

# ECONOMIC PRICE AND PURCHASING POWER ANALYSIS OF THE TRANS PADANG BUS SERVICE

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## Abstract

This study aims to determine the economic price and to analyze the purchasing power of the Trans Padang bus service. The economic price is calculated by finding an equilibrium price determined by the ability to pay and willingness to pay for the Trans Padang service. The purchasing power is calculated by using analysis of the willingness to pay and the ability to pay for the Trans Padang service. In relation to the analysis, this research divides the passengers into two categories. First, passengers whose ability to pay is greater than their willingness to pay. Second, passengers whose ability to pay is smaller than their willingness to pay. The results of this research show that average bus tariff based on ability to pay (ATP) is at IDR 6,118. When this fare is charged, only 44 percent of respondents has the ability to pay. The willingness to pay (WTP) of the respondents is at IDR 4,401. When this fare is charged, only 69 percent of respondents has a willingness to pay, and 31 percent of respondents have no willingness to pay. The economic price analysis provides two categories as follows. First, the bottom price for students, the equilibrium price for it occurs in the range of IDR 1,500 to IDR 2,500, which is consistent with the current applied fare for students is set at IDR 1,500. Second, the upper price for public passengers, the equilibrium price for it occurs in the range of IDR 4,500 to IDR 5,499. The applied fares for public passenger at present is set at IDR 3,500 which is lower than the equilibrium price. The analysis of purchasing power divides passengers into two groups, namely, 32 percent of respondents included in the category of *captive riders* where the ability to pay greater than the willingness to pay ( $ATP < WTP$ ) and 68 percent belong to the category of choiced riders where the ability to pay less than the willingness to pay ( $ATP > WTP$ ). This indicates that the bus fares at present are set a lower level of the passengers' ability to pay.

**Keywords:** *Ability to pay, Willingness to pay, Economic price, Purchasing power*

## I. Introduction

The town growth always close relation to the increase of urban activity. The increasing activity will encourage the growth of urban population. Padang is a city in transition from marginal to the metropolitan city. Padang have high accessibility to the port and the airport as a key channel mobility of people connecting with other provinces on the island of Sumatra. Besides mobility within the city as part of the urban activity also, especially on the weekday, then it is possible for the increasing demand for transport modes as the daily needs of the community. During the last 10 years, the use of public transport and private transport highly inversely, private transport has increased rapidly but public transport vehicles has declined. The booming in the use of private transport occurred in 2005-2006, namely by 49% in 2005 and increased sharply in 2006 about 53%. The opposite occurs in the use of public transport, in 2005 the use of public transport around 51% and declined in 2006 to approximately 47% (*instran.org, 2013*). However, with the widespread use of private transport by the community, this will cause congestion at the highway that ultimately lead to transportation problems such traffic and congestion.

Tamin (2000), argue that traffic problems or congestion cause negative externality to road users, particularly in terms of wasted time, wasted fuel, and low power wastage and increase pollution both voice and air pollution. In addition, according to Basuki (2008),

while the loss of the most basic of traffic congestion is the loss of travel time which will result in wastage of fuel so that the operating costs of the vehicle increases. With increasing vehicle operating costs caused by congestion, then this is where the government took the right policy for setting public transport fare is cheaper than using private vehicles. It can attract people to switch to using public transport rather than private transport. In Table 1 below shows the public transport fares in Padang.

**Table 1. Public Transport Fares in Padang**

No	Transportation Modes	Fares
1.	Minibus	Rp 3000 /trip
2.	Bus	Rp 4000/ trip
3.	Taxi	Rp 3000-6000/ km

Source : *padang.go.id* (2015)

Table 1 shows that the lowest transport fares are economy class public transportation such as minibus and bus, taxi is more expensive with better facilities. Therefore, the city government and transportation service providers are required to further improve the quality of transportation services that people prefer to use public transport rather than private vehicle. Bus Rapid Transit (BRT) are popularly used in major cities of Indonesia to address the problem of congestion. Bus Rapid Transit is one type of public transportation provide services faster and more efficient than other similar means of transport. Bus Rapid Transit (BRT) or better known to the public city buses Trans Padang is newly opetariffd in 2014 precisely in February 2014. The BRT is using the new system is expected to provide better quality of service than other public transport existing , Trans Padang opetariffs from 06.00 until 20.00 pm, with the purchase of tickets is done at the stop with a tariff for students and public of Rp 1,500 to Rp 3,500 one trips. Actually pricing should consider various aspects, economically pricing can be seen from the equilibrium price of transport, then pricing must consider the aspect of purchasing power and the ability to pay the passengers.

