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Factors affecting customer satisfaction with logistics service quality in Nam Tu Liem District

Nguyen Quang Huy *

Hanoi University of Industry, Ha Noi, Viet Nam.

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Abstract

In the face of intensifying competition from international logistics providers, customer satisfaction has emerged as a crucial determinant of success for domestic logistics firms in Vietnam, particularly in Nam Tu Liem District. This study investigates the key factors influencing customer satisfaction with logistics service quality in the district. Using a quantitative approach, data were collected from 137 logistics service users through structured questionnaires. The SERVQUAL model was adapted and validated using Cronbach's Alpha, Exploratory Factor Analysis (EFA), correlation analysis, and multiple linear regression. The findings reveal five significant factors—service capacity, price, information quality, trust, and tangibles—that positively affect customer satisfaction. These results offer a reliable measurement framework for logistics service evaluation and provide practical implications for enhancing customer satisfaction in Vietnam's growing logistics industry.

Keywords: Logistics; Customer satisfaction; Service quality; Nam Tu Liem District

1. Introduction

In the era of globalization and the rapid expansion of international trade, logistics services have become a critical driver of business success. In developing economies like Vietnam, logistics not only facilitates supply chain connectivity and integrated logistics management—which are essential in emerging markets (Coyle et al., 2016)—but also plays a pivotal role in promoting sustainable economic growth, as highlighted in global supply chain literature (Christopher, 2016). The remarkable expansion of the logistics industry, especially in urban areas, presents both opportunities and challenges for businesses aiming to enhance service quality and maintain customer satisfaction.

Nam Tu Liem, a fast-developing district in Hanoi, exemplifies this transformation in emerging urban logistics. The district has experienced significant growth in logistics enterprises, accompanied by substantial infrastructure development and evolving customer expectations. Despite increasing attention to logistics research in major cities like Ho Chi Minh City, there remains a lack of focused studies on service quality and customer satisfaction in districts such as Nam Tu Liem. This research gap presents an opportunity to generate valuable insights tailored to emerging urban areas.

The objective of this study is to identify the key factors affecting customer satisfaction with logistics service quality in Nam Tu Liem District. Grounded in the SERVQUAL framework, the study examines how dimensions such as service capacity, price, information quality, trust, and tangibles influence customer satisfaction. The findings aim to contribute to both theoretical understanding and practical strategies for improving logistics service quality and fostering customer loyalty.

* Corresponding author: Nguyen Quang Huy

Given the increasingly competitive nature of the logistics sector, understanding the drivers of customer satisfaction is vital, as prior studies have shown that service quality directly influences satisfaction across various service environments (Ali et al., 2021). Insights from this study will enable logistics businesses to better align their service offerings with customer expectations and to implement more targeted and effective quality improvement strategies.

The paper is structured as follows: Section 2 reviews the relevant literature and theoretical frameworks; Section 3 outlines the research methodology; Section 4 presents the empirical findings; and Section 5 discusses the implications and concludes the study.

2. Literature review and hypotheses

2.1. Logistics service quality and customer satisfaction

Logistics service quality (LSQ) is a vital component in determining competitive advantage in the global market. It goes beyond transportation to include the provision of reliable, timely, and value-added services. Grönroos (1984) emphasized that service quality comprises multiple dimensions, including reliability, responsiveness, and tangibles, which all influence customer perceptions.

The SERVQUAL model, proposed by Parasuraman et al. (1985), is widely applied to assess service quality across five dimensions: reliability, responsiveness, assurance, empathy, and tangibles. These dimensions provide a framework for understanding the gap between customer expectations and actual service experiences. Oliver (1997) noted that satisfaction arises when service performance meets or exceeds expectations, which supports the view that customer satisfaction is ultimately an emotional response to the service experience (Burger and Cann, 1995). In the logistics sector, on-time delivery, accurate tracking, and professional communication are central to customer satisfaction (Bowersox et al., 2002).

2.2. International research on service quality and customer satisfaction

Globally, numerous studies have examined the relationship between service quality and customer satisfaction in logistics. Tjendana and Pranitasari (2024) found that physical factors—such as facility appearance and operational efficiency—significantly influence customer satisfaction in maritime transportation and logistics. Similarly, Abbas (2023) highlighted that service reliability and the quality of customer interaction are crucial in shaping satisfaction within public transport logistics.

