Factors Influencing Customer Satisfaction in the Logistics Industry

A Study on Service Quality, Technology Adoption and Transportation/Pricing Cost

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Abstract*— This study examines the factors influencing customer satisfaction in the logistics industry, focusing specifically on service quality, technology adoption, and pricing/transportation cost. As online shopping and digital trade continue to expand in India, logistics companies face growing pressure to deliver goods in a timely, accurate, and cost-effective manner, and understanding what drives customer satisfaction has become essential to the sustainability of the sector. A quantitative, descriptive research design was adopted, and primary data were gathered through a structured questionnaire administered to customers with prior experience of logistics or courier services. A total of 150 valid responses were obtained through convenience sampling and analysed using IBM SPSS Statistics, applying frequency analysis, reliability testing, Pearson correlation, and multiple linear regression. All constructs recorded a Cronbach's alpha above the 0.70 threshold, confirming the reliability of the measurement scales, and Pearson correlation revealed statistically significant positive relationships among service quality, technology adoption, pricing, and customer satisfaction. However, the regression model, which jointly explained 39.7 percent of the variance in customer satisfaction (R = .630, R Square = .397, Adjusted R Square = .385), showed that service quality was the only statistically significant unique predictor of customer satisfaction (Beta = .612, p < .001), while technology adoption (Beta = .114, p = .174) and transportation cost (Beta = -.083, p = .346) did not have a statistically significant independent effect once the other variables were controlled for. These findings suggest that, although technology and pricing correlate positively with satisfaction, customers place the greatest weight on reliable, accurate, and well-communicated service delivery rather than on cost or digital features alone. The study lends empirical support to the applicability of the SERVQUAL framework within the Indian logistics context and offers practical recommendations for logistics companies to prioritise service excellence, treat technology as a supporting rather than a differentiating factor, and adopt transparent, value-based pricing strategies to strengthen customer satisfaction and long-term loyalty.

***Keywords*— Customer Satisfaction; Service Quality; Technology Adoption; Transportation Cost; Logistics Industry; SERVQUAL**

I. INTRODUCTION

A. Introduction

This research focuses on the factors affecting customer satisfaction in the logistics industry in India. It investigates the relationship between service quality, technology adoption, pricing/transportation cost, and the overall satisfaction and loyalty that customers experience when using logistics services. As logistics is a critical part of India's growing e-commerce and business environment, understanding what makes customers satisfied has become highly relevant to companies operating in this sector.

Logistics plays a vital role in facilitating the movement of goods from producers to consumers in a timely and coordinated manner. The rapid growth of online shopping and digital trade in India has placed increasing pressure on logistics companies to provide reliable, fast, and trustworthy delivery services. Although the industry is expanding quickly, it continues to face challenges such as poor road conditions, traffic congestion, limited warehousing infrastructure, high fuel costs, and fluctuating regulations, all of which can lead to delayed deliveries and dissatisfied customers.

Achieving high levels of customer satisfaction is essential, as satisfied customers are more likely to continue using a service and recommend it to others, while poor experiences such as late deliveries, damaged goods, or ineffective communication drive customers toward competitors. This study therefore investigates the extent to which service quality, technology adoption, and transportation cost jointly and individually influence customer satisfaction in the Indian logistics industry.

B. Background of the Study

The growth of online shopping and digital trade in India has intensified demand for dependable delivery services. Customer satisfaction in this context is shaped by the quality of service provided, the technology used to track and manage shipments, and the pricing structures adopted by logistics companies.

Prior research (Mentzer et al., 2001; Bienstock et al., 1997) has established that service quality, price, and reliability influence customer satisfaction in the logistics field, and that strong service performance and timely delivery help build customer trust (Christopher, 2016). However, most of this research has been conducted in developed or international markets, with comparatively limited empirical attention given to the Indian logistics context, where companies face distinctive operational constraints such as traffic congestion, inadequate road infrastructure, and high transportation costs.

Customer satisfaction in the Indian logistics industry has shown a consistent upward trend over the past decade, rising from approximately 63 percent in 2015 to a projected 84 percent by 2025, reflecting improvements in tracking technology, delivery speed, and customer-centric service (Ballou, 2007). This positive trajectory highlights the growing importance of identifying which specific factors are driving these gains in customer satisfaction.

C. Research Problem

The logistics industry plays an important role in enabling trade, business development, and everyday commerce, a role that has grown further with the expansion of e-commerce and import-export activity in India. Because satisfied customers are more likely to remain loyal and recommend a provider, while delays, damaged goods, and poor communication erode trust (Ghoumrassi & Tigu, 2025), understanding the drivers of customer satisfaction is of direct commercial importance to logistics companies.

