Study of Passenger Vehicle Time Value and Public Transport in Takalar District Based on Legit Model

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Abstract: ***The role of public transport is very important in serving urban transportation and makes it easy for people to carry out their activities in all different locations and spread in urban areas. Takalar Regency as one of the existing districts d South Sulawesi Province became one of the centers of activity government, trade, education and socio-culture. In this work, the characteristics of private transport users and public transport in Takalar Regency were analyzed. In this study the method used in retrieval the data is the Stated Preference method. The results showed that distribution of respondents who used public transport modes as many as 113 people with a composition of 17.70% male and 82.30% female. There is a difference in the value of time between users of private transport such as cars and public transportation due to users.***

Keywords: Public transport, Time value, Urban areas.

I. INTRODUCTION

The development of a city is strongly influenced by the development of the transportation system in the city [1]. A city that has a large population and has extensive urban activities requires high capacity transportation services and is arranged in an integrated manner. The more activities of the population of an area, the more the movement of people, goods and services will increase so the need for transportation services will increase as well. Therefore, the fulfillment of transportation needs to be continuously increased to support the movement of people, goods and services [2].

The high rate of growth of motorized vehicles is due toimproving the economy of the community and also from the easy regulation of obtaining private vehicles [3]. This is reflected in the fact that the level of motorization of the population is increasing from year to year. In general, motorized vehicles are divided into two types, namely public vehicles and private vehicles, where the use of private vehicles is more than public transportation [4]. This is also due to vehicles. The general public cannot serve all travel routes.

Revised Manuscript Received on February 05, 2019.

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In addition, it is also caused by private vehicles that usually provide a better level of service compared to public transportation, both operated by the government and private operators [5].

Previous research in Semarang City on the value of time for private vehicle passengers with the Income Approach method shows the value of travel time of Rp. 2,352, / hour / person. Visible drivers with greater income are more sensitive towards travel time, which shows that the group values time more [6].

Time value is defined as the amount of money that is willing issued by someone to save one unit of time travel [7]. Two components that affect the value of time are the cost of the potential source (resource cost) and the cost of discomfort (disutility cost). The potential source costs or opportunity costs are interpreted as a value for the traveler in using time for activities (eg work). Inconvenience costs are interpreted as levels of displeasure, boredom or negative aspects that can eliminate travel time [7].

The role of public transport is very important in serving urban transportation and makes it easy for people to carry out their activities in all different locations and spread in urban areas [8]. However, for example in the City of Malang, the condition of city transportation is less organized. In addition there are many other complaints by users of city transportation, ranging from lack of comfort, prone to crime, length of travel time, as well as violations of city transport rates [9]. It seems that various policies that have been issued by the Government, Transportation Agency, Organda and public transportation owners have not been able to maximize this problem [10].

Takalar Regency as one of the existing districts d South Sulawesi Province, became one of the centers of activity government, trade, education and socio-culture. With the presence of Maminasata, it has caused the transportation in this region to increase human mobility, goods and services with the function of driving, and supporting development [11].

Significant economic growth in the region in the past decade has driven the rapid pace of development in all fields. With these conditions, the daily activities of the community are increasing, thus requiring adequate transportation systems [11].

Thus, in this work, the characteristics of private transport users and public transport in Takalar Regency were analyzed.

In addition, the value of time for private transport users and public transport in Takalar Regency was included in this study.

II. METHODOLOGY

Research Location and Time

The research was carried out in office service in the region Takalar Regency. The survey was carried out for ± two weeks starting with the week second August 2014.

Population and Samples

The populations in the study were civil servants in the scope of the Takalar District Government Office. Civil servants are taken as a sample with the consideration that this group is one of the people who often commute in this area.Random sampling technique was used. So, in this study a sample of 375 respondents was obtained.

Data Collection

In this study the method used in retrieval the data is the Stated Preference method. Primary data and secondary data were used in this work. In collecting data for the purposes of this work, survey techniques with interviews with users of private vehicle and public transport services was done. In the interview survey the respondents were guided by surveyors to answer the questions in the questionnaire.

Data Analysis Method

Data analysis based on the results obtained from data processing consisting of analysis of the characteristics of respondents, as well as time value analysis. Data processing is done by binary logit regression method with the help of Microsoft Excel and SPSS / Stata.

III. RESULT AND DISCUSSION

Based on the survey done, distribution of respondents by gender, by the percentage of each type of vehicle is the mode of transportation general as much as 17.70% men and 82.30% women, motorbikes 77.3% of men and 22.67% of women and those who used it car vehicles 70.27% male and 29.73% female.

