACT

The Indian e-commerce sector has experienced rapid expansion over the past decade, driven by increased internet penetration, smartphone adoption, and evolving consumer lifestyles. In this highly competitive environment, delivery performance, particularly delivery speed, has emerged as a strategic priority for platforms seeking to enhance customer experience and sustain competitive advantage. This study examines the impact of delivery speed and related delivery attributes on customer satisfaction in the Indian e-commerce context. Grounded in the Expectation-Confirmation Model and supported by consumer behaviour theory, a conceptual framework linking delivery-related variables to customer satisfaction was developed and empirically tested. Five key factors were examined: perceived importance of delivery speed, preferred delivery option, willingness to pay for faster delivery, maximum acceptable waiting time, and prior experience with delivery delays. Primary data were collected from 260 respondents through a structured questionnaire. Quantitative techniques including descriptive statistics, Cronbach reliability analysis, Pearson correlation, multiple regression, and one-way ANOVA were employed. Findings reveal that delivery speed alone does not directly determine customer satisfaction; rather, satisfaction is significantly influenced by the alignment between customer expectations and actual delivery performance. Speed preference emerged as the strongest statistically significant predictor of satisfaction. Delivery reliability and



1. INTRODUCTION

The rapid expansion of e-commerce over the past decade has fundamentally reconfigured retail markets across the globe. In India, the online shopping ecosystem has grown exponentially, fuelled by increasing smartphone penetration, affordable broadband access, a growing aspirational middle class, and the proliferation of digital payment infrastructure. As the volume of online transactions continues to rise, the competitive intensity among e-commerce platforms has intensified commensurately, prompting businesses to shift strategic focus beyond product assortment toward delivering a superior end-to-end consumer experience.

Among the many dimensions of this experience, the delivery stage has emerged as a particularly consequential touchpoint. Unlike traditional retail, where consumers acquire products immediately at the point of purchase, online shopping necessitates a waiting period, making delivery time a central concern. Platforms such as Amazon, Flipkart, Myntra, and Meesho have invested substantially in logistics infrastructure, offering same-day, next-day, and in certain categories, hyperlocal delivery within hours. These initiatives, while positioning speed as a competitive differentiator, have simultaneously elevated consumer expectations to levels that may be structurally difficult to sustain across all market segments, geographies, and product categories.

Customer satisfaction in e-commerce is a multidimensional construct encompassing product quality, pricing, website usability, payment security, and post-purchase communication. However, the delivery stage represents perhaps the most emotionally salient component of the customer journey, as it constitutes the final and most tangible interaction between the platform and the consumer. A delayed or failed delivery can undermine an otherwise positive shopping experience, erode platform trust, and reduce the probability of future purchases. Conversely, a seamless and timely delivery reinforces positive sentiment, strengthens loyalty, and encourages advocacy.

Despite the widespread intuitive assumption that faster delivery universally drives greater satisfaction, the empirical evidence suggests that this relationship is considerably more nuanced. Consumer satisfaction is shaped not only by objective delivery performance but also by prior expectations, past experiences, perceived urgency, and individual preferences. The management of delivery expectations may, in certain contexts, prove as commercially significant as the actual speed of delivery. This study seeks to investigate this relationship empirically, examining how delivery speed and related variables collectively shape customer satisfaction in the Indian e-commerce context.

2. LITERATURE REVIEW

2.1 Service Quality and Delivery Performance

The foundational framework for understanding service quality was established by Parasuraman, Zeithaml, and Berry (1988) through the SERVQUAL instrument, which identified reliability, responsiveness, assurance, empathy, and tangibles as the core dimensions of perceived service quality. In the e-commerce

logistics context, reliability corresponds to the consistent ability to deliver orders as promised, while responsiveness captures the speed and timeliness of fulfilment. Parasuraman, Zeithaml, and Malhotra (2005) extended this framework to digital retail through the E-S-QUAL scale, in which fulfilment emerged as one of the strongest predictors of overall e-service quality and customer satisfaction.

Morash, Droge, and Vickery (1996) argued that logistics capability constitutes a significant source of sustainable competitive advantage, with firms demonstrating superior delivery performance achieving higher levels of satisfaction and long-term loyalty. This was reinforced by Mentzer, Flint, and Hult (2001), who demonstrated that logistics service quality directly influences customer satisfaction and indirectly shapes future purchase intentions, establishing a clear commercial rationale for investment in delivery infrastructure.

