

The Effect of Service Quality, Cargo Handling Rates, and Infrastructure Facilities on Customer Satisfaction in Aircraft Cargo Expedition Services Pt Angkasa Pura Logistik Yogyakarta

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Abstract

The demand for logistics services is currently high, evidenced by increased imports to Indonesia from 2022 to 2023. Logistics service providers, such as PT Angkasa Pura Logistik Yogyakarta, must consistently maintain customer satisfaction. Therefore, this study examines how service quality, pricing, and infrastructure influence customer satisfaction at PT Angkasa Pura Logistik Yogyakarta. This research investigates the impact of service quality, cargo handling tariffs, and infrastructure on customer satisfaction with air freight services provided by PT Angkasa Pura Logistik Yogyakarta. This study employs a quantitative approach, utilizing accidental sampling. The sample size consists of 80 respondents. Data analysis is conducted through multiple linear regression analysis (SPSS software version 26). The results indicate that service quality, cargo handling tariffs, and infrastructure positively and significantly impact customer satisfaction, both partially and simultaneously. The most significant variable influencing customer satisfaction is service quality.

Keywords: Customer Satisfaction, Infrastructure, Service Quality, Tariffs.

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INTRODUCTION

Considering that the international and domestic transport activity tends to be high, logistics service provider companies are required to maintain and improve the quality of their services (Abbasi & Nilsson, 2016). This is by the opinion of Freigenbaum (2015), who states that quality is overall customer satisfaction (Hallencreutz et al., 2024). A product or service can be of high quality if it can give consumers satisfaction, according to what consumers want for the services or products offered to them (Zhafirah et al., 2021). From this statement, it can be said that it is important for logistics service companies to pay attention to the quality of services offered (Huma et al., 2020), especially in line with the growth of goods movement both at the international and domestic levels, which continues to increase. The quality of this service has a strong correlation with the level of consumer satisfaction (Zhafirah et al., 2021). In this context, it can be understood that when logistics companies ignore the quality aspect of service, consumer satisfaction will be negatively affected (Uzir et al., 2021).

In addition to service quality, cargo handling rates are also a factor that can determine customer satisfaction (Riitho, 2018). If the cargo handling rates offered are cheap while still paying attention to the quality of service, then customer satisfaction will be felt after using the services used (Liao et al., 2024). On the other hand, if the cargo handling rates offered are too

expensive and do not pay attention to the quality of service, then this will hurt customer satisfaction.

The facilities and infrastructure owned by a company play an important role in shaping customer perception of the services provided (Surjaatmadja & Saputra, 2020). Customers tend to feel satisfied when they can enjoy supporting infrastructure (Rane et al., 2023). An adequate infrastructure, such as comfortable waiting rooms, sophisticated information technology systems, and reliable transport vehicles, can increase customer satisfaction (Brida et al., 2016).

Based on the description above, it can be concluded that the quality of service, tariffs, and infrastructure facilities influence customer satisfaction (Sipayung et al., 2023). Therefore, this study provides an in-depth understanding of how these variables interact and affect customer satisfaction (Jiang et al., 2019).

RESEARCH METHODS

This study uses a quantitative approach to examine the influence of service quality variables, cargo handling rates, and infrastructure facilities on customer satisfaction variables. This research data is in the form of primary data taken through the distribution of questionnaires to customers. The data was converted into numbers and analyzed using the multiple linear regression method with the help of SPSS Version 26 software. This analysis aims to find out how partially and simultaneously independent variables affect dependent variables.

The population in this study is consumers who have used aircraft cargo expedition services at PT Angkasa Pura Logistik Yogyakarta with an unknown population. The sample in this study is 80 respondents. The data analysis in this study uses the following statistical tests.

