

STUDY OF ABILITY TO PAY AND WILLINGNESS TO PAY FOR PASSANGER OF COMMUTER LINE JAKARTA-BOGOR

Pudji Astuti¹, Vania Tertia¹

Industrial Engineering Department, Trisakti University, Jakarta, Indonesia
pudji_agus@yahoo.com, pudji@trisakti.ac.id

ABSTRACT

This research aims to study the ability to pay (ATP) and willingness to pay (WTP) of Commuter line passengers. Determination of fare has been a debate among stakeholders, namely government as a regulator, operator (PT. KCJ) as a provider of transportation and passenger of the Commuter line . ATP and WTP analysis can be used as a basis for determining the Commuter Line fare and improved quality of service. The collection of data by distributing questionnaires of 300 respondents who were passengers in the train station Jakarta Kota–Bogor. The results showed there was a gap between the ATP and WTP and fare. Policy implications of ATP and WTP analysis will show the number of people affected, when fare is change. ATP and WTP analysis is very useful to perform a risk analysis of the impact of fare changes

Keywords: Tarif, Ability to Pay (ATP), Willingness to Pay (WTP)

1. INTRODUCTION

Determination of fare of public transport is a crucial and sensitive issue. There must be a compromise of some parties concerned, namely, the government as a regulator, operator as a provider of transport and transport users. Government as the regulator needs to determine the amount of subsidy required. Operators consider operating costs so that the operator can freely serve the public transport without a loss. How much of the ability to pay transportation costs, and how much willingness to pay for transportation in accordance with the perceptions of service received.

The third element of this is a set of transport rates. Transportation rates become an important instrument in order to improve services and the benefits of public transportation systems. The combination of well-being and profits can provide an effective tariff policy and structured so that it can be realized with a decent society (Matarika 2006).

The contribution of the consumer to pay the transportation tariff has two important elements, namely Willingness and ability to pay (Al-Ghuraiz and Enshassi 2005). Willingness to Pay (WTP) is the maximum

willingness to pay according to the services they receive (Al-Ghuraiz and Enshassi 2005), or the willingness to pay for the quality of service expected (Whitehead 2005).

While Ability To Pay (ATP) is a person's ability to pay for services received under the income that is considered ideal. The concept of ATP public services is those who can afford to pay more should pay more. (Mataria et al. 2006). In fact, most people tend to report lower value in its ability (Senbil and Kitamura, 2004)

The basic motivation for this research is the question of how the transport user sees based on the rates of ATP and WTP. Thus, this study explores the desire and ability to pay for transportation.

PT. KCJ Light rail operator (KRL) Commuter Line is a public facility services from PT. Kereta Api Indonesia (PT.KAI) to meet the demand for public transportation in Jakarta-Bogor-Depok-Tangerang-Bekasi.

Commuter Line operates almost 20 hours a day from 4:30 AM until 23:00 with a fleet of 200 units and is currently approximately 700.0000 transport passengers per day and the number of people traveling about 568 trips per day. Target in 2019 Commuter Line carries 1.2 million passengers / day. If KRL tariff setting is not in accordance with the

expectations of society will lead to great social unrest. Information on the ATP and WTP is very important to determine the ability and willingness of society to pay for transportation. Determination of rates based on the ATP and WTP reflects public awareness of public transport.

The purpose of this study is to explore the ability and willingness of passengers to pay the fare KRL Jakarta-Bogor.

2. THEORETICAL BACKGROUND

Ability to Pay (ATP) and Willingness to Pay (WTP)

Ability To Pay (ATP) is a person's ability to pay for services received under the income that is considered ideal . The approach used in the ATP analysis is based on the allocation of costs for the transportation of regular income received . In other words the ability to pay is the ability to pay for transportation costs . Factors which affects the ability to pay are:

1. Income;
2. The need for transport;
3. The total cost of transportation
4. The percentage of income that is used for transportation costs

Willingness To Pay (WTP) is the willingness to pay for services received . The approach used in the analysis of WTP are based on the user 's perception of the rates of public transport services received

WTP is influenced by several factors such as :

1. The products offered/provided by the transport operator;
2. The quality and quantity of services;
3. The transport utility;
4. User behavior;

In determining the rates are often in the situation as follows:

1. ATP greater than WTP. This condition indicates that the ability to pay is greater than the willingness to pay these services. It occurs when the user has relatively high income but utility for these services is relatively low. This condition is called choiced riders.
2. ATP is smaller than WTP. This condition is the opposite of the above conditions, which the user wishes to pay for such services is greater than the ability to pay.

This allows the case for users who have income relatively low but the utility of the services is very high, so that the user wishes to pay for these services tend to be more affected by utilities, in this condition the user is called a captive riders.

3. ATP equal to the WTP. This condition indicates that the ability and willingness to pay for services received the same, in this condition there is a balance utility users with the costs incurred to pay for such services. In principle, the determination of rates can be viewed from several aspects of the system public transportation. These aspects are:
 1. Passengers (User);
 2. Operators;
 3. Government (Regulator).

