FACTORS AFFECTING THE PERCEPTION OF SATISFACTION OF ANGKUTAN KOTA USERS (Case Study: Depok Terminal – Depok II Tengah)

Wita Meutia[1], Prima Jiwa Osly[1], Mochamad Farhan Rahmat S[1]
[1]Civil Engineering Department, Faculty of Engineering, Pancasila University
E-mail: wita.meutia@univpancasila.ac.id

Received 11th January 2023, Accepted 28th April 2023

ABSTRACT

One of the transportation modes that is still used by some people to assist mobility in their activities is Angkutan Kota. Angkutan Kota or also known as angkot is a form of paratransit that is familiar to most Indonesians urban transportation user. Angkutan Kota D.02 Depok Terminal – Depok II Tengah route is one of the public transportation in Depok City. The purpose of this research is to analyze the factors that influence the perception of satisfaction of users of Angkutan Kota D.02. This research was carried out by distributing questionnaires to users of Angkutan Kota D.02 on Depok Terminal – Depok II Tengah. The questionnaire contains factors that influence people to use public transportation. The analysis carried out is factor analysis to reduce several variables without eliminating the original variable values, then the variables formed are further analyzed using regression analysis to determine the factors that influence passenger satisfaction. Analysis result shows that there are 8 factors that formed from Analysis Factor. There are 4 factors that affect the satisfaction of users of route Angkutan Kota D.02 from Regression Analysis, namely the Price Conformity Factor, Time Factor, Personal Expectation Factor and Availability of Access Factor.

Keywords: *Depok City, User Satisfaction, Factor Analysis, Regression Analysis, Angkutan Kota D.02.*

INTRODUCTION

Public transportation is important aspect to provide community mobility. One example of public transportations that is used in urban area is “Angkutan Kota” or known as “Angkot”. This mode of transportation has ability to cut through every city corner. Angkutan kota (angkot) is one of paratransits which known to has fixed route but does not have fixed schedule. Angkutan kota is managed by individual car owners. The capacity of angkutan kota in one car are around 12 to 14 passanger. Communities in both small and large cities take advantage of this angkutan kota ability to mobilize from one destination to another.

The problems faced by angkutan kota is to maintain the number of passengers. Nowadays, since online transportation exist, some community switching modes to use online transportation. A survey conducted by YKLI (Indonesian Consumers Foundation) in April 2017 found that, the low prices of fare factor was the main reason that many respondents chose to switch to online transportation.

Maintaining the number of passengers also needs to be supported by facilities and reability offered by angkutan kota. Nowadays, angkutan kota uses mix lanes with other vehicles and so the speed of angkutan kota is affected by other modes of transportation on the road. The implication is passengers need more time to wait at various sides of the road with inconvenient waiting places. And Then there are several problems of angkutan kota today such as poor quality of cars, lack of security, some drivers does not have lisence, the behaviour problem of some drivers which ignore regulations, etc (Finn, 2012). These problems can be the cause of the lack of public interest in using angkutan kota.

Research on passenger satisfaction and loyalty to angkutan kota has been carried out since the mid-1960s (Van Lierop, et. al. 2018). Satisfaction is a bridge that connects service quality and loyalty (De Ona, et al. 2014) & (Prima JO, et al, 2022). Customer satisfaction is one of the main factors related to customer loyalty and a continuous relationship between the two (Uma and Chandramowleeswaran, 2015). Whereas customer loyalty is a deep commitment from customers to pay back for products or services consistently in the future and can withstand the influence of other services and it is very difficult to replace these products or services (Lesmana, 2017). One of the keys to the success of implementing public transport policies is the perception of public acceptance of transportation policy plans (Meutia W, 2016). For this reason, it is necessary to review the satisfaction of Angkutan Kota users in order to maintain existing Angkutan Kota passengers.

