

## The Contribution of Operational Efficiency and Customer Interaction to the Positive Image of Delivery Service Users

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### ABSTRACT

**Objective:** This study analyzes the effect of service quality and delivery timeliness on customer satisfaction at a regional main branch office of a state-owned logistics service provider. It aims to identify which factors most significantly affect customer satisfaction levels in the logistics delivery sector. **Methods:** A quantitative explanatory approach was used through survey methodology. Data were collected from 60 customers of the logistics company's main branch using a structured online questionnaire. The results were processed and analyzed using SPSS Version 25 to evaluate the partial and simultaneous impact of service quality and delivery timeliness on customer satisfaction. **Results:** The findings indicate that service quality has a positive and significant effect on customer satisfaction, while delivery timeliness does not show a significant partial influence. However, when tested simultaneously, both variables significantly affect satisfaction, with the model explaining 16.5% of the variance in customer satisfaction, leaving 83.5% influenced by other external factors. **Novelty:** This research offers valuable insights into customer satisfaction dynamics in state-owned postal and logistics services. Emphasizing the dominant role of service quality, it provides strategic recommendations to enhance service standards and strengthen customer trust. The study contributes to improving service competitiveness amid evolving consumer expectations in the logistics sector.

## INTRODUCTION

In the midst of the era of globalization and digitalization, the transformation of the service sector is becoming deeper and more complex. The emergence of e-commerce and digital technology has pushed customer expectations for logistics services to be higher. Consumers not only want their goods to arrive quickly, but also expect the services provided to be responsive, informative, and of high quality. The geographical conditions of Indonesia as an archipelagic country emphasize the vital role of delivery services in distributing goods effectively to various regions. Therefore, logistics companies are required to maintain service consistency while fulfilling the promised delivery time.

Previous research emphasizes that service quality has a strong positive correlation with customer satisfaction in the context of delivery services. According to [1], service quality, trust, and timeliness of delivery simultaneously contribute significantly to customer satisfaction in the logistics industry [2], [3], [4], [5]. Aspects such as response speed, staff friendliness, and clarity of information are considered highly determining of customer perceptions of the company. This is reinforced by the findings of [6], which show that the speed and reliability of service can enhance consumer satisfaction, especially when mediated by the professional performance of employees.

In addition to service, timely delivery is also an important element in building customer trust and loyalty. Research by [7] found that punctuality has a direct role in shaping customer loyalty through satisfaction. In the logistics industry, delivery delays often create negative perceptions, diminish the company's reputation, and potentially lead to customer loss. Therefore, timely delivery is not only an operational indicator but also a strategic factor in maintaining business sustainability.

However, not all studies show uniform results. In the study by Andriani, although timeliness has a significant effect on customer satisfaction, the magnitude of the contribution of timeliness is relatively smaller compared to service quality. A similar finding was noted in a recent study by [8], [9], [10], which recorded that the influence of service quality on repurchase decisions is more dominant than the influence of delivery timeliness. These differing findings indicate a significant research gap that needs to be explored further, especially in the context of state-owned logistics service providers.

A state-owned logistics company, as one of the oldest courier service providers in Indonesia, faces serious challenges in maintaining customer satisfaction amid increasing expectations and competition from private companies and modern e-commerce services. According to internal data from one of its regional main branch offices, a total of 135 customer complaints were recorded from July 2024 to April 2025. The majority (70%) were related to service quality issues such as delayed responses and uninformative communication, while the remaining 30% were related to delivery timeliness exceeding the promised estimates.

This situation reflects the need for a systematic evaluation of two important aspects service quality and delivery timeliness in order to improve customer satisfaction. This evaluation is even more crucial considering that in the Top Brand Index 2024, the company's position dropped to fourth place, indicating a decline in customer perception of its service quality.

In response to these dynamics, it is essential to conduct empirical research that simultaneously and partially examines the influence of service quality and timeliness on customer satisfaction. This research is expected to provide theoretical and practical contributions to the development of strategies for improving the service quality of logistics companies, particularly in their main regional operational offices.