Based on the reasons for using a private car, about 25% of respondents use private cars because of the comfort factor. For motorcycle users, the reason respondents use motorbikes is because they are faster, have the highest percentage, which is about 33%, then followed by cheap reasons with a percentage of around 22%. Whereas for angkot users, the reason why respondents use angkot is because it is cheap, has the largest percentage, which is 50%, followed by other reasons with a percentage of 19%. Whereas other reasons, most of them are captive, namely respondents who are forced to use public transport because they do not have alternative vehicles.

Distribution of respondents based on the estimated distance grouped from a distance of 1 - 5 km, 5 - 10 km, 10 - 15 km, 15 - 20 km, and above 20 km. Based on the picture above, the highest percentage of respondents based on the distance for those who use public transportation and motorbike modes is within the range of 15-20 km by 43.36% and 42.22%. While the highest percentage of respondents for cars is 10 - 15 km at 37.84% as shown in Figure 1.

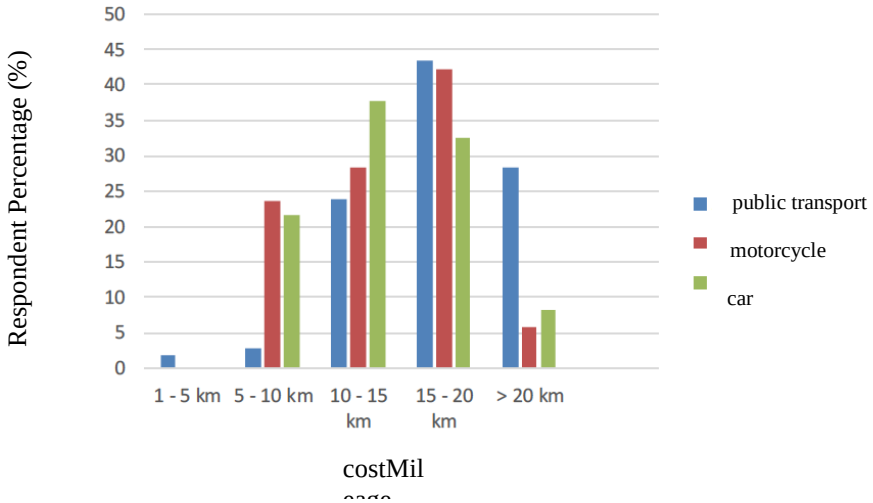

Fig. 1 Distribution of respondents based on the estimated mileage

Distribution of respondents based on the estimated distance grouped from a distance of 1 - 5 km, 5 - 10 km, 10 - 15 km, 15 - 20 km, and above 20 km. Based on the picture above, the highest percentage of respondents based on the distance for those who use public transportation and motorbike modes is within the range of 15-20 km by 43.36% and 42.22%. While the highest percentage of respondents for cars is 10 - 15 km at 37.84% as shown in Figure 2.

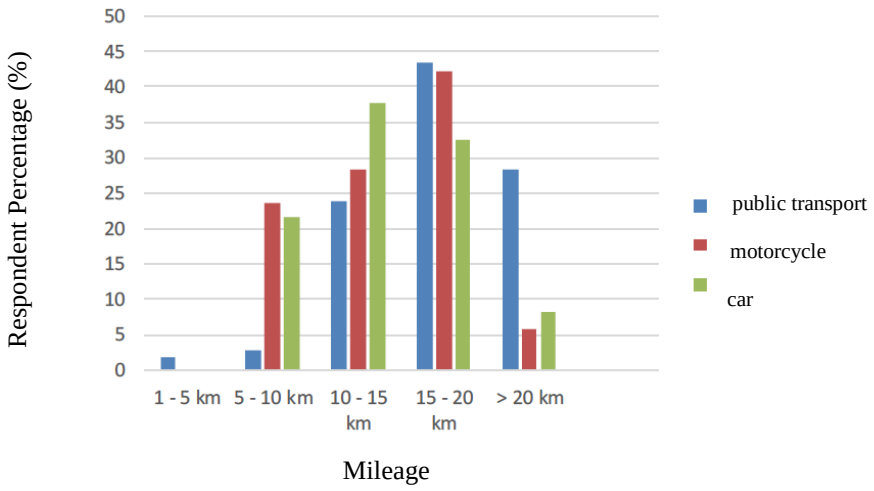

Fig. 2 Distribution of respondents based on the estimated mileage

Distribution of respondents based on estimated travel costs grouped from a distance of Rp. 2,500 - Rp. 5,000 to above Rp. 20,000, Based on the picture above, the highest percentage of respondents based on travel costs for those who use public transportation mode is Rp. 5,000 - Rp.10,000 for 44.25%. While for motorbike mode users the highest travel costs are Rp. 10,000 - Rp. 15,000 as much as 43.56%. And for those who use the car mode, the highest travel costs are above Rp. 20,000 as much as 59.46%.