While previous studies have linked service quality, pricing, and reliability to customer satisfaction in logistics (Mentzer et al., 2001; Bienstock et al., 1997; Christopher, 2016), most of this evidence originates from markets outside India. Indian logistics companies operate under conditions that are, in several respects, unique — including traffic congestion, inconsistent road infrastructure, and volatile transportation costs — yet relatively few studies have examined how these conditions shape customer satisfaction. This gap in India-specific empirical research forms the central research problem addressed by this study: identifying the key factors — service quality, technology adoption, and pricing/transportation cost — that determine customer satisfaction in the Indian logistics industry.

D. Research Questions and Objectives

Based on the research problem identified above, the study seeks to answer the following research questions:

1) Does service quality (timeliness, accuracy, and condition of goods) affect customer satisfaction in the logistics industry?

2) Does technology adoption impact customer satisfaction in the logistics industry?

3) Does pricing/transportation cost influence customer satisfaction in the logistics industry?

In line with the research questions, the objectives of the study are as follows:

1) To identify whether service quality is an influencing factor on customer satisfaction in the logistics industry.

2) To examine whether technology adoption affects customer satisfaction in the logistics industry.

3) To examine whether pricing/transportation cost affects customer satisfaction in the logistics industry.

E. Significance of the Study

This research is valuable to several stakeholders. For customers, it identifies what they value most — timeliness, accuracy, transparency, and fair pricing — and shows how digital tracking and communication systems give customers greater confidence in their deliveries (Kotler & Keller, 2012).

For logistics companies, the study provides insight into the factors that most strongly influence customer satisfaction and loyalty, helping businesses improve service quality, manage transportation costs, and adopt modern technologies to remain competitive (Hult, 2001). For policymakers, the findings help identify challenges such as traffic congestion, poor infrastructure, and high operating costs that affect the sector (Mentzer et al., 2001), supporting policy decisions on infrastructure development and workforce training. Finally, for researchers and students, this study helps fill the gap in India-specific logistics literature and provides a foundation for future research into digital transformation, sustainable logistics, and customer experience management (Christopher, 2016).

II. Literature Review

A. Overview

This chapter reviews literature relevant to customer satisfaction in the logistics industry. It begins with an overview of the Indian logistics sector, followed by a discussion of the dependent variable, customer satisfaction, and the independent variables of service quality, technology adoption, and pricing/transportation cost. Definitions from previous studies are presented, and the relationships between the independent variables and customer satisfaction are examined based on findings from established literature, laying the theoretical foundation for the research framework and hypotheses used in this study.

B. Overview of the Logistics Industry in India

The logistics industry plays a critical role in India's economic growth, encompassing transportation, warehousing, packaging, inventory management, and distribution. As one of the fastest-growing economies in the world, India has experienced a sharp rise in demand for efficient logistics services, supported by government efforts to improve road, rail, port, and air infrastructure. The sector remains diverse and fragmented, comprising both small enterprises and large organised players, with road transport handling approximately 60 percent of freight movement (Sahay & Mohan, 2003; Kotler & Keller, 2012).

In recent years, technology has begun reshaping Indian logistics, with growing use of GPS tracking, warehouse automation, and digital order-management platforms. The introduction of the Goods and Services Tax (GST) has eased inter-state movement of goods, and government infrastructure initiatives continue to strengthen the sector. Nonetheless, challenges such as poor infrastructure, traffic congestion, a shortage of skilled labour, and high transportation costs persist (Kotler & Keller, 2012).

C. The SERVQUAL Model

Service quality is widely regarded in academic literature as one of the most important determinants of customer satisfaction, particularly in service-oriented industries such as logistics. Parasuraman, Zeithaml, and Berry (1988) define service quality as the degree to which a service provider fulfils customer expectations with respect to dependability, responsiveness, assurance, and empathy.

According to the SERVQUAL model, customer satisfaction arises when perceived service quality matches or exceeds customer expectations. In logistics, this is strongly shaped by factors such as on-time delivery, shipment accuracy, the condition of goods received, and clear communication. When logistics companies consistently perform well on these dimensions, customers develop positive evaluations that translate into higher satisfaction (Parasuraman et al., 1988).

D. Dependent Variable — Customer Satisfaction

Customer satisfaction is a foundational concept in marketing and service management literature. Oliver (1980) defines it as a psychological or emotional response resulting from comparing prior expectations with the perceived performance of a product or service, while Kotler and Keller (2016) similarly describe it as the pleasant or unpleasant feeling that results from comparing perceived performance against expectations.