When the parameters of ATP and WTP are reviewed, then the user aspect in this case made subjects who determine the value of tariffs applied by the following concept :

1. ATP is a function of a person's ability to pay transportation costs , so that tariff applied as far as possible not exceed the value of ATP communities
Government intervention is a direct subsidy or given if the rate is greater than ATP, such that the obtained rates equal to ATP

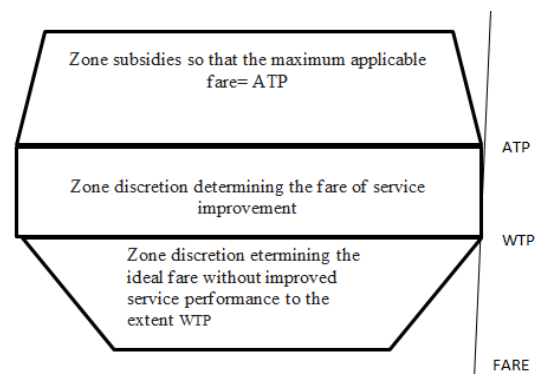


Figure 1. Zona ATP, WTP and Fare

2. WTP is a function of the level of public transport services , so if the value of WTP is still under ATP then still possible to do increase in the value of the rates of service performance improvement

3. RESEARCH METHOD

The steps of research as follows:

a. Determine of research object

The survey was conducted to passengers commuter train route Jakarta-Bogor

b. Determine of sample

The survey began from an interview with the director of operations PT.KAI, the shareholders PT.KAI and then distributed questionnaires to 300 passengers randomly.

c. Designing of questionnaires

• Questionnaires characteristics of passenger

Demographic characteristics of respondents/passenger based on the results of the study were divided into 4 groups, namely gender, age, occupation and level of income per month. Characteristics of respondents based on customer knowledge aspects were divided into 4 groups:

Characteristics of general respondents

- o The travel destination,
- o Reasons to use Commuter Rail Line Jakarta-Bogor
- o Frequency of use Commuter Rail Line Jakarta-Bogor

• Questionnaires passenger ATP and WTP

ATP questionnaire covers expenditure/month, budget transportation, transportation for Commuter line and the frequency of use Commuter/month. Formula to determine ATP is

$$ATP = \text{Transportation Budget} / \text{travel time}$$

To explore WTP with interviews and questionnaires about how much the maximum willingness to pay for the commuter line in accordance with the perception of service they expect.

4. RESULT AND DISCUSSION

Based on the questionnaire, it is known that most of the passengers Commuter Rail Line Jakarta-Bogor is a woman that is 53 percent while the male passengers 47 percent. Most of the Commuter Line passenger train from Jakarta to Bogor who worked as private employees is 36,67%. Passengers as entrepreneur is 19,33%, the student/ students

17%, public servants is 16%, Housewife is 4% and others is 6,67% students 17%, public servants is 16%, Housewife is 4% and others is 6,67%.

Most of the passengers (42.67%) 2 times using other modes of transportation to get to the train station and towards the final destination.

Table 1. Job percentage of passenger

Job	%
Public employee	16%
Entrepreneur	19,33%
Private employee	36,67%
Housewife	4%
Student	17%
others	6,67%
Total	100%

Table 2. Percentage of time travel

change of transportation mode	%
1 time	24,67%
2 times	42,67%
3 times	27,33%
4 times	4,67%
≥ 5 times	0,67%

ATP, WTP and Fare

This study explored the willingness and ability to pay when they use the services of the commuter line as transportation. The results of studies show there were a gap between value of the willingness and ability to pay, different variations associated with their perception of transport services by the commuter line. Exploration ATP also illustrated the ability to pay the existing quality of transport services, WTP shows the value perception of the quality of transportation services (Joewono, 2009)

The results showed that the ability to pay was higher than the willingness to pay and rates. This means that the people have the purchasing power to the commuter line transport services, but there were less willingness to pay according to their ability. In fact, WTP was lower than the tariff. It shows people didn't aware of the transportation services of Commuter line. Thus PT.KCJ

should improve the quality of services so that they will be more aware of this transport. Even still tariff rate can be increased up to the limit of the ability to pay it. Thus Commuter transport line will be excellent for public transport.

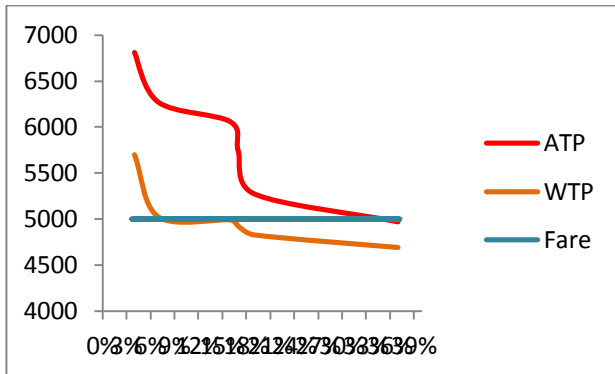


Figure 2. ATP,WTP and Fare

When taken 89 % of the respondents , the average ATP is Rp.5.377,- and WTP is Rp.4.818,-. From this situation, the suggested recommendations are: first repair service level and further increase in rates to the terms of service improvement has been done .