## II. Theoretical Framework

### The Economic Principle Of Tariffs

The demand for transportation services is referred to as a derived demand for any other commodity or service. Basically the demand for transportation services is derived from (1) The need for a person to walk from one location to another to activity (eg, work, shopping), (2) Demand for transport of certain items that are available at the willingnessd place. (Morlok, 1991)

The amount of transport demand related to socio-economic activities of the community, a system activity that can usually be measured by the intensity of land use. Relationships that are on the transport system and land-use system according Frazila (1998), namely (1) changes/ improvements in land use will raise the journey, (2) The increased arousal will raise the level of demand for the movement that ultimately require the provision of transport infrastructure, (3) Procurement of infrastructure will increase the partial circuit, (4) The increase in the power circuit will increase the price / value of the land, (5) The determinateon of site selection which eventually resulted in a change in the land use system.

Morlok (1991), argues that there will be the fulfillment of the public transport is influenced by: (1) Revenues of each person, (2) Health, (3) The purpose of the trip, (4) Type of travel, (5) The number of passengers (group / individual), (6) Travel urgent.

Transportation demand can not be separate from the principle of demand for goods and services in general, where there are several factors that influence the demand for them

is consumers taste. Consumer taste for transportation demand associated with the quality of the services provided by the provider of transportation modes.

In general a function of supply determines the relationship between the market price of a commodity by the number of commodities to be produced and sold by the manufacturer. The basic shape starts from the premise that the price increase resulted in an increased amount produced and offered for sale (Samuelson, 1958 in Morlok, 1991). Reality is a lot happening in the transportation offered at a specific price level that is very influenced by the prices involved. The prices involved, for example: the cost of terminal (terminal cost) and the cost of movement (movement cost) (Cahyo and Made, 2008). Thus we can see that there is a tendency of increasing the volume or quantity of the trip it will increase the amount of the price or tariff charged. The increase in travel volume will also increase the queue itinerary, retrieval time and decreasing passenger traffic density and others. So that will increase vehicle operating costs which as a result will increase transport fares.

In simple economic thinking, the process of exchange of goods and services may occur as a result of a combination of demand and supply. Point of balance combination of these two things explain the price of goods to be traded and the quantities on the market (Tamin, 1997). The balance point ( $p^*$ ,  $q^*$ ) obtained if the marginal cost of production and sales with its marginal profits. This can be explained by the chart as written by Morlok, 1991 follows:

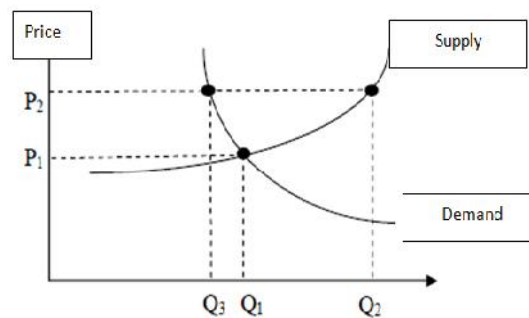


Figure 1. Equilibrium Transport Price

### Analysis Of Purchasing Power

The relationship between ATP and WTP provides an overview grouping of service users into three groups, 1.  $ATP > WTP$ , This condition shows that the ability to pay is greater than the willingness to pay services. This occurs when users have relatively high incomes but the utility of the services is relatively low, the condition is called choiced riders. 2.  $ATP < WTP$ , This condition is the opposite of the above conditions, which the user willingness to pay for these services is greater than the ability to pay. It allows occurs for users who have a relatively low income but the utility to such services is high, so that the user wishes to pay for these services tend to be more influenced by the utility, the user of this condition is called captive riders. 3.  $ATP = WTP$ , This condition shows that the ability and willingness to pay services consumed by the same user, in this condition they are in balance with the user utility costs incurred to pay for these services.

