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An Analysis of User Satisfaction with TransJakarta Bus Stop Infrastructure Quality in East Jakarta

Mohamad Kamyah[1*], Alizar[2]
Department of Civil Engineering, Faculty of Engineering, Dian Nusantara University, Indonesia

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Corresponding author*:
alizar@undira.ac.id

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Abstract: This study aims to analyze the extent to which the quality of bus stop infrastructure influences the satisfaction level of Transjakarta users. The research focuses on three key aspects: comfort, accessibility, and safety of the bus stops, which are considered essential elements in shaping public transportation user experience. Data collection was conducted at several bus stops representing various infrastructure conditions across the Jakarta area. A total of 160 respondents, all regular users of Transjakarta, participated in the study. The data analysis seeks to identify the degree of influence each variable has on overall user satisfaction

Keywords: Infrastructure quality, comfort, accessibility, safety, user satisfaction, Transjakarta

INTRODUCTION

Public transportation plays a crucial role in urban mobility. However, the quality of TransJakarta bus stop infrastructure varies across different locations. Some bus stops are equipped with modern and adequate facilities, such as comfortable seating, accessibility for persons with disabilities, and proper security systems. Nevertheless, many others remain substandard, lacking sufficient facilities and offering limited accessibility. This disparity raises concerns regarding user satisfaction. The findings of this study will also provide insights into which aspects of the infrastructure need improvement in order to enhance user satisfaction.

RESEARCH METHOD

Validity Test

The validity test assesses whether each questionnaire item accurately measures user perceptions of bus stop infrastructure quality and satisfaction. The Pearson Product Moment correlation is used, with an item deemed valid if the r-value > r-table at a 5% significance level.

$$r\,xy = \frac{n\Sigma(x.y) - (\Sigma x\,.\Sigma y)}{\sqrt{(n\Sigma x^2 - (\Sigma x)^2(n\Sigma y^2 - (\Sigma y)^2}} \quad (1)$$

Reliability Test

Reliability evaluates internal consistency using Cronbach's Alpha, where a value > 0.60 indicates acceptable reliability. This test is applied to both infrastructure quality and user satisfaction variables.

$$a = \frac{k}{k-1}\left(1 - \frac{\Sigma\sigma^2 item}{\sigma^2 total}\right)$$

Normality Test

Normality is tested using the Kolmogorov-Smirnov test. If Sig. > 0.05, the data is considered normally distributed.

Multicollinearity Test

This test checks for high correlations between independent variables. Multicollinearity is absent if:

- Tolerance > 0.10
- VIF < 10

Heteroscedasticity Test

The Glejser test is used. If Sig. > 0.05, heteroscedasticity is not present in the regression model.

Multiple Linear Regression

Used to analyze the influence of bus stop infrastructure quality (X) on TransJakarta user satisfaction (Y). The regression equation is:

$Y = \alpha + \beta X + e$

Where:

- Y: User Satisfaction
- X: Infrastructure Quality
- α: Constant
- β: Regression Coefficient
- e: Error term

t-Test (Partial Test)

Evaluates the individual effect of each independent variable:

$t = \beta_i / SE(\beta_i)$

Significant if Sig. < 0.05

F-Test (Simultaneous Test)

Assesses the joint effect of all independent variables:

$F = (R^2 / k) / [(1 – R^2) / (n – k – 1)]$

Where:

- R^2: Coefficient of Determination
- k: Number of independent variables
- n: Number of respondents

Significant if Sig. < 0.05

Coefficient of Determination (R^2)
Explains the proportion of variance in the dependent variable explained by the independent variable:
$R^2 = SSR / SST = 1 – (SSE / SST)$
Where:
- SSR: Sum of Squares Regression
- SSE: Sum of Squares Error
- SST: Total Sum of Squares

Based on the problem formulation, objectives, and literature review, the following hypotheses are developed:
- Alternative Hypothesis (H_a): There is a significant influence of TransJakarta bus stop infrastructure quality on user satisfaction in East Jakarta.
- Null Hypothesis (H_0): There is no significant influence of TransJakarta bus stop infrastructure quality on user satisfaction in East Jakarta.

The independent variable includes aspects such as comfort, safety, accessibility, cleanliness, and facility completeness, while the dependent variable is user satisfaction. Hypothesis testing is conducted using multiple linear regression, with t-test and F-test to determine the significance of the relationship, providing a foundation for recommendations to improve infrastructure quality and enhance user satisfaction.

RESULT AND DISCUSSION

In the initial data collection stage, questionnaires were distributed to TransJakarta users active in the East Jakarta area, particularly those using bus stops as boarding and alighting points. Respondents came from diverse backgrounds in terms of age, gender, and frequency of Trans Jakarta usage.

