

Research Article

The Effect of Service Quality, Ticket Prices and Ease of Transaction on Customer Satisfaction of Mass Rapid Transit Jakarta

Sarinah Sihombing, Payaman Manik, Lutfia Ratu Anisya, Diana Nurcahayati, Masjraul Hidayat, Ika Utami Yulihapsari

Trisakti Institute of Transportation and Logistics

Abstract.

Mass Rapid Transit (MRT) is an urban rail-based rapid transit system designed to reduce traffic congestion in Jakarta. Sales tactics and price determination can be used to implement good quality service. The relationship between price and quality is positive, which means the higher the price, the higher the quality. Moreover, transaction convenience is critical for MRT Jakarta passengers' happiness. This research assessed the quality of service, ticket prices, and ease of transaction to assess the satisfaction of MRT Jakarta passengers. The independent variables were service quality, ticket price, and ease of transaction. The dependent variable was in the perusal of customer satisfaction. The population in this research was the average number of passengers of MRT Jakarta in June 2021, which was 18.936 people per day. The sample obtained from the population was 392 respondents selected by simple random sampling. Based on the results, the service quality variables had a significant value of 0.000, the ticket prices have a significant value of 0.000, and the ease of the transaction has a significant value of 0.026. It can be concluded that each variable influenced user satisfaction.

Keywords: *Mass Rapid Transit (MRT) , Service Quality , Ticket Prices, Ease of Transaction , Customer Satisfaction*

Corresponding Author: Sarinah
Sihombing; email:
sarinah.stmt@gmail.com

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1. Introduction

In modern transportation services business, an increased competition has forced many organizations to participate and suit the demands and aspirations of customers. The number of people living in a certain area are directly related to the number of people moving around on a regular basis, resulting in increased congestions. One of the causes of traffic congestions in urban areas is the growing trend of people using transportation services for the first time [1]. Jakarta's population was 10.56 million in September 2020, according to the DKI Jakarta Province's Central Bureau of Statistics (BPS). As a result, using MRT is one of the steps to changing the mode of transportation from private cars to public transit.

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MRT is a type of public transportation that is based on an urban rail and is aimed to alleviate traffic congestions in Jakarta. The emergence of MRT Jakarta, which is rapid and convenient, is projected to improve public transportation users' enthusiasm. As a result, users expect a high-quality service.

The sales tactics and price determination can be used to implement a good service quality. The relationship between price and quality is positive; the higher the price, the higher the quality. Moreover, the transaction convenience is critical for MRT Jakarta passenger's happiness.

In the event of an emergency on the train or a stop at the subway (underground) during a power outage (4 August), the evacuation scheme depicted seven MRT Jakarta trains, all of which were operated by PT MRT Jakarta, and it is also working to polish the back end of Standard Operating Procedure (SOP) of the evacuation amidst the emergency in order to anticipate State Electricity Company (PLN) power disruptions and ensure a smooth and secure evacuation.

When the train had to be evacuated well in the tunnels or elevated rails, the driver lowered the stairs in front of the train so that the passage was not from the side door, but from the front door. Next, it headed to the nearest station. When it was near the station, there was a ladder to get to the platform. In offering services to the community, MRT Jakarta has always prioritized reliability, security, and safety.

PT.MRT Jakarta is expected to maintain quality while also paying close attention to the completeness of supporting facilities such as seating, an Automatic Teller Machine (ATM), and other amenities. This is due to the fact that a few MRT stations still exist, providing support for the aforementioned services. MRT officers are also required to improve their performance. In line with these circumstances, the goal of this research is to determine the impact of service quality, ticket price, and ease of transaction on the customer satisfaction at the MRT Jakarta stations.

2. Research Questions

1. How is the influence of the service quality on the passenger satisfaction of MRT Jakarta?
2. How is the way to influence the price of the ticket on each of the destination to the satisfaction of the passenger of MRT Jakarta?

