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# The Model Of Public Masive Transportation That Is Desired By Soceity

Dr. Dadang Supriyatno
*Faculty of engineering, Surabaya State of University, East Java Indonesia*

***Abstrak:*** *User satisfaction is the main factor in assessing the quality of service, where the consumers evaluate performance that directly received and perceived towards the product of a service (Cronin, et al,1992). The quality of service is determined by the level of compatibility between the service given and wished by users (TRB, 1999). The higher the quality of service perceived, there will be higher the level of users satisfaction, further the more positive intention behavior in addressing the service. The model which is used in determining the public transportation desired by society is :*
*Y2' = 23,726+2,711X1+3,748 X2+2,920 X3. With Y2' = the model of public transportation that is desired by society, X1 = independent speed variable, X2 = independent accuracy variable, X3 = independent amenity variable, $R^2$ in the amount of 0,634 and R in the amount of 0,796. The factors that influencing towards public massive transportation that is desired by society are the speed, accuracy of trip and also the amenity inside the public massive variable and the trip.*
***Keywords:*** *The quality of service, Model, Public massive transportation that is desired by society.*

## I. Introduction

Quality of service is determined by how the degree of conformity between the services provided by the expected by users, all of the services sectors are strongly related to the service that they will be given to the consumer, also the transportation service are strongly related to the service that they will be given to the users of the transportation vehicle provided. Appraisal towards services are needed for a long term in improving service to the public in one side and another will decreasing operation cost, meanwhile determination the level of service needs to pay attention on actors involved, they are the active users and the passive stakeholder.

User satisfaction is the main factor in assessing the quality of service, where the consumers evaluate performance that directly received and perceived towards the product of a service (Cronim, *et al*, 1992). The quality of service determined by the level of compatibility between the service given and wished by users (TRB, 1999). The higher the quality of service perceived, there will be higher the level of users satisfaction, further the more positive intention behavior in addressing the service.

Many studies put forward, that the quality of service has a strong relation with consumers satisfaction (Tjipto, 2000) and the service quality influencing consumers satisfaction and finally influencing loyality (Anderson, *et al*, 1993 ; Cronim, *et al*, 1992 ; Oliver, 1980 ; Chen, 2008). One of the impacts from the changing in fulfilling services that is desired by the society, so there will be a tendency in improving the use of public transportation which has big capacity and the main consideration is the speed of trip, accuracy and the amenity which is given by the operator to the transportation users.

According to Black (1995), to provide the suitable public transportation service , it is necessary to know the things that is related to the characteristic of public transportation users including : sex, age, occupation, salary, destination, time, schedule, the station's/shelter's location and the direction.

## II. Methodology

One of the methods that are used to get the factors which are influencing the quality of public massive transportation is by using Multiple Linier Regression with obtaining SPSS *software* (Statistical Product and Service Solution). This method can observe more than one variable, so we can get the most influencing variable and not influencing towards the public transportation model which is desired by the society from user's side and stakeholder's side. Looking from the existence, this software is easy to use and economic, because many using and easy to operate besides, the Multiple Linier Regression with the SPSS $17^{th}$ series are also easier in the operation.

**Data Analysis Method**

Before regression model was found, there were three kind of testing, they were: Test of Validity, Test of Reliability, and Test of Classical Assumption to testing the sincerity of Respondent's answer, including Normality Test, Linearity, Autocorrelation, Multicollinearity, Heteroscedasticity, besides also after resulting regression model, will be done Test of Partial Influencing.

