

The Influence of Location, Income and Tariffs on Use Toll Road

Endang Sri Wahyuni

MastersProgram of Economic Education, UniversitasNegeriSurabaya, Indonesia

ABSTRACT:*The toll Road is a transportation infrastructure that connects one particular place to another in a road network system. Its function is as an alternative way to overcome traffic congestion or to shorten the distance from one place to another. In the Year 2017 has been inaugurated Surabaya Mojokerto toll road which is a liaison between the city of Surabaya and Mojokerto. However, the problem is that there are some people who do not choose to use toll roads, they feel that toll road services are still too expensive and still use non-toll roads. Therefore, the purpose of this study is to analyze whether there is the influence of location factor, income and tariff on toll service usage decision. This research uses multiple linear regression analysis. The population in this study are all consumers who have used the Surabaya-Mojokerto toll service. Sampling technique is Purposive Sampling method. With the sample, criteria are those who have used SUMO toll service services and aged 18 years and over, as many as 100 people. From the result of research, location factor, income and tariff significantly equal to 61,7% influence to the decision of toll service usage. For the most dominant factor and significantly influenced is the income factor.*

KEYWORDS: *location, income, tariffs, toll road*

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I. INTRODUCTION

Development is a planned business in improving the welfare of society, nation, and country (Ferrari, 2002). Road network is one of the factors supporting the success of a development because the road plays a role for the transfer of goods and human so that required an adequate road network and more emphasis on speed. Toll roads are an alternative way to speed up transportation, the development of the tourism industry, support the growth and acceleration of economic processes that are often hampered by transportation problems. Congestion problem experienced by city due to the increasing volume of vehicles, especially private vehicles, both four-wheel and two wheels (Zhu et al., 2017). Not to mention the narrowing of roads due to split markets, broken bridges, hollow roads and other things.

The Surabaya-Mojokerto toll road project aims to connect two cities in East Java Province, namely Surabaya and Mojokerto as alternatives to traffic congestion in Surabaya. So it can smooth and reduce traffic density from Surabaya to Mojokerto or vice versa. In addition, the Surabaya-Mojokerto toll road is also one of the segments of the trans-Java toll road project which is used to facilitate transportation in Java Island. This toll road is an access to facilitate transportation and overcome the density of vehicles causing congestion that impact on the process of development and regional development. In the development of the 36.27 km Toll Road, it is divided into 4 sections starting in 2007. The 2.3 km (Waru-Sepanjang) IA Section was inaugurated on August 27, 2011, Section IV of 18.47 km (Krian-Kota Mojokerto, inaugurated March 19, 2016), Section IB 4.3 km (Sepanjang-WaruGunung), Section II 5.1 km (WaruGunung-Driyorejo) and section III 6.1 km (Driyorejo-Krian) was inaugurated December 19, 2017. For the class I, tariff Surabaya to Mojokerto or vice versa Rp 36,000., with use e-toll card.

The road is a transportation infrastructure that connects one particular place with another in a road network system. The toll road is a public road that is part of the road network system and as a national road. Its function is as an alternative way to overcome traffic congestion or to shorten the distance from one place to another. The toll road is one of the vital means to improve the industrial efficiency of an economy (Suprayito, 2012). The construction of toll roads will also affect regional development and economic growth between the two areas linked by the toll road. This is indicated by the number of workers from out of town working in Surabaya who go home every day to work, they desperately need this toll road to get the job place quickly and comfortably.

Toll road users are liable to pay the tolls in the form of tariffs used for return on investment, maintenance and development of toll roads. Not all road users have to go through toll roads, because toll roads are an alternative to public road traffic. The existence of toll roads is expected to directly reduce traffic loads, congestion on public roads and reduce air pollution from slow-moving vehicles or live engines in vehicle stops. The problem is many complaints from workers and logistic drivers who daily use toll services, they feel the toll service fee is still too expensive for them if used every day (Yadika, 2018).