3. How is the way to influence the ease of the transaction to the satisfaction of the passenger of MRT Jakarta?

3. Literature Review

1. The Service Quality

The quality of service refers to the level of service delivered to customers in compliance with standardized services that serve as rules for service delivery. As a suitable service standardization, standard service is a predetermined size [2]. Then [2] argues that there are five basic dimensions to measure service quality:

1. Tangibility includes physical facilities, equipments, employees, and means of communication, as well as the state of the building, its interior, and the employee's looks.

2. Reliability is defined as the capacity to offer promised services in a timely, correct, and gratifying manners, as measured by prompt service, convenience of payment, and accuracy of promotional program implementation.

3. Responsiveness is the desire of the staff to help customers and provide services with the response, measured with the precision of a complete complaint, the readiness to help the consumers, and the speed and responsiveness in services.

4. Employees' knowledge, skills, politeness, and reliable properties are covered by assurance, which is devoid of danger, risk, or doubt, and is measured by employees' skills, friendly and courteous services, and product quality in accordance with industry standards.

5. Empathy is defined as the ease with which a relationship may be built, as well as good communication, personal attention, and an understanding of the needs of consumers. It is measured by the employees' sincere attention to the customer's wants, and it does not discriminate the customers based on the social status.

1. The Ticket Prices

According to Kotler and Armstrong in [3], the price is one of the elements of the marketing mix that produces revenue and costs, as well as the most easily customizable which aims to communicate the position of the value of the intended company to the market about the product and brand.

MRT's furthest fare is IDR 14,000 per passenger, according to the pricing computation. The rates are IDR 1,000 per passenger per station. Passengers must pay for IDR 3,000

at the departure station, according to the calculations. The passenger then simply adds IDR 1,000 per station to the total fee. The calculation of the rates of MRT with average mileage of 10km/trip of IDR 10,000,-

$$\text{Rates} = \text{Boarding fee} + \text{unit price per km (Rp /km)} \times \text{distance (km)}$$

Boarding fee : Rp 1.500

Unit price per km : Rp 850/km

1. The Ease of Transaction

The belief in the decision-making process is the feeling of easiness. If a person believes that the information system is simple to use, he will use it. [4] As a result, the variable of perceived ease has a substantial impact on the interest in using E-money card, and it is expected that the bank would educate users about the ease of using E-money card so that customers will be more comfortable utilizing the facility. [5] According to the research findings, perceived ease of use has a favorable and significant impact on trust.

1. The Customer Satisfaction

The customer satisfaction is important to the company's existence and development. Listening to the customer's voice and then responding to their desires or demands can produce more satisfying results and can increase customer's loyalty [6]. Kotler and Armstrong in [3] states that the consumer satisfaction refers to the degree to which passenger's requirements, desires, and expectations are realized, resulting in a repurchase or continued loyalty. The customer satisfaction is heavily influenced by high-quality products and services. The higher the quality of the products and services is offered, the more satisfied the consumers will be, and if the customer satisfaction continues to rise, the company will get benefits.

4. Framework and Hypothesis

The purpose of this research is to see how the service quality, ticket price, and ease of transaction affect the satisfaction of MRT users in Jakarta.

Figure I. Framework of research service quality, ticket price and ease of transaction

Decription :

H1 : Expected Service Quality affects User Satisfaction

H2 : Expected Ticket Price affects the User Satisfaction

H3 : Expected Ease of the Transaction affects User Satisfaction

5. Methods

1. Population

A population is a full object or subject in an area that meets particular criteria connected to the research problem, or a whole unit or individual that will be investigated within the scope of the research problem. The population in this research is the average daily passengers of MRT Jakarta of 18.936 passengers in June 2021.

1. Sample

The Number of population in this research was 18.936 passenger per day, so the percentage of leeway used was 5%, and the calculation results can be rounded to achieve compliance.