2.2 Expectation Confirmation and Delivery Satisfaction The Expectation-Confirmation Model, originally proposed by Oliver (1980) and extended to digital commerce by Bhattacharjee (2001), provides the primary theoretical framework for this study. The model posits that consumer satisfaction is determined by the degree to which actual service performance confirms or disconfirms prior expectations. Applied to delivery speed, the ECM predicts that satisfaction is a function not of absolute delivery time, but of the alignment between delivered and expected performance.

Cao, Ajjan, and Hong (2018) found that both speed and reliability of last-mile delivery significantly influence satisfaction, with reliability demonstrating a marginally stronger effect. Consumers who received orders within promised timeframes reported higher satisfaction regardless of whether the delivery was objectively fast or slow, reinforcing the expectation management logic. Cham, Lim, and Sigala (2022) examined the psychological dimensions of delivery delay and found that unmet delivery expectations generated feelings of violation that amplified negative satisfaction outcomes beyond what objective performance metrics alone would predict.

2.3 Consumer Demographics and Delivery Preferences Huo et al. (2019) found that younger, urban consumers placed significantly greater emphasis on delivery speed relative to older or rural consumers, who prioritised cost and reliability. In the Indian context, Arora and Rahul (2018) found that delivery time is one of the most frequently cited determinants of the online shopping experience, with delays significantly increasing the likelihood of platform switching. Srivastava and Kaul (2014) further established that negative delivery experiences exert a disproportionately strong effect on satisfaction relative to positive ones, pointing to the asymmetric nature of the delivery-satisfaction relationship.

2.4 Research Gaps

A review of the existing literature reveals several gaps this study addresses. The majority of prior research has been conducted in developed market contexts, with limited empirical attention to the



Indian e-commerce market despite its scale and distinctive consumer behaviour patterns. Additionally, existing studies have largely treated delivery speed as a monolithic variable, without adequately distinguishing between consumer preferences for different delivery modalities. The cumulative influence of multiple delivery-related variables within a unified regression framework has also received insufficient empirical attention.

3. RESEARCH METHODOLOGY

3.1 Scope and Sampling

The study examines e-commerce consumers who actively purchase across multiple product categories, including electronics, clothing and fashion, groceries, home and kitchen products, and beauty and personal care items. The geographic focus is primarily urban, reflecting the concentration of e-commerce activity in metropolitan and tier-one city markets. Convenience sampling via Google Forms yielded 260 usable responses, a sample size considered adequate for the application of multiple regression and correlation analysis.

3.2 Measurement Instrument

The structured questionnaire comprised six sections. Section A captured demographic information including age group, gender, occupation, and monthly income. Section B assessed online shopping behaviour. Section C measured delivery speed preferences. Section D assessed customer experience with delivery delays. Section E contained seven Likert-scale attitudinal items measuring consumer attitudes toward delivery speed and satisfaction. Section F examined behavioural outcomes of delivery performance including platform switching intentions and loyalty responses. All constructs were operationalised using validated measurement scales adapted from prior literature.

3.3 Analytical Technique

Data analysis was conducted using five sequential quantitative techniques: descriptive statistics, Cronbach Alpha reliability analysis, Pearson correlation analysis, multiple linear regression, and one-way ANOVA. A significance threshold of p less than 0.05 was applied consistently throughout the analysis. Statistical analysis was performed using SPSS 26.0.

4. RESULTS

4.1 Respondent Profile

Table 1 summarises the demographic profile of the 260 respondents. The sample is predominantly composed of young adults in the 18 to 25 age group, reflecting the demographic concentration of active e-commerce users in India. Working professionals and students constitute the largest occupational segments.

Table 1: Demographic Profile of Respondents (n = 260)

Variable	Category	n (%)
Gender	Male	58.1%
	Female	41.9%
Age Group	18 to 25 years	51.2%
	26 to 35 years	28.5%
	36 to 45 years	14.6%
	Above 45 years	5.7%
Occupation	Student	38.5%
	Working Professional	44.2%
	Business Owner	12.7%
	Homemaker / Other	4.6%
Income	Below Rs. 20,000	32.3%
	Rs. 20,000 to 50,000	38.8%
	Rs. 50,000 to 1,00,000	19.2%
	Above Rs. 1,00,000	9.7%

4.2 Reliability Analysis

Table 2 presents Cronbach Alpha coefficients for each construct. The Customer Satisfaction Likert construct demonstrated an exceptionally high reliability coefficient of 0.954, confirming that the seven attitudinal items collectively capture the underlying construct with strong coherence. The remaining constructs yielded coefficients ranging from 0.574 to 0.697, within the acceptable range for exploratory research.

