

Analysis of passenger service satisfaction of public transport in Tangerang City

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Received June 16, 2022 | Accepted September 17, 2022 | Published September 23, 2022

ABSTRACT

With the presence of public transport "Si Benteng," we hope that it could fulfill the needs of public transport in Tangerang City, and also decrease the traffic in the city. The purpose of this research is to know the quality of public transport "Si Benteng" in Tangerang City and an effort to increase the quality and passenger satisfaction of public transport "Si Benteng". The respondent of this research is the people of Tangerang City with an average age of 17 to 60 years old with a total of 215 respondents by conducting a direct survey, by distributing questionnaires to public transport users of "Si Benteng". The method of this research is Structural Equation Modeling (SEM). From the results obtained, the most dominant public transport user of "Si Benteng" is women with an average age of 17-35 years old and 35-55 years old of the users has at least finished high school, and their occupation of them mostly consist of a general employee with an income and outcome of > Rp 3.000.000,- a month. At the same time, the direct influence of service quality on passenger satisfaction is 0.867, and passenger satisfaction on passenger loyalty is 1.283. It can be concluded that passenger satisfaction has the greatest influence on passenger loyalty. The quality of service that needs to be improved is that passengers do not have to wait long for the arrival of "Si Benteng" public transportation, Availability of shelter facilities, and the distance to the shelter is too far. The conclusion of this research is the result of the hypothesis that service quality has a positive and significant to passenger satisfaction and passenger satisfaction has a positive and significant to passenger loyalty.

Keywords: passenger characteristic; service quality; passenger satisfaction; passenger loyalty; SEM.

INTRODUCTION

Traffic congestion is one of the important problems that must be faced by most metropolitan cities including Tangerang City which has a large population, so the demand for transportation in Tangerang City is quite high (Mohan Rao & Ramachandra Rao, 2012). Because public interest in public transportation is still very minimal and they tend to use private transportation or online transportation (Nopianti & Maryono, 2016), the Tangerang City Government together with the Tangerang City Transportation Service inaugurated new public transportation named "Si Benteng", with the existence of "Si Benteng" hopes to provide good service for the citizens of the City of Tangerang and provide a sense of comfort for the public transportation. In addition, the presence of public transportation "Si Benteng" is expected to meet the needs of public transportation in Tangerang City and can reduce urban traffic.

Public transport plays an important role in economic development towards the sustainability of public transport and requires a serious approach. Transportation is an important element in the economy because it is the core of the city's economic movement, related to the distribution of goods, services, and labor. Various forms of public transportation with the characteristics and levels of service provided develop urban public transportation in urban areas to prioritize comfort and safety so that they can compete with private transportation (Widyaningsih, 2021) besides public passenger transportation including city transportation (buses, minibusses, etc.), trains, ships, and air transportation (Purba, 2017).

Si Benteng is city transportation that is designed differently from other city transportation. It has the advantages of having air conditioning, automatic doors, USB charging, and a maximum number of

12 passengers so that passengers feel more comfortable and safe. In addition, it has a very affordable rate of Rp. 2.000,- for long distances or short distances trips and with the option of cash or non-cash payment. In addition to all the advantages above, we hope that it could reduce public spending on using public transportation. (Nurul Diva Kautsar, 2021). The routes for "Si Benteng" public transportation have been integrated with other public transportation such as BRT and Tayo, making it easier for passengers to change places and continue their journey. However, the operational number of the "Si Benteng" public transportation fleet, only operates in the western area of Tangerang City. The most important factors in public transport services are punctuality, security and safety, accessibility, level of reliability, fares, and convenience (Kamaruddin et al., 2012). The cause of dissatisfaction with the use of public transportation, such as travel time, cleanliness, easy internet access, security, travel, and driver ability (Jaśkiewicz & Besta, 2014).

Based on the introduction above, the purpose of this research is to determine the characteristics of passengers and the influence of service quality on passenger satisfaction and loyalty of passengers of public transportation "Si Benteng" in Tangerang City as well as efforts to improve the quality of public transportation services "Si Benteng" to increase passenger satisfaction and loyalty.