Depok City has 20 angkutan kota routes (City of Depok Transportation Agency, 2022). One of the angkutan kota routes serving within the City of Depok is Angkutan Kota Route D02, from Depok Terminal until Depok II Tengah. Angkutan Kota D.02 connecting Depok Terminal – Depok II Tengah passes several frequently visited passanger stops, namely Ciplaz Depok (Ramayana) Terminal, Depok City Hall, Tip Top, Fresh Market, Tip-Top, Merdeka Park and others. Users of this angkutan kota come from students, traders, and people who have no other choice in traveling other than using this Angkutan Kota D02 Depok Terminal – Depok II Tengah route. Based on observations in the field, Angkutan Kota D.02 Depok Terminal – Depok II Tengah route is one of the routes with quite a lot of passengers. Based on the land use that is passed by the transportation route, the areas that are passed are residential areas, shops and shopping centers. Passenger satisfaction with Angkutan Kota Services D.02 Depok Terminal – Depok II Tengah route is interesting to research because of the large number of passengers who still use this angkutan kota. Based on the description, the purpose of this research is to analyze the factors that influence the perception of satisfaction of angkutan kota users so that service providers can retain existing users and also increase the number of users by improving the facilities that affect passenger satisfaction.

METHODS

Angkutan kota wihich is the research object is Angkutan Umum D02 Depok Terminal – Depok II Tengah route (Angkutan Kota D02). The data were obtained from distributing questionnares. The target respondents was Angkutan Kota D02 user and obtained of 100 respondents. The process of developing questionare started from identifrying the variables that influence respondent’s perception of satisfavtion. The quetionnaire was developed into 2 parts, namely:

1. Respondent’s Characteristics
   Respondent’s Characteristics data about gender, ocupation, age, education a transportation cost of respondents
2. Satisfaction variables
   The variables to capture respondent satisfaction are divided into several related questions:
   - Reliability
   - Fare
   - Comfort
   - Security

Respondents' satisfaction with these variables was measured using likert scale with levels 1 to 5. The following is a measurement scale:

Table 1. Measurement Scale

Skala	Keterangan
1	Strongly Disagree

Skala	Keterangan
2	Don't agree
3	Simply Agree
4	Agree
5	Strongly agree

The table is questions related to satisfaction

Table 2. Questionnaire Questions

Variables Code	Variables
Reliability 1	Angkutan Kota D.02 is easy to access
Reliability 2	The availability of Angkutan Kota D.02 is sufficient to support community mobility
Reliability 3	The average speed of Angkutan Kota D.02 is neither too fast nor too slow
Reliability 4	Using Angkutan Kota D.02 can break down traffic jams
Reliability 5	Travel timed corresponds to the distance traveled
Fare 1	The fare for Angkutan Kota D.02 is cheap
Fare 2	Angkutan Kota D.02 fare is in accordance with the facilities and services provided
Fare 3	I prefer Angkutan Kota D.02 because the fare is cheaper
Fare 4	The comparison between the fare and the distance traveled is appropriate
Convenience 1	The Angkutan Kota D.02 that I use is still roadworthy
Convenience 2	Cleanliness in Angkutan Kota D.02 is quite clean compared to using other public transportation
Convenience 3	The interior condition of Angkutan Kota D.02 is quite interesting
Convenience 4	Angkutan Kota D.02 drivers are polite when serving passengers
Convenience 5	I always get a comfortable seat in the Angkutan Kota D.02
Convenience 6	Adequate public transportation facilities (eg bus stops, terminals, etc.).
Ownership 1	I chose Angkot D.02 because I don't have any private vehicle
Ownership 2	Currently having a personal vehicle is not my primary need
Ownership 3	Currently my income is not/not enough to buy a personal vehicle
Ownership 4	I use the Angkutan Kota D02 because it's the only access I have to reach my destination
Security 1	Angkutan Kota D.02 drivers wears a driver's ID
Security 2	Angkutan Kota Drivers D.02 is not reckless while driving
Security 3	There is no criminal activity in Angkutan Kota D.02

The collected data were analyzed using factor analysis to reduce data or summarize the old variables which were changed a lot into a few new variables called factors, and still contain most of the information contained in the original variables (Supranto, 2004). The new variables formed from factor analysis are named according to the original variables contained in it. Furthermore, the variables formed in the factor analysis were analyzed using regression analysis with the aim of seeing the variables that affect the satisfaction of Angkutan Kota users. The multiple regression analysis equation can be expressed by the formula:

$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \ldots\ldots b_NX_N$
Keterangan:

Y = dependent variable
a = constant
b 1,…bn = regression coefficient
X1,…Xn = independent variables

The dependent variable (Y) in this research is the perception of passenger satisfaction as measured on a Likert scale of 1 to 5 (Very Dissatisfied to Very Satisfied. The statement of the dependent variable measured by the respondent is "I am satisfied with the services provided by Angkutan Kota D.02" The independent variable (X) is a variable formed from factor analysis.

