

Willingness to Pay for Improving The Quality of Public Transportation

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Abstract

This study aims to know the magnitude of the estimated average value of willingness to pay service users BRT Trans Semarang to improve the service quality and to know the change of the desired service quality improvement from the users of BRT Trans Semarang. Quantitative descriptive research approach with Contingent Valuation Method (CVM) is used to analysis the data from 100 respondents. Sampling techniques are carried out by means of purposive random sampling. The finding shows that the magnitude of the average value of willingness to pay IDR. 4,000 and quality service that needs to be fixed are a convenient bus stop placement, more emphasis on user safety, timeliness the potential as well as the necessity to depart and the priority age of BRT users. Government can review back the tariff policy of BRT Trans Semarang set appropriate response from the respondents because the estimated average value of WTP can be the basic reference point for setting the rates and can improve the quality of service to make it more adequate so that users feel at ease when using the BRT Trans Semarang

Key words : willingness to pay, service quality, improvement, public, transportation

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INTRODUCTION

Semarang City is one of the largest cities that has considerable economic activity in Indonesia. Economic activities in the city will continue to increase because it has a very strategic location as the main route of mobility of the people on Java. According to (Pujiati, 2009) development is basically a multidimensional process that includes changes in the mainstay of social structures, changes in people's attitudes to life and changes in institutions. The success of economic development which is shown by the increasingly rapid economic activity pull the population in, so the number becomes increasingly abundant. To support its economic activities, it is necessary to have a convenient means of transportation to use and facilitate mobility from one place to another.

Peoples decide to use private vehicles rather than public vehicles because it can arrive their destination faster. Data on motorized vehicles in the city of Semarang is characterized by the number of private vehicles and public vehicles that increases every year. According to the Central Java Provincial Revenue Management Agency

(2018), the total number of private vehicles in Semarang City, was 995,778 units in 2013 and reached 1,981,208 units in 2017. While public transportation, in 2013 the number was 5,553 units and getting increased to 8,207 units in 2017. Table 1.

The raising lead to an emergence of a new problem namely congestion. In addition to the increasing density of motorized vehicles, congestion is also caused by the vast area of land for road facilities. According to (Tamin, 2000) congestion problems can cause a negative impact on road users, which can lead to a decrease in the level of comfort in road use due to air pollution and can cause additional travel time due to congestion.

The level of road density is seen from the V / C Ratio, which is a comparison between the volume of vehicles with road capacity in the city of Semarang. If the V / C ratio approaches 1, then the level of traffic density will be even higher. The meaning is the level of service and its density will be higher too. Table 2 shows that the road in Semarang is an alarming category because it is in category C to the lowest category, namely E. It means that people can no longer feel comfortable and calm driving because there are restrictions on vehicle volume and speed.

Table 1. The number of vehicles in Semarang, 2013-2017

Year	Private Vehicle		Total	Public vehicle		Total
	2 & 3 tires	4 tires		small	Big	
2013	854.043	141.735	995.778	3.490	2.063	5.553
2014	99.602	172.538	1.164.140	3.617	2.331	5.948
2015	1.172.521	197.774	1.370.295	4.259	2.534	6.793
2016	1.387.600	238.152	1.625.752	4.697	2.803	7.500
2017	1.532.679	448.529	1.981.208	5.135	3.072	8.207

Source: Central Java Provincial Revenue Management Agency (2018), processed

Table 2. The level of Road Density in Semarang City Based on Service Level

No	Roads	Volume	Capacity	V/C Ratio (smp/hour)	Category
1	Jl. Pandanaran	5720,43	66696,43	0,85	E
2	Jl. Brigjend Soediarso	6089,17	6576,47	0,93	E
3	Jl. Teuku Umar	6026,91	6406,2	0,94	E
4	Jl. Wahidin	5200,88	5911	0,88	E
5	Jl. MT. Haryono	5526,91	6284,52	0,88	E
6	Jl. Pahlawan	4539,37	6234,45	0,73	D
7	Jl. Sultan Agung	4113,35	4930	0,83	D
8	Jl. Kaligawe	6819,35	9541,54	0,71	D
9	Jl. Soekarno Hatta	1690,78	2283,06	0,74	D
10	Jl. Tendean	2323,53	3340,44	0,7	D
11	Jl. Ahmad Yani	4321,51	5564,8	0,78	D
12	Jl. Sriwijaya	4249,78	5437,2	0,78	D
13	Jl. Imam Bonjol	3136,74	5082,6	0,62	C
14	Jl. Woltermonginsidi	2926,75	5354,4	0,55	C
15	Jl. MH. Thamrin	2636,65	4658,33	0,57	C

Source: The agency of Transportation, communication and information, Semarang city.

Note:

- 0.0-0.19 : Category A, Free flow, low volume, high speed
- 0.20-0.44 : Category B, The current is stable and there are speed restrictions
- 0.45-0.69 : Category C, Stable current and down driving comfort and restricted movement
- 0.70-0.84 : Category D, The current approaches unstable, the speed of traffic is interrupted by road conditions
- 0.85-1.00 : Category E, a traffic jam occurs.

Government seeks to create a good transportation system by improving public vehicle infrastructure, so that users feel comfortable using it. Even though public transportation can deal with congestion and negative environmental impacts, it can also affect the economy in the future. This is confirmed by (Vilakazi & Govender, 2014) which states that the study of public transportation is important because it will affect all citizens and the national welfare.