### III. Research Methods

Based on the problems and research objectives, this study classified the descriptive study. quantitative. The population in this study were all Trans Padang passengers, and sample size was 96 respondents. To analyze the economic price and analyze the purchasing power passenger buses used Trans Padang calculation approaches Ability to pay (ATP)

and Willingness to pay (WTP). WTP can be defined as the average amount of rupiah that are willing incurred by passengers as the payment of a unit service enjoys

$$TWTP = \sum_{t=1}^n WTP_i \left( \frac{ni}{N} \right) P \quad (1)$$

$$ATP = \frac{I_t.Pp.Pt}{T_t} \quad (2)$$

#### IV. Results and Discussion

##### Variable Description

Quality of service is the users' expectations about the services provided. The results showed that 72 percent of respondents doubt that the quality of service provided has been excellent, while 20 percent of respondents disagree with the opinion that the quality of service provided has been very good, and only 8 percent of respondents said that the quality of the bus service Trans Padang has been very good.

Based on the dimensions of service quality according to Gaspersz (1997), then developed some clustering dimensions associated with the quality of the research that dimensions of quality bus stops, driver, bus condition with each indicator associated with the dimensions of service quality. Research results showed that on average 72 percent of respondents said that the quality of bus stops, driver, and bus condition has reached 4 or has been categorized good. Based on the dimensions of quality bus stops, respondents said that the quality of the bus stop Trans Padang is still quite good category with a score of 3.3, due to his lack of seat facility at bus stops, bus stop locations that are difficult to reach, stop steep, and the gap is wide enough between bus stops with bus while it stop. Based on the dimensions of the quality of the bus, then the respondents said that the quality of the Trans Padang categorized quite good, with a score of 3.5. This statement is related to the lack of timely arrival of the bus, the air conditioner is not adequate, passenger capacity does not match the number of seats and handrails, as well as other supporting facilities are lacking. Based on the dimensions of the quality of personnel, the respondents said that the quality of the bus attendant Trans Padang has categorized both by a score of 4, which means that the bus attendant has been providing outstanding service passengers.

Amount of revenue related to the ability to pay for services provided. The results showed that of the 100 respondents mostly or as much as 70 percent of the respondents have incomes between Rp. 1,512,501 to Rp. 2.725.000, and only one respondent have income between Rp. 8,787,501 to Rp. 10,000,000.

Respondents in this study is divided into two categories, the student and general category. The results showed that 67 percent of respondents are students while 33 percent are general. Distribution of respondents with respect to the purchasing power of the bus service, where respondents students usually have low income levels, so that we can be sure to have the purchasing power that is too low. Referring to the income distribution where 70 percent of respondents are in the category of income between Rp. 1,512,501 to Rp. 2.725.000, and it turns out most of the research respondents are students.

Travel frequency is the number of trips made respondents in the last one-month period. The results showed that from the 100 respondents then as much as 46 percent or as much as 46 respondents traveling less than 50 times as much as a trip in the last month or included in a category often used. This indicates that most respondents use Trans Padang as the main mode of transportation. Mean while respondents who use the Trans Padang as a mode of transportation by less than 20 times in just six respondents.

##### Analysis of Ability to Pay

At the current tariff charged on a Trans Padang passenger is divided into two categories, the student category fares as Rp. 1,500 and Rp general category fares as Rp. 3,500. Based on the analysis of ATP result that as many as 81 percent of respondents only have the ability to pay a tariff of Rp. 3,500. While only 19 percent of respondents have the ability to pay if the tariff is set greater than the current tariff. The study also provides the results of ATP minimum of Rp. 500 and a ATP maximum of Rp. 6.667, it means that users have the ability to pay the lowest tariffs of 500 rupiah and the ability to pay the highest tariffs amounted to Rp. 6.667 rupiah. While the average respondent's ability to pay is Rp. 6.118, when the tariff charged by ATP then averaged only 44 percent of respondents who have the ability to pay.

