

Analysis of Travel Transport Rates Based on Department of Vehicle Operational Costs (BOK) Palangka Raya - Banjarmasin

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ABSTRACT

Public passenger transportation services between Palangka Raya and Banjarmasin, provided by travel operators, are essential and highly needed by the public. Currently, fares are still determined by operators, as there is no established fare system that takes into account the interests of passengers as service users. This study was conducted to determine fares based on operational vehicle costs (operator interests) and ATP/WTP rates (passenger interests). The method used adopted Decree of the Director General of Land Transportation No. 687/AJ.2006/DJRD. The method used was a questionnaire or direct interviews to obtain data on passenger numbers, operating hours, and load factors. From the data obtained, a Vehicle Operational Cost (VOC) analysis was conducted to determine the fare levels for travel transportation. The fare determination must also consider the ability (ATP) and willingness to pay (WTP) of passengers/travel users. The results of the study of the tariff amount based on BOK for the Palangka Raya – Banjarmasin Travel Route are IDR196,618.00 (upper limit tariff) and IDR178,484.00 (lower limit tariff). The ATP/WTP tariff amount for the Palangka Raya – Banjarmasin travel route is

IDR170,000.00, while the applicable tariff is IDR180,000.00 and IDR200,000.00. As a form of evaluation, the planned tariff for the Palangka Raya – Banjarmasin Travel Route is IDR217,000.00 so that a subsidy from the local government is required for the company of at least IDR17,000.00 / passenger.

Keywords: *Tariffs, Public Passenger Transport, Vehicle Operating Costs, Ability To Pay, Willingness To Pay*

INTRODUCTION

Intercity and Interprovincial (AKAP) public transportation, a land transportation mode operated by travel agencies from Palangka Raya City to Banjarmasin, is a form of mass transportation service that plays a crucial role in the movement of people and goods between South Kalimantan and Central Kalimantan Provinces, specifically Banjarmasin City and Palangka Raya City. The distance between Palangka Raya and Banjarmasin is approximately 224 km, with a travel time of approximately 4 hours and 30 minutes by land.

PT. Dewi Sumertha Sari and CV. Wadah Bersama Travel are among the many interprovincial public transportation services operating between Palangka Raya and Banjarmasin, offering a pick-up and drop-off

system directly from home to destination. The transportation services offered by PT. Dewi Sumertha Sari and CV. Wadah Bersama Travel are passenger transportation services for the Palangka Raya-Banjarmasin route and vice versa. They utilize Innova vehicles, each with a seating capacity of 8 and 5 passengers, with a fare of IDR. 200,000.00 and 180,000.00 per passenger for one trip. Prospective passengers wishing to use transportation services from these travel companies can contact the travel company's telephone number or visit the travel operator's office directly, namely PT. Dewi Sumertha Sari, located on Jalan Tjilik Riwut, and CV. Wadah Bersama Travel, located on Jalan RTA Milono.

The applicable fare structure (travel tariff) for the Palangka Raya-Banjarmasin route is a uniform fare that does not take into account the distance traveled. Therefore, passengers must pay a nominal amount in rupiah for the applicable fare, which is the same as that determined by the travel agency. Based on the sample size of companies licensed to operate passenger car transportation on the Palangka Raya-Banjarmasin route, interviews with travel operators revealed that the type of vehicle used by the two operators was an Innova. The sample size of 60 respondents from the questionnaires collected for ATP and WTP (Unqualified Opinion) for the Palangka Raya-Banjarmasin travel operator.

Public passenger transportation on the Palangka Raya-Banjarmasin route, particularly travel transportation, has not yet regulated fares. Currently, applicable fares are still determined by travel service operators, who, of course, set fares based on their own interests and must benefit the travel service operators. Suweda (2012), fare feasibility is a frequently unsatisfactory issue, especially from the perspective of consumers and operators. Therefore, a BOK analysis, a WTP (Willingness to Pay) analysis, and an ATP (Ability to Pay) analysis are required for the applicable fares. Passenger public transportation fares must

accommodate all parties involved to avoid any losses, which would disrupt passenger public transportation operations.

The results of the current intercity and interprovincial public transportation service on the Palangka Raya-Banjarmasin route, and based on previous studies on different routes, require research to evaluate travel agency fares for public transportation on the Palangka Raya-Banjarmasin route through a BOK analysis, which calculates the total costs incurred by the travel service operator in providing passenger public transportation services. In addition, it is also necessary to conduct an ATP and WTP analysis of passengers to determine the level of ability and willingness of the public to pay transportation service fares, then compare it with the current tariff rates imposed by travel service operators on the Palangka Raya – Banjarmasin route.

