Review of Transport Tariff at Ferry Port on Track Kariangau–Penajam, East Kalimantan Province

Windi Nopriyanto¹, Sri Kartini² & Deska Uliyani³

Abstract

The Ferry Port is located in the Village Kariangau with geographical location 116˚ 49 '2.852 "E - 116˚ 49' 15.2800" E and 1˚ 12 '1.188 "LS - 1˚ 12' 12.046" LS. This port serves 3 commercial track, one track Kariangau - Penajam served by 17 vessels from 6 shipping company. In operating facilities and infrastructure to organize the crossing transport, Shipping Company issued vessel operating expenses adjusted for operational trip the ship every day. Operational costs can influence the changes in the condition of transport fares. Transport Tariff at the Kariangau Ferry Port set by East Kalimantan Governor Decree number 45 of 2017. The trip vessel operating expenses amounted to 4,293,355 with a profit based on applicable tariff amounted 2,505,908.29. Based on the analysis, the tariff for passengers by 9567 / trip and profit at the rate of 3,723,823 results analysis / trip accordance Load Factor analysis today is 49.23%, then, there should be a review of implementation in the Port Kariangau Tariff that could affect the operators’ revenue and the condition of the Port Load Factor.

Keywords: Load Factor; Ship Operating Costs; Tariff; Revenue; Profits.

1. Introduction

Ports are the point of intra and inter-node transfer of transport used as places of government and enterprise as the ship docked, up and down the passenger and cargo handling, such as terminals and berths are equipped with safety and security of shipping and port support activities. The Ferry Port Kariangau commercial airport 3 tracks, one track Kariangau - Penajam served with 17 ships in operation. At the time of operating conditions a little bit of traffic carried, it may affect the operating costs of ships operating. The operational costs can affect the conditions of tariff for service users. Aside from that, Based on the results of the field survey there are changes in unit prices on some components of the tariff determination ferry transport across Kariangau - Penajam namely East Kalimantan Provincial Minimum Wage, Price Lubricants, Greases Price, Price Freshwater and other expenses. A change in the unit price. The authorities need to conduct a review of the components in determining freight Tariff so that its application can improve productivity at the port.

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2. Research Methods
This research method Tariff the primary data and secondary data, while the methods used are as follows:

a. Methods of Observation
Direct observation of actual conditions in the field are activities up and down the passenger and fare payment transactions between user services and providers and between providers and organizers. The data obtained are:
1) Passenger and vehicle tariff applicable
2) Operational Speed Boats

b. Interviews Methods
Interviews were conducted to obtain information on the components of Ship Operating Costs. Data obtained through the interview method is Component Vessel Operating Expenses Vessel Operator interviewed. The data were obtained as follows:
1) Data size and amount of the Parent Machine and Auxiliary Machine
2) Ship Docking fees in PT. DOK Shipping East Kalimantan
3) Components Operational Costs
c. Calculation Method
In this method, the surveyor enumerate / count the number of objects in a time series, it is carried out for 14 days with the help of a straight line will show the number and energy surveyor much. The data produced by the Data productivity along with Arrival and Departure Passenger Vehicles
d. Literature of Methods
e. This method is done by searching the literature or learning from a variety of sources that exist about the theory - the theory as well as data - data related to problem solving in Proceedings of Compulsory (KKW) is.
f. Institutional Methods
The data obtained from the various agencies involved. The data generated as follows:
1) Productivity Arrival and Departure of Passengers and their vehicles on trails Kariangau - Penajam Kalimantan Province - East last 5 years
   a) Passenger Arrival productivity and Vehicles
5. Summary
The results of this study showed that the data produced are 1) passenger and vehicle tariff applicable 2) operational speed boats 3) component vessel operating expenses vessel operator interviewed. The data obtained are:
1) data size and amount of the parent machine and auxiliary machine 2) ship docking fees in PT. DOK Shipping East Kalimantan 3) components operational costs. The surveyor enumerated / counted the number of objects in a time series, it was carried out for 14 days with the help of a straight line to show the number and energy surveyor much. The data produced by the data productivity along with arrival and departure passenger vehicles. This method is done by searching the literature or learning from a variety of sources that exist about the theory - the theory as well as data - data related to problem solving in Proceedings of Compulsory (KKW) is. The data obtained from the various agencies involved.

