

ANALYSIS OF FINANCIAL AND ECONOMIC FEASIBILITY OF CITY TRANSPORT CONVERSION TOWARDS BANDUNG TRANS METRO BUS

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Abstract

The low quality of transportation in Bandung City cannot be separated from poor planning. This can be seen when the Bandung City Government plans a solution to solving traffic jams by means of mass transportation or better known as Trans Metro Bandung. The purpose of transportation planning is to find solutions to transportation problems in the most appropriate way by using existing resources. This is in line with the costs involved in carrying out a process. The research focus is directed at how the government's efforts in implementing the policy of converting city transportation to bus rapid transit (BRT) are seen from a financial and economic standpoint. Research related to the financial and economic feasibility of public transportation in Indonesia has only been carried out a few times, this motivates researchers to conduct similar research to obtain findings about the phenomena that occur in an effort to improve public transportation services in Bandung City.

Keyword: *Conversion Policy, Public Transportation*

1. Introduction

For the use of private vehicles, it was recorded as much as 86.74% and people who used public transportation were only 13.26%. Whereas when compared to the area, it was recorded that the total area of Bandung City was 167.29 Km², the total road area was only 2.96% , whereas, ideally, it should reach 10-30% of the total area of Bandung City.

This can be seen when the Bandung City Government plans a solution to solving congestion by means of mass transportation or better known as Trans Metro Bandung. The operational policy for TMB is inseparable from the problem of the quality of city transportation in Bandung City, but with the operation of the TMB, new problems arise, namely overlapping routes. TMB buses traversed the city transportation route in Bandung City, recorded in corridor I for the Elang Cibiru route, the route that intersects with 19 city transportation routes, while for corridor II Cicaheum-Cibeureum route, there are 32 out of 39 city transportation routes. which intersect with the TMB route, while for Corridor III Cicaheum-Sarijadi, there are at least 6 city

Background

transportation routes that intersect with this route. Whereas previously there had been an agreement between the city government and city transportation entrepreneurs, that there would be a conversion policy for city transportation over 10 years old that would be purchased by the government, with a composition of 1 bus size $\frac{3}{4}$ would replace 3 units of city transportation, and 1 sized bus. large will replace as many as 5 city transportation.

Every transportation problem should be adjusted to the destination it wants to achieve. The purpose of transportation planning is to find solutions to transportation problems in the most appropriate way by using existing resources. This is in line with the costs involved in carrying out a process.

This is a form of government intervention in encouraging public transportation policies. The government is the regulator, or in other words, has the authority to make policies by considering various aspects in the context of transportation problems. The private sector is one of the actors or owners of transportation that controls the revenue

sector and the operation of transportation, has an impact on the environment, and is a producer as well as a provider that sells environmentally friendly technology (Aminah, 2006).

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Formulation of the problem

Researchers formulate several problems as follows:

- 1) How much benefit can be obtained from converting city transportation to TMB buses in corridor III.
- 2) How much is the cost of converting city transportation into TMB Bus in corridor III.
- 3) What is the financial and economic feasibility of converting city transportation to TMB Bus in corridor III

Research purposes

The aim of this study

- 1) Analyze descriptively the benefits that can be obtained from the conversion of city transportation to TMB buses in corridor III.
- 2) Analyze descriptively the costs that must be incurred from the conversion of city transportation into TMB buses in corridor III.
- 3) Analyze the financial and economic feasibility of converting city transportation into TMB buses in corridor III.

Public Transportation

Definition of Transportation Transportation can be defined as a process of movement or movement of people or goods from one place to another by using a particular system for a specific purpose or purpose. Activities Human activities in meeting their needs

cause them to move and relate to one another.

Transportation is a means of moving people or goods from one place to another. The process can be carried out using means of transportation in the form of a vehicle or without a vehicle. The definition of passenger public transportation includes city transportation, railroad, water transportation and air transportation.

Public Passenger Transportation is mass in nature so that transportation costs can be passed on to more people or passengers which causes the cost per passenger to be kept as low as possible. This similarity is achieved by means of collection at terminals and / or stops. Mass public transportation or masstransit has a fixed route and departure schedule.

Public transportation plays a role in meeting human needs for increased movement or mobility, to move from one place to another which is close, medium or far away. Public transport also plays a role in traffic control, fuel or energy savings, as well as regional planning & development. (Warpani, 1990).

1. Transportation function

In principle, the function of transportation is to link people to land use, tie activities to activities and provide space and time uses for the commodities needed. With this transportation, people can move from one place to another that has different land uses, for example from settlements to workplaces, recreation areas and others. Furthermore, the relationship must be a series related to each other and this function is performed by this transport.

2. Travel Behavior

Travel behavior is influenced by time / season. At certain times the amount of demand for transportation services increases and at certain times decreases, both in terms of a period of one day or one year. In general, peak traffic occurs in the morning and evening, when people usually go to and from work or school. The community using transportation services consists of two groups, namely the choice group and the

captive group. The captive group consists of people who have only one choice of mode.