The objective of this research is to analyze the influence of service quality and delivery timeliness on customer satisfaction at a state owned logistics provider's main branch office, both partially and simultaneously, and to identify which variable has the most dominant influence.

A hypothesis is a temporary statement or logical assumption regarding the relationship between research variables, which needs to be empirically proven through data collection and analysis [11]. Based on the formulation of the problem and the conceptual framework, the hypotheses proposed in this research are: H1: There is a partial effect of service quality (X1) and delivery timeliness (X2) on customer satisfaction (Y) at a state-owned logistics company's main branch office. H2: There is a simultaneous effect of service quality (X1) and delivery timeliness (X2) on customer satisfaction (Y) at

a state-owned logistics company's main branch office. H3: Among the two variables, service quality (X1) has the most dominant effect on customer satisfaction.

## RESEARCH METHOD

This study uses a quantitative approach with a survey method. According to [12], [13], the quantitative approach is appropriate for analyzing measurable and structured social phenomena through variable relationships. As an explanatory study, it explores the causal effects of service quality and delivery timeliness on customer satisfaction [14]. Data were collected via a Google Form questionnaire with 20 items using a 5-point Likert scale, based on three variables (X1, X2, Y). The population includes customers of a state-owned logistics service provider at one of its regional main branch offices, with total sampling applied to 60 respondents. Additional insights were obtained through observations and informal interviews. Analysis was conducted using SPSS version 25, involving classical assumption tests, multiple linear regression, and hypothesis testing (t-test and F-test) to assess variable effects both individually and simultaneously [15].

## RESULTS AND DISCUSSION

### Results

#### 1. Classical assumption test:

##### A. Normality Test:

Carried out to determine whether the residual values have a normal distribution using the Kolmogorov-Smirnov method whose significance value exceeds 0.05.

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		60
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	4.10492360
Most Extreme Differences	Absolute	.110
	Positive	.101
	Negative	-.110
Test Statistic		.110
Asymp. Sig. (2-tailed)		.068 <sup>c</sup>
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

**Figure 1.** Normality test result.

Source: Field Data Result, 2025

In the table above, it is known that the significance value is 0.068 where the value is greater than the significance value of 0.05, so the regression model fulfills the normality assumption.

##### B. Multicollinearity Test:

This test is done by comparing the Variance Inflation Factor (VIF) and tolerance value.

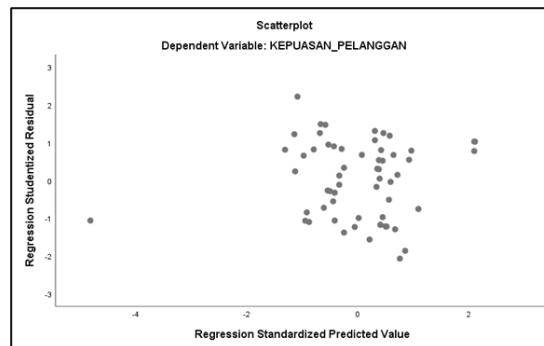
Coefficients <sup>a</sup>			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Kualitas Pelayanan	.933	1.072
	Ketepatan Waktu Pengiriman	.933	1.072
a. Dependent Variable: Kepuasan Pelanggan (Y)			

**Figure 2.** Multicollinearity test result.

Source: Field Data Result, 2025

Based on the multicollinearity test results from the table above, it is known that the VIF value of each independent variable is smaller than 10 and the tolerance value is more than 0.10.

#### C. Heteroscedasticity Test



**Figure 3.** Heteroscedasticity test result.

Source: Field Data Result, 2025

If the plot shows the spread of dots and no pattern is formed then the regression model does not have heteroscedasticity.

#### D. Linearity Test

Interpret the linearity test by examining each independent variable to see if the significance value of deviation from linearity is greater than the determined significance level of  $\alpha = 0.05$ .

No.	Variable	Sig. Deviation From Linearity
1.	Kualitas Pelayanan	.190
2.	Ketepatan Waktu Pengiriman	.089

**Figure 4.** Linearity test result.

Source: Field Data Result, 2025

As a result, it can be concluded that the overall independent and dependent variables can be considered linear, and the linear regression model can be used for further analysis.