The quality of public transportation services in Semarang City still needs a lot of improvement. Table 3 shows that the quality of public transportation services both city buses and transportation in the Semarang city are still low. Comfort and passenger safety conditions have not been the main priority. Therefore, people prefer to choose private vehicles than public vehicles.

Trans Semarang Bus are issued by the Government to provide a solution as mass transportation that convenient for community and to overcome congestion. Many strategic policies have been taken to foster sustainable transportation in a gradually with increasing the role of public transportation by reducing people's dependence on private vehicle transportation (O'Sullivan A, 2003). The prominence of using public transportation was also stated by (Susniene, 2015) which said that the benefits of public transportation will be able to increase people's mobility, reduce dependence on cars and reduce the negative impacts of pollution that will have an seriously impact on health while reducing the consequences of widening roads.

Current symptoms, some of the BRT Trans Semarang bus shelters are not feasible and dirty, a lot of streaks, and less strategic placement. These conditions make passengers feel uncomfortable. In addition, some shelters are not suitable for capacity and cause many passengers jostle each other while waiting for BRT Trans Semarang. As for tariff, the Government has provided subsidies so that people do not feel heavy to pay for it. But it was not enough to divert from private to public transportation. Government needs to review public transport fares so that people feel comfortable because rational consumers are still oriented to satisfaction, comfort and security. Accordingly, study is needed to find out how much willingness to pay (WTP) from

the community to change the transportation from private to public. According to (Permata, 2012), the willingness to pay approach make use of consumer's perceptions to the tariffs of public transport services that cover the quantity and quality of transportation services, user utilities, and consumer income.

Hence, this study aims to determine the estimated average willingness to pay for Trans Semarang Bus Rapid Transit (BRT) users to improve service quality in a better direction. Good service quality does not derive the government as a BRT Trans Semarang public transportation service provider, but comes from the perception of the community as users of the service. The users of public transport stare to be very critical of the service quality changes in overall until they are instigated to consider of other variables that initially, they did not aware, in turn, become to be very influential on their evaluation of overall service quality (Dell'Olio, Ibeas, & Cecin, 2010). Finally it will influence the decision making on the transportation choices that will be used.

According to (Xiaa, Zhang, Mayer, & Crabb, 2017), Travel behavior and decision-making processes related to transportation choices are complex psychological activities. Furthermore, it was conveyed that until now there had not been a comprehensive agreement on the theory of travel behavior even though economist researchers had tried to link the behavioral factors of this trip together.

Table 3. Study on the Quality of Public Transport Services in Semarang City

Variable	City bus	City transport
1. Service quality	Very low	low
	(ITTB = 19,4%)	(ITTB = 23,51%)
2. Attitude of the Crewman	Very low	Very low
	(ITTB = 24%)	(ITTB = 22,9%)
3. Efforts of Owners to Provide the Best Service	Good enough	Low enough
	(ITTB = 52%)	(ITTB = 35,8%)
4. Convenience	Very low	low
		(ITTB = 12,8%)
5. Conditions for vehicle Safety and Health	Very low	
	(ITTB = 2%)	ITTB = 2,9%
6. Tariff base on people's perception	Very expensive	expensive
	(ITTB = 2%)	(ITTB = 2,9%)
7. Unmet Requirements	<ul style="list-style-type: none"> a. The driver's identity is placed on the dashboard issued by the company. b. Medicine box and its contents. c. Use of employee identification cards issued by employees by the company. d. Use uniforms that fulfill the requirements.. 	<ul style="list-style-type: none"> a. Company names or company serial numbers are still few that have met the requirements. b. Writing a route with block letters has not met the requirements. c. The driver's identity is placed on the dashboard issued by the company. d. Medicine box and its contents. e. Use of employee identification cards issued by employees by the company. f. Wear uniforms that meet the requirements
8. Unmet Requirements	Physical <ul style="list-style-type: none"> a. Gas emissions are considered to still not meet the requirements b. Conditions for speedometers that unmet the requirements. c. No safety belt. 	<ul style="list-style-type: none"> a. The condition of the body and frame of the vehicle b. Loading capacity c. Glass wiper d. Tires e. Speed measuring device f. Spare tires and safety triangles

Note : ITTB = Indeks Top Two Boxes

Source: The Masterplan of Semarang City Transportation 2009-2029

RESEARCH METHODS

This research is a descriptive quantitative research using primary data obtained from the results of the questionnaire. The population is user of BRT Trans Semarang and sample is selected by purposive random sampling techniques. Quantitative analysis is used to calculating The WTP of BRT passengers with the Contingent Valuation Method (CVM). According to Boyle (2003) the Contingent Valuation Method (CVM) is one of the survey-based methodologies to estimate how much a person or society evaluates for goods, services, and convenience. The purpose of using the contingent valuation method is to determine the willingness to pay of the community, for example on improving environmental quality, and the second is the willingness to accept damage to an environment (Fauzi, 2006).