Service Quality

Quality is the basic business strategy that creates a complete range of products and services. Internal and external customer needs and satisfaction, explicit and implicit (Purba, 2017). Minimum service standards are the minimum size of services that must be met by public transportation companies in providing services to Service Users that are safe, secure, comfortable, affordable, equal, and regular (Minister of Transportation The Republic of Indonesia, 2019). Damayanti et al., (2017) said the service quality is an ability possessed by a company in providing services to customers. The size or dimension of service quality are:

1. Tangible is the ability of a public transport company to show its existence to others. Such as the ability of the facilities and infrastructure as well as the condition of the surrounding environment, which is tangible evidence of the services provided by the company. The indicators are fleet innovation, seating facilities, public transportation room facilities, cleanliness of public transportation, and tidiness.
2. Reliability is the ability of an organization to provide services as promised. Performance must be consistent with customer expectations, including timeliness, equal service to all customers, friendly attitude, and comfort and safety.
3. Responsiveness is the ability to help and provide a fast response (reactive) and appropriate customer service by providing clear information.
4. Assurances are the knowledge, politeness, and ability of company employees to promote trust in customers within the company, which includes communication, credibility, security, competence, and courtesy.
5. Empathy is to give sincere and personal attention to the customer by trying to understand the customer's desires.

Service quality is the difference between passengers' expectation of service performance and their perceptions of the service (Ojo, 2019). Level of service quality because customer perception is the level of service evaluation experienced by customers (Hansson et al., 2019) and community satisfaction Index is data and information on the level of community satisfaction obtained from the results of quantitative and qualitative measurements of public opinion when using the services of public service providers by comparing their expectations and needs (Kemenpan: KEP/25/M.PAN/2/2004, 2004). As a minimal element to measure the community satisfaction index, there must be service procedures, service requirements, clarity of service officers, the discipline of service officers, responsibilities of service officers, the ability of service officers, speed of service, fairness in obtaining services, courtesy. and friendliness of officers, the reasonableness of service fees, Guaranteed Service Fees, Guaranteed Service Plans, Comfort of the surrounding environment, and service security.

Satisfaction

Satisfaction is a comparison between the expectations and desires of consumers with what is felt from the results of the goods/services used. In the context of public transport, satisfaction is defined as the overall experience of the customer of the service compared to predetermined expectations (Morfoulaki et al., 2010). From the explanation above, it can be concluded that satisfaction is a comparison of someone's expectations or customer's willingness to what is felt from the results of services that have been used. Passenger satisfaction is directly proportional to the quality of service. The better the service provided by the service provider, the better the level of passenger satisfaction. So that the quality of passenger service will greatly affect the level of passenger satisfaction.

Loyalty

Loyalty is based on the ability and willingness to continue to use the service We recommend and discover that quality of service, the value of service, customer satisfaction, and agency issues and images indirectly influence the definition of loyalty (Middleton, 2019). Loyalty is a function of customer satisfaction and is referred to as a result of the mental comparison between expectation and experience of a service or a product, which includes the likeliness of a future renewal of service contract, patronage, and good publicity (Quy Nguyen-Phuoc et al., 2021). According to van Lierop & El-Geneidy (2016), customer retention or loyalty objectives are overall satisfaction with the service, potential future use of the service, and If possible could recommend it to others.

RESEARCH METHODS

The survey location of this research is the routes that are passed by public transportation "Si Benteng". This study uses a quantitative method by distributing questionnaires to 215 respondents to public transportation of "Si Benteng". The distribution of questionnaires to respondents to know the characteristics of public transport passengers of "Si Benteng" and the influence of knowing the effect of service quality on passenger satisfaction and loyalty of public transport passengers "The Benteng" in Tangerang City. The validity and reliability tests will be carried out using the Confirmatory Factor Analysis (CFA) method with the help of the AMOS software. To test the hypothesis, this study uses Structural Equation Modeling (SEM) analysis with the AMOS 22.00 Computational Analysis Tool (Winarno & Manullang, 2018).