### E. Autocorrelation Test

To detect whether there is a correlation among the residuals in sequence using the Durbin-Watson (DW) test.

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.407 <sup>a</sup>	.165	.136	4.17653	1.667
a. Predictors: (Constant), KETEPATAN_WAKTU_PENGIRIMAN, KUALITAS PELAYANAN					
b. Terikatt Variable: KEPUASAN_PELANGGAN					

**Figure 5.** Autocorrelation test result.

Source: Field Data Result, 2025

Based on the classification value of the Durbin-Watson statistic, where  $\alpha = 5\%$ ,  $k = 2$ ,  $n = 60$ , the result is:

$$dU < d < 4 - dU = 1,651 < 1,667 < 4 - 1,651 = 2,349$$

It can be seen that from the following results, the value of  $dU$  is 1.651, the value of  $d$  is 1.667, and the value of  $dL$  is 2.349. With these results, it can be said that there is no autocorrelation.

### 2. Multiple Linear Regression Analysis

Multiple linear regression analysis is used for several influencing variables ( $x$ ) on one dependent variable ( $Y$ ) with a linear model, namely the effect of Service Quality ( $X_1$ ) and Timeliness of Delivery ( $X_2$ ) on Customer Satisfaction ( $Y$ ).

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.134	3.779		2.682	.010
	KUALITAS_PE LAYANAN	.306	.096	.401	3.198	.002
	KETEPATAN_WAKTU_PEN GIRIMAN	.026	.152	.021	.170	.866
a. Terikatt Variable: KEPUASAN PELANGGAN						

a. Terikatt Variable: KEPUASAN\_PELANGGAN

**Figure 6.** Multiple linear regression analysis result.

Source: Field Data Result, 2025

The regression results show that Service Quality ( $X_1$ ) and Timeliness of Delivery ( $X_2$ ) positively influence Customer Satisfaction ( $Y$ ). Service Quality has a stronger effect (coefficient 0.306) than Timeliness (0.026), highlighting the importance of both factors especially service quality in increasing customer satisfaction at a regional main branch office of a state-owned logistics service provider.

### 3. Hypothesis Test

#### A. t Test

To demonstrate the extent to which one independent variable partially explains the variation of the dependent variable.

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.134	3.779		2.682	.010
	KUALITAS_PELAYANAN	.306	.096	.401	3.198	.002
	KETEPATAN_WAKTU_PENGIRIMAN	.026	.152	.021	.170	.866
a. Terikatt Variable: KEPUASAN_PELANGGAN						

**Figure 7. t Test result.**

Source: Field Data Result, 2025

It can be explained that to test t with  $df = n - k - 1 = 60 - 2 - 1 = 57$ , therefore the obtained t table value is 2.002. Indicating the results of the t statistic test, can be interpreted as follows:

1. The Service Quality variable has a significant partial effect on Customer Satisfaction (t calculated  $3.198 > t$  table 2.002; sig.  $0.02 < 0.05$ ), thus H1 is accepted.
2. The Timeliness of Delivery variable does not have a significant partial effect on Customer Satisfaction (t calculated  $0.170 < t$  table 2.002; sig.  $0.866 > 0.05$ ), thus H2 is rejected.
3. H3 is accepted because the Service Quality variable (X1) is the most significant factor affecting Customer Satisfaction (sig.  $0.02 < 0.05$ ; t calculated  $3.198 > 2.002$ ).

#### B. F Test

The F statistical test aims to jointly test whether independent variables have a significant effect on the dependent variable.

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	197.125	2	98.563	5.650	.006 <sup>b</sup>
	Residual	994.275	57	17.443		
	Total	1191.40	59			
a. Terikatt Variable: KEPUASAN_PELANGGAN						
b. Predictors: (Constant), KETEPATAN_WAKTU_PENGIRIMAN, KUALITAS_PELAYANAN						

**Figure 8. F Test result.**

Source: Field Data Result, 2025

The calculated F value of  $5.650 > 3.16$  with a significance of  $0.006 < 0.05$  indicates a significant simultaneous effect. Therefore, hypothesis 2 is accepted.