All consumers will always consider various factors before using the goods and services. What is their income, their needs, the consumer always wants the tariff to go, but if the income of the consumer increases will likely buy better goods/services (Kwaniwale, 2015)

Problem formulation:

1. Are the location, income and tariff factors together affect the decision of the Surabaya-Mojokerto toll service?
2. Does the factor of the location of the house or workplace with the toll road affect the consumer's decision in using the Surabaya-Mojokerto toll service?
3. Does the income factor affect the consumer's decision in using Surabaya-Mojokerto toll service?
4. Does the tariff factor affect the consumer's decision in using Surabaya-Mojokerto toll service?

II. LITERATURE REVIEW

1. Services

According to Lupiyoadi and Hamdani (2006: 5) services are all economic activities whose results are not in the form of physical or construction products, which are generally produced and consumed simultaneously and provide added value consumers. According to Kotler (2006: 6) services are any action or conduct offered by one party to another that is principally intangible and does not cause any transfer of ownership (Mowen, 2006).

The production of services relates to unreal products, ie as everything that includes repair and maintenance, government, restaurants and lodging, transportation, insurance, trade, finance, real estate, education, law, health, entertainment and other professions (Haizer& Render, 2008). Zuna (2015) his research treats toll roads as services rather than merely as goods, with customers participating in the formation of value in the process of providing services.

2. The toll

road of Surabaya-Mojokerto toll road is also one of the segments of the trans-Java toll road project which is used to facilitate transportation in Java Island. This highway is an access to facilitate transportation and overcome the density of vehicles causing congestion that impact on the process of development and development of the region. To smooth the process of development of this region, the city of Mojokerto is developing a need of adequate road access to the city of Surabaya, so the 36.27 km toll road is built to connect the city of Mojokerto and Surabaya (www.jasamarga.com).

3. Consumer Decision on Service Use

The consumer's decision to buy a product or use a service is the selection of two or more alternatives between A or B, between doing and not (Sciffman&Kanuk, 2008). In this case, the consumer's decision has a choice between using toll services and using public roads.

Furthermore, consumer decisions are also related to consumer behaviour, consumer behaviour by Mowen (2006: 56) is the study of the buying unit and exchange process that involves the acquisition, consumption and disposal, goods, services, experiences and ideas. Swastha and Handoko (2000: 10) say consumer behaviour can be defined as the activities of individuals directly involved in obtaining and using goods and services, including decision-making processes in preparation and determining activities certain.

4. Factors that influence consumer behaviour in making use decisions.

Factors proposed by Abdullah and Tantri (2014: 113) there are four factors that influence consumer behaviour in making decisions such as:

- a. Cultural factors are the influence of subcultural, cross-cultural influences of consumers.
- b. Social factors that influence consumer behaviour are an external factor of the consumer, consisting of social class, reference group, communication in the group either word of mouth communication or opinion of leader, family influence, and influence of situation.
- c. The personal factors of everything contained in the individual consumer, consisting of consumer perceptions, the acquisition and processing of information, consumer attitudes, demographics, personality and lifestyle. In this case is the consumer income factor and location.
- d. Psychological Factors

Furthermore, consumers will not buy or use a product or service simply because of its usefulness but rather its price and needs (Esso &Dibb, 2004). In this case, the consumer will consider the matter of price and tariff.

5. Location

Understanding the location has a strategic function because it can participate in determining the achievement of the objectives of the business. The goal of location strategy is to maximize the location benefits of a company (Haizer& Render, 2008). Furthermore, according to Haizer (2008), the location greatly affects

costs and determines income. Because the location is far from transportation facilities will increase the cost of individual expenses as well as the company. In this study, the intended location is the toll road with home or toll road location with work or destination of toll road service user. In the study (Glavic, 2017), the results provide a comprehensive analysis of consumers' willingness to pay and acceptance, vehicle origin, travel objectives, the frequency of road use, and revenue to the perspective of toll road users in transition countries.