Research Variables and Research Measurement

In this study, there are five service quality variables on 19 passenger measurement items. Quality of service is accessibility, punctuality, convenience, security and safety, and driver attitude. Meanwhile, for passenger satisfaction, there are three variables with 14 passenger measurement items. Passenger satisfaction is emotional, fare, cost, and convenience. Passenger loyalty, on the other hand, comes from the assessment of passengers' perceptions of the eight measurement points, which are interpretations of the three loyalty indicators. The indicators are Behavior, attitudes, and theories or views (Semiun, 2018).

RESULTS AND DISCUSSION

Respondent Characteristics

Based on the questionnaires that have been distributed totaling 215 respondents, the distribution of respondents' characteristics includes gender, age, education level, occupation, income per month, expenditure per month, and vehicle ownership. The respondent's characteristic data is presented in Table 1.

Table 1. Characteristics of Respondents

Characteristics	Observer	Frequency (n=215)	Percentage (%)
Gender	Man	68	31,63%
	Woman	147	68,37%
Age	< 17 years old	5	2,33%
	17 – 35 years old	98	45,58%
	35 – 55 years old	97	45,12%

	> 55 years old	12	5,58%
	Other	3	1,40%
Level of education	Primary school	5	2,33%
	Junior high school	10	4,65%
	Senior high school	99	46,05%
	Diploma	28	13,02%
	Bachelor's degree	66	30,70%
Occupation	> Bachelor's degree	7	3,26%
	Private sector employee	116	53,95%
	Entrepreneur	29	13,49%
	Student	21	9,77%
	Government employees	21	9,77%
	Housewife	15	6,98%
Income per month (Rupiah)	other	13	6,05%
	< 500.000	12	5,58%
	500.000 – 1.000.000	6	2,79%
	> 1.000.000	10	4,65%
	1.000.000 – 3.000.000	25	11,63%
	> 3.000.000	58	26,98%
	< 5.000.000	25	11,63%
	5.000.000 – 10.000.000	37	17,21%
	> 10.000.000	31	14,42%
	Other	11	5,12%
Expenditure per month (Rupiah)	< 500.000	16	7,44%
	500.000 – 1.000.000	18	8,37%
	> 1.000.000	37	17,21%
	1.000.000 – 3.000.000	20	9,3%
	> 3.000.000	47	21,86%
	< 5.000.000	21	9,77%
	5.000.000 – 10.000.000	31	14,42%
	> 10.000.000	17	7,91%
	Other	8	3,72%
	Vehicle ownership	Motorcycle	154
Car		12	6%
Don't have a vehicle		31	14%
Other		18	8%

Confirmatory Factor Analysis (CFA)

The results of the evaluation of the structural equation model of service quality on the satisfaction and loyalty of public transport passenger "Si Benteng" are shown in **Table 2**. **Table 2** shows that all dimensions and indicators of the research construct have a standard load factor value of 0.5 so all of them have good validity. As for construct reliability, only the dimensions of accessibility, punctuality, security, and safety, driver's attitude, emotional, tariff, cost and convenience, attitude, and perceived behavior have CR values of 0.574, 0.571, 0.690, 0.640, 0.648, 0.642 and 0.573 respectively below the recommended 0.7 while the other dimensions and all constructs have a CR value of 0.7. For variance extracted (VE), accessibility dimensions are 0.403, punctuality is 0.400, driver's attitude is 0.472, emotional is 0.480, the fare is 0.459, cost and convenience are 0.480, attitude is 0.473 and behavior is 0.403 slightly below the recommended 0.5 while the other variables have VE values 0.5. Thus, overall it can be concluded that all research variables in the fit model with the contribution of the control variables have good reliability and validity.