CVM has a usefulness for gaining the monetary value of goods which cannot be touched and have no market price (Wang, 2009). For obtaining the value of willingness to pay there are four stages (Fauzi, 2006). First, creating a hypothetical market by observations to the BRT Trans Semarang. It is prominent to know the actual conditions about the quality of service. Second, generating bid value. Respondents filled out the questionnaire on the maximum value of willingness to pay to improve the quality of the BRT of Trans Semarang. Third, estimating the average value of willingness to pay. By using a concentration measure that is a median. The median is not affected by extreme bid values, but it always lower than the median. In this study, The average WTP is calculated:

$$EWTP = \sum_{i=1}^n WiPfi \dots\dots\dots (1)$$

- Where,
- EWTP : alleged average WTP
- Wi : the value of WTP to i,
- Pfi : relative frequency

- n : number of respondents
- i : respondents to-i.

The last stages is adding data or aggregating Data. After assuming the average WTP values, the predictable value total WTP from the community shown as follows :

$$TWTP = \sum_{i=0}^n WTPi ni \dots\dots\dots (2)$$

- Where,
- TWTP : Total WTP,
- WTPi : individual samples to WTP-i
- ni : the number of samples to-i.
- i : respondents to-i.

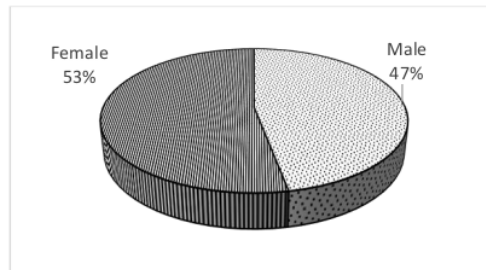
Irrespectively from WTP, the perception of the community as a user is crucial for improving the quality of service from the BRT Trans Semarang. Study conducted by (Dell’Olio, Ibeas, & Cecin, 2010) aimed to evaluate how perception of quality varies according to the available information in Santander, Spain. The used variable are Waiting Time (WT), Journey Time (JT), Access time walking to the initial bus stop (AT), Safety within the Vehicle (SV), Comfort during starting and stopping (CDSS), Comfort during the journey (CDT), Deviation from the optimal route (DOR),

Cleanliness of the Vehicle (CV), Price of the bus ticket (PT), Quality of the Vehicle (QV), Reliability of the Vehicle (RV), and the Kindness of the Bus Driver (KBD). Research by (Cirillo, Eboli, & Mazzulla, 2011) used nine variables of service level namely the distance to the bus shelter, reliability and frequency of services, bus stop facilities, bus crowds, cleanliness, bus fares, availability of information on bus shelter and the attitude of bus employee. In this study the used indicators to measure environmental quality are indicators which put forward by (Zeithaml, Valarie A. Mary Jo Bitner and Dwayne D. , Bitner , & Dwayne D. , 2009), namely

Reliability, Responsiveness, Assurance, Empathy, and Tangible. Similarly with the research conducted by (Susniene, 2015) that used its indicators.

RESULTS AND DISCUSSION

Respondents characteristics are very important in this study because preference and Willingness to Pay (WTP) are related to individual behavior in carrying out an economic activity that influenced by inherent identity and socio-economic conditions. This is a recommendation from the study (Metcalf & Dolan, 2012), the problems that need to be raised in future research include 1. Behavioral economics assumes that it uses two systems of reflection and automatic brains when making decisions, but some social psychologists argue that attitudes humans in making decisions come from automatic systems that are driven by the subconscious; 2. There are domain areas characterized by market failures, such as health, which begin to understand how behavioral economics can be used to overcome failure; 3. Behavioral economics begins to provide for public policy because of its ability to change attitudes at a cost-effective level; 4. Further research needs to better understand the consequences of wellbeing from the attitude of transportation change. The respondent profiles as users of the BRT are distinguished by sex, occupation, age, educational background and income. The results of profile analysis are shown as below; First is gender profile. See figure 1.

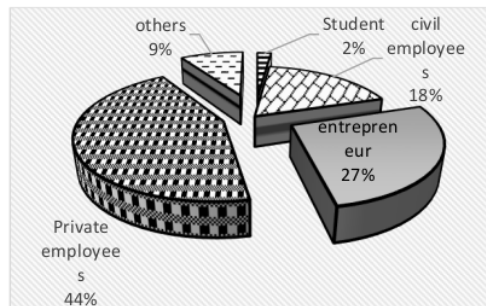


Source: Primary data, process, 2018

Figure 1. Gender profile

According to gender, Figure 1 shows the percentage comparison between male and female respondents. It is seen that there are more women (53%) than men (47%) who use mass transit transportation services.

On figure 2. can be seen that the most respondents works as private employees 44%, entrepreneurs 27%, civil servants 18%, unemployed by 5%, others 4% and students at 2%. From the description of the respondents' profile it can be seen that public transportation is used to support their mobility in carrying out economic activities.

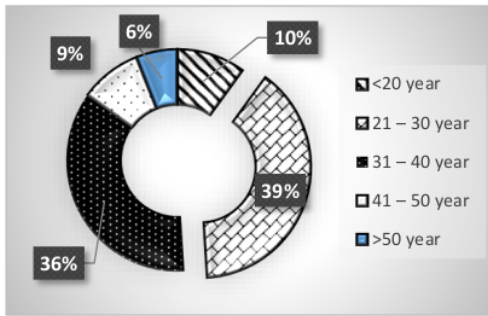


Source: Primary data, process, 2018

Figure 2. The profile of respondents work.