The importance of the location of urban-suburban housing development should be balanced with the availability of good road facilities because it affects the social and economic community (Lio, 2016). Some Research proves that the location of residence and job influenced individual transportation behaviour (Horner et al., 2015, Zhou & Long, 2014, Zhao et al., 2011)

6. Income

Income by Adji (2004) is money received by a person of the company in the form of salary, wages, rent, interest and profits including various benefits such as health and pensions. Meanwhile, according to Dyckman (2002: 234) that income is an inflow or other increase in the assets of an entity or settlement of liabilities (or a combination of both) during a period of delivery or production of goods, the provision of services, or other activities which constitute the main or central operation the ongoing entity. While income in the management dictionary is money received by individuals, companies and other organizations in the form of wages, salaries, leases, interest, commissions, fees and profits.

According to Juwono (2016) in his research that examines the characteristics of toll users in Indonesia. Revenue in toll usage is consumer income and monthly transportation cost. Their research, most respondents, is the driver of small passenger cars with low incomes, the results of which respondents prefer to use toll services with cash rather than using electronic cards due to low-income factors.

In this study, the income in question is income in the form of money received as remuneration from activities either from the formal or informal sector in one month in rupiah unit. Whatever activities we do definitely need financially. Sukirno (2005) writes that income is one of the most important factors affecting a demand, essentially a hypothesis that the higher the income the more demand the goods.

Income is an important factor related to transportation behaviour (Manaugh et al., 2010, Sarmons&Koppelman, 2011). According to Zhao (2015), the low-income group is significantly longer for their transportation time than the high-income group in Beijing.

7. Tariffs

According to Salim (2006: 46), freight rates are a list containing prices for users of transport services arranged on a regular basis. Tariff is one important factor to influence consumers in purchasing a service. Tariff/price is defined as the amount of money or goods issued to obtain a product or service. From a consumer point of view, prices are often used as an indicator of value when they are linked to perceived benefits for goods or services consumed by consumers. If the Tariff/price is set too high and not in accordance with the quality of the product or service, then the consumer will easily switch to other alternatives in this public road. Meanwhile, according to Kotler and Armstrong (2001), the price is the amount of money that is exchanged for a product or service. Furthermore, prices are the amount of value that consumers redeem for the number of benefits by owning or using a good or service. Price is the thing that consumers pay attention to when making a purchase. Some consumers even identify prices with value. Price is one element in the total product offering and as a marketing tool (Nickels et al., 2010).

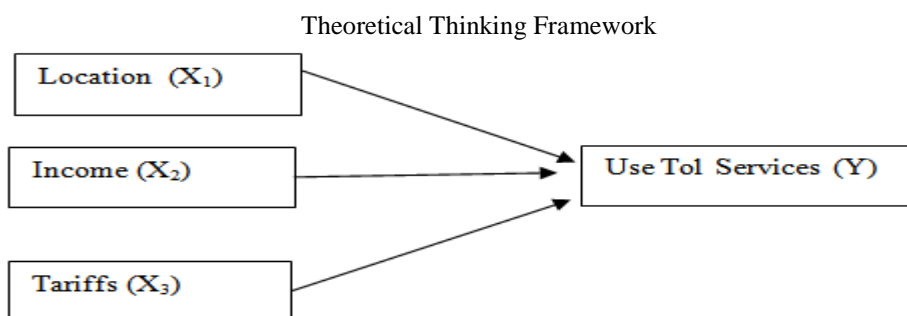
The toll road is a highway which to its users is subject to certain toll tariffs (Zuna et al., 2015). In fact, toll road tariffs are seen from the ability to pay users and the huge profit of vehicle operating costs that are influenced by time travel savings (Zuna, 2016) so that toll road consumers have a desire and expectation of toll road services.

For the calculation rules of toll tariffs built in 1980, the tariff is around Rp 200-Rp 300 per kilometre. For toll roads built in 2000-2010, the tariff is around Rp 600-Rp 700 per kilometre. The toll roads built in the period 2010-2017 tariff of Rp 900-Rp 1,300 per kilometre (Nurmayanti, 2018).

Price affects consumer interest using e-toll cards with positive direction, meaning that if the price is shown with the price of e-toll card in accordance with the benefits obtained, the price of e-toll card in accordance with the expected quality and price e-toll card in accordance with the sacrifice issued, then consumer interest using e-toll card products will increase (Purnomo&Widiyanto, 2012). Factors Price, Income and Location affect the decision of home purchase. (Utami et al., 2015).