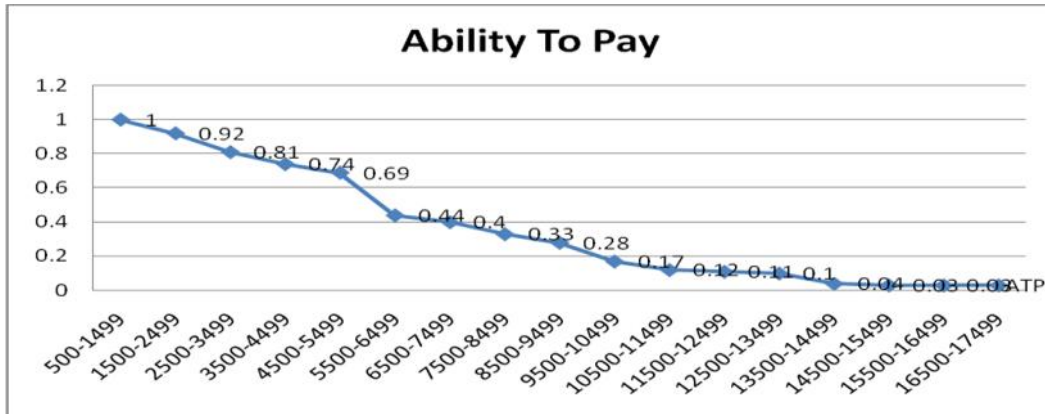


Figure 2. Ability To Pay Curve

**Analysis of Willingness to Pay**

The results showed that 89 percent of respondents were willing to pay for Rp. 3,500 at this time, while only less than 11 percent of respondents were willing to pay a tariff of more than Rp. 3,500. Referring to the results willingness to pay has been described in the previous section, studies show that approximately 8 percent of respondents were willing to pay more than the prescribed tariff at the moment but do not have the ability to pay more than the tariff determined at this time.

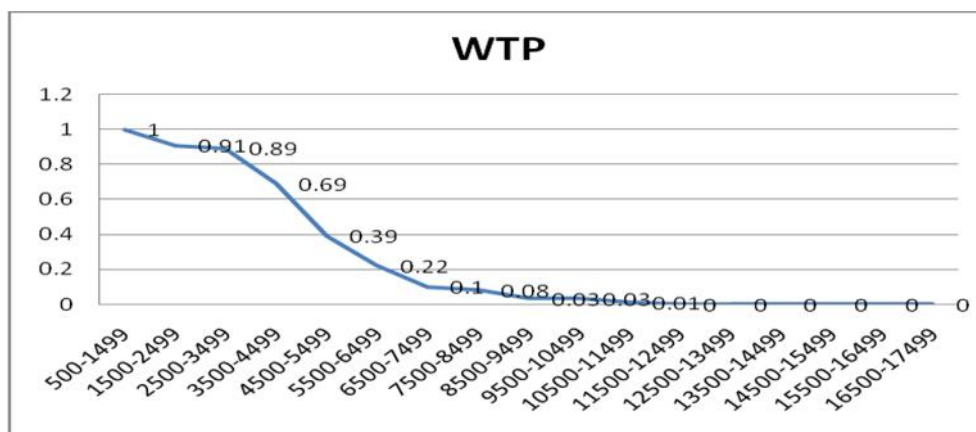


Figure 3. Willingness To Pay Curve

The results also showed a willingness to pay the lowest respondent is Rp. 635 and the highest willingness to pay respondent is Rp. 11.423. Average willingness to pay is Rp 4,401, meaning that if tariff tariffs charged for the average WTP then only 69 percent of respondents were willing to rest as much as 31 percent of respondents are not willing to pay

### Analysis of Economic Price

Analysis of the economic prices linked to some conditions depending on the target group imposition tariff. The first condition is called the condition under which the riders choiced this condition suggests that the ability to pay is greater than the willingness to pay or  $ATP > WTP$  means that users actually have a high income to pay for more than tariff but the utility of the services are relatively low. The second condition is called the condition under captive riders where in this condition the user does not have the ability to pay is greater than the tariff but have a willingness to pay more or  $ATP < WTP$ , meaning users have low incomes that has the capability to pay less but have a willingness to pay greater than the prescribed tariff. The third condition is a condition equilibrium tariffs for service Trans Padang users, where conditions equilibrium be achieved if the ability to pay coupled with the willingness to pay Padang Trans bus services or utilities are in balance with the costs incurred users to pay according to specified tariffs

Based on Figure 2, when the tariff is set at an average of ATP is Rp. 6118, the number of bus passengers of Trans Padang only 22 percent who have a willingness to pay. If the tariff is set at the average WTP is Rp. 4,401 the 69 percent of bus passengers of Trans Padang who have a willingness to pay.

There are two bus equilibrium Tariffs Trans Padang at lower tariffs and upper tariffs. At the lower tariffs that cater to students, equilibrium tariffs occur in the range of Rp. 1,500 to Rp. 2500 where the number of Trans Padang passengers, which have the ability to pay (ATP) as much as 92 percent while the number of Trans Padang passengers who have a willingness to pay (WTP) as much as 91 percent, fares for students currently set at Rp. 1,500. Tariffs above equilibrium that cater to general passengers is in the range of Rp 4,500 to Rp 5,499 where the tariff ranges of the Trans Padang passengers who have the willingness to pay (WTP) as much as 69 percent, while the Trans Padang passengers, which have the ability to pay (ATP) as much as 69 percent. These tariffs are higher than the tariffs stipulated in the current Rp. 3500 to the general passengers.