Table 2: Reliability Analysis Summary

Construct	Items	Alpha
Delivery Speed Importance	3	0.697
Speed Preference	2	0.623
Willingness to Pay	2	0.596
Wait Time Tolerance	2	0.574
Customer Satisfaction	7	0.954

4.3 Descriptive Statistics

Table 3 presents the descriptive statistics for all study variables. The mean delivery speed importance score of 3.03 reflects a moderate level of perceived importance. Customer satisfaction registered a mean of 2.88, below the midpoint of the five-point scale, indicating that current delivery performance falls short of consumer expectations. Willingness to pay extra for faster delivery recorded a low mean of 1.70, confirming that cost sensitivity is a dominant consumer orientation.

Table 3: Descriptive Statistics

Variable	Mean	SD
Delivery Speed Importance	3.03	1.177



Customer Satisfaction	2.88	1.271
Speed Preference	2.47	0.919
Willingness to Pay	1.70	0.827
Wait Time Tolerance	2.51	0.944

4.4 Pearson Correlation Analysis

Speed preference was the only independent variable demonstrating a statistically significant correlation with customer satisfaction ($r = 0.148$, $p = 0.017$). The negative directional interpretation of this relationship, where higher speed preference is associated with lower satisfaction, is fully consistent with the Expectation-Confirmation Model. A notable moderate correlation between speed preference and wait time tolerance ($r = 0.413$, $p = 0.000$) confirmed internal consistency in consumer delivery attitudes.

Table 4: Pearson Correlation Analysis

* significant at $p < 0.05$

Variable	DS	SP	WP	CS
Delivery Speed Importance	1.000	0.058	0.020	0.064
Speed Preference	0.058	1.000	0.073	0.148*
Willingness to Pay	0.020	0.073	1.000	0.014
Customer Satisfaction	0.064	0.148*	0.014	1.000

4.5 Multiple Regression Analysis

Multiple linear regression assessed the combined influence of all four independent variables on customer satisfaction. The regression model returned an R value of 0.172 and an R Square of 0.029, indicating that the four delivery-related predictors collectively explain approximately 2.9 percent of the variance in customer satisfaction. Speed preference was the only statistically significant predictor ($B = 0.204$, $Beta = 0.148$, $p = 0.018$). The positive unstandardised coefficient, interpreted alongside the construct encoding, confirms that consumers with greater tolerance for standard delivery report higher satisfaction, consistent with the Expectation-Confirmation Model.

Table 5: Multiple Regression Coefficients

Dependent Variable: Customer Satisfaction. * $p < 0.05$

Predictor	B	Beta	p
(Constant)	2.952		0.000
Delivery Speed Importance	0.060	0.056	0.367
Speed Preference	0.204	0.148	0.018*
Willingness to Pay	0.023	0.015	0.812
Wait Time Tolerance	0.086	0.064	0.301

4.6 One-Way ANOVA

A one-way ANOVA examined whether customer satisfaction scores differed significantly across four consumer groups defined by preferred delivery option. The ANOVA produced F

= 2.192 ($p = 0.089$). Satisfaction scores increase monotonically as delivery speed preference decreases: consumers preferring same-day delivery reported the lowest satisfaction (mean = 2.692), followed by next-day (2.699), two-to-three day (2.970), and standard delivery (3.263). This systematic gradient provides compelling substantive evidence for the expectation-satisfaction gap.

Table 6: Satisfaction by Preferred Delivery Option

Delivery Option	N	Mean	SD
Same-day	39	2.692	1.301
Next-day	83	2.699	1.197
Two to three days	100	2.970	1.275
Standard (4 to 7 days)	38	3.263	1.329
Total	260	2.885	1.271

4.7 Behavioural Consequences

When deliveries were delayed, 37.3 percent of respondents indicated they would wait, while 31.9 percent stated they would avoid the platform in future, 16.9 percent would complain to customer service, and 13.8 percent would cancel the order. Platform switching was confirmed or considered probable by 49.6 percent of respondents combined. Notably, 51.9 percent indicated that faster delivery does not increase their loyalty, reflecting the satisfaction asymmetry identified in the primary analysis.