Profile of respondents in terms of age. Age can measure the level of maturity of a person in making a decision in accordance with the theory of consumer behavior. When someone's age increases, the opportunity to pay for improving service quality will also be easier. This is confirmed by (Hidayat & Kushari, 2015)

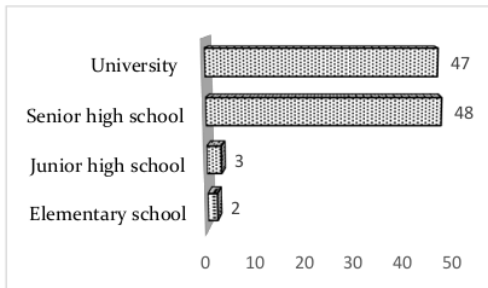
concluding that a person's age can influence willingness to pay.



Source: Primary data, process, 2018

Figure 3. Characteristics based on age

In figure 3 can be seen that the majority of respondents as user of BRT Trans Semarang are 21-30 years old with a percentage of 39%, then the age group 31-40 years (36%). Consumers of BRT Trans Semarang are at most 21-40 years old, because they do not have private vehicles so they use the BRT Trans Semarang. Another reason is because they are commuter so they use public transportation.



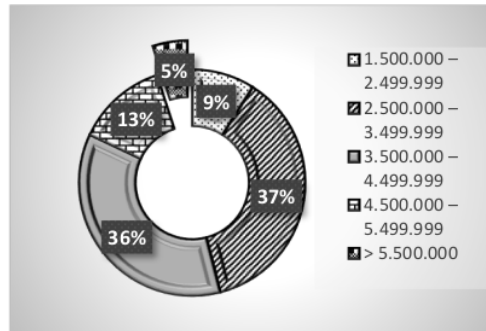
Source: Primary data, process, 2018

Figure 4. Education background (%)

Educational variables are taken because the longer an individual spends time on education, the opportunity to pay more will be greater than before for improving the quality of services. In research (Prajitno, 2006) shows that education and the frequency of weekly trips are the variables that will affect the value of willingness to pay consumers. The results shows the majority of respondents had high

school and university level education. It means that they could already be responsible for decisions to increase their satisfaction as users of public transportation by paying more.

According to Keynesian theory, income is an important factor in carrying out economic activities and shows the level of one's ability to do consumption. In this study using income variables because when a person's income increases, a person has a tendency to pay higher prices for improving the quality of BRT Trans Semarang services. This opinion is also expressed by (Sari & Setiartiti, 2015) which shows that the income variable significantly influences willingness to pay for improving the quality of train services.



Source: Primary data, process, 2018

Figure 5. Income profile

In figure 5 can be seen that the majority of respondents have the ability to pay to improve the quality of public transportation services. It is seen that there are 91% of respondents earning more than IDR 2,500,000. By using the Semarang city of regional minimum wage standard of IDR 2,498,587.53, the community with more income levels than the UMR is considered to have more ability to pay for the improvement of quality services.

In this study determine willingness to pay using the contingent valuation method. There are five stages, namely building a hypothetical market, getting an offer of the amount of willingness to pay, getting an average value of

willingness to pay and adding data to get the total willingness to pay. The results of the stages that have been carried out in this study are as follows; First, Building a Hypothetical Market. The population of Semarang City has increased every year. As a result, congestion is everywhere because the increase in the number of transportation is not balanced with land expansion. Today, people prefer private transportation rather than public transportation. To overcome the problem of congestion in the city of Semarang, the government urged the public to use public transportation more specifically the mass transit of the BRT Trans Semarang. Besides being able to reduce congestion, the use of public transportation will also be able to reduce air pollution. Air pollution arises from dust, vehicle fumes and from industrial chimneys on the road. Gases from motor vehicle exhaust cause CO₂ emissions because of fuel oil (BBM) such as premium or diesel containing lead. This black tin which acts as a contributor to considerable pollution on air quality and health. The results of exhaust gases from vehicles can disrupt public health, especially respiratory health.

The community must have awareness to care for the environment, one of which is by using BRT Trans Semarang transportation. In addition to overcoming traffic jams, it is also to unravel the air pollution that results from the smoke of the driving vehicles. At this stage, respondents were also given information about using public transportation with the quality of services currently owned and the quality of services would be improved if people preferred public transportation so that people were more comfortable when using BRT Trans Semarang mass public transportation.

Second is obtaining a WTP value amount. Improving service quality needs to be done so

that BRT users feel more comfortable when using public transportation. Another reason, with increasingly improved services, will arrive more timely at the destination because the scheduled departure schedule is well. Priority must also be made for BRT Trans Semarang passengers for pregnant women and the elderly, as well as more orderly rules when riding the BRT Trans Semarang because during this time prospective passengers jostle when getting into a bus due to fear of not getting a seat. Service improvement can also be done by expanding the bus stop because many users make the BRT Trans Semarang as a vehicle for mobility all the time so that in some shelters it is always crowded and jostling. This feeling of discomfort has made respondents want to pay more to improve the quality of their services. The last thing you want to pay for quality improvement is the placement of less strategic stops so that it is difficult to achieve.