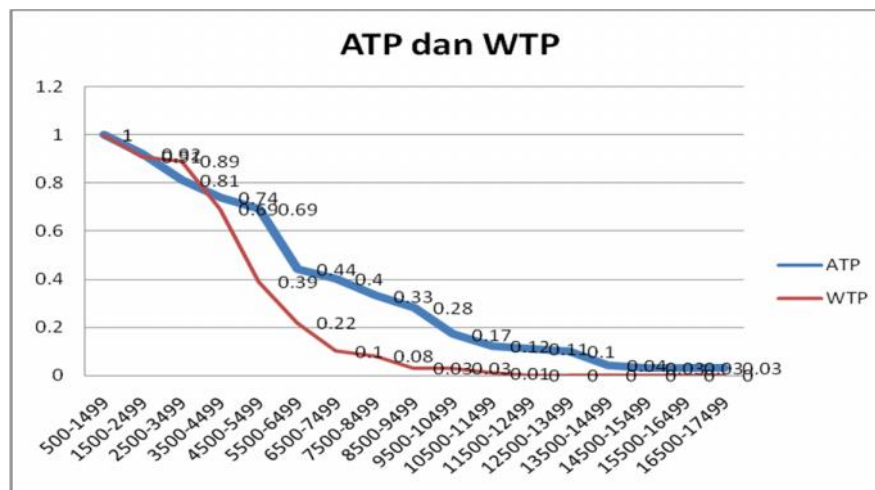


Figure 3. Economic Price of Trans Padang

### Analysis of Purchasing Power

Analysis of purchasing power refers to studies conducted by consultants Mechanical Dardela Yasa Guna (2012), where the purchasing power of passengers divided passengers were categorized choiced riders where this condition suggests that the ability to pay is greater than the willingness to pay or  $ATP > WTP$  means that users actually have high incomes to pay more greater than the prescribed tariff, but the utility of the bus services are relatively low. And passengers were categorized captive riders where in this condition the

user does not have the ability to pay is greater than the prescribed tariff but have a willingness to pay more or  $ATP < WTP$  meaning users have low incomes that has the capability to pay less but have a willingness to pay more of the prescribed tariff.

Results showed that 32 percent of respondents included in the category of captive riders passenger where the ability to pay greater than the willingness to pay ( $ATP < WTP$ ) and 68 percent belong to the category of choiced riders passenger where the ability to pay less than the willingness to pay ( $ATP > WTP$ ), this indicates that the tariff currently set is included in a lower category than the ability to pay the Trans Padang passenger, but passengers are not too have a willingness to pay more than the tariff determined at this time due to the quality of service is not adequate, in which only the dimensions of attendant included in both categories while dimensions and the bus stop is only categorized quite good, besides that respondents who expressed doubts about the quality of Trans Padang services as much as 72 percent of total respondents.

Categorization of passengers related to the determinant of purchasing power which in this study consisted of four determinant is the quality of service, income, passengers category and travel frequency. Based on the factor of quality of service, 32 percent of respondents were included in the category of captive riders or the willingness to pay more, where 15 percent of them have no willingness to pay more because the quality of Trans Padang services felt already are above the average, while 17 percent of respondents were included into the captive riders willing to pay despite the quality of Trans Padang service is still below the average. Still based on factors of quality of service, 68 percent of respondents included in the category of choiced riders who have the ability to pay more, where 40 percent of them have the ability to pay is driven more by the quality of Trans Padang services has to be above average ATP, while 28 percent of respondents have the ability to pay more although the quality of service is below average.

Based on factor incomes, 32 percent of respondents included in the category of captive riders or the willingness to pay more, where 15 percent of respondents have no willingness to pay income driven by factors that have been above average, while 17 percent of respondents had a willingness to pay more despite having incomes below the mean Avg. Still based on factor incomes, 68 percent of respondents including the category of choiced riders or has the ability to pay more, where 47 percent of them have the ability to pay more because they have incomes above the average, while 21 percent of them have the ability to pay more even though they have income below average.

Based on the passenger type, 32 percent of respondents fall into the category of captive riders or have the willingness to pay more, where 24 percent of captive riders are student and the remaining 8 percent of the general. Respondents who fall into the category choiced riders or who has the ability to pay more as much as 68 percent, with 43 percent of them are students while 25 percent are general type.