Tabel 1. Table Responden

Age Category	Percentage	Number of Respondents
18–25 Years	25%	40
26–35 Years	31.25%	50
36–45 Years	18.75%	30
46–55 Years	15.60%	25
>55 Years	9.40%	15
Total	100%	160

The majority of respondents reported using the service every day, totaling 55 individuals, which represents 34.40% of the 160 respondents. This is followed by 45 respondents (28.10%) who use the service 5–6 times, 35 respondents (21.90%) who use it 3–4 times, and 25 respondents (15.60%) who use it 1–2 times.

Tabel 2. Frequency

Frequency	Percentage	Number of Respondents
1–2 Times	15.60%	25
3–4 Times	21.90%	35
5–6 Times	28.10%	45
Every Day	34.40%	55
Total	100%	160

The purpose of this validity test is to determine whether each question in the questionnaire is valid and can be reliably used as primary data from respondents. In this test, the critical r table value is 0.361 for N = 20. The results of the validity test are presented in the following table.

Table 3. Results of Validity Test
(Source: SPSS Output by the Author, 2025)

Statement Item	Indicator	r count	r table	sig.	Remarks
P1	Accessibility (X1)	0.655	0.361	0	Valid
P2	Accessibility (X1)	0.694	0.361	0	Valid
P3	Accessibility (X1)	0.594	0.361	0.01	Valid
P4	Accessibility (X1)	0.758	0.361	0	Valid
P5	Bus Stop Facilities (X2)	0.743	0.361	0	Valid
P6	Bus Stop Facilities (X2)	0.719	0.361	0	Valid
P7	Bus Stop Facilities (X2)	0.713	0.361	0	Valid
P8	Bus Stop Facilities (X2)	0.703	0.361	0	Valid
P9	Bus Stop Security (X3)	0.688	0.361	0	Valid
P10	Bus Stop Security (X3)	0.774	0.361	0	Valid
P11	Bus Stop Security (X3)	0.703	0.361	0	Valid
P12	Bus Stop Security (X3)	0.729	0.361	0	Valid
P13	Bus Stop Comfort (X4)	0.802	0.361	0	Valid
P14	Bus Stop Comfort (X4)	0.825	0.361	0	Valid
P15	Bus Stop Comfort (X4)	0.800	0.361	0	Valid
P16	Bus Stop Comfort (X4)	0.686	0.361	0	Valid
P17	Satisfaction (Y)	0.797	0.361	0	Valid
P18	Satisfaction (Y)	0.795	0.361	0	Valid
P19	Satisfaction (Y)	0.742	0.361	0	Valid
P20	Satisfaction (Y)	0.772	0.361	0	Valid

Reliability Test

The calculation is considered satisfactory if the Cronbach's Alpha value exceeds 0.60, indicating a high level of reliability. The result of the reliability test using SPSS is shown below:

Table 4. Reliability Test Result
(Source: SPSS Output by the Author, 2025)

Cronbach's Alpha	N of Items	Remarks
0.954	20	Reliable

Normality Test

This test aims to ensure that the residuals in the regression model are normally distributed. The Kolmogorov-Smirnov or Shapiro-Wilk method is used for the test, where a significance value (Asymp. Sig.) greater than 0.05 indicates that the data follows a normal distribution.

Table 6. Normality Test Result
(Source: SPSS Output by the Author, 2025)

Item	Value
Number of Samples (N)	160
Mean	0
Standard Deviation	0.33136779
Most Extreme Differences	
– Absolute	0.067
– Positive	0.067
– Negative	-0.044
Asymp. Sig. (2-tailed)	0.076

Classical Assumption Tests

Multicollinearity Test

The purpose of this test is to ensure there is no high correlation among the independent variables. Based on SPSS results, all tolerance values are > 0.10 and VIF values are < 10.
Conclusion: No multicollinearity exists in the regression model.

Heteroscedasticity Test

Using the Glejser method, this test checks whether residuals have constant variance. Significance values (Sig.) for all variables are above 0.05, indicating no heteroscedasticity.
Conclusion: The model does not suffer from heteroscedasticity.

Multiple Linear Regression Analysis

t-Test (Partial Test)

The t-test is used to determine the individual influence of each independent variable on the dependent variable.

Table 7 Partial Test

Variable	Sig. Value	Interpretation
Accessibility (X1)	0.101	Not significant
Facilities (X2)	0.078	(approaching significance)
Security (X3)	0.000	Significant
Comfort (X4)	0.000	Significant

Conclusion: Only Security and Comfort have a significant partial effect on user satisfaction.