In the context of logistics, customer satisfaction reflects an overall appraisal of service performance in terms of delivery reliability, responsiveness, and consistency (Mentzer, Flint, & Hult, 2001). Satisfaction is a key determinant of customer retention and long-term relationships (Ghoumrassi & Tigu, 2018), and higher satisfaction is linked to improved company performance, competitive advantage, and profitability (Anderson, Fornell, & Lehmann, 1994). In this study, customer satisfaction is treated as the dependent variable, reflecting the overall outcome of logistics service performance as shaped by service quality, technology adoption, and pricing/transportation cost.

E. Service Quality

Service quality refers to a provider's capacity to consistently meet or exceed customer expectations, and is conceptualised as the gap between expected and perceived service performance (Parasuraman et al. , 1988). In logistics, this manifests through on-time delivery, order accuracy, the physical condition of goods, and effective communication (Mentzer et al., 2001).

Empirical studies confirm a positive relationship between service quality and customer satisfaction. Bienstock, Mentzer, and Bird (1997) found that delivery reliability, order accuracy, and information quality significantly influence satisfaction, while Patel and Reddy (2021) similarly reported that on-time delivery and appropriate handling of goods drive positive customer satisfaction. Cronin and Taylor (1992) further argue that service quality is an antecedent of satisfaction, meaning that improvements in service quality translate directly into improved satisfaction over time — a relationship that is particularly salient in logistics, where service encounters are frequent and highly visible to the customer.

Customer service, closely related to service quality, encompasses the support provided before, during, and after service delivery, including handling enquiries and resolving complaints (Kotler & Keller, 2016). Homburg and Furst (2005) found that effective complaint

handling positively affects satisfaction even after a service failure, and Amin and Selamat (2019) reported that responsive, professional customer service significantly improves satisfaction and trust in logistics providers. Collectively, the literature indicates that high service quality — encompassing both operational performance and customer service — builds trust, reduces uncertainty, and is a critical determinant of customer satisfaction in the logistics industry.

F. Technology Adoption

Technology adoption refers to the extent to which organisations accept and apply digital tools and innovations to enhance operations and service delivery (Rogers, 2003). In logistics, this includes GPS tracking, mobile applications, warehouse automation, and automated delivery processes. Davis's (1989) Technology Acceptance Model (TAM) suggests that perceived usefulness and perceived ease of use are key determinants of technology adoption, and that in service contexts, technology enhances transparency, reduces errors, and improves the overall customer experience.

Empirical evidence links technology adoption to customer satisfaction. Lai and Wong (2019) found that real-time tracking systems and digital information sharing significantly improve service visibility and customer satisfaction, while Gunasekaran, Subramanian, and Rahman (2015) reported that technology-enabled logistics operations enhance responsiveness and reduce service errors. Chopra and Meindl (2016) further note that digital platforms improve coordination and information flow between logistics providers and customers, reducing customer anxiety and improving satisfaction. Overall, the literature suggests that technology adoption enhances service efficiency, transparency, and reliability, and is therefore expected to be positively associated with customer satisfaction in the logistics industry.

G. Pricing / Transportation Cost

Transportation cost refers to the expenses incurred in moving goods from one location to another, including fuel, labour, vehicle maintenance, and toll charges, and is a major component of overall logistics cost that directly shapes customer perceptions of value (Christopher, 2016). Zeithaml (1988) links customer satisfaction to perceived value — the trade-off between what a customer receives and what they sacrifice in price — such that satisfaction rises when transportation costs are seen as reasonable relative to service quality.

Bienstock, Mentzer, and Bird (1997) found that pricing fairness and cost transparency positively influence customer satisfaction, particularly when providers clearly communicate pricing structures and avoid hidden charges. Conversely, Ghoumrassi and Tigu (2018) found that high or unpredictable transportation costs can negatively affect satisfaction, especially in competitive, price-sensitive markets. Hsiao, Kemp, and van der Vorst (2011) similarly note that transparent and flexible pricing strategies help build long-term customer relationships. Taken together, the literature suggests that reasonable, transparent, and value-based transportation costs are positively associated with customer satisfaction, while high or unclear pricing can lead to dissatisfaction.

H. Relationship Between Independent Variables and Customer Satisfaction

Drawing on the SERVQUAL and Technology Acceptance frameworks, the literature suggests that customer satisfaction in the logistics industry results from the combined influence of service quality, technology adoption, and pricing/transportation cost. Service quality is consistently identified as one of the strongest predictors of satisfaction, given its direct link to reliability and trust (Parasuraman et al., 1988; Mentzer et al., 2001). Technology adoption is associated with improved transparency, responsiveness, and service consistency (Rogers, 2003; Lai & Wong, 2019), while pricing and transportation cost shape customers' perceptions of value for money (Christopher, 2016; Zeithaml, 1988). Together, these three constructs form an integrated basis for understanding how customers evaluate and respond to logistics services.