The samples were taken using the probability sampling technique; simple random sampling, in which the researcher gave every MRT Jakarta user an equal chance to be picked into the sample, which was chosen at random without consideration to the population's strata.

1. Research Approach

This is a type of research that is carried out in a planned and methodical manner with the purpose of obtaining solutions to specific occurrences. As a result, this research used a quantitative approach. The population of this research was the MRT Jakarta users. The primary data is the sort of information used. The information was gathered using the questionnaire distribution method, which involved sending the questionnaire directly to respondents who met the criteria.

1. Data Collection Technique

The use of questionnaires was the data gathering approach in this research. The purpose of the questionnaire, which took the form of a statement, is to get information from respondents about their experiences and knowledge. The scale used in the questionnaire preparation is the ordinal scale, also known as the Likert scale, which

has five levels of preferred answers [7]. "Really Agree" is with a score of 5, "Agree" is with a score of 4, "Quite Agree" is with a score of 3, "Do Not Agree" is with a score of 2, and "Strongly Disagree" is with a score of 1 that are the five answer preferences.

1. Data Analysis Techniques

2. Validity test

A validity test is used to determine if a measurement is valid or not. The terms "measuring" and "questionnaire" refer to the same thing. A questionnaire is deemed to be valid if the questions in it can reveal the part of the elements measured by the questionnaire.

1. Reability test

The reliability test is used to determine the consistency of a measuring device, if it is dependable, and whether it can sustain consistency over time. Although there are other ways for determining reliability, Cronbach Alpha is frequently utilized for the research data and questionnaires.

1. Normality test

The Theory of Limited Centralty (TLC) was used to test the normality of the data.

1. Multicollinearity Test

The goal of testing multicollinearity is to see if the regression model discovers a correlation between the independent and dependent variables. The Tolerance and Variance Inflation Factor (VIF) values are used to test multicollinearity, where the tolerance value must be larger than 0.1 and the VIF value must be less than 10.

1. Heteroscedasticity test

The heteroscedasticity test is used to see if the residual of one observation differs from the residual of other observations in the regression model. To see if there is heteroscedasticity is by looking at a 5% significance level.

1. Multiple Linear Regression Test

The information gathered was analysed using statistical analytic tools, such as multiple linear regression.

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + e$$

Description :

a = constant

b₁ – b₂ – b₃ = coefficients of regression

X₁ = service quality

X₂ = ticket price

X₃ = ease of transaction

e = stands for error margin (the error that is unexpected)

1. Partial test (t)

At a significance threshold of 0.05, the partial T-test is performed to see if each variable influences the dependent variable independently.

If $r_{count} < r_{table}$, H₀ is acceptable.

If $r_{count} > r_{table}$, H₀ is refused.

1. Simultan Test (F):

This test is used to see how much the independent variable influences the dependent variable.

1. Coefficient of determination test

The independent variable's ability to explain changes in the dependent variable is measured.

6. Discussion and Result

1. Validity and Reliability Test

2. The Service Quality Variable's Validity

If r_{xy} is greater than r_{table} , the instrument is deemed valid. Based on the above table, there are 18 valid questions used in the research

1. The Ticket Price Variable's Validity

If r_{xy} is greater than r_{table} , the instrument is considered valid. Based on the table above, there are valid 8 questions used in the research.

TABLE 1

No Item	Validity	R Table	Info
1	0,720	0,202	Valid
2	0,778	0,202	Valid
3	0,760	0,202	Valid
4	0,582	0,202	Valid
5	0,660	0,202	Valid
6	0,700	0,202	Valid
7	0,735	0,202	Valid
8	0,649	0,202	Valid
9	0,733	0,202	Valid
10	0,773	0,202	Valid
11	0,698	0,202	Valid
12	0,647	0,202	Valid
13	0,711	0,202	Valid
14	0,761	0,202	Valid
15	0,768	0,202	Valid
16	0,622	0,202	Valid
17	0,734	0,202	Valid
18	0,750	0,202	Valid