Table 2. Results of CFA Analysis

Construct	Item	Standard Loading	Reliability	Variance Extracted
Accessibility (ACC)	ACC3	0,676	0,574	0,403

Convenience (CON)	ACC7	0,591	0,780	0,639
	CON1	0,791		
	CON3	0,808		
Punctuality (PNC)	PNC3	0,643	0,571	0,400
	PNC4	0,621		
Security and Safety (SSCF)	SSFC1	0,733	0,690	0,526
	SSFC2	0,718		
Driver Attitude (ATD)	DRA1	0,736	0,640	0,472
	DRA2	0,635		
Emotional (EMO)	EMO5	0,728	0,648	0,480
	EMO7	0,635		
Rate (RAT)	RAT1	0,738	0,627	0,459
	RAT3	0,611		
Cost and Convenience (CTC)	CTC3	0,715	0,648	0,480
	CTC4	0,670		
Attitude (ATD)	ATD1	0,665	0,642	0,473
	ATD2	0,710		
View (VIE)	VIE1	0,942	0,798	0,669
	VIE2	0,672		
Behavior (BHV)	BHV1	0,670	0,573	0,403
	BHV2	0,597		

Full structural model measurement

After going through the stages of CFA analysis on exogenous constructs and endogenous constructs, the second stage of the analysis carried out was a comprehensive SEM analysis full model. Analysis of the results of data processing at this stage is carried out by conducting conformity tests and statistical tests. The suitability test still refers to the model fit criteria required by the Goodness of Fit Index (Haryono, 2016). The overall structural equation model in this study is illustrated in **Figure 1**. Furthermore, the results of the conformity test with AMOS 22.00 based on the model **Figure 1** can be seen in **Table 3**.