I. Hypothesis Development

Based on the literature review above, the following hypotheses are proposed:

H1: There is a significant relationship between service quality and customer satisfaction in the logistics industry.

H2: There is a significant relationship between technology adoption and customer satisfaction in the logistics industry.

H3: There is a significant relationship between pricing/transportation cost and customer satisfaction in the logistics industry.

J. Theoretical Framework

The theoretical framework of this study positions Service Quality, Technology Adoption, and Pricing/Transportation Cost as independent variables that each exert a direct effect on Customer Satisfaction, the dependent variable. This framework draws on the SERVQUAL model (Parasuraman et al., 1988) and the Technology Acceptance Model (Davis,

1989), and is consistent with the logistics service quality framework proposed by Mentzer et al. (2001).

Fig. 1. Theoretical Framework (Source: Developed for research)

K. Research Gap

Although customer satisfaction in the logistics sector has attracted substantial academic and practitioner interest, several important gaps remain, particularly regarding the Indian context. Much of the existing empirical evidence — including foundational studies such as Mentzer et al. (2001) and Bienstock et al. (1997) — was developed in international, often Western, settings, leaving limited India-specific empirical evidence on how service quality, technology adoption, and pricing jointly shape customer satisfaction.

Indian logistics companies operate under distinctive structural constraints, including traffic congestion, inconsistent infrastructure, and volatile fuel and transportation costs, which may alter the relative importance of these determinants compared with more developed logistics markets. Further, prior research has tended to examine service quality, technology, or pricing in isolation rather than testing their combined and relative contribution within a single integrated model. This study addresses these gaps by empirically testing the joint and individual effects of service quality, technology adoption, and transportation cost on customer satisfaction among logistics customers in India.

III. Research Methodology

A. Overview

This chapter outlines the methodology adopted to examine the relationship between service quality, technology adoption, pricing/transportation cost, and customer satisfaction in the logistics industry. It describes the research framework, hypotheses, research design, sampling procedure, research instrument, data collection method, and data analysis techniques used to ensure the study was conducted in a systematic, reliable, and valid manner.

B. Operational Definitions of Research Variables

Service Quality: the degree to which a logistics company fulfils or exceeds customer expectations regarding reliability, timeliness, accuracy, and responsiveness, operationalised through items covering employee responsiveness, delivery timeliness, order accuracy, damage avoidance, and information sharing (Parasuraman, Zeithaml, & Berry, 1988; Mentzer et al., 2001).

Technology Adoption: the extent to which a logistics company adopts digital tools, tracking systems, and information technology to enhance service delivery, operationalised through items on IT application use, technological innovation, tracking systems, and logistics information systems (Rogers, 2003; Chopra & Meindl, 2016).

Pricing/Transportation Cost: the degree to which customers perceive a logistics company's pricing as affordable, competitive, consistent, and stable, operationalised through items on affordability, value for money, competitiveness, price consistency, discounts, and price stability (Christopher, 2016; Bienstock et al., 1997).

Customer Satisfaction: the degree to which customers feel that a logistics company meets or exceeds their expectations, operationalised through items on adherence to promised conditions, expectation fulfilment, and willingness to recommend the company (Mentzer et al., 2001).

C. Research Framework and Hypotheses

The research framework links Service Quality, Technology Adoption, and Pricing/Transportation Cost, as independent variables, to Customer Satisfaction, the dependent variable, consistent with the SERVQUAL and Technology Acceptance perspectives discussed in Section II. Based on this framework, hypotheses H1 through H3, presented in Section II-I above, are formulated and tested empirically.

D. Sources of Research Data

This study relies primarily on primary data, collected directly from customers who have used logistics or courier services, since only direct responses can adequately capture customer satisfaction. Secondary data — drawn from academic journals, books, industry reports, and reference research papers — was used to support theory development, refine the measurement scales, and interpret the empirical results (Kothari, 2014).

E. Sampling Design

The study adopted a non-probability sampling design, using convenience sampling to select respondents who were easily accessible and willing to participate. This approach is widely used in management research due to its time and cost efficiency, and is suited to exploratory and descriptive research aimed at capturing customer perceptions.