**Data Analysis Technic**
To explain the relation between independent variable and dependent variable, it is used multiple regression model which is be avowed with function below

**The Model of Public Transportation That Is Desired by Society looking from user (Y1)**
$Y1 = b0 + b1X1 + b2X2 + b3X3 + b4X4 + b5X5 + b6X6$
Which is:
Y1 = Dependent Variable of Public Transportation That Is Desired by Society
Bo = Intercept
b1,b2,b3,b4,b5,b6 = Coefficient of each independent variable
X1 = Independent Service Variable
X2 = Independent Facility Variable
X3 = Independent Operational Variable
X4 = Independent Accessibilities Variable
X5 = Independent Ethic Role Variable
X6 = Independent Infrastructure Variable

**The Model of Public Transportation Desired by Society Looked from The Stakeholder (Y2)**
$Y2 = b0 + b1X1 + b2X2 + b3X3 + b4X4 + b5X5$
Which is :
Y2 = Dependent Variable of Public Transportation Desired by Society
bo = Intercept
b1,b2,b3,b4,b5 = Coefficient of each variable
X1 = Independent Speed Variable
X2 = Independent Accuracy Variable
X3 = Independent Amenity Variable
X4 = Independent Human Resources Variable
X5 = Independent Government Role Variable

Analysis data technic uses descriptive quantitative analysis and regression analysis with helps from SPSS program, interpretation method and data inference can be done with :

**1. Normality Test**
A research which is doing hypothesis test with t- test and or F test, according to an assumption which is should be tested is the population should in normal distribution, what if the amount of sample be enlarged the deviation of this normality assumption, the effect is getting smaller.

**2. Correlation Coefficient Test**
Correlation Coefficient (r) is used to determine correlation between independent variable. r value which is closer to -1 means both of the variables are negative correlation each other (enhancement from one of the variable values will affect the reduction of other variable values). Otherwise if r value is closer to +1 it means that both of the variables are positive correlation one another (enhancement from one of the variable values will affect the uplift of other variable values), besides the number that will appear indicates the level of connection as in table 1 below:

**Table-1** Coefficient Correlation Interpretation

| Coefficient Interval | The Level of Connection |
|---|---|
| 0.00-0.199 | Very Low |
| 0.20-0.399 | Low |
| 0.40-0.599 | Medium |
| 0.60-0.799 | Strong |
| 0.80-1.000 | Very Strong |

## III. Result And Discussion

Statistic Test is needed to know the factors that affecting towards Public Transportation that is desired by society, the test is done with steps below:

1. Statistic Parametric Test

Multiple Regression Analysis can be applied with Statistic Parametric, statistic test that is applied is Normality of data test, and homogeneity of data test. Normality testing in this research uses *Kolmogorov-Smirnov* Statistic with hypothesis:

Ho: Data comes from population normal distribution

Ha: Data comes from population not normally distributed

2. The Output Correlation between variable looked from user's side and the model which is gotten :

Y1 = 31,903+1,979 X1+2,101 X2+0,890 X3+1,960 X4+ 1,457 X5 + 1,268 X6

**F Test:**

Conclusion : F count ≥ F table ( 12,107 ≥ 2,342 ) so Ho is refused, it means that service variable, facility, operational, accessibility, ethic, and infrastructure are affecting together towards massive transportation that is desired by society.

Meanwhile significantly because significant value (0,00) ≤ 0,05 so Ho is refused, it means service factors, facility, operational, accessibility, ethic, and infrastructure are affecting together towards massive transportation that is desired by society.

**T Test:**

Because of T count ≥ t table (4,563 > 1,993) so Ho is refused then can be concluded service, facility operational, accessibility, ethic, and infrastructure are partially affecting towards massive transportation that is desired by society.

So does other variables:

1) Facility (b2) : t count ≥ t table ( 3,908 > 1,993 ), Ho is refused

Operational (b3) : t count ≥ t table ( 1,780 > 1,993 ), Ho is accepted, so partially independent variable is not affecting to massive transportation that is desired by society.

A (b4) : t count ≥ t table ( 3,470 > 1,993 ), Ho is refused

Ethic (b5) : t count ≥ t table ( 2,535 > 1,993 ), Ho is refused

Infrastructure (b6): t count ≥ t table (2,152 > 1,993), Ho is refused

After going through the pre terms series in modeling, finally can be concluded that model in similarity (1) is feasible to be used because it is already passed all of the assumption. Model in similarity (1) explains that there is a correlation between dependent variable of massive transportation that is desired by society and independent variable. However, there is still a test to know that between independent variable is not affecting each other or independent so it is need to look independence between dependent variable.