While users who do not want to pay WTPs have reason that the quality of BRT Trans Semarang services is quite comfortable and good. Another reason is that the cost of living that is too high in Semarang City involves to improve the quality of BRT Trans Semarang services. The amount of the WTP value of the respondents in this study is by applying the bidding method. The result is 60% of respondents are willing to pay more than the tariff set by the government.

Third, obtain an average willingness to pay value. In this study to obtain the average value of willingness to pay is calculated by classifying the value of willingness to pay to pay for the improvement in the quality of BRT Trans Semarang services. In obtaining the average value of willingness to pay is used equation 1 and the results can be seen in table 4. Based on the above calculations, the average

value of willingness to pay is IDR.4000 greater than the government tariff.

Table 4. Average of Willingness to Pay

WTP (IDR)	Respondent (people)	Frequency (%)	Mean (IDR)
3500	40	40	1.400
4000	44	44	1.760
5000	12	12	600
6000	4	4	240
Sum	100	100	4.000

Source: Primary data, process, 2018

Fourth, add the data to get the total willingness to pay. In summarizing the data to obtain the total willingness to pay value obtained by means of the average willingness to pay times the total population in the study, namely the number of BRT Trans Semarang passengers, the value of IDR 940,952,000.

Based on the analysis that has been carried out using the Contingent Valuation Method (CVM), it can be seen that the quality of services of BRT Trans Semarang mass transit transportation users is still lacking and the existing facilities are considered to be insufficient because there are still many shortcomings. Based on field findings, information was obtained that the obstacles encountered in improving the quality of BRT Trans Semarang public transportation services were that the arrival and departure times were not on schedule so that BRT users waited too long at the bus stops, less strategic bus stops, facilities for seniors and pregnant women less prioritized, facilities for the safety and comfort of BRT Trans Semarang users have not been optimal. Therefore, 60% of users are willing to pay for the improvement of the quality of services for BRT Trans Semarang mass transit transportation users. The estimated average cost of the BRT Trans Semarang WTP is higher than the tariff set by the government. The average estimate can be used as a reference in

setting costs for improving the quality of BRT Trans Semarang services to make it better so that the people of Semarang city use public transportation, especially the BRT Trans Semarang.

The results of this study that is, in determining tariffs for these services it is recommended to consider the socio-economic characteristics of prospective consumers, besides of course paying attention to the service attributes that are most expected by the community using TransJogja services. In line with (Safitri, 2016) that conducted the evaluation of public transport rates in Pangkalpinang. The findings state that the ability to pay for public transport in the city of Pangkalpinang is large.

In order to increase public interest in using public transportation, it can be done by adjusting the level of service. The Pangkalpinang Government needs to improve public transport services, which so far still rely on public transportation by providing bus-based public transportation (Bus Rapid Transit) such as in several cities in Indonesia. The findings from (Cirillo, Eboli, & Mazzulla, 2011) show that evaluations from bus users had the highly willingness to pay for timely bus services. The estimated asymmetry variable present a more accurate calculation for WTP. It can be said that the value of WTP can be used to calculate project revenue on transportation service investment. The concern of user perceptions is also conveyed by (Vilakazi & Govender, 2014). The findings have implications for service providers, relevant government authorities, etc., need to know the perceptions of commuters and implement an appropriate strategies to improve the situation. BRT Trans Semarang users really want a better change in the quality of services for BRT Trans

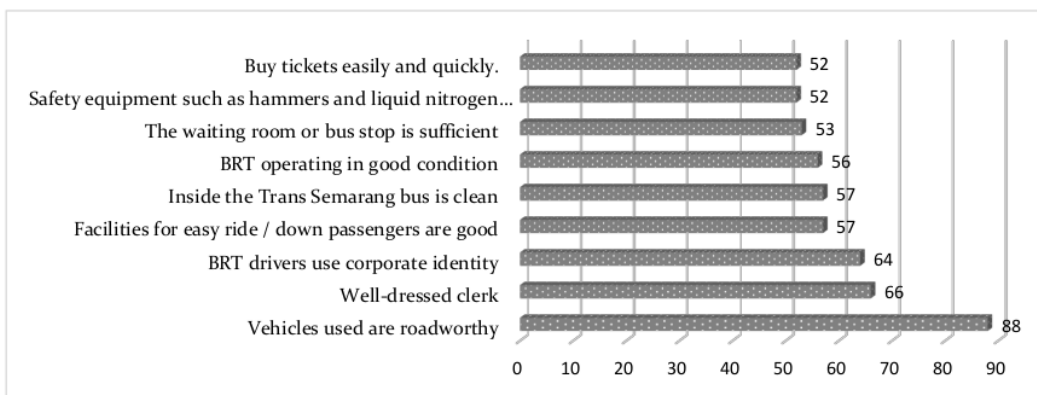
Semarang mass public transportation. With the improvement in the quality of services desired by the community, it will encourage the public to use public vehicles rather than private vehicles. The government must know the wishes of the community regarding the quality of BRT Trans Semarang services. By knowing the public response about service quality, the government will be able to evaluate and determine the right policies.

In this study the assessment of the quality of BRT Trans Semarang services has five indicators, namely tangible, reliability, empathy, responsiveness and assurance. The measurement of the level of satisfaction of BRT Trans Semarang users is through the assessment of respondents by giving an

assessment after using the BRT Trans Semarang mass public transportation service.