The target population comprised customers — both individual and business — who had previously used logistics services in India, spanning a range of ages, educational backgrounds, occupations, and income levels. A total of 150 valid and complete responses were collected and used for analysis, providing a sample size considered adequate for the multiple regression procedures applied in this study (Hair et al., 2019).

F. Research Instrument and Data Collection

A structured questionnaire served as the primary research instrument, divided into three sections: Section A captured demographic information (gender, age group, educational qualification, occupation, and monthly income); Section B captured respondents' general context of logistics service use (frequency of use, type of service, purpose, and preferred provider); and Section C measured the study's constructs — Customer Satisfaction, Service Quality, Technology Adoption, and Pricing/Transportation Cost — using a five-point Likert scale ranging from Strongly Disagree to Strongly Agree, with items adapted from established prior research (Mentzer et al., 2001; Parasuraman et al., 1988; Rogers, 2003; Bienstock et al., 1997).

The questionnaire was administered online via Google Forms, with the link shared through email, messaging platforms, and social media. Respondents were informed of the academic purpose of the study, and confidentiality and anonymity were assured. Responses were screened for completeness and accuracy prior to analysis; no questionnaires were excluded, as all 150 responses were complete.

G. Data Analysis

Data were analysed using IBM SPSS Statistics. Frequency analysis was used to profile the demographic characteristics of respondents (Kothari, 2014). Descriptive statistics — mean and standard deviation — were computed for all study variables to understand overall respondent perceptions (Malhotra, 2017). Reliability analysis was conducted using Cronbach's alpha, with a value of 0.70 or above considered acceptable (Cronbach, 1951; Nunnally & Bernstein, 1994).

Pearson correlation analysis was used to examine the strength and direction of relationships between the independent variables and customer satisfaction (Cohen, 1988), and multiple linear regression analysis was used to test hypotheses H1 through H3, evaluating both the joint and individual contribution of each independent variable at a significance level of 5 percent (Hair et al., 2019).

IV. Data Analysis and Results

This section presents the analysis and interpretation of results obtained from 150 valid respondents, using IBM SPSS Statistics. It begins with the demographic profile of respondents, followed by reliability analysis, descriptive statistics, correlation analysis, and multiple regression analysis used to test the proposed hypotheses.

A. Profile of the Respondents

Table I presents the gender distribution of respondents.

TABLE I GENDER OF RESPONDENTS

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	124	82.7	82.7	82.7
Female	26	17.3	17.3	100.0
Total	150	100.0	100.0	

Table I shows that of the 150 respondents, 124 (82.7%) were male and 26 (17.3%) were female, indicating a predominantly male sample that should be considered when interpreting the results.

TABLE II AGE GROUP OF RESPONDENTS

Age Group	Frequency	Percent	Valid Percent	Cumulative Percent
Below 20 years	34	22.7	22.7	22.7
21– 30 years	91	60.7	60.7	83.3
31– 40 years	10	6.7	6.7	90.0
41– 50 years	10	6.7	6.7	96.7
51– 60 years	4	2.7	2.7	99.3
Above 60 years	1	.7	.7	100.0
Total	150	100.0	100.0	

The majority of respondents (60.7%) were aged 21– 30 years, followed by 22.7% below 20 years, indicating that the sample is heavily weighted toward younger, digitally active consumers who are frequent users of e-commerce and courier services.

TABLE III EDUCATIONAL QUALIFICATION OF RESPONDENTS

Qualification	Frequency	Percent	Valid Percent	Cumulative Percent
Higher Secondary	23	15.3	15.3	15.3
Undergraduate	41	27.3	27.3	42.7

Postgraduate	72	48.0	48.0	90.7
Others	14	9.3	9.3	100.0
Total	150	100.0	100.0	

Most respondents held postgraduate (48.0%) or undergraduate (27.3%) qualifications, suggesting a well-educated sample capable of providing informed responses regarding logistics service quality and value.

TABLE IV OCCUPATION OF RESPONDENTS

Occupation	Frequency	Percent	Valid Percent	Cumulative Percent
Student	79	52.7	52.7	52.7
Employed	18	12.0	12.0	64.7
Self-employed	36	24.0	24.0	88.7
Homemaker	17	11.3	11.3	100.0
Total	150	100.0	100.0	

Students formed the largest occupational group (52.7%), followed by self-employed respondents (24.0%), employed individuals (12.0%), and homemakers (11.3%), reflecting a sample dominated by younger and self-directed consumers of logistics services.