**Table-2** The result of dependent correlation variable(Y1) and independent (X)

| Correlations | Y1 | X1 | X2 | X3 | X4 | X5 | X6 |
|---|---|---|---|---|---|---|---|
| Y1 Person Correlation | 1 | 0.402 | 0.396 | 0.235 | 0.306 | 0.336 | 0.101 |
| Sig (2-tailed) | 0 | 0 | 0 | 0.037 | 0.006 | 0.002 | 0.378 |
| N | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| X1Person Correlation | 0.402 | 1 | 0.084 | 0.034 | -0.023 | 0.078 | -0.147 |
| Sig (2-tailed) | 0 | 0 | 0.461 | 0.767 | 0.844 | 0.497 | 0.195 |
| N | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| X2 Person Correlation | 0.396 | 0.084 | 1 | 0.103 | 0.025 | 0.145 | -0.132 |
| Sig (2-tailed) | 0 | 0.461 | 0 | 0.368 | 0.824 | 0.202 | 0.245 |
| N | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| X3 Person Correlation | 0.235 | 0.034 | 0.103 | 1 | 0.059 | 0.083 | 0.017 |
| Sig (2-tailed) | 0.037 | 0.767 | 0.368 | 0 | 0.606 | 0.47 | 0.88 |
| N | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| X4 Person Correlation | 0.306 | -0.023 | 0.025 | 0.059 | 1 | 0.047 | -0.01 |
| Sig (2-tailed) | 0.006 | 0.844 | 0.824 | 0.606 | 0 | 0.679 | 0.93 |
| N | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| X5 Person Correlation | 0.336 | 0.078 | 0.145 | 0.083 | 0.047 | 1 | 0.085 |
| Sig (2-tailed) | 0.002 | 0.497 | 0.202 | 0.47 | 0.679 | 0 | 0.456 |
| N | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| X6 Person Correlation | 0.101 | -0.147 | 0.132 | 0.017 | -0.01 | 0.085 | 1 |
| Sig (2-tailed) | 0.378 | 0.195 | 0.245 | 0.88 | 0.93 | 0.456 | 0 |
| N | 79 | 79 | 79 | 79 | 79 | 79 | 79 |

**Table-3** The Connection Correlation Variable (Y1) with variable

| Variable relation | correlation coefficient | boundary correlation | Condition | Description |
|---|---|---|---|---|
| Y1-X1 | 0.402 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| Y1-X2 | 0.396 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| Y1-X3 | 0.235 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| Y1-X4 | 0.306 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| Y1-X5 | 0.336 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| Y1-X6 | 0.101 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X1-X2 | 0.084 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X1-X3 | 0.034 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X1-X4 | -0.023 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X1-X5 | 0.078 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X1-X6 | -0.147 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X2-X3 | 0.103 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X2-X4 | 0.025 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X2-X5 | 0.145 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X2-X6 | -0.132 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X3-X4 | 0.059 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X3-X5 | 0.083 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X3-X6 | 0.017 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X4-X5 | 0.047 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X4-X6 | -0.01 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |
| X5-X6 | 0.085 | 0.5 | correlation coefficient < boundary correlation | correlation is weak |

Table-3 The Connection Correlation Variable (Y1) with variable From the independency testing between dependent variable and independent variable not affecting one another also between independent variable not found affecting each other, looks from the correlation result which is low. Because of that it does not need to do a test to model which is already gotten, this thing means independent variables which are quality service variable from public massive transportation is still can be accepted generally by active users of public massive transportation, even though it still needs improvement from users' side.