![Graph showing passenger and vehicle productivity]

b) Productivity Departures Passenger and Vehicle
2) Ships operating characteristics of the track.

<table>
<thead>
<tr>
<th>SHIP NAME</th>
<th>Type and GRT</th>
<th>ABK</th>
<th>Capacity</th>
<th>(LOA)</th>
<th>(B)</th>
<th>(T)</th>
<th>excl</th>
</tr>
</thead>
<tbody>
<tr>
<td>KMP. Dingkis</td>
<td>RoRo / 404</td>
<td>21</td>
<td>200</td>
<td>12</td>
<td>39.5</td>
<td>10.5</td>
<td>1.8</td>
</tr>
<tr>
<td>KMP. Kambaniru</td>
<td>RoRo / 549</td>
<td>20</td>
<td>400</td>
<td>22</td>
<td>45.35</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>KMP. Goropa</td>
<td>RoRo / 547</td>
<td>18</td>
<td>250</td>
<td>22</td>
<td>43.35</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>KMP. Poncan Muale</td>
<td>RoRo / 621</td>
<td>20</td>
<td>400</td>
<td>22</td>
<td>45.35</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>KMP. Dharma Badjra</td>
<td>RoRo / 239</td>
<td>19</td>
<td>150</td>
<td>19</td>
<td>37.5</td>
<td>10</td>
<td>1.75</td>
</tr>
<tr>
<td>KMP. Dharma Ferry</td>
<td>RoRo / 342</td>
<td>18</td>
<td>245</td>
<td>30</td>
<td>30</td>
<td>10.2</td>
<td>1.8</td>
</tr>
<tr>
<td>KMP. Ulin Ferry</td>
<td>RoRo / 244</td>
<td>25</td>
<td>180</td>
<td>20</td>
<td>30</td>
<td>10.2</td>
<td>1.8</td>
</tr>
<tr>
<td>KMP. Save BPN</td>
<td>RoRo / 627</td>
<td>23</td>
<td>250</td>
<td>30</td>
<td>53</td>
<td>12.8</td>
<td>2.5</td>
</tr>
<tr>
<td>KMP. Muchlisa</td>
<td>RoRo / 725</td>
<td>18</td>
<td>530</td>
<td>16</td>
<td>47</td>
<td>11</td>
<td>2.7</td>
</tr>
<tr>
<td>KMP. Kineret</td>
<td>RoRo / 531</td>
<td>24</td>
<td>250</td>
<td>20</td>
<td>34</td>
<td>11</td>
<td>2.4</td>
</tr>
<tr>
<td>KMP. I Madura Strait</td>
<td>RoRo / 209</td>
<td>19</td>
<td>171</td>
<td>20</td>
<td>37.6</td>
<td>10.02</td>
<td>2.06</td>
</tr>
<tr>
<td>KMP. Heroine</td>
<td>RoRo / 476</td>
<td>20</td>
<td>118</td>
<td>18</td>
<td>38.8</td>
<td>10</td>
<td>2.175</td>
</tr>
<tr>
<td>KMP. Madura II</td>
<td>RoRo / 209</td>
<td>18</td>
<td>155</td>
<td>20</td>
<td>37.6</td>
<td>10.02</td>
<td>1.98</td>
</tr>
<tr>
<td>KMP. Swarna Nalini</td>
<td>RoRo / 323</td>
<td>25</td>
<td>200</td>
<td>31</td>
<td>41</td>
<td>11.1</td>
<td>2</td>
</tr>
<tr>
<td>KMP. Manggani</td>
<td>RoRo / 512</td>
<td>22</td>
<td>242</td>
<td>28</td>
<td>-</td>
<td>12.8</td>
<td>2.8</td>
</tr>
<tr>
<td>KMP. Tawes</td>
<td>RoRo / 270</td>
<td>21</td>
<td>100</td>
<td>16</td>
<td>30</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>KMP. Tunu Pratama Jaya 2888</td>
<td>RoRo / 707</td>
<td>-</td>
<td>200</td>
<td>21</td>
<td>60.2</td>
<td>11.5</td>
<td>3.3</td>
</tr>
</tbody>
</table>