Based on trip frequency factor, then 32 percent of the respondents fall into the category of captive riders or the willingness to pay more, while 19 percent among captive riders or the willingness to pay more because it has a frequency of its journey above the average. While 13 percent of respondents that included captive riders or the willingness to pay more despite having a frequency below the average trip.

**Table 2. Purchasing Power of Trans Padang Passengers**

		Purchasing Power		Total
		ATP < WTP (Captive Rider)	ATP > WTP (Choice Rider)	
quality of service	< Median	17.00%	28.00%	45.00%
	Median	15.00%	40.00%	55.00%
Total		32.00%	68.00%	100.00%

Income	< Median	17.00%	21.00%	38.00%
	Median	15.00%	47.00%	62.00%
Total		32.00%	68.00%	100.00%
passengers type	Student	24.00%	43.00%	67.00%
	General	8.00%	25.00%	33.00%
Total		32.00%	68.00%	100.00%
trip frequency	< Median	13.00%	23.00%	36.00%
	Median	19.00%	45.00%	64.00%
Total		32.00%	68.00%	100.00%

Source : survey, 2015

## V. Conclusions

This study provides the following conclusions, (1) Average of ability to pay (ATP) of respondents are at a tariff of Rp. 6118, when the tariff charged by ATP then averaged only 44 percent of respondents who have the ability to pay. (2) The average respondent willingness to pay (WTP) to Rp 4,401, if the tariffs charged by the average tariff WTP then only 69 percent of respondents were willing to pay the remaining 31 percent of respondents are not willing to pay. (3). Analysis of the economic price gives two categories, namely lower tariff which cater to students, in which the equilibrium tariff occurs in the range of Rp. 1,500 to Rp. 2,500. fares for students currently set at Rp. 1,500. Furthermore, tariffs on equilibrium that cater to general passengers is in the range of Rp 4,500 to Rp 5,499, the tariff for general passenger is currently set at Rp. 3,500. (4). Analysis of passengers purchasing power split into two groups: 32 percent of respondents included in the category of passenger captive riders where the ability to pay greater than the willingness to pay ( $ATP < WTP$ ) and 68 percent belong to the category of passenger choiced riders where the ability to pay is smaller than willingness pay ( $ATP > WTP$ ). This indicates that the bus fares at present are set a lower level of the passengers' ability to pay.

## References

- Assael, Henry. 2001. **Consumer Behavior 6 th. Edition**. New York: Thomson Learning
- Bilge Atasoy, et all. 2010. *Demand for public transport services: Integrating qualitative and quantitative methods*. Transport and mobility laboratory.
- Dardela Yasa Guna, PT, Engineering Consultant, *Ability to Pay/Willingness to Pay*. Jakarta: <http://www.dardela.com>
- Gaspersz, Vincent. (1997). *Manajemen Kualitas*. Jakarta: PT. Gramedia Pustaka Utama
- Gito Sugiyanto, Elastisitas Faktor-Faktor Yang Mempengaruhi Permintaan Kebutuhan Angkutan Umum Di London Dan Yogyakarta, *Jurnal Transportasi Vol. 9 No. 1 Juni 2009: 25-35*,
- Gujarati, Damodar. 2006. *Dasar-Dasar Ekonometrika*. Edisi Ketiga. Terjemaha Mulyadi. Erlangga: Jakarta.
- Hanley, N dan C.L.Spash.1993. *Cost-Benefit Analysis and the Environment*. Edward Elger Publishing Limited. England.
- Morlok.E.K, 1995, *Pengantar Teknik dan Perencanaan Transportasi*, Erlangga, Jakarta
- Muhammad Rahmad Permata, 2012. *Analisa Ability To Pay Dan Willingness To Pay Pengguna Jasa Kereta Api Bandara Soekarno Hatta – Manggarai*. Thesis, Jakarta
- Robert Cameron Mitchell, Richard T. Carson. 1989. *Using Surveys To Value Public Goods: The Contingent Valuation Method*. Washington: Resources For The Future
- Tamin,O,Z, 2000, *Perencanaan dan Pemodelan Transportasi*, Institut Teknologi Bandung, Bandung.
- Todd Litman. 2002. *Transportation Cost and Benefit Analysis: Techniques, Estimates and Implications*. Victoria Transport Policy Institute, Canada.