3. Correlation Output between Variables looked from Stakeholder's side and Model Obtained

$Y2 = 12{,}623+3{,}314x1 + 2{,}600x2 + 1{,}405x3 + 3{,}180x4 + 2{,}674x5$

**F Test:**

Conclusion: F count ≥ F table (63,334 ≥ 2,486) so Ho is refused it means that service variables, facility, operational, accessibility, ethic, infrastructure, are affecting together towards massive transportation that is desired by society.

Meanwhile significantly because significant value (0,00) ≤ 0,05 so Ho is refused, it means speed factors, accuracy, amenity, human resources, and role of government are affecting together towards massive transportation that is desired by society.

**T test:**

Because of t count ≥ t table ( 7,263 ≥ 1,990 ) so Ho is refused then can be concluded speed variables, accuracy, amenity, human resources, and government role are partially affecting towards massive transportation that is desired by society.

So does the other variables:
Accuracy (b2): t count ≥ t table (4,739 > 1,990), Ho is refused
Amenity (b3): t count ≥ t table (2,489 > 1,990), Ho is accepted
Human Resources (b4): t count ≥ t table (6,793 > 1,990), Ho is refused
Government Role (b5): t count ≥ t table (4,950 > 1,990), Ho is refused

After going through the pre terms series in modeling, finally can be concluded that model in similarity (2) is feasible to be used because it is already passed all of the assumption. Model in similarity (2) explains that there is a correlation between dependent variable of massive transportation desired by society and independent variable. However, there is still a test to know that between independent variable is not affecting each other or independent so it is need to look independence between dependent variable

**Table-4** The Result of dependent variable (Y2) and independent (X)

| Correlations | Y1 | X1 | X2 | X3 | X4 | X5 |
|---|---|---|---|---|---|---|
| Y2 Person Correlation | 1 | 0.607 | 0.615 | 0.558 | 0.442 | 0.416 |
| Sig (2-tailed) N | 0 | 0 | 0 | 0 | 0 | 0 |
| | 86 | 86 | 86 | 86 | 86 | 86 |
| X1 Person Correlation | 0.607 | 1 | 0.343 | 0.361 | -0.106 | ,195 |
| Sig (2-tailed) N | 0 | 0 | 0.001 | 0.004 | 0.332 | 0.072 |
| | 86 | 86 | 86 | 86 | 86 | 86 |
| X2 Person Correlation | 0.615 | 0.343 | 1 | 0.306 | 0.27 | 0.186 |
| Sig (2-tailed) N | 0 | 0.001 | 0 | 0.004 | 0.013 | 0.087 |
| | 86 | 86 | 86 | 86 | 86 | 86 |
| X3 Person Correlation | 0.558 | 0.361 | 0.306 | 1 | 0.273 | 0.258 |
| Sig (2-tailed) N | 0 | 0.001 | 0.004 | 0 | 0.012 | 0.016 |
| | 86 | 86 | 86 | 86 | 86 | 86 |
| X4 Person Correlation Sig (2-tailed) N | 0.442 | -0.106 | 0.27 | 0.273 | 1 | -0.037 |
| | 0 | 0.332 | 0.013 | 0.012 | 0 | 0.737 |
| | 86 | 86 | 86 | 86 | 86 | 86 |
| X5 Person Correlation | 0.416 | 0.195 | 0.186 | 0.258 | -0.037 | 1 |
| Sig (2-tailed) N | 0 | 0.072 | 0.087 | 0.016 | 0.737 | 0 |
| | 86 | 86 | 86 | 86 | 86 | 86 |