Lai et al. (2022) investigated customer satisfaction in last-mile logistics, focusing on parcel locker systems. Their research revealed that responsiveness and the quality of customer interaction were key contributors to satisfaction. These findings underscore the importance of dimensions such as responsiveness, reliability, and physical evidence in enhancing service quality.

Despite the breadth of international studies, much of the literature focuses on specific sectors—such as maritime shipping or last-mile delivery—rather than offering a holistic view applicable to emerging logistics markets like Vietnam.

2.3. Domestic research on logistics service quality and customer satisfaction

In Vietnam, LSQ has gained growing research attention. Nhung et al. (2022) examined customer satisfaction in sea freight among SMEs in Ho Chi Minh City, identifying reliability, empathy, and price as significant factors. Hanh and Bich (2022) reported that customers in Northern Vietnam placed strong emphasis on service capacity, responsiveness, and tangible service quality.

Hiep et al. (2024), in their study of logistics firms in Binh Duong province, emphasized the impact of operational quality, staff professionalism, and service innovation. Meanwhile, Nguyen Thanh Nam and Le Thu Hang (2021) applied the SERVQUAL framework to evaluate satisfaction with express delivery services in Hanoi, finding all five SERVQUAL dimensions to be significant predictors of satisfaction.

These studies confirm that the SERVQUAL model is applicable in Vietnam, while also revealing the importance of regional characteristics in shaping customer expectations and perceptions.

2.4. Research gap

While existing literature offers valuable insights into LSQ and customer satisfaction, specific studies focused on Nam Tu Liem District are lacking. As a growing logistics hub with diverse businesses and developing infrastructure, Nam Tu Liem presents unique challenges and expectations not fully addressed in broader national studies.

Moreover, although the SERVQUAL model is well-established, its application in the context of local infrastructure and regional service characteristics remains underexplored—despite evidence that infrastructure and technology play essential roles in shaping logistics service quality (Arabelen and Kaya, 2021). This study addresses this gap by examining how these dimensions influence satisfaction among logistics users in Nam Tu Liem, thereby offering practical recommendations for service improvement.

3. Data and Research methods

3.1. Research model

This study employs the SERVQUAL model proposed by Parasuraman et al. (1985), which is widely recognized for assessing service quality across various service sectors. The model encompasses five core dimensions: reliability, responsiveness, assurance, empathy, and tangibles. For this study, the model was adapted to reflect five hypothesized factors affecting customer satisfaction in the logistics context: service capacity, price, information quality, trust, and tangibles. The proposed research model is illustrated in Figure 1.

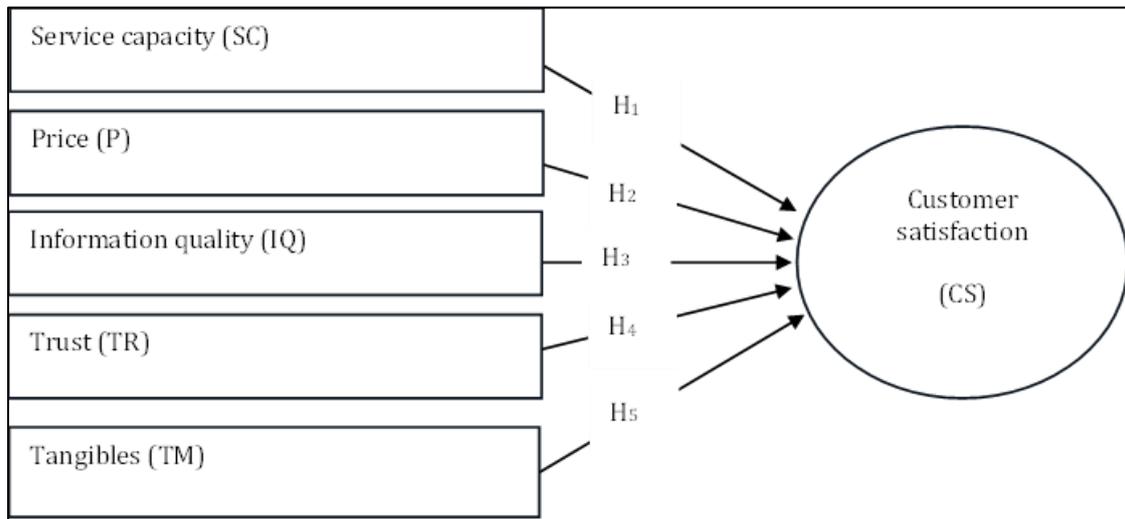


Figure 1 Proposed research model

3.2. Hypotheses

Based on the research model, the following hypotheses are proposed:

- H1: Service capacity has a positive impact on customer satisfaction with logistics service quality.
- H2: Price has a positive impact on customer satisfaction with logistics service quality.
- H3: Information quality has a positive impact on customer satisfaction with logistics service quality.
- H4: Trust has a positive impact on customer satisfaction with logistics service quality.
- H5: Tangibles have a positive impact on customer satisfaction with logistics service quality.