Meanwhile, according to (Fermansyah et al, 2014) tariffs have a significant effect on the negative direction of the purchase decision, which means that if the tariff is raised then the purchase decision decreases, and vice versa. Determination coefficient value of 0.010 per cent. This means that 0.010 per cent of purchasing decision variables can be explained by tariff variables. The correlation coefficient value of 0.099 indicates the strength of the relationship between tariff and purchase decision is very weak, meaning that if the tariff is

increased, then the purchasing decision also decreases. The direct effect of tariffs on purchasing decisions is - 0.109. That is, any reduction of 1 tariff unit will improve the purchase decision. Research Lin et al., (2016) that location job and housing has a more significant impact on worker's use-transportation model than their socio-economic characteristics.



Based on the literature review mentioned above it can be drawn hypothesis as follows:

H₁ : Location factors, income and tariffs simultaneously affect the decision of the use of toll services.

H₂ : Location factors affect partially on toll service use decisions.

H₃ : Factors of income partially affect the decision on the use of toll services.

H₄ : The tariff factor partially affects the decision on the use of toll services.

H₅ : There is one dominant factor in the decision of using toll services.

III. METHOD

1. Type of Research

Type of research used is descriptive research with the quantitative approach with emphasis on testing the hypothesis in generating a conclusion. The type of data used is primary and secondary data. Primary data collected through questionnaire method is spreading the questionnaire (questionnaire) filled and answered by the respondent. Secondary data is obtained from photographs or other documents that support the primary data.

2. Population and Sample

The population in this study is all consumers who have used the services of toll SUMO in Mojokerto and Surabaya. Sampling technique is Purposive Sampling method, which is sampling technique of data source with a certain consideration, which is considered most know about what we expect (Sugiyono, 2016: 219). With sample criteria are those who have used SUMO toll service services, aged 18 years and over, as many as 100 people. Measurement Scale is measured through a questionnaire, using a 1-5 Linkert scale. There are 12 items to measure this research consisting of location factor (3 items), income factor (3 items), tariff factor (3 items) and Decision of toll road usage (3 items).

Table 1. Variables and indicators of research

VARIABLES	INDICATORS
Location	Near to home Near to work Easily accessible
Income	Amount of income per month Income level Expenditure for transport
Tariffs	Affordability tariff Toll rates Toll benefits
Toll Road Decision	The frequency of use toll road Toll Toll road as per user's desire and needed Toll road provides many benefits

3. Teknik Data Analysis

1. Test Validity, Test validity is to know the level of validity of the instrument (questionnaire) used in data collection. This validity test is conducted to find out whether the items presented in the questionnaire are really able to express with certainty what will be examined. This validity test is obtained by correlating each score indicator with total score indicator variable, then correlation results compared with the critical value at a significant level of 0.05. An instrument is said to be valid if it is able to measure what is desired and the

high validity of the instrument indicates the extent to which the data collected does not deviate from the description of the variable in question.

2. Reliability Test According Arikunto (2005: 145) "For reliability test used Cronbach Alpha Technique, where an instrument can be said reliable (reliable) if it has a coefficient of reliability or alpha of 0.6 or more.
3. Multiple Linear Regression Analysis According to Arikunto (2005: 289), multiple linear regression analysis is a statistical procedure in analyzing the relationship between one or more independent variables (X) to the dependent variable (Y)

The variable relationship is:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e$$

Description:

Y = Dependent variable (Decision of toll services)

a = Constants

b₁, b₂, b₃ = Regression coefficient

X₁ = Location

X₂ = Income

X₃ = Tariff

e = error

IV. RESULTS AND DISCUSSION

1. Test Validity and Reliability

The results of testing the validity and reliability of the indicators using the SPSS computer program aid tool. From the result of the output of SPSS known all item r arithmetic > r table. This indicates that the items presented in the questionnaire are perfectly capable of expressing exactly what will be researched and not deviating from the description of the variable in question.

From the above data note that the value of Cronbach's Alpha 0.765 which means the value of Cronbach's Alpha > 0.6 so this instrument is said to be reliable.