The first indicator is tangible. The tangible was observed in this study include everything related to customer needs that are physical in nature, such as; roadworthy vehicles; fleet crew whose identity is clear, neat and polite; BRT stop is neat, clean and comfortable; comfortable, clean and air conditioned conditions on the bus; Safety facilities such as handles for passengers stands and for up and down for users.

Overall, an assessment of service quality was obtained according to the user of BRT Trans Semarang. They have chosen 3 aspects that received good ratings namely 88% of roadworthy vehicles, 66% of well-dressed officers and 64% of BRT drivers. Figure 6

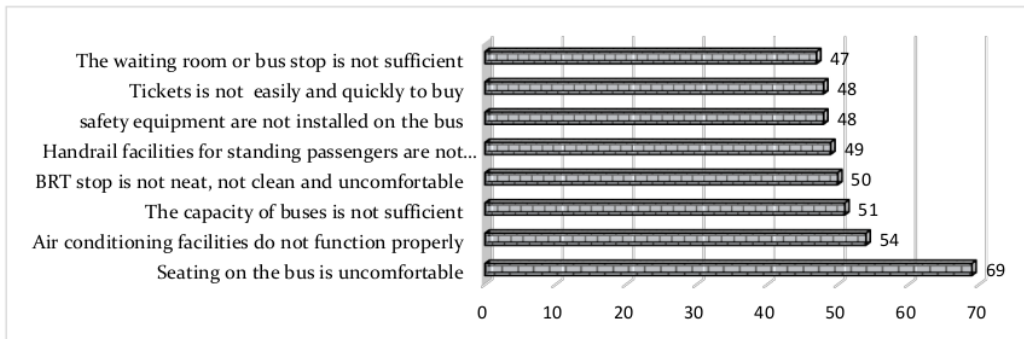


Source: Primary data, process, 2018

Figure 6. Consumer satisfaction from tangible indicators

While the aspects that must be improved are; Comfortable seating on the bus (69%), air conditioning facilities function (54%), bus

capacity in carrying passengers is not adequate (51%). Figure 7.

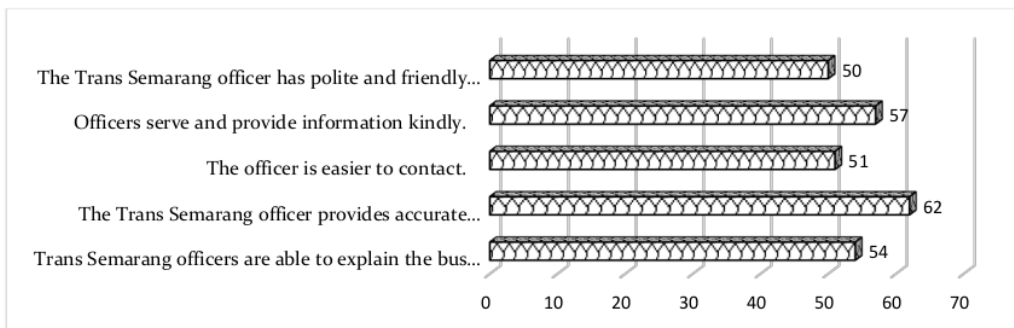


Source: Primary data, process, 2018

Figure 7. The aspects of tangible indicator that must be improved (%)

According to users, BRT has problems related to customer satisfaction, namely uncomfot of seating on the bus; air conditioning facilities that have not functioned properly; and passenger safety ratings not received good ratings from the user community. There are many facilities to go up and down the BRT so that passengers feel the difficulties of getting up or down at the bus stop, there are no priority for seats for artists and pregnant women. There are numbers of shelters in busy public places (examples on Jalan Pemuda) that are not sufficient in capacity. As a result, many prospective users are waiting outside the bus stop or the bus stops because the seat at the bus stop is full. If these problems are not addressed immediately, people interest in using public transportation will decline.

Indicator of reliability is seen from how the government in providing public transportation is able to provide services in accordance with what is desired and hinted at by users such as; the timeliness of departing and the arrival of the BRT Trans Semarang according to the existing schedule; time used to wait for pickup at the bus stop; and the ability of Trans Semarang officers to provide accurate information about bus times and routes. From the results of the study, it was obtained that the good rating from the community was the ability of Trans Semarang officers. First, their ability to provide accurate information about bus times and routes (62%), the kindness to serve and provide information (57%) and its ability to explain the bus schedule (54%). Figure 8.