3.3. Variables and measurement scales

The measurement scales in this study were adapted from previous validated research, primarily based on the SERVQUAL model by Parasuraman et al. (1985, 1988). Observed variables for service capacity, price, information quality, trust, tangibles, and customer satisfaction were selected from relevant studies to ensure content validity and contextual relevance. All items were measured using a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Table 1 Measurement Items for constructs and sources

Variable	Sign	Observation variable	Quote
Customer satisfaction	CS1	Are you satisfied with the quality of the company's logistics services?	Lassar et al. (2000)
	CS2	I will continue to use the company's logistics services.	
	CS3	I would be willing to recommend the company's services to others.	
Service capacity	SC1	Staffs have solid professional knowledge, full service consulting, suitable for customer characteristics.	Zeithaml, V.A., Parasuraman, A., Bery, L.L., and Malhotra,A. (2000)
	SC2	Staff have professional and polite working attitude.	Collier, J.E., andStevens,C.K.(2002)
	SC3	Staffs handle problems quickly, accurately and promptly.	Zeithaml, V.A., Parasuraman, A., Bery, L.L., and Malhotra,A. (2000)
	SC4	Staff always provides necessary service information and update goods status for customers.	Verhoef, P.C., Lemon, K.N., Yenyurt, S., and Parasuraman, A. (2009)
Price	P1	The price of the service the company offers is consistent with the service the company provides	Zeithaml, V.A., Parasuraman, A., Bery, L.L., and Malhotra,A. (2000)
	P2	The company's service prices are competitive with those of its competitors in the market.	
	P3	The company has a discount policy for customers.	
	P4	The service prices provided by the company are stable and have little fluctuation.	
Information quality	IQ1	The company uses information technology applications and customer data exchange platforms when performing services.	Jian and Zhenpeng (2008), Thai (2008), Thai (2013)
	IQ2	Businesses introduce and apply technological innovations in customer service	
	IQ3	Customers can always find information about the services that businesses provide	
Trust	TR1	The company performs services as committed to customers quickly.	Zeithaml, V.A., Parasuraman, A., Bery, L.L., and Malhotra,A. (2000)
	TR2	The company does the service right the first time.	Parasuraman, A., Zeithaml, V.A. and Bery, L.L. (1998); Collier, J.E., andStevens,R.(2002)
	TR3	The company provides services on time as committed.	Zeithaml, V.A., Parasuraman, A., Bery, L.L., and Malhotra,A. (2000)
	TR4	The company performs the service accurately, without any errors.	Collier, J.E., andStevens,R.(2002)
	TR5	The company always cares about supporting and solving customers' difficulties.	Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988)
Tangible	TM1	Modern company facilities and equipment.	Zeithaml, V.A., Parasuraman, A., Bery, L.L., and Malhotra,A. (2000)
	TM2	Staff dressed politely and professionally	
	TM3	The company's arrangement of goods is convenient during transportation and delivery.	Bazargan,M.(2000)
	TM4	The company's transaction office is conveniently located.	Babin,B,J., and Griffin,M.C.(1998)

	TM5	Photo brochures that are relevant to the business's services look great.	Parasuraman and et. al., (1988)
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Source: Author's summary

3.4. Research Method

This study applies a quantitative research approach to examine the factors influencing customer satisfaction with logistics service quality in Nam Tu Liem District. Data were collected through a structured questionnaire designed based on the SERVQUAL framework and adapted from previous validated studies. The questionnaire included closed-ended questions measured on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), covering constructs such as service capacity, price, information quality, trust, tangibles, and customer satisfaction. A non-probability convenience sampling method was employed, targeting individuals who had prior experience using logistics services in the study area. A total of 137 valid responses were obtained over a two-week data collection period through both online and face-to-face channels.