MATERIALS & METHODS

1. Research Location

The research was conducted on a travel vehicle traveling from Palangka Raya City (Central Kalimantan Province) to Banjarmasin City (South Kalimantan Province). A map of the location can be seen in Figure 1.

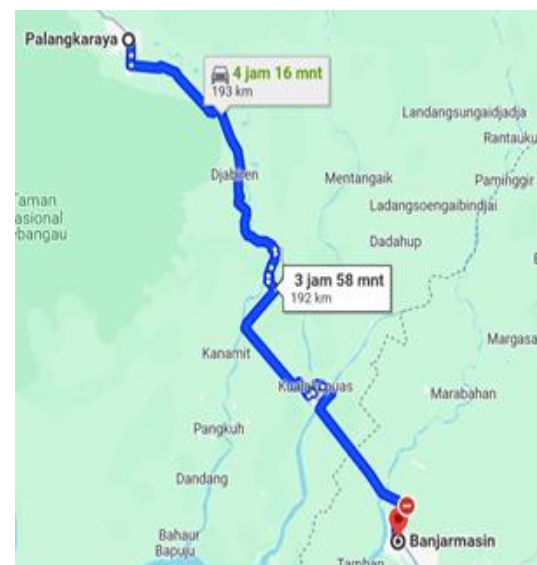


Figure 1. Research Location Map (Google Maps, 2024)

Six measurement points were located at a distance of 0-20 meters from the road. Measurements were conducted over four consecutive days, Monday through Thursday, at 12-hour intervals.

2. Research Survey Personnel

Survey personnel are needed for this research to:

- Distribute questionnaires to passengers on the Palangka Raya-Banjarmasin route.
- Distribute questionnaires to owners/drivers of travel companies serving the Palangka Raya-Banjarmasin route.
- Interview owners, drivers, and users of travel services on the Palangka Raya-Banjarmasin route.
- Record the data required for this research.

3. Data Collection Method

The data collection method used in this research is random sampling. This method is a non-exhaustive method of data collection, meaning it only selects a portion of the population, specifically those that meet certain criteria or considerations.

The required data includes:

- Primary Data

Data is obtained through field surveys, questionnaire distribution, and interviews with travel company owners, drivers, and passengers. Primary data is obtained through the following data collection techniques:

Observation: Direct observation of objects in the field. Interview: Conducting interviews with the parties involved in the research.

- Secondary Data

The data sources for this secondary data survey were obtained from government-published documents obtained from relevant agencies such as the Palangka Raya City Transportation Agency and the Banjarmasin City Transportation Agency. In addition, secondary data was also obtained from travel companies that provide passenger transportation services.

RESULT

1. Vehicle Operating Costs (VOC)

The complete calculation of fixed and variable cost components for travel vehicles on the Palangka Raya-Banjarmasin route can be seen in Table 2.

Table 2. Fixed Cost Components

No.	Fixed Costs	Dewi Sumertha Sari	Wadah Bersama
1	Depreciation Cost	298,94	199,29
2	Vehicle Registration Fee	26,57	23,25
3	KIR Fee	1,99	1,99
4	Insurance Cost	3,65	3,65
5	Route Permit Fee	1,99	1,99
6	Retribution Fee	0,04	0,04
7	Management Cost	79,88	101,64
	Total	IDR. 413,06 /Kend – Km	IDR. 331,85 /Kend – Km

Table 3. Variable Cost Components

No.	Biaya Tetap	Dewi Sumertha Sari	Wadah Bersama
1	Driver Wages	249,12	166,08
2	Fuel Costs	982,14	982,14
3	Tire Costs	37,33	35,73
4	Minor Service Costs	110	100
5	Major Service Costs	51,64	57,49
	Total	IDR. 1.430,23 /Kend – Km	IDR. 1.341,44 /Kend – Km

Table 4. Recapitulation of BOX Travel for the Palangka Raya – Banjarmasin Route

No	Travel	BOx (IDR/Kend-Km)
1	Dewi Sumertha Sari	IDR. 1.843,29
2	Wadah Bersama	IDR. 1.673,29

2. Calculation of Cost of Goods Sold (BPP)

Cost of goods sold (BPP) is the amount of sacrifice incurred to produce one unit of transportation service.