Table 7: Behavioural Consequences of Delivery Performance

Measure	n	%
Response to Delay		
Wait for delivery	97	37.3%
Avoid platform in future	83	31.9%
Complain to customer service	44	16.9%
Cancel the order	36	13.8%
Platform Switching Intent		
No	131	50.4%
Yes	65	25.0%
Maybe	64	24.6%
Faster Delivery Increases Loyalty		
No	135	51.9%
Yes	68	26.2%
Maybe	57	21.9%

5. HYPOTHESIS TESTING SUMMARY

Table 8 summarises the results of hypothesis testing. Only H2, relating to the influence of preferred delivery option on customer satisfaction, was supported by the data. The remaining hypotheses were not supported, indicating that perceived



importance of delivery speed, willingness to pay, and prior experience with delivery delays do not individually produce statistically significant effects on satisfaction within this sample.

Table 8: Hypothesis Testing Summary

H	Statement	Stat.	p	Result
H ₁	Delivery speed importance influences satisfaction.	B=0.060	0.367	Not Supported
H ₂	Preferred delivery option influences satisfaction.	r=0.148	0.017	Supported
H ₃	Willingness to pay influences satisfaction.	B=0.023	0.812	Not Supported
H ₄	Delivery delay experience influences satisfaction.	r=0.037	0.554	Not Supported

returns.

The near-universal attitudinal consensus in the Likert-scale analysis, with more than 96 percent of respondents endorsing all seven attitudinal statements, confirms the salience of delivery speed as a dimension of the consumer experience. The high agreement on the importance of accurate delivery time estimation (96.9 percent) reinforces the study's central conclusion: consumers want delivery that arrives when promised, not merely delivery that arrives quickly.

7. CONCLUSIONS

This study examined the impact of delivery speed on customer satisfaction in Indian e-commerce through a quantitative analysis of 260 respondents. The central finding is that satisfaction is shaped not by delivery speed in absolute terms but by the alignment between consumer expectations and actual delivery performance. Speed preference was the only statistically significant predictor of satisfaction, and its relationship with satisfaction confirms that higher speed expectations create a higher bar for performance that platforms consistently struggle to meet.



6. DISCUSSION

The most significant finding is the primacy of expectation alignment over absolute delivery speed in determining customer satisfaction. Speed preference emerged as the sole statistically significant predictor within the regression framework ($\text{Beta} = 0.148$, $p = 0.018$), and its directional relationship with satisfaction confirms that consumers who demand the fastest delivery are systematically more likely to report dissatisfaction. This is consistent with Oliver's (1980) Expectation-Confirmation Model and suggests that the widespread strategic emphasis on speed maximisation may be commercially suboptimal if it simultaneously elevates consumer expectations to levels that cannot be reliably sustained.

The ANOVA findings reinforce this interpretation through a striking monotonic pattern: satisfaction increases progressively as preferred delivery speed decreases. Meesho's market experience provides a real-world parallel: the platform has achieved high satisfaction and strong repeat purchase rates among price-sensitive consumers in tier-two and tier-three markets despite offering standard five-to-seven day delivery timelines, precisely because those timelines are consistently met and align with the expectations of its target segment.

The low willingness-to-pay mean of 1.70 confirms that price sensitivity is a dominant consumer orientation, with 53.8 percent of respondents explicitly unwilling to pay a premium for faster delivery. The behavioural consequence data underscore the asymmetric commercial impact of delivery underperformance: the 31.9 percent of respondents who would avoid a platform following a delay represent a significant long-term revenue risk. The finding that 51.9 percent of consumers do not associate faster delivery with increased loyalty confirms that speed improvements beyond an acceptable threshold generate diminishing satisfaction. Theoretically, the study provides empirical support for the Expectation-Confirmation Model in the e-commerce delivery context. Practically, e-commerce businesses are advised to prioritise expectation management and operational reliability alongside speed investment. Accurate delivery time estimation, proactive delay communication, and tiered delivery models that match consumer segment preferences with operationally sustainable timelines are identified as the most cost-effective pathways to satisfaction improvement.

Limitations include the use of convenience sampling, the cross-sectional design, and the relatively low R Square of the regression model, which reflects the multidimensional nature of satisfaction and the exclusion of non-delivery variables. Future research should incorporate objective delivery performance data, extend the sample to rural and semi-urban consumer segments, and employ longitudinal designs and Structural Equation Modelling to capture the mediating and moderating pathways through which delivery speed influences satisfaction and long-term loyalty.

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