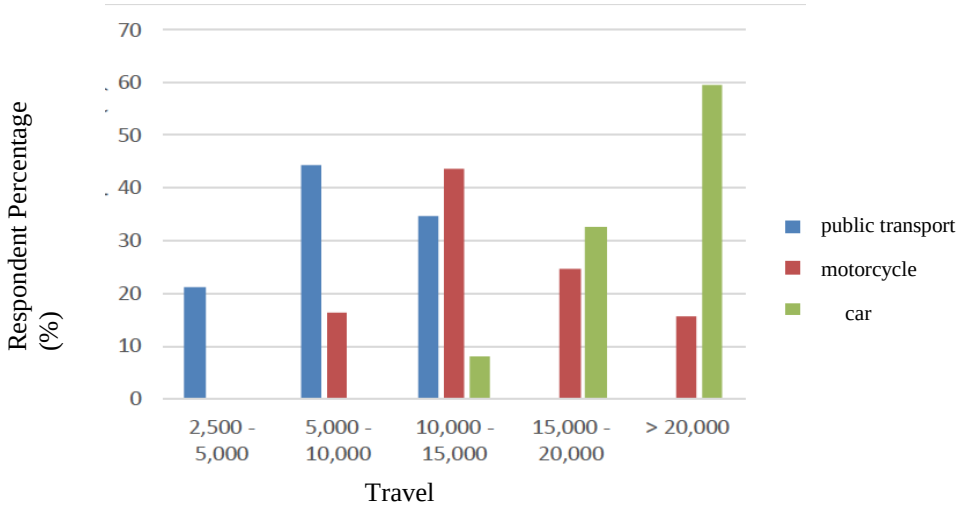

Fig. 3 Distribution of respondents based on the Travel cost

Distribution of respondents based on travel time grouped from 5 - 10 minutes to above 30 minutes. Based on the picture above, the percentage of respondents the highest based on the length of travel time for those who use the mode of public transportation is above 30 minutes with the number of respondents as much as 46.02%. Similarly, with private car transport users of 54.05% for the same length of travel. As for motorcycle users, the highest respondents were at an interval of 20-30 minutes as much as 43.11%.

Modeling results with logit models for three categories of analysis, namely modes of combined private transport and public transport, modes Private transport and public transport modes need to be further analyzed in order to obtain a clearer picture of the value of travel time according to the category of users of road transportation services. For this analysis, the modeling results are summarized in the following table. The table 1 shows that the user time value. Private transport is indeed higher than public transport users. For private vehicles, there are 2 car and motorcycle users. For car users the value of the time they perceive is around Rp. 16,500, while for motorcycle users are Rp. 10,000. While, public transport users have a perception of the value of travel time of Rp. 9,000. Here is seen difference in the time value of car vehicle users and users public transportation amounting to Rp. 7,500. In this case, the users. Car transportation considers that the difference in time value is Rp. 7,500 is the value of the cost of flexibility and comfort that they do not get from the use of public transport. By reducing dependence on private vehicle transportation, there are many positive things that can be achieved by local governments. First, traffic congestion can be reduced because most private car users switch to public buses.

Second, fuel savings due to congestion can be reduced. Third, it can improve spatial interaction with the existence of Maminasata agglomerations where the role of transportation in this region is the lifeblood of human, goods and services mobility with the function of driving, driving and supporting development.

Table. 1 Capital Results and Travel Time Value

Model		Variable		Cost of Time Travel (Rp/Hours)
	TIMED	COSTD	CONST	
Combined Model	-0.011	-2.56	1.074	Rp. 13.245
Car Mode	-0.019	-5.43	2.543	Rp. 16.487
Motorcycle Mode	-0.022	-3.85	0.123	Rp 10.131
Public Transport Mode	-0.010	-1.56	0.674	Rp 8.914

IV. CONCLUSION

Based on the characteristics of respondents of public and private transportation users, it was obtained the distribution of respondents who used public transport modes as many as 113 people with a composition of 17.70% male and 82.30% female. For motorcycle users amounting to 225 people with a composition of 77.3% male and 22.67% female and who used the car mode amounted to 37 people with a composition of 70.27% male and 29.73% female 2. The value of travel time varies for each traveler, depending on the mode used. For private car mode users, the hourly travel time value is Rp. 16,500 and for motorcycle vehicle users Rp. 10,000. And for public transport users the value of their travel time is Rp. 9,000. In combination, the value of travel time is Rp. 13,500. There is a difference in the value of time between users of private transport such as cars and public transportation due to users Private transport is willing to pay the difference of Rp. 7,500 as a cost of flexibility and comfort they do not get from the use of public transport.

V. ACKNOWLEDGEMENT

The author would like to acknowledge all respondents and Department of Environmental Engineering, University of Hasanuddin for unconditional support.

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