RESULTS AND DISCUSSION

Descriptive analysis is data analysis by describing the data that has been collected. The following are the results of data processing in this research as follows:

Respondent's Characteristics

The characteristics of the respondents observed were Gender, Age, Last Education, Occupation, Monthly Income, Monthly Transportation Costs, How to take an angkot, and How many times to take an angkot. The

following is data on the characteristics of the respondents obtained from the survey:

Table 3. Characteristics of Respondents

Respondent's Characteristics	Persentage (%)
Gender	Male (19%); Female (81%)
Age	17-23 Years (29%); 24-30 Years (28%); 30-37 Years (15%); 38-44 Years (15%); >45 Years (13%)
Last Education	Junior High School (4%); Senior High School (40%); D3 (13%); (D4/S1 (43%)
Occupation	Students (18%); Private employees (56%); Civil Servant (3%); Self-employed (7%); Others (16%)
Monthly Income	<1.000.000 (13%); 1.000.000 – 2.000.000 (8%); 2.000.000 – 3.000.000 (5%); 3.000.000 – 4.000.000 (64%)
Monthly Transportation Costs	<1.000.000 (78%); 1.000.000 – 2.000.000 (21%); 3.000.000-4.000.000 (1%)
Monthly Transportation Costs, How to take an angkot	Walking(72%); Kiss and Ride (18%); Conventional Motorcycle (2%); Online Motorcycle (3%); Others (5%)
Frequenty to take Angkutan Kota D02	1 Kali (15%); 2 – 3 Kali (85%)

Table 3 shows that the respondents obtained were mostly women (81%). The age of those who ride this Angkutan Kota D.02 ranges from 17-23 years and 24-30 years. This indicates that Angkutan Kota D02 users are of a productive age. Most of the respondents are dominated by private workers.

Factor Analysis

Factor Formation

Factor formation is done by extracting factors based on the resulting eigenvalues. Eigenvalues interpret the variance that can be explained by a factor. Factors that will be taken to become new factors are factors that have an eigenvalue of at least 1. This means that each variable contributes 1 to all the total eigenvalues. The eigenvalues for the variables in measuring satisfaction are presented in Table 4. Based on these eigenvalues, there are 8 components that have an eigenvalue> 1.

Table 4. Eigen Value

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.020	22.818	22.818	5.020	22.818	22.818
2	1.762	8.009	30.827	1.762	8.009	30.827
3	1.611	7.324	38.151	1.611	7.324	38.151
4	1.469	6.676	44.827	1.469	6.676	44.827
5	1.273	5.787	50.614	1.273	5.787	50.614
6	1.186	5.389	56.003	1.186	5.389	56.003
7	1.113	5.057	61.060	1.113	5.057	61.060
8	1.071	4.867	65.927	1.071	4.867	65.927
9	0.903	4.105	70.032			
10	0.766	3.484	73.516			
11	0.743	3.376	76.893			
12	0.687	3.122	80.014			
13	0.621	2.822	82.836			
14	0.587	2.668	85.504			
15	0.566	2.572	88.076			
16	0.491	2.234	90.310			
17	0.426	1.936	92.246			
18	0.399	1.814	94.059			
19	0.369	1.679	95.738			
20	0.351	1.594	97.333			
21	0.301	1.369	98.702			
22	0.286	1.298	100.000			

Factor Interpretation

In the interpretation of factors, there are several steps that must be taken, namely as follows:

a. Determine factor loads and identify significant load factors prior to factor rotation

The factor load for each variable is presented in Table 5. The factor load formed (before or after rotation) represents the level of correlation of each variable with each factor. The load factor plays a key role in the interpretation of the data.

