Logistic Service Quality and Customer Satisfaction, In context to Indonesia Courier Service

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Abstract. The courier service industry in Indonesia is experiencing significant development, making the competition in that industry very tight, with each company trying to provide efficient logistics services. This study explores the relationship between service quality and customer satisfaction while identifying the key logistics service quality factors that influence customer satisfaction within Indonesian courier companies. A quantitative method was used with a Likert scale questionnaire. The population of this study was users of courier services in West Java, Jakarta, Banten, Central Java, the Special Region of Yogyakarta, and East Java. The sample was selected by simple randomization with a total of 134 respondents. Data processing results show a significant and positive effect of logistic service quality on customer satisfaction. This research provides an understanding of the importance of logistics service quality in increasing customer satisfaction in the courier service industry. It emphasizes the necessity for courier companies to continuously assess and enhance their logistics service quality to meet customers' rising demands and expectations. Additionally, the study identifies the primary dimensions of logistics service quality that should be prioritized for future improvement and development.

Keywords: Courier Services Industry, Customer Satisfaction, Logistics Service Quality.

1 Introduction

Indonesia's logistics and courier services industry has experienced significant growth and development in recent years. The rise in e-commerce volumes has heightened the significance of logistics operations, presenting the sector with both numerous opportunities and challenges. [1]. The courier industry is experiencing significant growth, and each is trying to provide efficient logistics services [2] In conditions of very tight competition, the quality of logistics services plays an essential role in determining customer satisfaction. The quality of logistics services is crucial in shaping how satisfied customers feel with the overall experience. Customer satisfaction is critical to achieving success in the courier service industry [3]. Satisfied customers tend to remain loyal and consistently choose the services of a specific courier company. They may also recommend them to others, contributing to the company's continued success in the industry [4].

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Several studies have shown that logistics service quality influences customer satisfaction. For example, research by [5] highlights this relationship. In contrast, [6] discovered that service quality, perceived value, and customer trust positively impact customer satisfaction. Additionally, [7] found that logistics service quality, assessed through five dimensions—personnel contact quality, order quality, timeliness, information quality, and order discrepancy handling—positively affects customer satisfaction. Moreover, the study revealed a positive correlation between satisfaction and customer loyalty.

Measuring service quality is considered important [8]. The SERVQUAL method was introduced based on comparing customer perceptions and the expected service reality by stating five dimensions of service quality: tangible, empathy, reliability, responsiveness, and assurance. [9] created a logistics service quality (LSQ) measurement framework comprising nine dimensions: personnel contact quality, order release quantity, information quality, ordering procedures, order accuracy, order conditions, order quality, order discrepancy handling, and timeliness. [4] on the other hand, six dimensions—personal contact quality, order conditions, timeliness, operations, order discrepancy handling, and operational information sharing—to assess LSQ in relation to customer satisfaction. [10] highlighted that information quality in E-CRM is crucial for enhancing service quality within the hotel industry. [1] evaluated logistics service quality (LSQ) through four constructs: timeliness, order condition, order accuracy, and order discrepancy handling. While several studies have explored LSQ, no consensus exists on its primary dimensions or attributes. Identifying the key dimensions of logistics service quality that affect customer satisfaction is critical for courier companies aiming to improve this aspect to meet rising customer demands and expectations. Moreover, research on logistics service quality remains limited, and there is no agreement on measuring it, particularly regarding courier services. This gap motivates the current paper to investigate the relationship between service quality and customer satisfaction and identify the logistics service quality factors that most significantly influence customer satisfaction.

2 Methods

The study employs a quantitative research method. Focusing on courier service users in West Java and Jakarta, Banten and Central Java, Special Region of Yogyakarta, and East Java as the target population. The population size is unknown. The sample was selected at simple random (Purposive random sampling), and the sample size was 134 people. This number is considered representative, as in the opinion of [11], who states that the number of samples is representative by multiplying the number of intermediate indicators by 5 to 10. Size The minimum sample required for this research is 75. This research uses a Likert scale questionnaire. Data was collected by distributing questionnaires via private (direct) messages with the help of Google Forms.

Two variables are used as instruments: Logistic service quality (LSQ) and customer satisfaction. LSQ is assessed through five dimensions: personnel contact quality [4], [9] timelines [4, 9], physical distribution service quality [5], operational information

quality, and order discrepancy handling, while the customer satisfaction variable is measured through 3 indicators, namely satisfaction with service, service according to expectations, desire to repeat purchase or reuse services [12]. Figure 1 shows the research model.