**Table-5** The Connection Correlation Variable (Y2) and (X) variable

| Variable relation | correlation coefficient | boundary correlation | Condition | Description |
|---|---|---|---|---|
| Y2-X1 | 0.607 | 0.5 | correlation coefficient > | Strong correlstion |
| Y2-X2 | 0.615 | 0.5 | correlation coefficient > | Strong correlstion |
| Y2-X3 | 0.558 | 0.5 | correlation coefficient > | Strong correlstion |
| Y2-X4 | 0.442 | 0.5 | correlation coefficient > | correlation is weak |
| Y2-X5 | 0.415 | 0.5 | correlation coefficient > | correlation is weak |
| X1-X2 | 0.343 | 0.5 | correlation coefficient > | correlation is weak |
| X1-X3 | 0.361 | 0.5 | correlation coefficient > | correlation is weak |
| X1-X4 | -0.106 | 0.5 | correlation coefficient > | correlation is weak |
| X1-X5 | 0.195 | 0.5 | correlation coefficient > | correlation is weak |
| X2-X3 | 0.306 | 0.5 | correlation coefficient > | correlation is weak |
| X2-X4 | 0.207 | 0.5 | correlation coefficient > | correlation is weak |
| X2-X5 | 0.186 | 0.5 | correlation coefficient > | correlation is weak |
| X3-X4 | 0.273 | 0.5 | correlation coefficient > | correlation is weak |
| X3-X5 | 0.258 | 0.5 | correlation coefficient > | correlation is weak |
| X4-X5 | -0.037 | 0.5 | correlation coefficient > | correlation is weak |

From the independency testing between dependent variable with independent variable are affecting one another in Y2-X1, Y2-X2 and Y2-X3 (strong correlation) but between independent variable cannot be found affecting one another, looked from the low correlation result, so it is necessary to have a test towards model that is already obtained, so that we can be found the latest Model, it is :

**Y2' = 23,726+2,711X1+3,748 X2+2,920 X3**

R value (multiple correlation) = 0,796 it means correlation between Speed variable, Accuracy, and Amenity to Public Massive Transportation that is desired by society as big as 0,796 which is happening a relation that very strong because the value is closer to 1.

R Square value ($R^2$) = 0,634 which means the percentage of donation effect of Speed variable, Accuracy, and Amenity towards Public Massive Transportation that is desired by society as big as 63,40%, meanwhile the rest of it affected by other variables which are not be listed in this model.

Standar Error Of The Estimate is the measure of prediction fault, the value is 4,343 which means the fault that happens in predicting Public Massive Transportation that is desired by society is as big as 4,343%.

Interpretations and Similarities :

a) Constants value (a) is 23,726 which means if the value of Speed variable, Accuracy, Amenity is 0, then massive transportation that is desired by society is in the amount of 23,726.
b) Coefficient regression value of speed variable (b1) is 2,711 which means every escalation of speed service is as big as 1%, so Public Massive Transportation that is desired by society will gain to 2,711%.
c) Coefficient regression value of accuracy variable (b2) is 3,748 which means every escalation of accuracy service is as big as 1%, so Public Massive Transportation that is desired by society will gain to 3,748%.
d) Coefficient regression value of amenity variable (b3) is 2,920 which means every escalation of amenity service is in the amount of 1%, so Public Massive Transportation will gain to 2,920%.

So the Model that is used is the model that obtained from data analysis from Stakeholder's side, so that to get the model of public massive transportation that is desired by society which is need to be fixed are speed, accuracy, and amenity so the massive transportation will be desired by society.

## IV. Conclusion

The conclusion that can be obtained from this research are :

From the model analysis of public massive transportation that is desired by society which is looked from user side and Stakeholder, then the model that is used is the model from Stakeholder's, remembering there are few variables that should be fixed so that the public massive transportation will be desired by society, meanwhile from user side generally the service quality nowadays is still can be accepted, by doing escalation of restoration and keep what is already well managed.

From this reserch also can be obtained :

a. The factors that affecting towards Public Massive Transportation that is desired by society are speed, accuracy of trip and also the amenity that can be perceived in the public massive transportation and in the trip.
b. The model that is used to determine the pulic massive transportation that is desired by society is :

**Y2' = 23,726+2,711X1+3,748 X2+2,920 X3**

Which is :

Y2 = Dependent Variable of Public Massive Transportation that desired by society
bo = Intercept
b1,b2,b3 = Coefficient of each Independent Variable
X1 = Independent Speed Variable
X2 = Independent Accuracy Variable
X3 = Independent Amenity Variable

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