Tabel 5. Matrix Component

	Component								
Variabel	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***Comuunalities***
Reliability 1	0.439	0.463	-0.214	0.205	0.062	0.152	-0.273	-0.264	0.666
Reliability 2	0.137	0.558	0.421	0.085	-0.172	0.169	0.351	0.165	0.723
Reliability 3	0.442	-0.208	-0.399	0.089	-0.290	0.116	0.132	0.217	0.568
Reliability 4	0.630	0.149	0.069	-0.179	-0.485	-0.063	-0.157	0.002	0.719
Reliability 5	0.469	0.494	-0.085	0.172	0.084	-0.212	-0.350	-0.040	0.677
Fare 1	0.239	0.371	-0.162	0.125	0.357	0.525	0.031	0.300	0.730
Fare 2	0.311	-0.128	0.321	-0.151	0.002	0.247	-0.288	-0.009	0.383
Fare 3	0.332	-0.103	-0.453	-0.350	0.108	0.389	-0.008	0.037	0.613
Fare 4	0.478	0.165	0.147	-0.524	-0.019	0.120	0.207	0.020	0.611
Convenience 1	0.367	0.052	0.344	-0.382	0.483	-0.176	-0.103	-0.016	0.677
Convenience 2	0.638	0.099	-0.101	0.285	-0.190	0.104	0.284	-0.086	0.644
Convenience 3	0.715	-0.102	0.017	0.057	-0.125	0.103	-0.233	-0.148	0.627
Convenience 4	0.715	0.001	-0.076	-0.201	-0.203	-0.094	0.128	-0.228	0.676
Convenience 5	0.665	-0.050	0.430	0.047	0.039	0.041	0.029	-0.291	0.720
Convenience 6	0.458	0.248	-0.320	0.121	0.195	-0.248	0.091	0.418	0.671
Ownership 1	0.439	-0.268	0.233	0.493	0.390	0.091	-0.184	-0.005	0.756
Ownership 2	0.257	0.008	0.340	0.178	-0.347	-0.264	-0.225	0.520	0.724
Ownership 3	0.176	-0.509	0.354	0.165	-0.083	0.452	0.051	0.228	0.709
Ownership 4	0.551	-0.339	-0.125	0.144	0.194	-0.303	0.035	0.172	0.615
Security 1	0.564	-0.439	-0.334	-0.018	-0.030	-0.081	-0.059	-0.099	0.644
Security 2	0.272	-0.020	0.090	0.387	0.132	-0.161	0.556	-0.284	0.666
Security 3	0.549	-0.094	0.093	-0.392	0.270	-0.198	0.226	0.223	0.686

b. Determine factor load and identify significant factor load after factor rotation and factor naming

Tabel 6. Component Rotation

	Component								
Variabel	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Comunalities**
Reliability 1	0.206	-0.057	**0.735**	0.103	-0.054	0.066	0.209	-0.137	0.666
Reliability 2	0.018	0.107	0.079	0.033	**-0.757**	0.233	0.172	0.216	0.723
Reliability 3	**0.658**	-0.102	-0.079	-0.017	0.189	0.058	0.244	0.137	0.568
Reliability 4	**0.628**	0.205	0.320	0.166	-0.180	-0.115	-0.181	0.273	0.719
Reliability 5	0.092	0.133	**0.765**	-0.015	0.018	0.044	0.110	0.223	0.677
Fare 1	0.008	0.049	0.206	0.118	-0.170	-0.006	**0.796**	-0.095	0.730
Fare 2	0.097	0.208	0.070	**0.539**	-0.032	-0.181	-0.022	0.031	0.383
Fare 3	**0.447**	0.188	-0.010	0.037	0.183	-0.253	0.382	-0.364	0.613
Fare 4	0.373	**0.599**	0.018	0.084	-0.297	-0.061	0.061	-0.099	0.611
Convenience 1	-0.175	**0.751**	0.179	0.211	0.075	0.004	-0.011	-0.002	0.677
Convenience 2	**0.568**	-0.002	0.221	0.123	-0.101	0.462	0.174	0.067	0.644
Convenience 3	**0.503**	0.144	0.351	0.443	0.149	0.079	-0.011	0.069	0.627
Convenience 4	**0.650**	0.361	0.242	0.088	0.010	0.189	-0.140	-0.040	0.676
Convenience 5	0.251	0.363	0.246	**0.543**	-0.085	0.374	-0.150	0.019	0.720
Convenience 6	0.220	0.254	0.269	-0.295	0.179	0.168	**0.460**	0.356	0.671