To assess the reliability and validity of the measurement scales, a series of statistical analyses were conducted. Internal consistency reliability was evaluated using Cronbach's Alpha, with coefficients above 0.6 deemed acceptable (Nunnally and Bernstein, 1994). Exploratory Factor Analysis (EFA) was then performed to identify the latent structure of the constructs, with the suitability of the data verified using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. Pearson correlation analysis was used to explore the linear relationships between variables. Finally, multiple linear regression using the stepwise method was applied to test the proposed hypotheses and determine the significance and explanatory power of each independent variable. Multicollinearity was checked through the Variance Inflation Factor (VIF), with all values remaining below the threshold of 10, indicating no serious multicollinearity issues.

This methodological approach ensures the robustness of the findings and supports the validity of the conclusions drawn regarding customer satisfaction in the logistics service context.

4. Result

4.1. Descriptive statistics for the study sample

Table 2 provides an overview of the respondents' logistics service usage status and service duration. Out of 145 distributed questionnaires, 143 were deemed valid after screening for completeness and consistency. Among these, six respondents (4.2%) reported never having used logistics services in Nam Tu Liem District and were thus excluded from the analysis, yielding a final analytical sample of 137 respondents.

Within this valid sample, a large majority (83.9%) indicated that they were currently using logistics services, while 16.1% had used such services in the past. This distribution highlights the relevance of the sample in capturing active user perspectives, which is critical for evaluating customer satisfaction with logistics service quality.

Regarding service duration, the findings reveal that a significant portion of respondents (60.3%) had been using logistics services for over two years. This was followed by users with experience ranging from one to two years (24.7%), six months to one year (10.7%), and less than six months (4.3%). This distribution indicates a high level of service familiarity among respondents, thereby enhancing the reliability of their evaluations.

These characteristics confirm that the sample comprises experienced logistics service users, ensuring that subsequent analyses are grounded in informed customer insights.

Table 2 Summary of Logistics Service Usage among Respondents

Category	Subcategory	Frequency	Percentage (%)
Service Usage Status (n=143)	Previously Used	22	15.4
	Currently Using	115	80.4
	Never Used	6	4.2
	Total	143	100

Category	Subcategory	Frequency	Percentage (%)
Valid Sample (n=137)	Previously Used	22	16.1
	Currently Using	115	83.9
	Total	137	100
Duration of Use (n=137)	Less than 6 months	6	4.3
	6 months to 1 year	15	10.7
	1 year to 2 years	34	24.7
	More than 2 years	83	60.3
	Total	137	100

Source: Author's compilation from calculation results

4.2. Reliability testing of the measurement scales

To assess the internal consistency of the measurement scales and ensure the reliability of each construct, Cronbach's Alpha coefficient was employed. This method evaluates the extent to which items within the same scale are correlated, thereby indicating the reliability of the construct. Following the standard threshold proposed by Nunnally and Bernstein (1994), a Cronbach's Alpha value of 0.60 or higher is considered acceptable, and items with corrected item-total correlations below 0.30 are subject to removal.

The results of the reliability analysis for each construct are summarized in Table 3. All six constructs—Service Capacity, Price, Information Quality, Trust, Tangibles, and Customer Satisfaction—achieved Cronbach's Alpha values ranging from 0.799 to 0.952, exceeding the recommended threshold. Moreover, all items exhibited corrected item-total correlation values above 0.30, indicating strong internal consistency.

Table 3 Results of reliability testing using cronbach's alpha

Observation variable	Scale mean if variable excluded	Scale variance if variable is excluded	Total variable correlation	Cronbach's alpha if variables are excluded
Service capacity(SC): Alpha = 0.799				
SC1	11.94	0.732	0.723	0.692
SC2	11.99	0.882	0.542	0.782
SC3	11.98	0.875	0.527	0.788
SC4	12.03	0.705	0.670	0.721
Price (P): Alpha = 0.863				
P1	10.65	1.818	0.777	0.799
P2	10.67	1.913	0.689	0.835
P3	10.63	1.941	0.673	0.841
P4	10.64	1.864	0.708	0.827
Information quality (IQ): Alpha = 0.847				
IQ1	7.26	0.924	0.680	0.818
IQ2	7.24	0.875	0.711	0.790
IQ3	7.17	0.876	0.753	0.748
Trust (TR): Alpha = 0.884				
TR1	13.96	3.727	0.746	0.853
TR2	14.04	3.653	0.738	0.855