3. Request for Transportation Services

Demand for transportation services is a derivative demand, meaning that a demand arises from another demand. For example, on every working day workers go to work, this raises the demand for transportation services to get to their workplaces which are differentiated because of differences in location between workplaces and places of residence. Public vehicles have difficulty competing with private vehicles that serve door to door.

4. Vehicle Operating Costs

Definition of Costs According to Morlok, the definition of transportation costs is differentiated on to whom the costs are charged.

5. Vehicle Operating Costs (BOK)

Variables that are considered important in calculating vehicle operating costs are (Tamin, 1998): 1. Fixed Costs 2. Variable Costs 3. Asset Ownership Costs

6. Definition of Fixed Costs and Variable Costs

Transportation can be divided into fixed costs and variable costs. Fixed costs are costs whose magnitude does not change with changes in the output of an operation.

Financial and Economic Feasibility Analysis

Rangkuti, explained that a business and investment feasibility study is a feasibility analysis of whether a project can be implemented or not. Where the projects analyzed are in the form of business projects or investment projects with half business and half social goals, such as toll road construction investment projects, industrial estates, terminals, and various other investment projects.

According to Soeharto, the financial aspect is the main aspect that concerns the comparison between spending money and returns in a project. As part of the financial

aspect assessment, cash flow is used as a model.

In financial analysis, market prices are always used to find the true value of goods or services where in this analysis the emphasis is on the private return of several components such as costs, income and interest rates or the amount of money value associated with the benefits invested.

According to Suad, in the financial analysis of the operation of a transportation business, there are several criteria used in determining whether an investment proposal is accepted or not. In all these criteria, both benefits and costs are expressed in present value and each of these criteria certainly has its advantages and disadvantages.

Meanwhile, economic analysis is an analysis that looks from the point of view of the economy as a whole as a result of investment activities in the transportation sector.

2. Method

Research Stages

The method used in this research is to use the benefit cost ratio method, which is one of the methods often used in the initial evaluation stages of investment planning or as an additional analysis in order to validate the results of evaluations that have been carried out by other methods. The stages carried out refer to the framework of activities in this study beginning with conducting a preliminary study, literature study, data identification and planning analysis methods. After the data is obtained, it is followed by data tabulation to determine business income and business costs. Then determined the growth rate for the business.

Observed / Measured Variables

The variables used in this study consist of costs and benefits as follows

Cost Aspects

Vehicle operating costs are defined as the costs of all factors associated with operating a vehicle under normal conditions for a particular purpose. The components of vehicle operating costs are divided into 3

groups, namely fixed costs, variable costs and overhead costs.

1. Fixed Costs (Standing Cost) Fixed costs are costs that are fixed without depending on the volume of production that occurs. These fixed costs can be grouped as follows:

- a) Vehicle capital costs (BM): Most of the intercity transportation entrepreneurs in the province choose the vehicle ownership system in the credit system along with the interest that must be paid in a certain period of time. This credit payment is made by paying a certain amount and is fixed every year where there are repayments of both interest and principal at once. To calculate the repayment of the cost of capital for a vehicle, the formula for the Capital Recovery Factor is used, namely:

$$CRF = \frac{i(1+i)^n}{(1+i)^n - 1}$$

..... (1)
 Where: CRF = Capital Recovery Factor
 i = Interest rate per year
 n = credit period.

- b) Depreciation costs (BP) Depreciation costs are costs incurred for depreciating the value of a vehicle due to reduced economic life. Depreciation expense can be treated as a component of fixed cost, if the life of the vehicle is calculated based on time. To calculate depreciation expense, the first thing to do is determine the price of the vehicle. Depreciation expense can be calculated as follows:

$$D = \frac{(P - L)}{n} \dots\dots\dots (2)$$

Where: D = depreciation per year
 P = new vehicle price
 L = vehicle residual value
 n = economic age

- c) Licensing and administration fees (BPA) Annual vehicle permits are charged to each vehicle, where the amount of permit has been determined by the government

based on size and year of manufacture, this fee consists of vehicle registration fees, route permits, business permits, inspection fees (KIR) and motor vehicle tax fee (PKB)

- d) Insurance costs (BA) are the costs of accident insurance paid to an insurance company.

2. Variable Costs (Running Cost) Variable costs are costs incurred when the vehicle operates. The cost components included in this variable cost are:

- a) Cost of Fuel (BBM)
- b) Tire Usage Fee (PB)
- c) Vehicle Maintenance and Repair Costs (PP)
- d) Driver Income Fee (PS)
- e) Terminal Retribution Fee (BR)

3. Overhead Costs Some researchers do it in 2 (two) ways, namely:

- a) Calculating 20-25% of total fixed costs and variable costs.
- b) Calculating overhead costs in detail, namely calculating overhead costs that need to be regularly monitored by vehicle owners. So total overhead costs (IDR / year): BOV = (BT + BV) x 22.5%
 (3)
 Where: BOV = Overhead Costs
 BT = Fixed Costs
 BV = Variable Costs or Variable Costs

Benefits Aspects

Aspects of benefits in the field of transportation Public transport regulation is an attempt to create an orderly, fast and precise movement of public transport that will benefit all parties.