F-Test (Simultaneous Test)
This test examines whether all independent variables together affect the dependent variable.

F Value Sig.
88.532 0.000

Conclusion: All independent variables jointly have a significant influence on satisfaction.

Coefficient of Determination (R^2)
This test measures how much of the variation in the dependent variable is explained by the independent variables.

R^2 Value Interpretation
0.696 69.6% of the variation in user satisfaction is explained by accessibility, facilities, security, and comfort. The model is strong.

Overall Conclusion:
The regression model is valid and reliable. It satisfies the classical assumptions (no multicollinearity, no heteroscedasticity, normal distribution of residuals). Two independent variables—Security and Comfort—have a significant effect on User Satisfaction, both individually and collectively.

CONCLUSION

Descriptive analysis indicates that users perceive the quality of Transjakarta bus stop infrastructure—covering accessibility, comfort, security, and facilities—as fairly good to good.

Regression analysis shows that these four aspects jointly have a significant influence on user satisfaction, with an R^2 of 0.696, meaning 69.6% of user satisfaction can be explained by infrastructure quality

The F-test result (Sig. = 0.000) confirms that the model is significant overall. From the t-test: Security and Facilities significantly affect satisfaction, Accessibility and Comfort are not statistically significant, though Comfort is nearly significant (Sig. = 0.078) and still worth considering.

REFERENCES

[1]. Ayawaila, M. C. P., & Tambunan, E. (2020). Service quality analysis of MRT and Transjakarta Bus Route Blok M – Dukuh Atas 1. Journal of Civil Engineering and Transportation, 1(2), 84–92.
[2]. Dharmanto, A., Setyawati, N. W., & PG, D. S. W. (2022). Customer satisfaction analysis on public service facilities for Transjakarta users. Journal of Public Administration, 2(1), 3579–3590.
[3]. Fajri, L., Sugiarto, S., & Anggraini, R. (2019). Application of the IPA (Importance Performance Analysis) method to analyze passenger importance and satisfaction toward Trans Koetaradja bus service quality (Case study: Corridor I Keudah – Darussalam). Archives of Civil Engineering and Planning Journal, 2(2), 164–173. https://doi.org/10.24815/jarsp.v2i2.13453

[4]. Firdaus, R., Wahyuni, A., & Tistogondo, J. (2021). Consumer satisfaction analysis on Bus Rapid Transit service quality in Indonesia. Journal of Transport and Urban Development, 3(1), 55–64.
[5]. Hadi, R. A., & Fadli, D. (2020). Analysis of the quality of urban transportation services: A study on Transjakarta and commuter lines. Transport Research and Management Journal, 4(2), 102–113.
[6]. Sari, D. P., & Subekti, A. (2020). A comparative study of commuter line and Transjakarta bus services: Customer satisfaction perspectives. Urban Mobility Journal, 6(1), 45–56.
[7]. Kristanto, H. W., & Sumarni, L. (2020). Evaluation of the commuter line service quality in Jakarta: Passengers' satisfaction index. Journal of Transport and Urban Planning, 5(3), 134–145.
[8]. Pratama, G. H., & Kurniawan, D. (2021). Measuring passenger satisfaction on Jakarta's MRT service: A case study. Journal of Civil Engineering, 7(2), 78–85.
[9]. Alfianto, A., & Suryana, A. (2020). Assessing customer satisfaction and service quality on Surabaya's Bus Rapid Transit system. Indonesian Transport Journal, 2(1), 24–37.
[10]. Yuliawati, R., & Dewi, P. (2018). Customer satisfaction assessment on the Bandung bus rapid transit (BRT) system. Journal of Transport Studies, 4(2), 55–65.
[11]. Fadil, S., & Suryadi, S. (2020). Service quality and passenger satisfaction on the Transjogja bus services: A case study. Transport Planning and Development Journal, 3(2), 115–125.
[12]. Wijayanti, S., & Adinugraha, F. (2021). A study on commuter satisfaction with Jakarta's urban transport system: The role of service quality. Transport Economics and Policy Journal, 2(4), 90–98.
[13]. Irawan, R., & Mustofa, A. (2022). Assessing the efficiency and service quality of Transjakarta buses: A satisfaction-based approach. International Journal of Transportation and Logistics, 6(3), 150–160.
[14]. Anwar, M., & Putra, A. (2019). Analysis of customer satisfaction in the city bus service system: A case study of Trans Metro Bandung. Journal of Urban Transport Management, 5(1), 80–91.
[15]. Simarmata, S., & Hadi, W. (2020). Service quality and passenger loyalty on Jakarta's commuter line: An empirical study. Transportation Research Journal, 6(2), 45–59.