Variabel	Component 1	2	3	4	5	6	7	8	Comunalities
Ownership 1	-0.100	0.038	0.189	**0.592**	0.355	0.396	0.223	0.162	0.756
Ownership 2	0.116	0.029	0.037	0.171	-0.078	-0.079	-0.061	**0.814**	0.724
Ownership 3	0.140	-0.086	-0.450	**0.654**	0.008	0.074	0.161	0.142	0.709
Ownership 4	0.270	0.282	0.036	0.082	**0.516**	0.305	0.114	0.285	0.615
Security 1	**0.551**	0.132	0.053	0.145	0.534	0.111	-0.014	-0.032	0.644
Security 2	0.088	0.050	0.008	-0.023	-0.027	**0.805**	-0.029	-0.067	0.666
Security 3	0.238	**0.748**	-0.079	0.014	0.122	0.119	0.136	0.128	0.686
									Total
Eigenvalue	5.020	1.762	1.611	1.469	1.273	1.186	1.113	1.071	14.504
% Varians	22.818	8.009	7.324	6.676	5.787	5.389	5.057	4.867	65.927

The first factor has an eigenvalue of 5.02 with a variance of 22.82%. This factor includes 7 variables consisting of Reliability 3, Reliability 4, Fare 3, Convenience 2, Convenience 3, Convenience 4 and Safety 1. Reliability 3 has the highest factor load, namely 0.658. While the smallest factor load is given by the variable Fare 3 which is equal to 0.447. Based on the factor load formed and the variable naming, Factor 1 is named "Public Transportation Service Factor". This factor explains the service perceived by respondents in using Angkutan Kota D.02. Fare 3 which is "The perception of choosing Angkutan Kota D.02 based on cheap fares" actually gets the lowest factor load value. This is possible because respondents have no other choice in driving so they just accept the tariff that has been set.

The second factor consists of the variables Fare 4, Convenience 1 and Safety 3. The Eigenvalue on the second factor is 1.762 with a variance of 8%. The biggest factor load is Convenience 1 of 0.751 and the smallest factor load is Fare 4 of 0.599. Factor 2 is named "Compatibility Factor with Costs incurred".

The third factor is named "Time Factor". This factor contains Reliability 1 and Reliability 2. This factor represents that the reason of respondents chooses Angkutan Kota D.02 because Angkutan Kota D.02 is felt according to the time owned by the respondents and this transportation it is easy to reach.

The fourth factor is the "Economic Factor" which consists of the variables Fare 2, Convenience 5, Ownership 1, and Ownership 4. This factor represents that the use of Angkutan Kota D.02 is based on the finances owned by the respondents so that they inevitably choose Angkutan Kota D.02 in traveling. Load factor od Ownership 3 has the highest factor load of 0.654. It can be seen that whether respondents like it or not choose Angkutan Kota D.02 because their income is not enough to own a vehicle, this makes them as a "Captive Choice" group. This is reinforced by the Rate 2 which has the smallest factor load. Respondents have no other choice so they accept all the services provided for the price offered by the operators.

The fifth factor consists of 2 factors, namely Reliability 2 and Ownership 4. This factor is named "Access Availability Factor" which represents accessibility in using and obtaining Angkutan Kota D.02. Reliability 2 has a negative value of load factor indicating that Angkutan Kota D.02 is not sufficient to support user mobility. The 6th factor is named "Driver Behavior Factor" and has a factor loading of 0.81 percent. The total variance is 5.39%. . An indication that can be seen from this value is that respondents are satisfied with the driver's behavior who is not reckless.

The seventh contains the variables Fare 1 and Convenience 6. Factor 7 is named "Expectation Factor". Fare 1 has the largest factor load, namely 0.796. While Convenience 6 has a factor load of 0.46. It can be seen that respondents agree that D.02 transportation is considered the cheapest compared to other types of transportation. Meanwhile, cConvenience 6 is considered inadequate in terms of facilities. Factor 8 has a factor load of 0.82 on the variable private vehicle ownership and is named "Factor of Interest in Owning a Private Vehicle".