#### 4. Analysis of the Coefficient of Determination (R Square)

The coefficient of determination ( $R^2$ ) shows how much the dependent variable's variation is explained by the independent variables. A small  $R^2$  indicates a limited influence.

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.407 <sup>a</sup>	.165	.136	4.17653	1.667
a. Predictors: (Constant), KETEPATAN_WAKTU_PENGIRIMAN, KUALITAS PELAYANAN					
b. Terikatt Variable: KEPUASAN_PELANGGAN					

**Figure 9.** Analysis of the coefficient of determination (R square) result.

Source: Field Data Result, 2025

The R Square value of 0.165 indicates that 16.5% of customer satisfaction is influenced by service quality and timeliness of delivery. The remaining 83.5% is influenced by other variables outside this research.

#### 5. Multiple Correlation Coefficient (r)

The correlation coefficient is a coefficient that describes the closeness of the relationship between two or more variables.

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.407 <sup>a</sup>	.165	.136	4.17653	1.667
a. Predictors: (Constant), KETEPATAN_WAKTU_PENGIRIMAN, KUALITAS PELAYANAN					
b. Terikatt Variable: KEPUASAN_PELANGGAN					

**Figure 10.** Multiple correlation coefficient (r) result.

Source: Field Data Result, 2025

The correlation test result (r) of 0.407 indicates a positive and moderate relationship between service quality and delivery timeliness with customer satisfaction. This means that an improvement in both of these variables tends to increase customer satisfaction.

### Discussion

The research results show that Service Quality has a positive influence on Customer Satisfaction, with a regression coefficient of 0.406. This means that the better the service provided, such as staff friendliness, speed of service, and clarity of information, the higher the customer satisfaction.

These findings support the theory that service quality is one of the main determinants in customer perception and loyalty in logistics services. Meanwhile, On Time Delivery also positively influences with a coefficient of 0.039, but its impact is smaller.

This indicates that although punctuality is important, customers of a regional main branch office of a state-owned logistics service provider seem to value the overall service experience more than just the speed of delivery. This difference suggests that cultural factors and local customer expectations can affect the outcomes, leading these findings to deviate slightly from previous studies that emphasized the dominance of punctuality.



Although both variables contribute, the regression results only explain 16.5% of the variation in customer satisfaction. This indicates that there are still other factors that have not been studied, such as price, brand image, facility convenience, and digital services.

Future research is recommended to include these variables and to use mixed methods for a deeper understanding. A comparative study between state-owned and private logistics companies is also important to identify competitive advantages in improving customer satisfaction.

## CONCLUSION

**Fundamental Finding :** This research concludes that Service Quality (X1) and Timeliness of Delivery (X2) both have a positive impact on Customer Satisfaction (Y) at a regional main branch office of a state-owned logistics service provider. Service quality is proven to be more dominant than timeliness, indicating that aspects such as friendliness and speed of service have a greater influence. This emphasizes the importance of direct interaction in enhancing customer satisfaction. This thesis is empirically proven and clearly describes the relationship between the variables. **Implication :** The management of the logistics service provider must prioritize the improvement of service quality as the main strategy to maintain and enhance customer satisfaction. Although timeliness remains important, training human resources and effective communication are key to customer loyalty. This strategy is crucial to make the country's logistics services more competitive and customer-oriented. With this focus, the company can strengthen customer relationships and trust. **Limitation :** The research has limitations because it only examined two variables, which explain 16.5% of the variation in customer satisfaction. This means that there are still 83.5% of other factors that have not been identified and need further investigation. These limitations open up opportunities for the development of more comprehensive research. **Future Research :** It is recommended to add other variables such as service price, brand image, and delivery security to expand understanding. The use of mixed methods is also recommended so that quantitative data is complemented by in-depth interviews. Comparative research between state-owned and private logistics companies can also provide insights into the strengths and weaknesses of each. This approach will enrich public service strategies based on customer satisfaction.

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