Research design

In the initial stage, identification of the background and formulation of the problem in the research that will be carried out is identified, with reference to the objectives of the research. The next stage is to identify the aspects of costs in the conversion of city transport by TMB buses, in addition to identifying the aspects of benefits. This activity is carried out by conducting an institutional survey of the related SKPD, this

effort is carried out by collecting secondary data, while other activities are conducting interviews with resource persons as a form of strengthening the need for data to be generated, besides that this activity is also carried out to update the policies. policies in force in the city of Bandung in an effort to accelerate public transportation policies.

The final stage of this activity is to analyze the impact of the conversion of city transportation to TMB buses.

Data Collection and Analysis Techniques

1. Data collection technique

As stated in the research phase above, the data used are secondary data through institutional surveys to SKPDs related to the implementation of urban transport conversion policies with TMB.

2. Data analysis

The data obtained from the results of this study were analyzed using financial and economic feasibility analyzes, so that in the end a conclusion will be obtained to answer the questions from the research conducted.

3. Result and Discussion

Result

1. Bandung City Area Description

Bandung is the largest metropolitan city in West Java as well as the provincial capital. Based on the latest BPS data, the total population of Bandung City in 2012 was 2,455,517 with a male population composition of 1,230,615 and a female population of 1,209,395. In 2010, the population decreased slightly and then increased again. With an area of about 16,730 ha, the population density of Bandung City in 2008 was 142 people / ha, increasing to 147 people / ha in 2012.

When compared with the area of each sub-district, the most densely populated area is Kecamatan Bojongloa Kaler with a population density of 38,983 people / km².

This population growth is not only due to high fertility, but also due to population growth in migration, where there is an in-

migration that is greater than outgoing migration, or in other words, the population who comes is more than the population who leaves Bandung.

Based on the composition of the population of Bandung City according to gender, it was relatively balanced during the 2011-2012 period, where the percentage of the male population was 50.75% and the female population was 49.25%. The number of productive age is relatively large. This means that the population who will receive primary and secondary education in the next 5-10 years will increase.

Bandung City Economic Structure

The economic structure of Bandung City, between 2008-2012, can be seen that the largest contribution came from the trade, hotel and restaurant sector, which reached an average of 40.8%. Therefore, in general, the economic structure of the city of Bandung is dominated by the tertiary sector or given more from the service sector.

Apart from experiencing growth, the trade, hotel and restaurant sector also contributes to the economy of Bandung City. This is in accordance with the function of Bandung as a collective and distributive city.

In 2016 the economy of the city of Bandung grew by 7.79% or was still above the 2016 West Java Province economic growth rate (LPE), which was in the range of 6.23%. This shows that the city of Bandung is still one of the important sources of economic growth at the regional and national levels. The high rate of economic growth in Bandung City when compared to the province and the national level, is influenced by the city's function as a destination for family tourism, shopping and culinary delights every weekend, as well as the development of creative industries that support the city's economy and people's livelihoods.

The distribution of sub-districts that have a high economic growth rate is shown in Figure 3.1, with a large number of basic sectors in West Java Province. This indication of the welfare of the community can be shown by the per capita income of the City of Bandung which shows significant progress. In 2008, per capita income reached Rp. 11.77 million

/ person, and in 2012 it experienced a significant increase to Rp. 15.35 million / person.

Using SUSENAS data, it can be shown that the increase in income inequality in the city of Bandung in the 2007 to 2012 period is among the highest in Indonesia. If in 2007, Bandung's Gini index (a measure of standard income inequality) was 0.37, in 2012 it increased to 0.47. This is higher than the national average of 0.41 (Arief Anshory Yusuf, *Pikiran Rakyat*, 8 January 2014). Based on these data, the City of Bandung is one of them

Cities with gaps or having a fairly high income gap between upper class and lower middle class people.

Apart from the high rate of economic growth, the city of Bandung has also experienced a very rapid increase in inequality. In fact, Bandung's rapid economic growth has been accompanied by a very high increase in inequality. If the income growth caused by the economic growth is uneven and is enjoyed by only a handful of people, the average household consumption expenditure will also tend to grow more slowly. The Gini index or Gini coefficient is one of the common measures for the distribution of income or wealth that shows how evenly income and wealth are distributed among the population.

A value of 0 shows a very even distribution, where everyone has the same amount of income or wealth. A value of 1 represents a perfectly unequal distribution where one person has everything and everyone else has nothing. Using SUSENAS data, it can be shown that the increase in income inequality in the city of Bandung in the 2007 to 2012 period is among the highest in Indonesia. This is higher than the national average of 0.41.

4. Conclusion

The provisional conclusions in this activity are as follows:

1. The people of Bandung, as a pluralistic society with varying income levels, prioritize using private vehicles, as a result of the community movement pattern.

2. The quality of public transportation in Bandung City does not have clear standardization.
3. The Damri transportation mode intersects with the TMB mode in 3 corridors

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