1. Validity and Reliability Test
2. Classical Assumption Test (Normality Test, Heteroscedasticity Test, Multicollinearity Test)
3. Multiple Linear Regression Test
4. F Test and T Test
5. Determination Test

RESULTS AND DISCUSSION

Validity and Reliability Test

Table 1. Validity Test Results

Variable	Indicators	R-Calculate	R-Table	Sig.	Result
Quality of Service	X1.1	0.63	0.21	0.00	Valid
	X1.2	0.69	0.21	0.00	Valid
	X1.3	0.71	0.21	0.00	Valid
	X1.4	0.70	0.21	0.00	Valid
	X1.5	0.63	0.21	0.00	Valid
Cargo Handling Rates	X2.1	0.78	0.21	0.00	Valid
	X2.2	0.75	0.21	0.00	Valid
	X2.3	0.75	0.21	0.00	Valid
Infrastructure	X3.1	0.78	0.21	0.00	Valid
	X3.2	0.80	0.21	0.00	Valid
	X3.3	0.74	0.21	0.00	Valid
	X3.4	0.69	0.21	0.00	Valid
Customer	Y1.1	0.72	0.21	0.00	Valid

Satisfaction	Y1.2	0.84	0.21	0.00	Valid
	Y1.3	0.77	0.21	0.00	Valid

Source: Secondary Data, 2024

Table 1 shows that each item of the statement item in the questionnaire is declared valid. This is evidenced in the calculation of each item of the questionnaire statement on service quality, handling rates, infrastructure, and customer satisfaction, resulting in a Sig value of $0.00 > 0.05$. With this, it can be concluded that the statement items on the questionnaire are valid to reveal something that the questionnaire will measure.

Table 2. Reliability Test Results

Variabel	<i>Cronbach Alpha</i>	Ket.
Kualitas Pelayanan	0.69	Andal
Tarif Penanganan Kargo	0.64	Andal
Sarana Prasarana	0.75	Andal
Kepuasan Pelanggan	0.67	Andal

Sumber: Data Sekunder, 2024

Table 2 shows that the results of the questionnaire reliability test on each variable have a Cronbach alpha value exceeding 0.6. A variable is considered reliable if it reaches an $\alpha >$ value of 0.60 (Ghozali, 2018). Therefore, it can be concluded that the questionnaire used in this study can measure each variable reliably.

Class Assumption Test (Normality, Heteroscedasticity, and Multicollinearity Test)

Data Normality Test

Table 3. Kolmogorov-Smirnov Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		80
Normal Parameters ^b	Mean	-.0149826
	Std. Deviation	1.11340566
Most Extreme Differences	Absolute	.055
	Positive	.055
	Negative	-.052
Test Statistic		.055
Asymp. Sig. (2-tailed)		.200 ^{c,d}
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

Table 3 shows the results of the Kolmogorov-Smirnov test. Based on the test results, an asymp value was obtained. Sig. by 0.200. This value exceeded the significance level of $\alpha = 0.05$. This implies that the error or remainder has a normal distribution. Therefore, it can be concluded that the normality assumption has been met.