3) Network Map Route and travel time trajectory Kariangau - Penajam
4) Transport Tariff are applicable on the route

3. Results and Troubleshooting
In doing research to solve the problems on the track Kariangau - Penajam East Kalimantan Province needs for analysis of the conditions that will be designed to increase productivity in ports such conditions. The analysis will be undertaken as follows:

a. Load Factor Analysis

Load factor used in calculating the following formula:

\[
load \text{ Factor} = \frac{\text{used capacity}}{\text{available capacity}} \times 100\%
\]

Available vessel capacity is the ratio between the area of the vessel in Unit Production Unit (SUP) multiplied by the number of boat trips. Where 1 SUP by 0.73 m². While the ship unused capacity obtained from the amount by multiplying the total number of vehicles were off-loaded in the Unit Production Unit (SUP) each class of vehicle. As these calculations, be formulated as follows:

\[
\text{Unused capacity} = \text{Number of vehicles} \times \text{SUP vehicle}
\]

1) Passenger Load Factor

Based on the results of calculation load factor amounted to 0.55% of passenger departure and arrival of a passenger load factor of 0.77% then obtained average load factor - passengers on Port Kariangau average of 0.66%

2) Vehicle Load Factor

From the above calculation, that the average load factor Vehicles - arrival rate of 50.23% and departures by 48.23%. Load Factor The calculation of the average vehicle on Kariangau amounted to 49.23% Seaport

b. Analysis of Operating Costs

These trails serviced by 17 vessels that ship KMP example. Dingkis and KMP. Poncan Muale which operate tariff every day. The operation of vessel operating costs. In the calculation of vessel operating expenses in this study were selected based on the calculation of the average - average carrying capacity of the largest vessel and is owned by a company that is a regulator in the organization of ferry transport in ports
Kariangau namely. ASDP Indonesia Ferry Persero Balikpapan branch. This calculation is based on Transportation Minister Decree 58 of 2003, as follows:

1. DIRECT COST
   a. Fixed cost
      1) Depreciation costs Ships = Rp. 516 206 250
      2) Interest Expense Capital = Rp. 582 769 688
      3) Boat Insurance Costs per year = Rp. 163 012 500
      4) Cost ABK
         a) salary Wages = Rp. 637 939 212
         b) allowance
            • Eat = Rp. 567 million
            • premiums screen = Rp. 102.630.000
            • Health = Rp. 100 800 000
            • Office clothing = Rp. 29.925 million
            • Social Security = Rp. 31,896,960.6
            • Allowance = Rp. 53,161,601
      TOTAL FIXED COSTS = Rp. 2785341211
   b. Variable cost
      a. fuel costs
         a) Parent engine = Rp. 3106522848
         b) Auxiliary engine = Rp. 286,755,955.2
      b. Cost Lubricants
         (a) Parent engine = Rp. 566 551 814
         (b) Auxiliary engine = Rp. 52,297,090.56
      c. Cost Fat = Rp. 28.3314 million
      d. Freshwater = Rp. 116,476,222.5
      e. Cost Repairs, Maintenance & Supplies (RMS)
         (a) Annual docking = Rp. 1,000,000,000
         (b) Deck maintenance = Rp. 278 867 193
         (c) Routine painting, Dust = Rp. 66.696 million
         (d) maintenance Engineering = Rp. 381 539 257
         (e) Ship Supplies = Rp. 48.905 million
         (f) Supplies Safety EquiRegulationent = Rp. 107 880 000
         (g) Ship EquiRegulationent Supplies= Rp. 19.284 million
         (h) Mobilization time Docking = Rp. 9.9355 million
      Total Cost RMS Annually = Rp. 1913106950
   f. Environmental costs in the Port = Rp. 332 106 800
   g. Cost of Commerce and Promotion = Rp. 618 176 000
      TOTAL COST OF NON-PERMANENT = Rp. 7020325081
      TOTAL DIRECT COSTS = Fixed Costs + Variable Costs = Rp. 9805666292