TABLE V MONTHLY INCOME OF RESPONDENTS

Monthly Income	Frequency	Percent	Valid Percent	Cumulative Percent
Below ₹ 20,000	71	47.3	47.3	47.3
₹ 20,001 – ₹ 40,000	44	29.3	29.3	76.7
₹ 40,001 – ₹ 60,000	22	14.7	14.7	91.3
Above ₹ 60,000	13	8.7	8.7	100.0
Total	150	100.0	100.0	

Nearly half of respondents (47.3%) earned below ₹ 20,000 per month, while 29.3% earned between ₹ 20,001 and ₹ 40,000, indicating that the sample is concentrated in the lower-to-middle income bracket, which may influence perceptions of pricing and value for money.

B. Reliability Analysis

Reliability analysis was performed to evaluate the internal consistency of the measurement items for each construct, using Cronbach's alpha. Table VI summarises the results.

TABLE VI RELIABILITY STATISTICS

Construct	No. of Items	Cronbach's Alpha
Customer Satisfaction	3	0.745
Service Quality	16	0.923
Technology Adoption	4	0.826
Pricing/Transportation Cost	6	0.833

All constructs recorded a Cronbach's alpha value above the recommended threshold of 0.70 (Nunnally & Bernstein, 1994), with Service Quality showing the highest internal consistency (0.923), followed by Pricing/Transportation Cost (0.833), Technology Adoption (0.826), and Customer Satisfaction (0.745). These results confirm that the measurement items reliably capture their intended constructs and are suitable for further inferential analysis.

C. Descriptive Statistics of Study Variables

Descriptive statistics — mean and standard deviation — were computed for all measurement items across the four constructs. Tables VII to X present the results.

TABLE VII DESCRIPTIVE STATISTICS — CUSTOMER SATISFACTION

Item	Mean	Std. Deviation
The logistic company does business in accordance with promised conditions.	2.59	1.542
The logistic company satisfies my expectations.	3.08	1.267
I will recommend the logistic company to others.	3.45	1.139

Customer satisfaction item means ranged from 2.59 to 3.45. Respondents rated their willingness to recommend the company highest (mean = 3.45), while agreement that the company performs strictly in accordance with promised conditions was comparatively lower (mean = 2.59), suggesting an area for service improvement.

TABLE VIII DESCRIPTIVE STATISTICS — SERVICE QUALITY

Item	Mean	Std. Deviation
Contact employees make an effort to understand my situation.	3.29	1.462
Contact employees can resolve product/service problems.	3.31	1.062
Service knowledge/experience of contact employees is sufficient.	3.42	1.206
Time between placing requisition and receiving delivery is short.	3.34	1.263

Deliveries arrive on the date promised.	3.36	1.255
Time a requisition is on back-order is short.	3.57	1.244
Correction of delivered quality discrepancies is satisfactory.	3.51	1.157
Reporting of discrepancy process is adequate.	3.41	1.254
Response to order discrepancies is satisfactory.	3.28	1.275
Order received from logistics services is undamaged.	3.36	1.327
Order damage rarely occurs due to transport mode.	3.20	1.300
Order damage rarely occurs due to carrier handling.	3.32	1.287
Operational information is shared effectively with customers.	3.33	1.329
Company can share standardised and customised information.	3.36	1.265
Information is accurate, timely and formatted for use.	3.39	1.268
Company provides real-time shipping information anytime.	3.56	1.245

Service quality item means ranged from 3.20 to 3.57, indicating moderate-to-high agreement across all items. Respondents rated back-order turnaround time (mean = 3.57) and real-time shipment information access (mean = 3.56) most favourably, while order damage avoidance related to transport mode was rated comparatively lower (mean = 3.20), pointing to handling and transit reliability as areas requiring attention.

TABLE IX DESCRIPTIVE STATISTICS — TECHNOLOGY ADOPTION

Item	Mean	Std. Deviation
Company uses IT applications and customer data exchange platforms.	3.24	1.403
Company introduces and applies technological innovations.	3.25	1.220
Company has IT that provides a good tracking system.	3.45	1.261
Company's logistics information systems meet requirements.	3.51	1.241

Technology adoption item means ranged from 3.24 to 3.51. Respondents rated the adequacy of logistics information systems (mean = 3.51) and tracking system effectiveness (mean = 3.45) most positively, indicating that customers view current technological capabilities favourably, though with room for improvement in innovation adoption.

TABLE X DESCRIPTIVE STATISTICS — PRICING/TRANSPORTATION COST

Item	Mean	Std. Deviation
Pricing set by the logistic company is affordable.	3.33	1.384
Pricing set by the logistic company is value for money.	3.27	1.202
Company's service prices are competitive with competitors.	3.42	1.095
Price of service is consistent with service provided.	3.49	1.174
Company has a discount policy for customers.	3.42	1.149
Service prices are stable and have little fluctuation.	3.51	1.140

Pricing item means ranged from 3.27 to 3.51, with respondents rating price stability (mean = 3.51) and consistency between price and service (mean = 3.49) most favourably, suggesting that customers view the pricing structure of logistics providers as generally fair and predictable.