Observation variable	Scale mean if variable excluded	Scale variance if variable is excluded	Total variable correlation	Cronbach's alpha if variables are excluded
TR3	14.06	3.850	0.678	0.869
TR4	14.00	3.868	0.711	0.861
TR5	14.01	3.794	0.728	0.857
Tangible means (TM): Alpha = 0.848				
TM1	13.77	3.019	0.620	0.826
TM2	13.71	2.811	0.674	0.812
TM3	13.77	2.974	0.650	0.819
TM4	13.73	2.743	0.650	0.820
TM5	13.82	2.856	0.695	0.806
Satisfaction (CS): Alpha = 0.952				
CS1	5.88	2.854	0.920	0.912
CS2	5.82	2.822	0.912	0.918
CS3	5.82	2.925	0.862	0.956

Source: Author's compilation from calculation results

The results confirm that all constructs meet the criteria for internal consistency reliability. Therefore, all items are retained for subsequent factor analysis.

4.3. Results of exploratory factor analysis (EFA)

Exploratory Factor Analysis (EFA) was conducted to assess the construct validity of the independent variables and to identify the underlying factor structure. Prior to performing EFA, the suitability of the data was evaluated using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. The KMO value was 0.776—above the minimum threshold of 0.5—indicating sampling adequacy. Furthermore, Bartlett's Test yielded a Chi-square value of 1302.700 with a significance level of $p < 0.001$, confirming that the correlation matrix was factorable (Table 4).

Principal Component Analysis with Varimax rotation (Table 5) was applied to extract factors with eigenvalues greater than 1. The results revealed five distinct factors from the 21 observed variables, which collectively explained 68.624% of the total variance—well above the recommended 50% threshold.

Table 4 KMO test of independent variables

Kaiser - Meyer - Olkin Measure of Sampling Adequacy		0.776
Bartlett's Test of Sphericity	Appro Chi - Square	1302.700
	DF	21.0
	Sig	0.000

Source: Author's compilation from calculation results

The rotated factor matrix indicated that each group of observed variables loaded clearly onto its corresponding latent construct, with no significant cross-loadings. This confirms that the five extracted factors align with the theoretical structure proposed in the research model.

After testing KMO with 21 observed variables, the results showed that the KMO coefficient = 0.776 was between 0.5 and 1, meeting the conditions. At the same time, the Bartlett's test results showed that the statistical significance level with the Sig. = 0.000 system was less than 5%, proving that factor analysis was suitable for the data and the variables were related to each other. Based on the eigenvalue criterion = 2.126 greater than 1, a total of 5 factors were extracted, summarizing the information of 21 observed variables in the most effective way. The total variance of these 5 extracted

factors was 68.624%, surpassing the 50% threshold, showing that they explained 68.624% of the data variation of the observed variables participating in EFA.

Table 5 Rotation matrix of independent variables

Observation variable	Factor group				
	1	2	3	4	5
TR1	0.850				
TR2	0.845				
TR5	0.832				
TR4	0.811				
TR3	0.781				
TM5		0.825			
TM2		0.788			
TM3		0.786			
TM4		0.782			
TM1		0.755			
P1			0.881		
P4			0.832		
P3			0.818		
P2			0.816		
SC1				0.866	
SC4				0.842	
SC2				0.732	
SC3				0.701	
IQ3					0.888
IQ2					0.869
IQ1					0.848

Source: Author's compilation from calculation results

4.4. EFA analysis with dependent variable

To assess the construct validity of the Customer Satisfaction scale, exploratory factor analysis was conducted on the three observed variables (CS1, CS2, and CS3). The Kaiser-Meyer-Olkin (KMO) measure was 0.758, and Bartlett's Test of Sphericity was significant (Sig. = 0.000), indicating that the data were appropriate for factor extraction.

The analysis identified a single factor with an eigenvalue of 2.736, which explained 91.190% of the total variance—well above the standard 50% threshold. This result confirms the unidimensionality of the construct. Additionally, all three items exhibited very high factor loadings (CS1 = 0.965, CS2 = 0.962, CS3 = 0.937), demonstrating strong internal consistency and convergent validity.

These findings validate the use of the Customer Satisfaction scale in subsequent correlation and regression analyses. A summary of the factor analysis results is presented in Table 6.