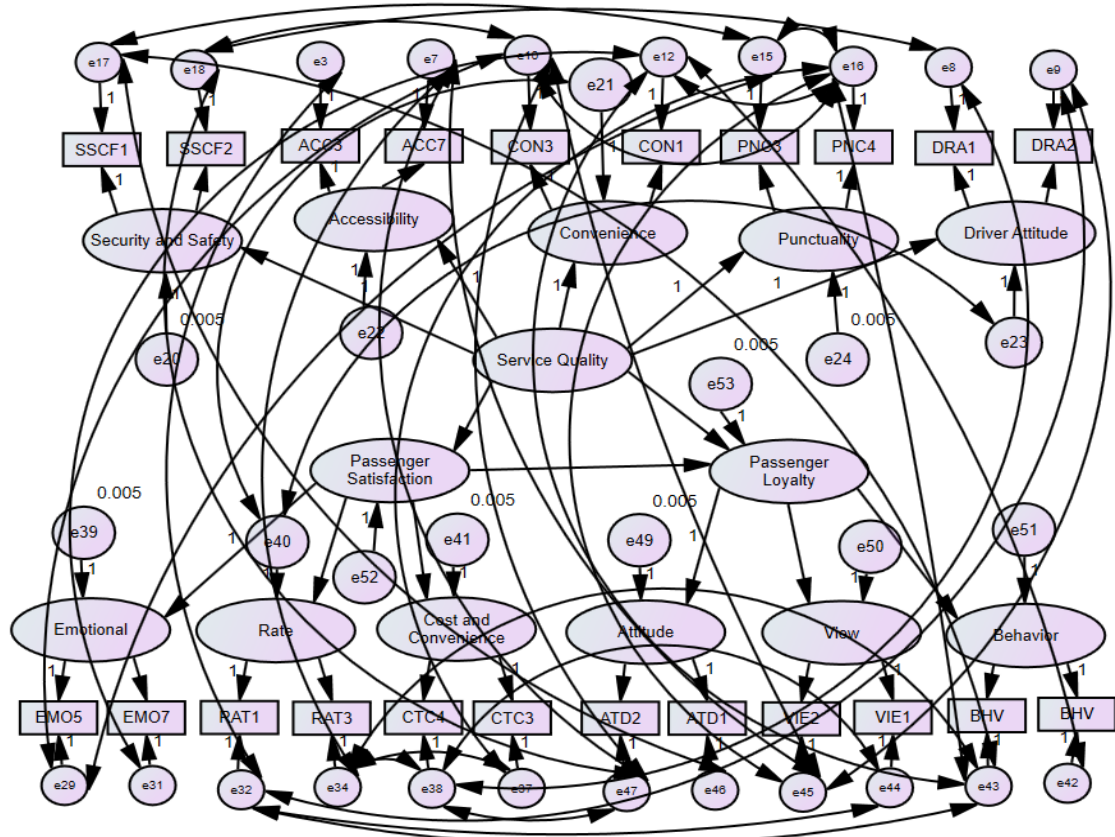


Figure 1. Structural Equation Modeling Test Results Model

Table 3. Result of GOFI Test

GOFI	Limitation	Results	Criteria
Chi square statistic	< 201,423	197,945	Good of fit
Significance probability	$\geq 0,05$	0,07	Good of fit
CMIN/DF	$\leq 2,00$	1,164	Good of fit
Goodness of index (GFI)	$\geq 0,90$	0,923	Good of fit
Adjusted goodness fit index (AGFI)	$\geq 0,90$	0,886	Marjinal fit
Tucker lewis index (TLI)	$\geq 0,95$	0,981	Good of fit
Comparative fit index (CFI)	$\geq 0,95$	0,986	Good of fit
The Root mean square error of approximation (RMSEA)	$\leq 0,08$	0,028	Good of fit

Hypothesis Test

Hypothesis testing was carried out on the 3 proposed hypotheses. This test is carried out using an α -value with a significance level of 0.05. The t value in the AMOS 22.00 program is the Critical Ratio (C.R.) value of the accepted model fit. If the C.R. 1.967 or probability value (P) 0.05 then H_0 is rejected (research hypothesis is accepted) (Haryono, 2016). The results of the AMOS 22.00 calculation based on the fit model in Figure 1 are shown in Table 4.

Table 4. Hypothesis Test Results

	Path	C.R.	P	Result
H_1	Service Quality (SQ) → Passenger Satisfaction (PS)	10,970	***	Accepted

H ₂	Service Quality (SQ)	→	Passenger Loyalty (PL)	-2,164	0,03	Rejected
H ₃	Passenger Satisfaction (PS)	→	Passenger Loyalty (PL)	6,163	***	Accepted

The results of testing all the hypotheses proposed in this study are as follows:

1. Hypothesis 1 in **Table 4** shows that the value of t-value or C.R. of $10,97 \geq 1,967$ or there is a P *** sign then accepts H1, so it can be concluded that service quality has a positive and significant effect on passenger satisfaction.
2. Hypothesis 2 in **Table 4** shows that the value of t-value or C.R. as big as $-2,164 \leq 1,967$ or P-value of $0,03 \leq 0,05$ then reject H2, so it can be concluded that service quality has no positive but significant effect on passenger loyalty.
3. Hypothesis 3 in **Table 4** shows that the value of t-value or C.R. is as big as $6,163 \geq 1,967$ or there is a P *** sign then accepts H3, so it can be concluded that passenger satisfaction has a positive and significant effect on passenger loyalty.

DISCUSSION

Direct and Indirect Impact

Influence analysis is shown to see how strong the influence of one variable on other variables is either directly or indirectly. The interpretation of the results of this influence analysis has an important meaning for determining a clear strategy for improving the quality of Si Benteng public transportation services. The results of the analysis of the calculation of the direct and indirect effects of the AMOS 22.00 output are presented in **Table 5** and **Table 6**.

Table 5. Direct Effects

	SQ	PS	PL
PS	,867	,000	,000
PL	-,367	1,283	,000

Table 6. Indirect Effects

	SQ	PS	PL
PS	,000	,000	,000
PL	1,112	,000	,000

Based on the calculation results shown in **Table 5**, the direct influence of service quality on passenger satisfaction is 0.867, and passenger satisfaction on passenger loyalty is 1,283. It can be concluded that passenger satisfaction has the greatest influence on passenger loyalty. **Table 6** shows the results of the calculation of the indirect effect of service quality on passenger loyalty of 1,112. It can be concluded that the most indirect influence is passenger loyalty.