D. Correlation Analysis

Pearson correlation analysis was conducted to examine the association between the independent variables and customer satisfaction. Table XI presents the correlation matrix.

TABLE XI PEARSON CORRELATION MATRIX

	TA	P	CS	SQ
TA	1	.588**	.400**	.549**
P	.588**	1	.360**	.615**
CS	.400**	.360**	1	.623**
SQ	.549**	.615**	.623**	1

*** Correlation is significant at the 0.01 level (2-tailed); N = 150 for all pairs. TA = Technology Adoption; P = Pricing/Transportation Cost; CS = Customer Satisfaction; SQ = Service Quality.*

The correlation results show statistically significant positive relationships among all four constructs at the 0.01 level. Service Quality shows the strongest correlation with Customer Satisfaction (r = .623), followed by Technology Adoption (r = .400) and Pricing/Transportation Cost (r = .360). Service Quality is also strongly correlated with both Technology Adoption (r = .549) and Pricing (r = .615), suggesting that customers who perceive strong technological support and fair pricing also tend to perceive stronger service quality. These results provide preliminary support for the study's hypotheses and justify proceeding to regression analysis.

E. Multiple Regression Analysis

Multiple linear regression analysis was performed to evaluate the combined and individual effects of the independent variables on customer satisfaction.

TABLE XII REGRESSION MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	.630	.397	.385	.84639

Predictors: (Constant), Service Quality, Technology Adoption, Pricing/Transportation Cost. Dependent Variable: Customer Satisfaction. Durbin-Watson = 1.535.

The model summary shows that the three independent variables jointly explain 39.7% of the variance in customer satisfaction (Adjusted R Square = .385). The Durbin-Watson statistic of 1.535 indicates no significant autocorrelation problem, confirming that the regression model is statistically sound.

TABLE XIII ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	68.947	3	22.982	32.081	.000
Residual	104.591	146	.716		
Total	173.538	149			

The ANOVA results confirm that the regression model is statistically significant, $F(3, 146) = 32.081$, $p < .001$, indicating that Service Quality, Technology Adoption, and Pricing/Transportation Cost, taken together, significantly predict customer satisfaction in the logistics industry.

TABLE XIV REGRESSION COEFFICIENTS

Model	B	Std. Error	Beta	t	Sig.	Tol.	VIF
(Constant)	0.392	0.307	—	1.276	.204	—	—
TA	0.118	0.086	0.114	1.366	.174	0.598	1.673
P	-0.099	0.105	-0.083	-0.946	.346	0.532	1.880
SQ	0.767	0.107	0.612	7.187	<.001	0.569	1.759

Dependent Variable: Customer Satisfaction. TA = Technology Adoption; P = Pricing/Transportation Cost; SQ = Service Quality.

The regression coefficients show that Service Quality (Beta = .612, $p < .001$) is the only statistically significant unique predictor of customer satisfaction in the model. Technology Adoption (Beta = .114, $p = .174$) and Pricing/Transportation Cost (Beta = -.083, $p = .346$) do not have a statistically significant independent effect once the other variables are controlled for. All tolerance values exceed 0.5 and VIF values are below 2, indicating no problem of multicollinearity among the independent variables.

TABLE XV SUMMARY OF HYPOTHESES

Hypothesis	p-value	Decision
H1: Service quality is significantly related to customer satisfaction.	.000	Supported
H2: Technology adoption is significantly related to customer satisfaction.	.174	Not Supported
H3: Pricing/transportation cost is significantly related to customer satisfaction.	.346	Not Supported

As summarised in Table XV, only Hypothesis 1 is supported: service quality has a statistically significant positive relationship with customer satisfaction in the logistics industry. Hypotheses 2 and 3, relating to technology adoption and pricing/transportation cost respectively, are not supported at the 5% significance level in the multivariate model, despite both showing significant positive bivariate correlations with customer satisfaction.

V. Discussion, Conclusion and Recommendations

A. Findings of the Study

This study examined the effects of Service Quality, Technology Adoption, and Pricing/Transportation Cost on Customer Satisfaction in the logistics industry, based on 150 valid responses analysed through multiple linear regression.