TABLE 2

No Item	Validity	R Table	Info
1	0,700	0,202	Valid
2	0,421	0,202	Valid
3	0,731	0,202	Valid
4	0,520	0,202	Valid
5	0,781	0,202	Valid
6	0,709	0,202	Valid
7	0,750	0,202	Valid
8	0,687	0,202	Valid

1. Ease Transaction Variable's Validity

If r_{xy} is greater than r tabel, the instrument is deemed valid, and the preceding table shows that there are 7 valid questions used in the research.

1. Customer Satisfaction Variable's Validity

If r_{xy} is greater than r tabel, the instrument is considered valid, and the preceding table shows that there are 7 valid questions used in the research.

TABLE 3

No Item	Validity	R Table	Info
1	0,705	0,202	Valid
2	0,785	0,202	Valid
3	0,775	0,202	Valid
4	0,789	0,202	Valid
5	0,720	0,202	Valid
6	0,795	0,202	Valid
7	0,811	0,202	Valid

TABLE 4

No Item	Validity	R Table	Info
1	0,696	0,202	Valid
2	0,741	0,202	Valid
3	0,826	0,202	Valid
4	0,740	0,202	Valid
5	0,816	0,202	Valid
6	0,796	0,202	Valid
7	0,769	0,202	Valid

1. Service Quality Variable's Reliability

TABLE 5

Reliability Statistics		
Cronbach's Alpha	N	of Items

Based on the table above, it can be observed that 18 of the items answered in this study have a value of Cronbach's Alpha of greater than 0.60, indicating that the questionnaire's service quality variable is reliable, implying that the questionnaire utilized in this research is a good questionnaire.

1. Ticket Price Variable's Reliability

TABLE 6

Reliability Statistics		
Cronbach's Alpha	N	of Items
,810	8	

Based on the following table, eight of the questions answered in this research have a value of Cronbach's Alpha of more than 0.60, indicating that the price of the ticket from

the questionnaire is reliable, implying that the questionnaire utilized in this research is a good questionnaire.

1. Ease Transaction Variable’s Reability

TABLE 7

Reliability Statistics	
Cronbach's Alpha	N of Items
,882	7

Based on the table above, it can be seen that the seven questions asked in this research have a value of Cronbach’s Alpha of greater than 0.60, indicating that the ease of the transactions of the questionnaire is reliable, implying that the questionnaire utilized in this research is good questionnaire.

1. Customer Satisfaction Variable’s Reability

TABLE 8

Reliability Statistics	
Cronbach's Alpha	N of Items
,885	7

in the table above, the seven items answered in this research have a value of Cronbach’s Alpha of greater than 0.60, indicating that the measuring variable of the customer satisfaction questionnaire is reliable, implying that the questionnaire used in this study is a good questionnaire.

1. **Analysis data**

2. The Result of The Normality Test

The data is considered valid or normal in its distribution after a normality test is conducted utilizing TLC with a respondent numbers of at least 30 people.

1. The Results Of The Multicollinearity Test

based on table 5, the value of tolerance is larger than 0.1, and the VIF value is less than 10, as evidenced by the value of tolerance of service quality of 0,131, ticket price of 0.436, and ease of transactions of 0,135. Meanwhile, the VIF score of service quality is

TABLE 9

		Coefficients ^a					Collinearity Statistics	
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Tolerance	VIF
		B	Std. Error	Beta				
1	(Constant)	3,694	,991		3,729	,000		
	Service Quality	,208	,035	,495	5,899	,000	,131	7,641
	Ticket Prices	,148	,041	,166	3,605	,000	,436	2,292
	Ease of Transaction	,190	,085	,184	2,236	,026	,135	7,380

a. Dependent Variable: Service Quality

7,641, the VIF score of ticket price is 2,292, and the VIF score of ease of transactions is 7,380. As a result, the regression equation method offers no signs of multicollinearity.