2. Multiple Linear Regression Analysis

Table 2. Regression

VARIABLE	COEFFISIENT	SIGNIFICANT
CONSTANTA	5,364	0,000
LOCATION	0,275	0,019
INCOME	0,404	0,000
TARIFFS	-0,128	0,002
Adjusted R Square = 0,617		
F Signifikan = 0,000		
Standart Error of Estimate = 0,962		

Source: Data compiled from SPSS, 2018

From the data analysis can be seen that the independent variable gives a real effect on the dependent variable, which means the location, income and tariff together give an effect of 61.7 % on use toll road, while 38.3 % influenced by other factors not examined in this study. Based on the results of regression analysis and t-test can be seen that the income variable has the greatest influence on the decision of the use of toll services. It gives an indication that the level of consumer income is an important factor in the decision of using toll services. A relatively high level of income will affect consumers to use toll services because the level of consumer income will determine the ability to pay toll rates. Meanwhile, according to the consumer, the toll road tariff of SUMO is still quite expensive.

Based on the results of the analysis indicate that location variable also influences the decision of toll service usage. This indicates that consumers of toll road services are in great need of a toll for the transportation route, where the location of the house and the location where they are working near or reachable from the toll road. They need a fast way to get to their workplaces each day. Although they also consider the income factor. The tariff factor significantly affects toll service use decisions. It provides an indication that the determination of affordable and cheap tariffs by consumers will give consumers the influence to use toll services. Although the location of the house or workplace is close to the highway or consumer income is high but still, consumers will consider the factor of tariffs against the use of toll services. The tariff factor has a negative coefficient, it indicates the opposite effect between the tariff and the decree of toll service usage, meaning that any increase of tariff will result in decreasing decision of toll service usage and vice versa.

V. CONCLUSION

This study aims to determine the effect of location, income and tariff variables on toll service use decisions. From the formulation of the proposed research problem, the data analysis that has been done and the discussion that has been stated in the previous chapter can be drawn some conclusion of this research are as follows:

- a. Location factors, revenues and tariffs simultaneously affect the decision on the use of toll services. This is indicated by a significance level of 0.000 which means less than 0.05.
- b. Location variable influences partially to the decision of toll service usage. With a significance value of 0.019 which means smaller than 0.05 so significant. While coefficient of location variable equal to 0,275.
- c. The income variable has a dominant influence and partially signifies the decision on the use of toll road. With a significant value of 0.000 which means smaller than 0.05 so significant. While the income variable coefficient of 0.404.
- d. The tariff variable influences partially on the decision of the toll service usage. With a significant value of 0.001 which means smaller than 0.05 so significant. While the coefficient of location variable equal to - 0,128, it means each decrease 1 tariff unit will increase the decision of toll service usage equal to 0,128 and vice versa if tariff increase will decrease decision of toll service usage equal to 0,128.
- e. The results of multiple regression testing yield the following equation: $Y = 5.364 + 0.275X_1 + 0.404 X_2 - 0.128 X_3 + 0.962$. This shows that the greatest positive influence on toll service use decision is income variable with coefficient 0,404. This explains if the location variables increase 1 value, then the value of the use decision will increase 0.404. Followed by the location variable with a coefficient of 0.275 which explains if the location variables increase 1 value, then the value of the purchase decision will increase 0.275. Then followed by the variable tariffs with a negative effect, with the coefficient of -0.128 which explains if the variable rate increased 1 value, then the value of the purchase decision will decrease by 0.128 or vice versa.

VI. SUGGESTION

Based on the conclusion of the above research results, as for suggestions given as follows: From the conclusion results can be seen that the most dominant factor influential in this study is income and positively affect which means if the income increases then the decision to use toll services increased. While the factors that have a negative and significant effect is the tariff factor. Although their income is high they still feel the tariff is still expensive, because they use it for daily work needs. Therefore advice to toll service providers and governments to be able to make tariffs affordable by the public in general for the future. And also the importance of the availability of mass transportation especially for workers who are dominant as users of toll services. Where this mass transportation can pass the toll with quality service, and affordable tariff. So the workers can get to work without getting stuck.

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