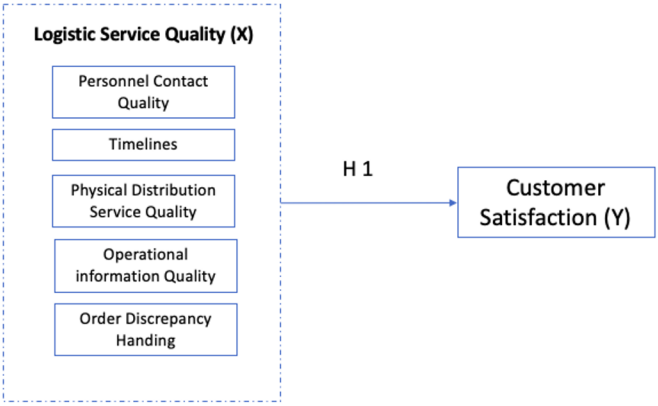

Fig. 1. Research model.

3 Results and Discussion

The information on the respondents in this study is presented in Table 1.

Table 1. Respondent Data

No	Information	Indicator	Amount	%	No	Information	Indicator	Amount	%
1	Gender	Man	57	42,5	3	Education	High school, D3	27	20,1
		Woman	77	57,5			D4, S1	73	54,5
			134	**100,0**			S2, S3	34	25,4
								134	**100,0**
2	Age	< 30	57	42,5	4	Domicile	DKI, Banten	34	25,4
		> 30 - 40	16	11,9			Jabar	62	46,3
		> 40 - 50	19	14,2			Jateng, DIY	16	11,9
		> 50 - 56	42	31,3			Jatim	22	16,4
			134	**100,0**				**134**	**100,0**

3.1 Evaluation of Measurement Models

The assessment of the measurement model involves testing the validity and reliability of the constructs represented by the variables. In this study, the constructed measurement model is reflective, necessitating an evaluation of the Logistic Service Quality and Customer Satisfaction variables. This evaluation includes internal consistency, convergent validity, and discriminant validity tests.

Consistency testing is performed to determine if the indicators are reliable and properly aligned with each latent variable or construct. Table 2 presents both variables' composite reliability (CR) values, calculated using SmartPLS software version 3.2.9. The results show that the CR value exceeds 0.9, indicating that the indicators accurately measure the variables or distinct phenomena without any redundancy

Table 2. Internal consistency test results.

	Composite Reliability
Customer Satisfaction	0.963
Logistic Service Quality	0.962

Convergent validity testing is used to show how much positive correlation an indicator has with other indicators in the same variable. Convergent validity testing in this research uses a reliability indicator value (outer loading value) with a lower threshold of 0.7. It uses an average variance extracted (AVE) value with a lower threshold of 0.5. Based on the results of convergent validity testing using SmartPLS version 3.2.9 software, as shown in Table 3, all indicators meet the outer loading limit and AVE, indicating that all indicators have sufficient variance to explain the measured variables.

Table 3. Convergent validity test results.

Variable	Code	OL ≥ 0.708	AVE ≥ 0,5	Information
Logistic Service Quality	Personnel Contact Quality.01	0.831	0.897	Valid
	Personnel Contact Quality.02	0.758		Valid
	Personnel Contact Quality.03	0.837		Valid
	Timelines.04	0.768		Valid
	Timelines.05	0.835		Valid
	Physical Distribution Service Quality.06	0.821		Valid
	Physical Distribution Service Quality.07	0.817		Valid
	Physical Distribution Service Quality.08	0.862		Valid
	Operational Information Quality.09	0.747		Valid

Variable	Code	OL ≥ 0.708	AVE ≥ 0,5	Information
	Operational Information Quality.10	0.777		Valid
	Operational Information Quality.11	0.793		Valid
	Order Discrepancy Handing.12	0.791		Valid
	Order Discrepancy Handing.13	0.808		Valid
	Order Discrepancy Handing.14	0.807		Valid
Customer Satisfaction	Customer Satisfaction.15	0.966	0.647	Valid
	Customer Satisfaction.16	0.937		Valid
	Customer Satisfaction.17	0.938		Valid

Discriminant validity is carried out to test how much the latent variable or construct is genuinely different from other constructs based on empirical data. In this research, discriminant validity was carried out by reviewing the Fornell - Larcker criterion value. Table 4 shows the Fornell-Larcker Criterion value, which compares the square root of AVE with the correlation between variables. The data in Table 4 indicates that the square root of the AVE for each variable, shown in the diagonal elements, is greater than the correlations between variables in the non-diagonal elements of the same column. This suggests that each variable accounts for more variance with its measuring indicators than with the indicators of other variables. Therefore, it can be concluded that each variable meets the Fornell-Larcker criteria and is different from each other.