Table 6 Factor Analysis Summary for Customer Satisfaction

Indicator	Factor Loading
CS1	0.965
CS2	0.962
CS3	0.937
KMO	0.758
Bartlett's Test (Sig.)	0
Eigenvalue	2.736
Total Variance Explained (%)	91.19%

Source: Author's compilation from calculation results

4.5. Correlation analysis results

Pearson correlation analysis was conducted to examine the linear relationships between the five independent variables—Service Capacity, Price, Information Quality, Trust, and Tangibles—and the dependent variable, Customer Satisfaction. As shown in Table 7, all independent variables are positively and significantly correlated with Customer Satisfaction at the 0.01 level (two-tailed).

Among these, Service Capacity exhibited the strongest correlation with Customer Satisfaction ($r = 0.394$), followed by Trust ($r = 0.377$), Tangibles ($r = 0.370$), Price ($r = 0.301$), and Information Quality ($r = 0.200$). According to Cohen's (1988) guidelines, these coefficients indicate weak to moderate positive relationships. These results suggest that improvements in any of the five service dimensions are associated with increased customer satisfaction.

The positive and statistically significant correlations also justify the inclusion of all five independent variables in the subsequent multiple regression analysis.

Table 7 Correlation analysis results

Corelations							
		CS	SC	P	IQ	TR	TM
CS	Pearson Correlation	1	0.394**	0.276**	0.200**	0.327**	0.302**
	Sig. (2-tailed)		0.000	0.001	0.019	0.000	0.000
SC	Pearson Correlation	0.394**	1	-0.073	-0.058	-0.097	-0.007
	Sig. (2-tailed)	0.000		0.399	0.499	0.259	0.932
P	Pearson Correlation	0.276**	-0.073	1	0.149	0.041	0.114
	Sig. (2-tailed)	0.001	0.399		0.083	0.633	0.185
IQ	Pearson Correlation	0.200**	-0.058	0.149	1	-0.045	0.022
	Sig. (2-tailed)	0.019	0.499	0.083		0.602	0.799
TR	Pearson Correlation	0.327**	-0.097	0.041	-0.045	1	0.078
	Sig. (2-tailed)	0.000	0.259	0.633	0.602		0.364
TM	Pearson Correlation	0.302**	-0.007	0.114	0.022	0.078	1
	Sig. (2-tailed)	0.000	0.932	0.185	0.799	0.364	

Source: Author's compilation from calculation results

4.6. Results of linear regression analysis

Multiple linear regression was conducted to examine the effects of five service quality factors—Service Capacity, Price, Information Quality, Trust, and Tangibles—on Customer Satisfaction. As shown in Table 8, the model yielded an R value of 0.690 and an adjusted R² of 0.456, indicating that approximately 45.6% of the variance in customer satisfaction is explained by the independent variables. The Durbin–Watson statistic was 2.130, falling within the acceptable range of 1.5 to 2.5, suggesting no autocorrelation in the residuals.

The model was statistically significant, with an F-statistic of 23.830 and a p-value < 0.001, confirming that the set of predictors collectively provides a good fit to the data.

Table 8 Regression Model Summary and ANOVA Results

R	R ²	Adjusted R ²	Std. Error	F	Sig.	Durbin–Watson
0.69	0.476	0.456	0.061681	23.83	0	2.13

Source: Author’s compilation from calculation results

As detailed in Table 9, all five independent variables had positive and statistically significant impacts on customer satisfaction (p < 0.01). Service Capacity had the strongest standardized coefficient (β = 0.459), followed by Trust (β = 0.352), Tangibles (β = 0.246), Price (β = 0.236), and Information Quality (β = 0.202).

All Variance Inflation Factor (VIF) values ranged from 1.017 to 1.041, well below the commonly accepted threshold of 10, confirming that multicollinearity is not a concern in the model.