Table 5. Calculation of Annual Cost of Goods Sold (BPP) per Travel Vehicle on the Palangka Raya – Banjarmasin Route.

Travel	BOX (IDR/Kend-Km)	Mileage (Km)	Passenger (Pnp/Tahun)	BPP Fee (IDR/Pnp)
Dewi Sumertha Sari	IDR. 1.843,29	150.528	2.016	IDR. 137.633
Wadah Bersama Travel	IDR. 1.673,29	150.528	2.016	IDR. 124.939

To obtain a single cost, the BPP values for each operator were averaged, resulting in an average of IDR. 131,286/Pnp. With this

average BPP, it is assumed that all operators can be represented if a specific fare is set.

3. Fare Calculation Based on BOK with Load Factor

Table 6. Position of Basic Fare, Upper and Lower Fare, and Upper Limit Fare per Passenger Based on BOK at Various Load Factor Levels

Load Factor	PT. Dewi Sumertha Sari	CV. Wadah Bersama	Upper Limit	Lower Limit
100%	137.633	124.939	137.633	124.939
90%	152.925	138.821	152.925	138.821
80%	172.041	156.173	172.041	156.173
70%	196.618	178.484	196.618	178.484
60%	229.388	208.231	229.388	208.231
50%	275.266	249.878	275.266	249.878
40%	344.082	312.347	344.082	312.347
30%	458.776	416.463	458.776	416.463
20%	688.165	624.695	688.165	624.695
10%	1.376.330	1.249.390	1.376.330	1.249.390

There are currently two applicable tariffs: IDR. 180,000/pnp for CV. Wadah Bersama Travel and IDR. 200,000/pnp for PT. Dewi Sumertha Sari. Calculating a 70% load

factor from the BOK, these tariffs fall within the upper and lower limits of the BOK tariff.

4. ATP and WTP Analysis

Table 7. Frequency Distribution of ATP Samples of Travel Respondents on the Palangka Raya-Banjarmasin Route.

ATP		
Range	Frequency	Percentage
IDR100,000	1	2%
IDR110,000	1	2%
IDR120,000	1	2%
IDR130,000	1	2%
IDR140,000	1	2%
IDR150,000	6	10%
IDR160,000	2	3%
IDR170,000	3	5%
IDR180,000	13	22%
IDR190,000	3	5%

IDR200,000	13	22%
IDR210,000	3	5%
IDR220,000	4	7%
IDR230,000	2	3%
IDR240,000	3	5%
IDR250,000	3	5%
Total	60	
Mean	IDR188,000	

Table 7 shows that the largest percentage of voters was 22%, representing 13 respondents with IDR. 180,000 and IDR. 200,000. The second-largest percentage was IDR. 150,000, representing 10% with 6 respondents.

Table 8. Frequency Distribution of Travel Respondents' WTP Sample

WTP		
Range	Frequency	Percentage
IDR100,000	8	13%
IDR110,000	2	3%
IDR120,000	5	8%
IDR130,000	3	5%
IDR140,000	2	3%
IDR150,000	8	13%
IDR160,000	2	3%
IDR170,000	6	10%
IDR180,000	10	17%
IDR190,000	3	5%
IDR200,000	6	10%
IDR210,000	1	2%
IDR220,000	1	2%
IDR230,000	1	2%
IDR240,000	1	2%
IDR250,000	1	2%
Total	60	
Mean	IDR159,167	

Table 8 shows that the highest percentage of voters is in the IDR. 180,000 range, representing 17% of respondents, or 10 respondents. Meanwhile, the second-highest percentages are IDR. 100,000 and IDR. 150,000, each representing 13% of the total respondents, or 8 respondents.

