A STUDY ON TRIP DISTRIBUTION MODELING OF FERRY SHIP PASSENGERS AT UJUNG PORT SURABAYA – KAMAL AFTER THE OPERATION OF SURAMADU BRIDGE

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ABSTRACT

Ferry activity of Ujung (Surabaya) – Kamal (Madura) remain high after the operation of Suramadu bridge. This high activity is indicated by the length of the queue and this condition is a motivation to formulate research related to the characteristics of ferry passenger distribution. Distribution of ferry passenger at the port in Surabaya – Kamal is resumed to leave a stable flow. The study areas is divided into two scenarios of zonal configuration. There is a distribution of small-scale zones between Bangkalan and Surabaya movement, as well as large-scale zones which include all of East Java region. The aims of the study is to build a trip distribution model of ferry passenger and forecast the trip distribution future 5 years.

The study begins by identifying the origin and destination of ferry passengers to obtain O/D existing. From the data movement can be made a model of passenger distribution using analysis synthesis (Model Gravity) without constraints (unconstrained). This model is compared with the furness method with economic and population parameters. First model is for all movement, while the second model is for local movement based on short distance and having no car.

The results of this research show the model of trip distribution patterns of flow passenger ships at port Ujung-Kamal is found to be stable on the side Kamal-Surabaya. Stable means that passenger choose ferry Ujung-Kamal based on distance to the ferry port, with the high purpose is to work and back home. The formula of modeling based on the number of zones Bangkalan - Surabaya Tij = 5.1 x10^-18.Pi.Ej .Exp(0.21.Cij ), and Tij = 2.3 x10^-19.Pi.Ej.Exp (-0.08.Cij) for zones East Java Province. This pattern is also supported by the character of a passenger ferry based on short distance and having no car. This is indicated by the model that is formulated as follows for zone Bangkalan- Surabaya Tij = 2396.22 . Pi.Ej.Exp (-1.3.Cij ), and East Java zone Tij= 1.2 x10 - 09.Pi.Ej.Exp (-0.08.Cij). P is the population parameters, while E is the economic parameters. The average daily traffic volume (ADT) all fleet is enough to accommodate hourly passengers without the need for the addition of new ferry.

Key Word: Ferry Port In Ujung-Kamal, Furness Method, Gravity Model, Origin Destination Matrix, Unconstrained