Table 9 Regression Coefficients and Collinearity Diagnostics

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity	
	B	Std. Error	Beta			Tolerance	VIF
Constant	-9.162	1.125		-8.142	0.000		
SC	1.333	0.185	0.459	7.204	0.000	0.983	1.017
P	0.442	0.121	0.236	3.664	0.000	0.961	1.041
IQ	0.371	0.117	0.202	3.156	0.002	0.972	1.028
TR	0.615	0.111	0.352	5.514	0.000	0.981	1.020
TM	0.494	0.128	0.246	3.856	0.000	0.981	1.019

Source: Author’s compilation from calculation results

Based on the regression results, all independent variables were statistically significant (p < 0.05) and showed no signs of multicollinearity (VIF < 10). Therefore, the estimated regression equation for customer satisfaction can be expressed as follows:

$$CS = 0.459*SC + 0.236*P + 0.202*IQ + 0.352*TR + 0.246*TM$$

The findings of this study provide important insights into the key drivers of customer satisfaction with logistics services in Nam Tu Liem District. Among the five examined factors, service capacity emerged as the strongest predictor of customer satisfaction (β = 0.459), highlighting the critical role of a provider’s ability to meet service demands in a timely, efficient, and consistent manner. This result aligns with the conclusions of Nguyen Thanh Nam and Le Thu Hang (2021), who found that operational reliability and capacity were central to customer evaluations in express delivery services in Hanoi.

Trust was the second most influential factor (β = 0.352), underscoring the importance of credibility, professionalism, and customer confidence in service providers. This is consistent with Abbas (2023) and Tjendana and Pranitasari (2024), who emphasized that perceived integrity and customer-provider relationships significantly enhance satisfaction in public and maritime logistics, respectively.

Tangibles ($\beta = 0.246$) also played a notable role, suggesting that physical aspects such as facility cleanliness, equipment modernity, and appearance of delivery personnel still matter to customers, even in increasingly digitalized logistics environments. This finding resonates with the SERVQUAL framework's original emphasis on tangible cues (Parasuraman et al., 1985) and is supported by the work of Hanh and Bich (2022), who observed a similar trend in Northern Vietnam.

While price ($\beta = 0.236$) and information quality ($\beta = 0.202$) had relatively smaller effects, both were statistically significant. The influence of price supports earlier conclusions by Nhung et al. (2022), indicating that fair and transparent pricing remains a vital factor, particularly in cost-sensitive markets like Vietnam. The role of information quality reflects growing customer expectations for real-time, accurate logistics information. This finding aligns with broader research on how digital cues and perceived trust influence user intention (Chang and Chen, 2005; Thai, 2008; Jian and Zhenpeng, 2008).

Together, these results suggest that while functional performance and operational capacity remain core to satisfaction, relational and perceptual dimensions such as trust and tangibility cannot be overlooked. This is particularly relevant in urbanizing districts like Nam Tu Liem, where customers are increasingly exposed to modern infrastructure but may still rely heavily on interpersonal trust and physical service cues.

From a practical perspective, the findings indicate that logistics firms seeking to improve customer satisfaction should prioritize capacity building and customer-centric customization, as logistics service quality can vary across customer segments (Mentzer et al., 2001). In addition, they should invest in professional training and clear communication strategies, while also maintaining reasonable pricing structures and strong brand trustworthiness. Moreover, the high adjusted R^2 value (0.456) of the model confirms that these five factors collectively provide a meaningful explanation of satisfaction levels, though further exploration of other possible predictors—such as responsiveness or empathy—could enhance the model in future research.

5. Conclusion

This study investigated the factors influencing customer satisfaction with logistics service quality in Nam Tu Liem District, an emerging urban area in Hanoi, Vietnam. Using the SERVQUAL framework and a quantitative research approach, the study identified five key determinants: Service Capacity, Price, Information Quality, Trust, and Tangibles. All five factors were found to have a statistically significant and positive impact on customer satisfaction, with Service Capacity and Trust being the most influential.

The empirical findings confirm that customer satisfaction in logistics is shaped not only by operational performance but also by relational and informational dimensions. Customers value timely delivery, reliable service execution, and professional communication, while also considering pricing fairness and physical service attributes. These insights are especially relevant for logistics firms operating in competitive and rapidly developing environments, where service differentiation and customer retention are critical.

Methodologically, the study offers a validated measurement model that can serve as a reference for future academic research and managerial assessments of service quality in the logistics sector. By adapting and confirming the SERVQUAL dimensions in a localized context, the study contributes to both theory and practice in logistics service management.

In conclusion, enhancing customer satisfaction in logistics requires a comprehensive strategy that balances competence, trust-building, infrastructure investment, information transparency, and value-based pricing. As logistics demand continues to grow in Vietnam's urban centers, companies that prioritize these dimensions will be better positioned to achieve sustained customer loyalty and competitive advantage.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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