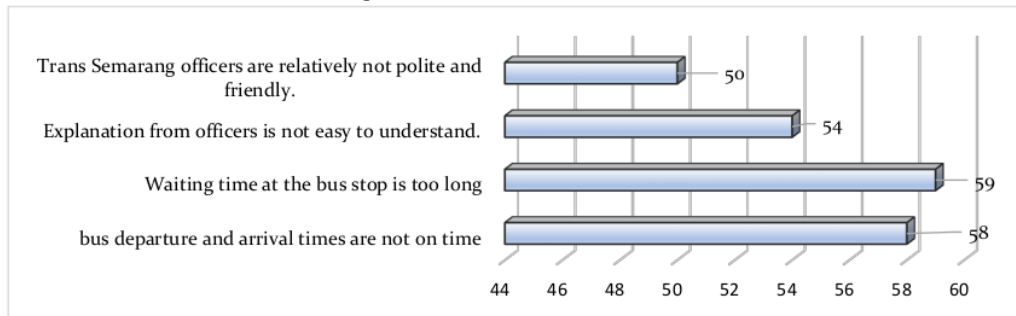


Source: Primary data, process, 2018

Figure 8. Consumer satisfaction from reliability indicators (%)

While the other 2 aspects received low ratings. This condition occurred because there was still a lack of timeliness of departures and

arrivals so that BRT users waited too long at the BRT Trans Semarang shelter. Figure 9

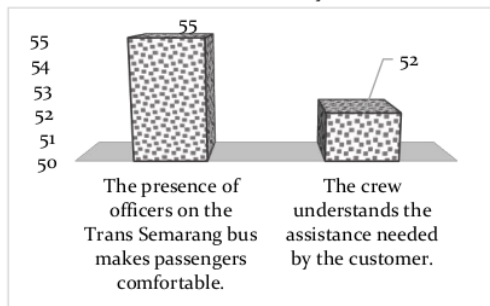


Source: Primary data, process, 2018

Figure 9. The aspects of reliability indicator that must be improved (%)

The empathy indicator is seen from the ability of the BRT fleet to provide more sincere and individual attention and assistance. The aspect seen is the presence of officers in the Trans Semarang bus who can make passengers feel comfortable and ready to provide the assistance needed by customers.

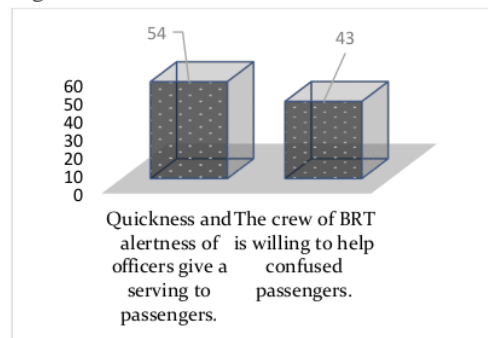
On the indicator of responsiveness, the aspects seen were the speed and alertness of the officers in serving BRT Trans Semarang passengers and the sensitivity of the BRT crew to immediately assist confused passengers. From the results of the study it was found that the aspect of speed and alertness of officers in serving passengers was considered better than sensitivity or active initiative to immediately help passengers who were confused. It was pointed out that around 54% of users agreed that officers were always quick and were quick to run jobs as BRT Trans Semarang officers. Figure 11.



Source: Primary data, process, 2018

Figure 10. Consumer perception from empathy indicators

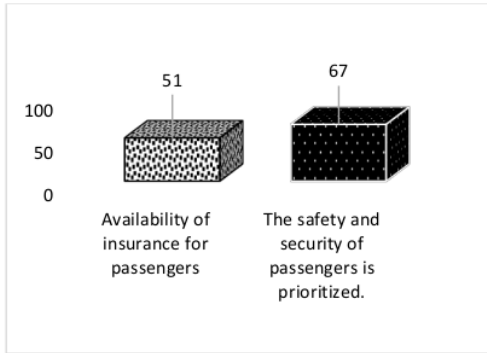
The results showed that more than 50% of users felt that the services provided by the BRT Trans Semarang crew were very good. This means that the presence of officers on the Trans Semarang bus makes passengers comfortable and is very helpful when BRT users feel confused, officers can provide clear information.



Source: Primary data, process, 2018

Figure 11. Consumer perception from responsiveness indicators

The assurance indicator considers the capabilities of the BRT Trans Semarang crew to be able to foster a sense of trust and comfort from users so that they will continue to use this public transportation. The aspect used in the assurance indicator is the Availability of insurance for BRT Trans Semarang passengers and whether the safety and security of BRT Trans Semarang passengers is prioritized in providing service services. From the results of the study, it was found that 67% of users felt that the safety and security of BRT Trans Semarang passengers had not been a top priority. Figure 12.



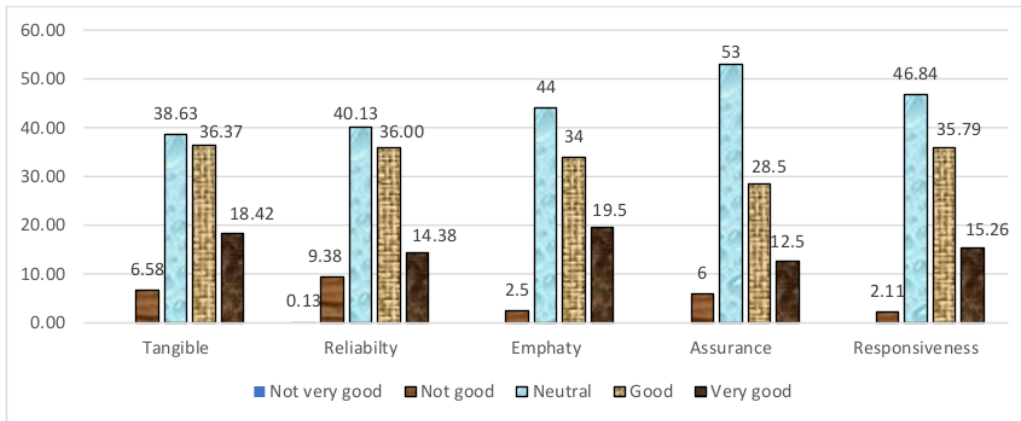
Source: Primary data, process, 2018

Figure 12. The aspects of assurance indicators that must be improved (%)