1. The Results Of The Heteroscedasticity Test

TABLE 10

		Coefficients ^a				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,053	,682		4,477	,000
	Service Quality	-,014	,024	-,081	-,581	,562
	Ticket Prices	-,045	,028	-,121	-1,592	,112
	Ease of Transaction	,032	,059	,074	,540	,590

a. Dependent Variable: abs_RES

Based on Table 6, it shows that the significant value is more than 0.05 (Sig>0.05), indicating that the variables of service quality, ticket prices, and ease of transaction do not show signs of heteroscedasticity.

1. Test of Multiple Linear Regression

The method of multiple linear regression analysis was used in this research. The following results were derived from the data processing results:

Based on the results of multiple regression, there is the regression equation, namely:

$$Y = 3,694 + 0,208X_1 + 0,148X_2 + 0,190X_3 + e$$

The following is an interpretation of the regression equation:

TABLE 11

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	3,694	,991		
	Service Quality	,208	,035	,495	,000
	Ticket Prices	,148	,041	,166	,000
	Ease of Transaction	,190	,085	,184	,026

a. Dependent Variable: abs_RES

1. The constant value of 3,694 means that if the quality of service, ticket price, and ease of transaction are all reduced to 0, the customer satisfaction is 3,694.
2. The regression of service quality (X1) has a coefficient of 0,281. This suggests that an increase in service quality will result in a 0.281% rise in customer satisfaction.
3. The regression of ticket price (X2) has a coefficient of 0,148. This suggests that another rise in ticket prices will result in a 0.148 increase in customer satisfaction.
4. The regression of ease of the transaction (X3) has a coefficient of 0,190. This suggests that an increase in ease of transaction will result in a 0.190 rise in customer satisfaction.

1. Partial Test

TABLE 12

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	3,694	,991		
	Service Quality	,208	,035	,495	,000
	Ticket Prices	,148	,041	,166	,000
	Ease of Transaction	,190	,085	,184	,026

a. Dependent Variable: abs_RES

based on table results of the t test, it is obtained as follows:

1. The Impact of Customer Satisfaction on Service Quality

When the value of t count of 5,899 is greater than t table of 2,006, and a significant value of 0.000 which is less than 0.05 is achieved for the service quality variable (X1), it can be stated that there is a massive impact between service quality and customer satisfaction.

1. The Impact of Ticket Prices on Customer Satisfaction

The value of t count of 3,605 is greater t table of 2,006, and a significant value of 0.000 which is less than 0.05 on the ticket price (X2), which implies H0 is rejected, it can be deduced that there is a massive impact between the ticket price and customer satisfaction.

1. The impact of Ease Transaction on Customer Satisfaction

The result of t count of 2,236 is greater than t table of 2,006, and a significant value of 0,026 which is less than 0,05 in the ease of transaction (X2) indicating that H0 is rejected, meaning that there is a significant correlation between ease of transaction and customer satisfaction.

1. Simultan Test

TABLE 13

ANOVA ^a						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2828,211	3	942,737	232,292	,000 ^b
	Residual	1574,664	388	4,058		
	Total	4402,875	391			

a. Dependent Variable: Service Quality
 b. Predictors: (Constant), Ease of Transaction, Ticket Prices, Service Quality

The value of F count 232,292 is greater than F table of 3,18 and a significant value of (0.000 < 0.05), it can be seen based on the results of a statistical test F using analysis of variance or ANOVA. It means significant, and it can be concluded that the service quality (X1), ticket price (X2) and ease of transaction (X3) simultaneously have a significant influence on customer satisfaction (Y).