Regression Analysis

The next stage is Regression analysis to determine the relationship between the factors that are formed with the perception of user satisfaction. Regression analysis was used to determine the main objective of the research, namely to determine the factors that most influence the satisfaction of D.02 Angkot users. factors that

X1 = Public Transport Service Factor
X2 = Conformity with Costs incurred Factor
X3 = Time Factor
X4 = Economic Factor
X5 = Access Availability Factor
X6 = Driver Behavior Factor
X7 = Expectation Factor
X8 = Interest Factor of Owning a Private Vehicle

The linear regression analysis used is multiple regression analysis, which is to explain several independent variables to the dependent variable. The factors that influence the perception of satisfaction are presented in Table 7.

Tabel 7. Hasil Analisis Regresi

Factor	B	t	Sig.
(Constant)	3.980	90.069	0.000
(X2) Conformity with Costs incurred Factor	0.113	2.547	0.012
(X3) Time Factor	0.180	4.061	0.000
(X5) Access Availability Factor	-0.103	-2.311	0.023
(X7) Expectation Factor	0.138	3.103	0.003

Based on the results of the backward regression analysis, the factors that influence the satisfaction of Angkutan Kota D.02 users are the "Compatibility with Costs Incurred", "Time Factor", "Access Availability" and "Expectation Factor". From the regression results, it can be seen that the perception of passenger satisfaction will increase by 0.113 if passengers feel that there is a suitability for the costs and benefits obtained. Likewise with the Time Factor, the perception of service satisfaction will increase by 0.180 if the Angkutan Kota D.02 service is easily accessible so that it provides a short travel time. The personal expectation factor contributes an increase of 0.136 to the user's perception of satisfaction. While the availability factor has a unique phenomenon because it has a negative value. This indicates that the perception of the availability of access to Angkutan Kota D.02 reduces the perception of user satisfaction by 0.103. The possibility that can happen is that currently accessibility to get transportation D.02 is still not enough for users of Angktuan Kota D.02

CONCLUSION

In the factor analysis with the Component Extraction, eight factors were formed including the Public Transport Service Factor, Compatibility Factor with Costs incurred, Time Factor, Economic Factor, Availability of Access Factor, Expectation Factor, Interest Factor of owning a Private Vehicle. Satisfaction of users of Angkutan Kota D.02 route is influenced by the Price Conformity Factor, Time Factor, Personal Expectation Factor and Accessibilitu Availability Factor. The Price Compatibility Factor, the Time Factor and the Personal Expectation Factor increase the satisfaction of Angkutan Kota D.02 users, while the Accessibility Availability Factor decreases user satisfaction.

REFERENCES

Van Lierop, et. al. (2018). What influences satisfaction and loyalty in public transit? A critical review of the literature. Transport Reviews, 8(1), 52-72.

De Ona, Juan dan De Ona, Racio. (2014). Quality Of Service In Public Transport Based On Customer Satisfaction Surveys: A Review And Assessment Of Methodological Approaches. Transportation Science, DOI: 10.1287/trsc.2014.0544.

Uma dan Chandramowleeswaran. (2015). A Study On Service Customization Impact Towards Customer Satisfaction, Loyalty And Trust. International Journal of Management (IJM), Volume 6, Issue 10

Lesmana, Hendra. (2017). Analysis of Satisfaction and Loyalty of the Quality of Service Users Industrial Area Mm2100 Bekasi District West Java. Journal of Business and Management (IOSR-JBM), Volume 19, Issue 8.

Meutia W, Yuliana E. (2019). Performance Analysis of Manggarai Station Service Facilities on Passenger Satisfaction. Jurnal Infrastruktur, Volume 5(2), DOI: https://doi.org/10.35814/infrastruktur.v5i2.1131

SEO, Sangeon., & PARK, Sunyoung. (2017). Koreans' Satisfaction with Public Transportation Service, Journal of the Eastern Asia Society for Transportation Studies, 12, 454-463.

Peraturan Menteri Perhubungan Republik Indonesia Nomor 98 Tahun 2013. (2013). Standar Pelayanan Minimal Kendaraan Bermotor Umum Untuk Angkutan Orang Pada Trayek.

Meutia W. (2016). Faktor-Faktor yang Mempengaruhi Persepsi Penerimaan Kebijakan Transportasi. Jurnal Infrastruktur. Volume 2(2).

Halaman ini sengaja dikosongkan