Conditions in the field show that to chase time, the driver runs his vehicle at a fast and

hurried pace so that the user feels uncomfortable. Therefore, BRT Trans Semarang users really expect passenger safety to be prioritized so they want to pay more to improve the quality of Trans Semarang services to be even better. For insurance, usually covered in the ticket. Perchance, it has been assumed that the amount covered in the insurance cannot replace the consequences that arise in an accident so that the perception of BRT user is not good on the insurance aspect. Its value is quite high as an aspect that must be improved (51%).

Overall, the five indicators are compared, the results can be seen in Figure 13. The people of Semarang city acknowledge that the government has been serious in providing BRT public transportation by providing physical facilities and infrastructure that support it as a tangible form of service. This can be seen from the tangible indicator value that has a good point and is very good at the highest perception of the community. While the reliability indicator is an indicator that needs attention because of the high level of dissatisfaction from the community related to the inability of the BRT Trans Semarang to provide services in accordance with what was promised accurately and reliably.



Source: Primary data, process, 2018

Figure 13. The 5 indicators of BRT's service quality in Semarang City

The Trans Semarang Bus Rapid Transit (BRT) policy is a mass public transport transportation from the Semarang City Government to overcome congestion. Semarang City Government hopes that the issuance of the Trans Semarang Bus Rapid Transit (BRT) can be responded positively by the people of Semarang City. Trans Semarang Bus Rapid Transit (BRT) began operations in 2010. However, since the issuance of the quality of the Trans Semarang Bus Rapid Transit (BRT) service has not been sufficient. Therefore, people prefer private vehicles rather than public transportation. The quality of BRT Trans Semarang must be improved so that people want to use public transportation, especially the BRT Trans Semarang. User satisfaction is an important factor so that public interest increases to use public transportation, especially the BRT Trans Semarang, therefore it is necessary to improve service quality. If there is no improvement in service quality, it will result in a decrease in the number of passengers.

The level of satisfaction of Trans BRT users is still lacking due to several obstacles such as the timeliness of arrival and departure that are not on schedule, making BRT users wait too long at shelters, cleanliness of shelters that are less noticed, making the conditions of shelters unfit for use, lack of priority for seniors or mothers pregnant to get a seat, placement of a less strategic shelter which made it difficult for the community to ride the BRT because the bus stop was far away, lack of priority in the safety of BRT Trans Semarang passengers because safety was important. There were still many accidents carried out by Trans BRT officers. Semarang. The results of this study are in line with the research of (Rianti & Tuti, 2017)

in the Transjakarta Busway in DKI Jakarta which states that the Service Quality is still not good, it can be seen from five indicators to measure service quality, namely reliability, responsiveness, assurance, empathy and tangible.

A good transportation is a public services that must meet three basic criteria, namely comfort, safety, and speed. In addition, public transportation is considered as an important factor to achieve other goals and public values, especially those related to economic and environmental issues; and the social dimension, that is not as prioritized (Stjernborg & Mattisson, 2016)

CONCLUSION

The purpose of this study was to determine the estimation of the average willingness to pay for the users of Trans Semarang Bus Rapid Transit (BRT) to improve service quality.

The result is 60% are willing to pay for the improvement of service quality by estimating the value of respondents' willingness to pay average in improving the quality of BRT Trans Semarang services higher than the tariff set by the government. The quality of BRT Trans Semarang services is stated to be poor because there are still many service quality indicators that are considered unsatisfactory by BRT Trans Semarang users. Therefore it is necessary to improve the quality of services so that it can increase the number of BRT Trans Semarang passengers. This is in line with his research and this research is in line with the research by (Putra & Kurnia, 2014) which states that service satisfaction will have a positive effect on the amount requested for the BRT Trans Semarang. These services include ticket service, suitability

of rates, conditions, speed and length of waiting for the bus, as well as the placement and conditions of good stops. In addition, the government can review the BRT Trans Semarang tariff policy because the estimated average value of PAPs can be used as a basis for setting new tariffs. The average value of willingness to pay, which is higher than the existing tariff, must be balanced with improving the quality of BRT Trans Semarang services.

Finally, this study is very good for assessing customer satisfaction with public transportation services. As stated by (Susniene, 2015) that it is important to identify the effectiveness of public transportation systems so that there is renewal in service management, increased regional coverage and increased interest in public transportation services. In the end with these improvements, the community wanted to use BRT Trans Semarang mass public transportation instead of private vehicles. In line with (Dell'Olio, Ibeas, & Cecin, 2010) emphasized that assessing customer satisfaction is useful for companies that operate because they will provide sufficient information on how people think and act to be able to design policies that aim to improve services. In addition (Vilakazi & Govender, 2014) stated that for service providers, transportation planners and relevant government authorities, etc., they need to know the perceptions of commuters and will implement the strategies to improve the situation.

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PAGE 12

PAGE 13

PAGE 14

PAGE 15

PAGE 16

PAGE 17