2. INDIRECT COSTS
a. Fixed cost
   1) Army Employee Costs = Rp. 158,259,513.6
      a) Money Eating and Transport
      b) Health = Rp. 230,400,000
      c) Office clothing = Rp. 63.6 million
      d) Social Security = Rp. 79,129,757
      e) Holiday allowance = Rp. 131,882,928
   2) Management Fee and Management = Rp. 763,293,790

   TOTAL COST OF NON-PERMANENT = Rp. 400,532,690
   TOTAL COSTS INDIRECT = Rp. 5,306,943,011

   TOTAL OPERATING COSTS = DIRECT COSTS + INDIRECT COSTS = 15,112,610,593

The Analysis of the Operational Costs are influenced by the 3520 Trip / ship annually by 4,293,355 / Trip. In determining the required freight rate calculations Pph Sailing with a value of 1.2% of the operational cost incurred and the calculation of the company's profit amounted to 10% of operating costs. The tariff at the route of Kariangau - Penajam will be calculated with load factor conditions research analysis condition (primary data) As for the calculation of mileage Tariff by 6-mile path that will be applied using the following formula:

a. Passenger fare per Trip
   \[ \text{Passenger fare per Trip} = \frac{\text{BOK + Pph shipping + provit}}{\text{L_f x Ship Capacity x Trip x distance}} \]
   \[ = 9567 / \text{Trip / Passenger}. \]

b. Tariff Vehicle Cat. II per Trip
   \[ \text{Tariff Vehicle Cat. II per Trip} = \frac{\text{BOK + Pph shipping + provit}}{\text{L_f x ship capacity x Trip x distance}} \]
   \[ = 30,150 / \text{Trip / Vehicle Cat. II} \]

Based on the calculation formula and can be calculated tariff plans and vehicle Passenger Load Factor is based on the analysis results as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>The tariff applicable</th>
<th>rate Plans</th>
<th>percentage Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>passengers Adults</td>
<td>8,000</td>
<td>9567</td>
<td>16%</td>
</tr>
<tr>
<td>Child passengers</td>
<td>5,000</td>
<td>6697</td>
<td>16%</td>
</tr>
<tr>
<td>Cat. I</td>
<td>8,000</td>
<td>9277</td>
<td>16%</td>
</tr>
<tr>
<td>Cat. II</td>
<td>26,000</td>
<td>30,150</td>
<td>16%</td>
</tr>
</tbody>
</table>
c. Revenue analysis

To calculate the amount of income, use the calculation formula as follows:

\[ TR = P \times Q \]

Information:
- \( TR \) = Total Revenue or Earnings
- \( P \) = Selling Price unit (Tariff applicable)
- \( Q \) = Volume of Production (Total Production EquiRegulationent)

Based on the formula above, the calculation of income based on productivity ferry ports Kariangau primary data at a rate that has been enacted Rp. 16.24344 billion while also, calculation of income at a rate of analysis results. 18,511,664,624 by 3520 trip on the ship are analyzed.

With the value of these revenues, the Company Tariff in accordance with a gain vessel operating expenses per trip on analysis results fare of Rp. 3723823 / Trip

d. Conclusion Troubleshooting

From these calculations, to optimize the operation of ships in the Port Kariangau every trip, it is provided troubleshooting as follows:

1) Calculation of Operating Expenses Vessel operating under current conditions

Calculation of Ship Operating Expenses Vessel operating in accordance with the trip daily basis using a vehicle Load Factor productivity because productivity more dominant than the vehicle passenger productivity conditions. Ships operating with 11 to 16 trips per day on daily basis will cause vessel operating expenses to be great. The comparative advantage of current conditions with the conditions of the planned based on the calculation of Operating Costs currently are in the following table:

### Table 3
Comparative Advantages per trip

<table>
<thead>
<tr>
<th>Commentary</th>
<th>Tariff Existing</th>
<th>Tariff Results Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue / Trip</td>
<td>Rp. 6,799,263.29</td>
<td>Rp. 8,017,178</td>
</tr>
<tr>
<td>Operating costs</td>
<td>Rp. 4,293,355</td>
<td>Rp. 4,293,355</td>
</tr>
<tr>
<td>Profit</td>
<td>Rp. 2,505,908.29</td>
<td>Rp. 3,723,823</td>
</tr>
</tbody>
</table>

From the above table, it showed a profit based on the data analysis of primary productivity in the Port Kariangau and current Tariff of Rp. 2,505,908.29 / trip, if Tariff apply analysis results, the company will earn a profit of Rp. 3,723,823 / trip to operational costs Rp. 4,293,355 / Trip.

2) Entry New Tariff
   The government needs to do a new tariff adjustment in accordance with the calculation Kariangau Port Operational Costs of Transportation Minister Decree Number 58 of 2003 and the condition of the port productivity. The tariff adjustments need to be viewed in terms of people's desire and ability of people to use Ferry Transport at the Kariangau Ferry Port. To determine these conditions need the implementation of a survey on the willingness and ability of service users are referred to as the survey Ability to Pay (ATP) and Willingness to Pay (WTP).

4. Closing
4.1 Conclusion
   After holding research and look at survey data and the analysis conducted by the authors, the conclusion of this issue as follows:

1) Calculation of Operating Costs vessels operating per-trip on the track Kariangau - Penajam according to the calculations of the Ministry of Communications Decree number 58 of 2003 and the conditions change in the unit price of the component of the tariff determination of 2019 of Rp. 4,293,355 / trip.

2) Tariff results of the analysis are the basic rate adjusted from the calculation of Operating Costs Load Factor ship and the condition that the Port is currently 49.23%. Results of analysis of passenger fare calculation based on conditions Load Factor analysis of the current Rp. 9,567 / Trip. Rate this analysis increased by 16% from existing conditions today. But the rate that this analysis is not adjusted to the level of ability and willingness to service users in the use of transport crossing.

b. Suggestion
   Based on the above conclusion, it can be given suggestions are:
1) Necessary to evaluate the calculations Vessel Operating Expenses adjusted to change the unit price tariff-relevant components as well as the condition of Load Factor Harbor today.
2) In determining freight Tariff to the track crossing Kariangau - Penajam, need to be adapted to the conditions of service users is on the ability and willingness to pay for the use of transport crossing. As well as the tariff will be applied must be socialized to service users so that there is no misunderstanding of the service users. In addition, the port operators need to improve in terms of services to review the conduct of the survey level user wishes to use transport services crossing (survey Willingness to Pay). The service facilities that need to be improved and planned at the Port Kariangau, as follows:

   a. Safety facilities and Health Facilities, or other health care and also about fire extinguishers.
   b. Waiting Room facilities and mosque were uncomfortable, cramped and not meet the standards of passenger service by The Minister of Transportation Regulation Number 39 of 2016.
   c. Difable passenger facilities and space breastfeeding mothers who need to be planned so as to achieve equality aspects in passenger service standards in the port by The Minister of Transportation Regulation Number 39 of 2016.

5. References

   3) Siregar, Muchtarudin, 2012, *Beberapa Masalah Ekonomi dan Manajemen Transportasi*, University of Indonesia, Jakarta
   6) Act No.2008, Law Number 17 About Shipping
   7) Act No. 2017, Ministry of Transportation Republic of Indonesia Number regulation 104 on the Implementation of Transport Crossing
   8) Act No. 2012, Regulation of the Minister of Transportation Number 18 on the Amendment Decree Number 58 of 2003 on Determination Mechanism and formulations Crossing Transportation Tariff Calculation
   9) Act No. 2003, *the Minister of Transportation Decree 58 of 2003 on Determination Mechanism and Crossing Transportation Tariff Calculation Formulation*
   10) Act No. 2017, East Kalimantan Governor Regulation Number 45 On Ferry Transport Tariff Kariangau - Penajam for economy class passengers