Efforts to improve the quality of public transportation services in "Si Benteng" to increase passenger satisfaction and loyalty

The data analyzed with the interpretation of the score is data based on each item indicator on the service quality variable on the satisfaction and loyalty of public transport passenger "Si Benteng" in Tangerang City. The percentage of score data based on the results of the questionnaire distribution and control chart analysis calculations is presented in **Table 7**.

Table 7. Service Quality Indicator Score Data and Control Chart Analysis

Items	Score Result	Max Score	Percentage	Mean	Standard Deviation	Upper Control Limit	Lower Control Limit
AKS1	1046	1290	81,09%	84.53%	1.37%	85.90%	83.16%
AKS2	1087	1290	84,26%	84.53%	1.37%	85.90%	83.16%
AKS3	1068	1290	82,79%	84.53%	1.37%	85.90%	83.16%
AKS4	1098	1290	85.12%	84.53%	1.37%	85.90%	83.16%
AKS5	1070	1290	82.95%	84.53%	1.37%	85.90%	83.16%
AKS6	1080	1290	83.72%	84.53%	1.37%	85.90%	83.16%
AKS7	1098	1290	85.12%	84.53%	1.37%	85.90%	83.16%
TIME1	1074	1290	83.26%	84.53%	1.37%	85.90%	83.16%
TIME2	1095	1290	84.88%	84.53%	1.37%	85.90%	83.16%
TIME3	1075	1290	83.33%	84.53%	1.37%	85.90%	83.16%
TIME4	1112	1290	86.20%	84.53%	1.37%	85.90%	83.16%
COMFORT1	1078	1290	83.57%	84.53%	1.37%	85.90%	83.16%
COMFORT2	1097	1290	85.04%	84.53%	1.37%	85.90%	83.16%
COMFORT3	1103	1290	85.50%	84.53%	1.37%	85.90%	83.16%
SAFETY1	1112	1290	86.20%	84.53%	1.37%	85.90%	83.16%
SAFETY2	1105	1290	85.66%	84.53%	1.37%	85.90%	83.16%
SAFETY3	1108	1290	85.89%	84.53%	1.37%	85.90%	83.16%
DRIVER1	1105	1290	85.66%	84.53%	1.37%	85.90%	83.16%
DRIVER2	1107	1290	85.81%	84.53%	1.37%	85.90%	83.16%

Based on the results of the control chart analysis on **Table 7**, shows that there are indicators that are within the lower limit of control. These indicators are ACC1 with a percentage of 81.09%, ACC3 with a percentage of 82.79%, and ACC5 with a percentage of 82.95%. Thus, the quality of service that needs to be improved is as follows: (1) ACC1 is that Passengers don't have to wait long for the arrival of Si Benteng public transportation, (2) ACC3 is the availability of public transport shelters, (3) ACC5 is the distance to the stops of Si Benteng. The biggest for the improvement and improvement of service quality is ACC1.

CONCLUSION

From the results of the analysis above, it can be concluded the direct influence of passenger satisfaction is the greatest passenger loyalty. This shows that passengers of public transportation "Si Benteng" are satisfied and will always use Si Benteng as a daily activity. While the indirect effect of the greatest service quality is passenger loyalty, this shows that the service quality of Si Benteng is good so that passengers/people of Tangerang City will always be loyal to using Si Benteng. Meanwhile, efforts to improve the quality of public transportation services "Si Benteng" based on control chart analysis which is the largest under the control limit are that Passengers do not have to wait long for the arrival of public transport "Si Benteng". This shows that the Tangerang City

Government needs to make improvements so that it can improve the performance of Si Benteng transportation and can provide better services for Si Benteng public transport passengers.

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