Heteroscedasticity Test

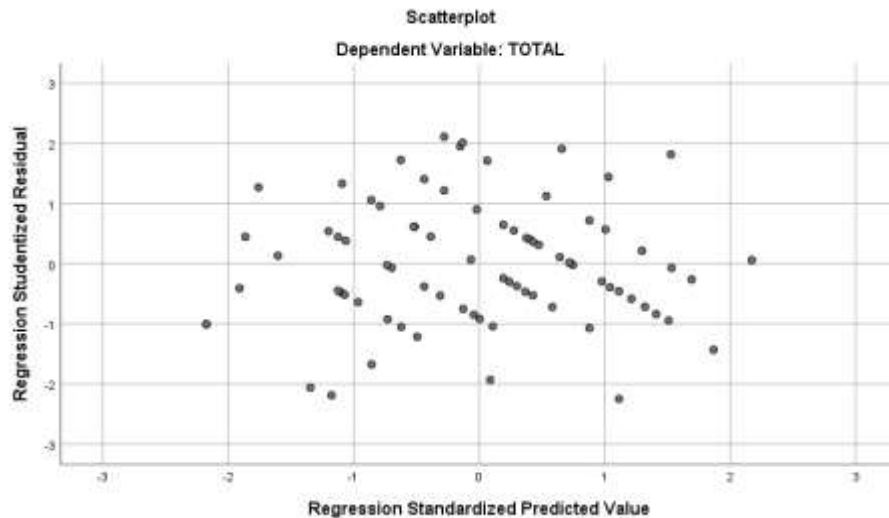


Figure 1. Scatterplot Charts

Source: Primary Data processed, 2024 (SPSS Output 26)

Multicollinearity Test

Table 4. Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	X1	.710	1.408
	X2	.632	1.581
	X3	.624	1.602

Sumber: Data Primer diolah, 2024 (Output SPSS 26)

Table 4 shows that the VIF value of each independent variable is not more than 10, and the Tolerance value exceeds 0.05. Thus, it can be concluded that there is no symptom of multicollinearity among the independent variables.

Multiple Linear Regression Test

Table 5. Multiple Linear Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.464	1.022		.454	.651
	X1	.215	.060	.311	3.582	.001
	X2	.317	.090	.323	3.510	.001
	X3	.247	.074	.309	3.337	.001

Sumber: Data Primer diolah, 2024 (Output SPSS 26)

Table 5 proves that all independent variables affect dependent variables. This is evidenced by the significance value of each independent variable is below 0.05. With this, it can be concluded that the variables of service quality, cargo handling rates, and infrastructure facilities significantly influence consumer satisfaction.

The equation of multiple linear regression results based on the calculation output using SPSS 26 can be seen as follows.

$$Y = 0,464 + 0,215\chi_1 + 0,317\chi_2 + 0,247\chi_3$$

Test F

Table 6. Test F

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	143.169	3	47.723	37.078	.000 ^b
	Residual	97.819	76	1.287		
	Total	240.988	79			
a. Dependent Variable: Y						
b. Predictors: (Constant), X1,X2,X3						

Sumber: Data Primer diolah, 2024 (Output SPSS 26)

Table 6 shows that the value of sig. by 0.00. Based on the results of the data processing, it is known that the value of sig. <0.05. It can be concluded that service quality, cargo handling rates, and infrastructure facilities significantly influence customer satisfaction.

Test T

Table 7. Test T

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.464	1.022		.454	.651
	X1	.215	.060	.311	3.582	.001
	X2	.317	.090	.323	3.510	.001
	X3	.247	.074	.309	3.337	.001

Sumber: Data Primer diolah, 2024 (Output SPSS 26)

Table 7ws that the value of sig for each independent variable is known to be 0.001. This means that the variables of service quality, cargo handling rates, and infrastructure facilities partially have a positive and significant effect on customer satisfaction.

Determination Test

Table 8. Determination Test

Model Summary ^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	Sig. F Change
1	.771 ^a	.594	.578	1.135	1.958	0.000
a. Predictors: (Constant), X1,X2,X3						
b. Dependent Variable: Y						

Sumber: Data Primer diolah, 2024 (Output SPSS 26)

Table 8 shows the results of the determination test in this study. From this test, it is known that the Adjusted R Square value is 0.578. Based on these values, it can be interpreted that the ability of service quality, cargo handling tariffs and infrastructure facilities can explain the customer satisfaction variable of 57.8%. In contrast, the rest is explained by other factors outside the service quality variables, cargo handling rates, and infrastructure.