Table 4. Discriminant validity results.

	Cust satisfaction	Logistic Service Quality
Customer Satisfaction	0.947	
Logistic Service Quality	0.867	0.804

3.2 Structural Model Evaluation

The structural model is evaluated after ensuring that all reflective measurement models are valid. According to [13], structural model evaluation can be carried out through (1) assessing the significance and relevance of the relationships within the model, (2) testing the coefficient of determination (R^2), and (3) examining the effect size (f^2). In this research, significance testing was carried out through a bootstrapping process on 5,000 subsamples with a significance level of 0.05 and a confidence interval of 95%. Significance testing is carried out based on the hypothesis that has been developed. According to the data presented in Table 5, the results indicate that the hypothesis was tested with a significant positive outcome.

Table 5. Results of structural model significance testing.

	Hipotesis	Path Koef	P Values	Information
Logistic Service Quality -> Customer Satisfaction	Logistic Service Quality has a positive and significant influence on Customer Satisfaction	**0.867**	**0.000**	**Significant**

Testing the coefficient of determination reveals the extent to which the dependent variable can explain the variance in the independent variable. According to (Henseler et al., 2009), the value of the coefficient of determination (R2) is said to be substantial/strong at (±0.67), moderate/moderate (±0.33), and weak at (±0.19). The data in Table 6 reveals that the customer satisfaction variable's coefficient of determination (R2) is substantial. This indicates that the structural model has a strong predictive ability, reaching 75%.

Table 6. Testing the Coefficient of Determination

	R Square	**R Square Adjusted**	**Information**
Cust. Satisfaction	0.752	0.750	Substantial / Strong

3.3 Discussion

The data processing results indicate that logistics service quality significantly impacts customer satisfaction, with a significance level of 5%. Key indicators include personnel contact quality, timelines, physical distribution, operational information quality, and handling of order discrepancies. Testing the validity and reliability of questionnaire data filled in by 134 respondents used composite reliability (CR) values, outer loading values and Average Variance Extracted (AVE) values. The test results show that each measurement model for the two variables, namely the logistics service quality variable and the customer satisfaction variable, has been tested as reliable or reliable and valid with a CR value >= 0.9, an outer loading value ≥ 0.708 and an AVE value ≥ 0.5 using the smartPLS application.

Hypothesis testing was performed using SEM, resulting in a probability value of 86.7%. This indicates that logistics service quality significantly impacts customer satisfaction and suggests that 13.3% of other factors remain unidentified in this model. The findings of this study are consistent with prior research, including [4], which demonstrated a significant relationship between logistics service quality (LSQ) factors and customer satisfaction in logistics services. Key dimensions influencing customer satisfaction in physical distribution service quality include timeliness and order conditions. Additionally, personnel contact quality and operational information sharing are crucial in shaping customer satisfaction perceptions. Furthermore, research by [5] indicates that five service quality constructs—operational quality, resource quality, information quality, contact personnel quality, and innovation and customization quality—

are directly related to customer satisfaction. Additionally, the model developed in this study proved robust, achieving a strong % prediction level of 75%, as indicated by the discriminant value (R^2).

4 Conclusions

The findings of the study indicate that logistics service quality significantly affects customer satisfaction. The data analysis revealed that all indicators for both the Logistics Service Quality and customer satisfaction variables are valid and reliable, as demonstrated by meeting the required limits for measurement model evaluation tests. Furthermore, the structural model evaluation results indicate a strong and positive effect of logistics service quality on customer satisfaction, accounting for 86.7%. This suggests that 13.3% of other factors influence consumer satisfaction in the logistics sector. The robustness of this research model is underscored by its high predictive capability, with a discriminant value (R^2) indicating a strength of 75%, making it suitable for future research endeavors.

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