1. The Coefficient Of Determination Test

The value of the coefficient of determination of 0,642 can be seen in table. This suggests that the ability of the independent variables (service quality, ticket prices, and

TABLE 14

Model Summary ^b				
Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	,801 ^a	,642	,640	2,01455
a. Predictors: (Constant), Ease of Transaction, Ticket Prices, Service Quality				
b. Dependent Variable: Service Quality				

ease of transaction) to explain changes in the dependent variable (customer satisfaction) by 64,2% of the remaining 35,8% is explained by other variables not included in the regression model.

7. Conclusion

Based on the results of the research and discussion, it can be concluded as follows :

1. The influence of service quality on MRT Jakarta user satisfaction based on the results of the t test is obtained. In addition, the value of t count of 5,899 is greater than t table of 2,006, and a significant value of 0.000 is less than 0.05. It can be concluded that there is a significant influence between service quality and customer satisfaction. MRT Jakarta service quality is in conformity with the minimum service standards of wagons based on the Regulation of Minister of Transportation No. 48 in 2015.
2. The influence of ticket price to the customer satisfaction of MRT Jakarta, based on the results of the t test obtained, is that the value of t count of 3,605 is greater than t table of 2,006, and a significant value of 0.000 is less than 0.05. It can be concluded that there is a significant influence between the ticket price and customer satisfaction. The ticket price paid is caused by the presence of affordability , suitability price with the benefits , piece or discount price.
3. The influence of the ease of transaction to the customer satisfaction of MRT Jakarta, based on the results of the t test obtained, is that the value of t count equal to 2,236 which is greater than t table of 2,006, and significant value of 0,026 is less than 0,05. It can be concluded that there is a significant influence between the ease of transaction and customer satisfaction. the ease of transaction is defined as easiness to understand, to use, and to learn.

As for the implications of this research, it is necessary for the MRT Jakarta to pay more attention and to improve the SPM by considering that

1. the station facilities must be added more ATM machines , nursing mothers rooms
2. The facilities for passenger services should be considered more of the tap machines for tapping in and out in order to avoid problems, such as the illegibility of cards at the time of tapping in and out (E-money, KMT, Jaklingo).

References

- [1] Tamin OZ. Perencanaan & pemodelan transportasi. Kedua. Bandung: ITB; 2000.
- [2] Tjiptono F. Service Marketing: Esensi dan Aplikasi. Yogyakarta: Marknesis; 2009.
- [3] Hamidah NK, Haeril. Kualitas Pelayanan dan Harga Sebagai Antaseden Kepuasan Konsumen Jasa Kereta Api (Studi Kasus pada Kereta Api Prameks Jurusan Yogyakarta–Solo). *J. Komun. dan Kebud.* 2020;7:951-952.
- [4] Wibowo SF, Rosmauli D, Suhud U. Pengaruh Persepsi Manfaat, Persepsi Kemudahan, Fitur Layanan, Dan Kepercayaan Terhadap Minat Menggunakan E-Money Card Commuter line Jakarta. *J. Ris. Manaj. Sains Indones.* 2015. [Online]. Available: <http://journal.unj.ac.id/unj/index.php/jrmsi/article/view/541>
- [5] Faradila RS, Soesanto H. Analisis Pengaruh Persepsi Kemudahan Penggunaan dan Persepsi Manfaat terhadap Minat Beli dengan Kepercayaan Sebagai Variabel Intervening (Studi pada Pengunjung Toko Online berrybenka.com di Kalangan Mahasiswa Universitas Diponegoro). *J. Stud. Manaj. Organ.* 2016. [Online]. Available: <https://ejournal3.undip.ac.id/index.php/djom/article/view/14193>
- [6] Fathullah A, Ferdian A, Octora Y, G. Bijaksana G, OPG. The Effect of Passengers Satisfaction to Service Quality in Batik Air. *Adv. Transp. Logist. Res.* 2018. p. 996–1006, <https://doi.org/ISSN.2662-5778>.
- [7] Ghozali I. Aplikasi analisis multivariate dengan program SPSS. Badan Penerbit Universitas Diponego; 2006.