Service quality was found to have a strong, statistically significant positive effect on customer satisfaction (Beta = .612, $p < .001$), confirming Hypothesis 1. This finding affirms that customer satisfaction in the logistics sector is most strongly driven by service quality — prompt delivery, proper handling of goods, effective communication, and real-time information significantly enhance customer satisfaction. This result is strongly consistent with prior work by Parasuraman et al. (1988) and Mentzer et al. (2001), which identified service quality as central to customer satisfaction, and with Amin and Selamat (2019), who linked responsive customer service to satisfaction and trust.

Technology adoption showed a positive but non-significant effect on customer satisfaction (Beta = .114, $p = .174$), leading to the rejection of Hypothesis 2. While customers value the availability of tracking

systems and digital information tools, these features alone do not appear to significantly move overall satisfaction once service quality is accounted for. This finding diverges somewhat from Lai and Wong (2019), who reported a stronger effect of technology on satisfaction, but aligns with Davis's (1989) Technology Acceptance Model, which suggests technology only meaningfully affects perceptions when it delivers clear, differentiated value; in the present sample, digital tracking may already be perceived as a baseline expectation rather than a distinguishing feature.

Pricing/transportation cost showed a small negative, non-significant effect on customer satisfaction (Beta = -.083, p = .346), leading to the rejection of Hypothesis 3. This result contrasts with Bienstock et al. (1997) and Ghoumrassi and Tigu (2018), who found pricing fairness to be a significant driver of satisfaction, but suggests that within this sample, customers are more strongly influenced by service performance than by price differences, provided pricing remains reasonably competitive.

B. Theoretical and Managerial Implications

Theoretically, the study reinforces the applicability of the SERVQUAL framework to the Indian logistics context, confirming that service quality remains the dominant driver of customer satisfaction even as technology adoption and pricing structures evolve. It also extends the Technology Acceptance Model by suggesting that, in a mature digital logistics environment, technology may function as a baseline expectation rather than a differentiator of satisfaction.

Managerially, the findings suggest that logistics companies seeking to strengthen customer satisfaction should prioritise service excellence — reliability, accuracy, and responsive communication — above investment in technology or price competition alone. Technology should be treated as a supporting mechanism that reinforces service delivery rather than a standalone driver of satisfaction, and pricing strategies should emphasise transparency and consistency rather than aggressive discounting.

C. Recommendations

1) Introduce regular service performance monitoring covering timeliness, accuracy, and customer feedback.

2) Strengthen grievance redressal systems and reduce complaint resolution time.

3) Use Customer Relationship Management (CRM) systems to personalise communication and service delivery.

4) Invest in ongoing employee training to improve professionalism and consistency of customer-facing service.

5) Adopt transparent, value-based pricing models rather than price-based competition that may compromise service quality.

6) Continue to invest in digital tracking and information systems as a support mechanism for service reliability, rather than as a stand-alone driver of satisfaction.

D. Limitations of the Study

This study is subject to several limitations. The sample was obtained through convenience sampling, which limits the generalisability of the findings to the broader population of logistics customers in India. The cross-sectional design captures customer perceptions at a single point in time and cannot reveal how satisfaction evolves with continued exposure to a provider. The sample also skewed toward younger, student, and lower-income respondents, which may not fully represent the perceptions of business or high-income logistics customers. Finally, the study examined a limited set of variables; other factors such as customer trust, brand image, and service recovery were not included and may further explain customer satisfaction.

E. Scope for Future Research

Future studies could expand the sample size and geographical coverage to improve generalisability, and incorporate additional variables such as customer trust, brand image, customer loyalty, and service recovery. Advanced techniques such as Structural Equation Modelling (SEM) could be used to examine direct and indirect effects among these variables. Comparative studies across different types of logistics providers — such as third-party logistics (3PL), e-commerce logistics companies, and conventional transport companies — as well as longitudinal and mixed-method designs incorporating qualitative interviews, would further deepen understanding of customer satisfaction dynamics in the logistics sector.

F. Conclusion

This study examined the factors influencing customer satisfaction in the logistics industry, focusing on service quality, technology adoption, and pricing/transportation cost, using data from 150 respondents analysed through correlation and multiple regression techniques. The findings show that service quality is the dominant and only statistically significant predictor of customer satisfaction, while technology adoption and pricing, although positively correlated with satisfaction, do not exert a significant

independent effect once service quality is accounted for.

These results indicate that logistics companies seeking to improve customer satisfaction and build long-term loyalty should prioritise a service-excellence strategy — centred on reliability, accuracy, and responsive communication — rather than relying primarily on technology investment or price competition. As India's logistics sector continues to grow alongside e-commerce and digital trade, understanding and managing these determinants of customer satisfaction will remain critical to the long-term success of logistics providers.

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