Discussion

The results of the T-Test show that the quality of service partially has a positive and significant effect on customer satisfaction. This is in line with the findings of previous research, such as Fitriyani's (2019) research entitled "The Influence of Price and Service Quality on Customer Satisfaction of J&T Express Delivery Services in Palu City (Study on J&T Express North Palu Branch Customers)", with the results of his research showing that service quality has a positive influence on customer satisfaction. In addition, this study is also the same as the research conducted by Wulandari (2022) entitled "The Influence of Service Quality and Delivery Timeliness on Customer Satisfaction at JNE Express Karawang", with results showing that service quality is positive and significant on customer satisfaction. In addition, this hypothesis is also in line with the opinion of R.A. Supriyono in Indrasari (2019), who states that optimal service quality contributes to consumer satisfaction, forming a positive perception of a product or service. Based on these findings, it can be concluded that customer satisfaction increases if the quality of service is improved. Therefore, PT Angkasa Pura Logistik Yogyakarta must always maintain and improve the quality of its services to maintain and increase customer satisfaction who want to pick up or send goods.

The results of the T-Test show that cargo handling rates partially have a positive and significant effect on customer satisfaction. This finding is in line with previous research, such as R. Fitriyani's (2019) research entitled "The Influence of Price and Service Quality on Customer Satisfaction of J&T Express Delivery Services in Palu City (Study on J&T Express North Palu Branch Customers)", with the results of his research stating that price affects customer satisfaction. In addition, this hypothesis is also in line with Indrasari's (2019) opinion that, as a general rule, customers will feel satisfied if the tariff for the service used is relatively cheap without sacrificing the quality of the service. Based on these findings, it can be concluded that customer satisfaction at PT Angkasa Pura Logistik Yogyakarta will increase if cargo handling rates are more competitive.

The results of the T-Test show that infrastructure facilities partially have a positive and significant effect on customer satisfaction. This finding is in line with previous research, such as the research by Jaya Sakti & Mahfudz (2018) entitled "Analysis of the Influence of Service Quality, Accuracy, Delivery Time, and Facilities on Customer Satisfaction (Study on J&T Express Semarang City)", with the results of his research stating that facilities have a positive effect on customer satisfaction. Based on these findings, it can be concluded that customer satisfaction at PT Angkasa Pura Logistik Yogyakarta increases if the infrastructure is more complete, functioning properly, and easily accessible.

The results of Test F stated that simultaneously, service quality, cargo handling rates, and infrastructure have a significant influence on customer satisfaction. The results of this study are in line with the research conducted by Puspasari & Santosa (2013) entitled "Analysis of the Influence of Service Quality, Facilities, and Prices on Customer Satisfaction (Study on IQro' Semarang Travel Service Users)", with the results stating that the three independent variables, namely service quality, facilities, and prices together have a positive and significant effect on customer satisfaction variables. This finding confirms the importance of PT Angkasa Pura Logistik Yogyakarta always paying attention to service quality, cargo handling rates, and infrastructure facilities to increase customer satisfaction.

Multiple linear regression analysis shows that the coefficient values in each variable of service quality, cargo handling rates, and infrastructure facilities are 0.215, 0.317, and 0.247,

respectively. From this value, it can be said that the smallest coefficient value is found in the service quality variable. This is the basis for service quality being the most influential variable in customer satisfaction. This finding aligns with the results of Fitriyani's (2019) research, which states that service quality has the greatest impact among other independent variables.

CONCLUSION

Overall, this study produced several findings that explain how the independent variables (Service Quality, Cargo Handling Rates, and Infrastructure) affect the dependent variable (Customer Satisfaction) using multiple linear regression analysis. The following are the conclusions of this study. The quality of service, cargo handling rates, and infrastructure facilities partially positively and significantly affect customer satisfaction in PT Angkasa Pura Logistik Yogyakarta's aircraft cargo expedition services. This study's results are proven through a hypothesis test using the T-test, which shows that each independent variable has a significance value of less than 0.05. Service quality, cargo handling rates, and infrastructure facilities simultaneously positively and significantly affect customer satisfaction at PT Angkasa Pura Logistik Yogyakarta's aircraft cargo expedition services. The results of this study are proven through a hypothesis test using the F Test, which shows that the value of sig. by 0.00. The results of the Multiple Linear Regression Test in this study stated that the quality of service, cargo handling rates, and Service quality have the greatest influence on customer satisfaction.

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