Intercity and inter-period (AKAP) transportation is a form of land transportation service that plays a strategic role in supporting public mobility and the distribution of goods between regions. From a transportation management perspective, public transportation systems must balance service, operational efficiency, and economic sustainability (Abbas Salim, 1993). This aligns with the concept of urban transportation planning, which emphasizes

the importance of integrating transportation networks with community mobility needs. A good transportation system must simultaneously consider technical, economic, and social aspects to function optimally. In a regional context, such as the Palangka Raya-Banjarmasin route, the existence of shuttle transportation is an important alternative due to the flexibility of door-to-door service that conventional transportation modes lack (Warpani, 2002). In practice, setting public transportation fares is often a complex issue, involving various interests, both from operators and users. Based on applicable regulations, such as Law No. 38 of 2004 concerning Roads and Government Regulation No. 41 of 1993 concerning Routes, transportation

management must consider aspects of public service and business feasibility. However, in reality, many transportation fares are still determined unilaterally by operators without considering the community's ability (Wibowo & Rahman, 2023). The ideal fare planning concept should refer to the principle of balance between operational costs and community purchasing power. This is also supported by a study by the Transportation Education and Training Agency (1996) and the MKJI guidelines (Directorate General of Highways, 1997), which emphasize the importance of a technical approach in evaluating transportation systems.

Vehicle Operational Cost (VOC) analysis is the primary basis for determining reasonable public transportation fares. Department of Public Works (2005) guidelines, VOC comprises fixed and variable cost components, which must be calculated in detail to determine the actual vehicle operating costs. The results of this study indicate that the VOC value on the Palangka Raya–Banjarmasin route ranges from IDR 1,673–IDR 1,843 per vehicle-kilometer, resulting in a cost of goods produced (BPP) of IDR 131,286 per passenger. This value serves as the basis for determining the lower and upper limits of fares at various load factor levels. This finding aligns with research by Fauji (2009), which states that VOC is the primary indicator in determining the feasibility of public transportation fares, and that the higher the load factor, the lower the cost per passenger.

In addition to the cost approach, Ability to Pay (ATP) and Willingness to Pay (WTP) analyses are also important factors in fare evaluation. Based on the research results, the average passenger ATP was IDR 188,000, while the average WTP was IDR 159,167. This indicates a gap between the public's ability and willingness to pay for the applicable fares. This condition is a common phenomenon in public transportation, where users have sufficient financial capacity but are unwilling to pay more due to service

quality concerns. Rahman et al., (2022), and Anju (2021), which confirmed that fare setting that does not consider ATP and WTP can reduce public interest in using public transportation. Therefore, integrating BOK, ATP, and WTP analyses is the most comprehensive approach to determining fair fares.

Compared to previous research, the results of this study demonstrate a pattern consistent with previous studies in various regions. Khalil (2017) South Kalimantan shows that public transport fares are often above the WTP (Worthy of Public Transport) but still within the community's ATP (Affordable Price) capacity. Fadhillah's (2024) research on the Trans Banjarbakula system also emphasized the importance of subsidies to bridge the gap between operators' ideal fares and users' affordability. Palangka Raya–Buntok route also demonstrated similar characteristics in intercity transportation systems in Kalimantan. Thus, these research findings reinforce the need to balance operational costs, user affordability, and government policy when determining ideal fares. Without interventions such as subsidies or fare regulations, the potential for imbalances between operator and public interests will persist, potentially disrupting the sustainability of public transportation services.

CONCLUSION

1. The fare based on vehicle operating costs (VOC) for Innova travel on the Palangka Raya-Banjarmasin route is IDR 178,484/person (lower limit) and IDR 196,618/person (upper limit);
2. The fare based on vehicle operating costs (VOC) plus a 10% profit margin at a 70% load factor for Palangka Raya-Banjarmasin travel is IDR 197,000/person (lower limit) and IDR 217,000/person (upper limit);
3. The fare based on the passenger's Ability to Pay (ATP) and Willingness to Pay (WTP) levels for Innova travel on the

Palangka Raya-Banjarmasin route is IDR 170,000;

4. As an evaluation, a reasonable planned fare for an Innova car on the Palangka Raya-Banjarmasin route has been determined at IDR 217,000 from the operator's perspective and IDR 170,000 from the user/passenger's perspective.
5. In calculating the planned fare and vehicle operating costs, an additional fleet of eight vehicles with departures every 30 minutes, four vehicles with departures every hour, three vehicles with departures every 1.5 hours, and two vehicles with departures every 2 hours has been assumed for each route. From these results, it can be concluded that the greater the number of vehicles used, the lower/cheaper the BOK and planned fare will be.

Several findings that can be used as implications of this research are:

1. Determining the ideal fare must take into account the results of the ATP analysis and the WTP of service users.
2. As a form of evaluation of the current travel rates, which do not meet the interests of the wider community and do not fully provide sufficient profits for travel operators, this study recommends an alternative choice of travel transportation rates, namely IDR 217,000, which is subsidized by the government.

Declaration by Authors

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