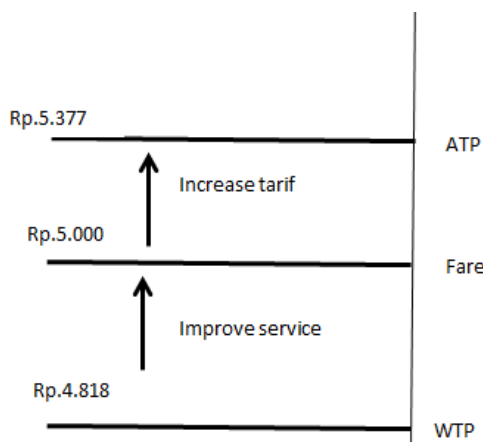


Figure 2. WTP less than ATP and fare

Policy Implications

Vuchic (2005) describes three basic objectives for the tariff system: 1) to attract the maximum number of passengers, 2) to generate maximum revenue for the operator as a provider of transportation, and 3) to achieve a specific purpose (eg, increasing passengers, etc.). Thus, planning transport fares require a lot of trade-off analysis between the objectives and the satisfaction of needs and constraints, political decisions (Vuchic 2005).

This study demonstrated collaboration ATP and WTP analysis can be used as a tool to evaluate the rates of existing or proposed, in which ATP and as a basis for determining the amount of current or potential passengers who will assume the rate is too low, acceptable, or too expensive. Thus, this study provided information to stakeholders regarding the number of people or groups of people who are affected by the proposed tariff. Despite knowing that higher WTP will not directly help to generate more profits for operators.

Policy implications utilization of information about ATP and WTP in planning tariffs will depend on the purpose of the tariff system. This means that the ATP and WTP analysis will show the number of people affected, when rates change. This means that the government must pay compensation risk of communities that have insufficient financial as of the impact of tariff changes.

5. CONCLUSION

1. The study showed that 53% of the passengers were women, and 47% were men.
2. Low fare and ATP WTP to prove that citizens lack a sense of awareness of the commuter line as public transportation
3. The community has a higher ATP than fare
4. To increase public awareness of the need to transport the first phase of enhanced quality of service commuter line
5. There is a chance to increase rates until at ATP on condition that has improved service has been done
6. Analysis of ATP and WTP is very useful to perform a risk analysis of the impact of tariff changes

6. REFERENCES

(a) Astuti Pudji, Winnie S, Amal W., 2012. Prediksi jumlah penumpang kereta commuter Jabodetabek lintas Jakarta-Bogor dengan menggunakan Jaringan Syaraf Tiruan. *Proceeding Seminar Nasional Snira*, Trunojoyo University Madura

- (b) Jotin C Khisty, B.Kent Lall, 2003. *Transportation Engineering An Introduction*, Prentice Hall
- (c) -----, 2009. Potensi Pasar Kereta Api Indonesia, Indonesia Infrastructure Initiative, Australia–Indonesia Partnership
- (d) Undang-Undang Republik Indonesia Nomor 23 Tahun 2007 Tentang Perkeretaapian
- (e) Joewono Tri Basuki, 2009. Exploring the Willingness and Ability to Pay for Paratransit in Bandung, Indonesia, *Journal of Public Transportation*, Vol. 12, No. 2, 2009
- (f) Ajzen, I., L.H. Rosenthal, and T.C. Brown. 2000. Effects Of Perceived Fairness On Willingness To Pay. *Journal of Applied Social Psychology* 30 (12): 2439–2450.
- (g) Al-Ghuraiz, Y., and A. Enshassi. 2005. Ability And Willingness To Pay For Water
- (h) Supply Service In The Gaza Strip. *Building and Environment* 40: 1093–1102.
- (i) Mataria, A., R. Giacaman, R. Khatib, and J.-P. Moatti. 2006. Impoverishment And Patients' "Willingness" And "Ability" To Pay For Improving The Quality Of Health Care In Palestine: An Assessment Using The Contingent Valuation Method. *Health Policy* 75(3): 312–328.
- (j) Senbil, M., and R. Kitamura. 2004. Willingness-To-Pay For Expressways. *International Conference Experiments in Economic Science: New Approach to Solving Real world Problems 2004*, 14–17 December, Okayama and Tokyo.
- (k) Whitehead, J.C. 2005. Combining Willingness To Pay And Behavior Data With Limited Information. *Resource and Energy Economics* 27: 143–155.
- (l) Vuchic, V.R. 2005. *Urban transit: Operations, planning, and economics*. John Wiley & Sons, Inc., New Jersey.