TRIP DISTRIBUTION MODEL OF DOMESTIC AND INTERNATIONAL PASSENGER AT JUANDA INTERNATIONAL AIRPORT

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ABSTRACT

As a fast freight transport, air transportation plays an important role in the region with a weak ground transportation accessibility, however, air transportation can also support other transportation or even compete with other transportation demand if it wishes so, so it does not cover the possibility of air transportation is also needed good accessibility in the region. Basically, the transportation planning process requires models to analyze existing systems and for the future. Therefore in this study will be identified the origin and destination of passenger air transportation to get the trip distribution model of passengers at Juanda International Airport at this time so can be used to predict the trip distribution of passenger at the future.

First step of this study is to identify the origin and destination, domestic and international passengers at Juanda International Airport through the Origin Destination Matrix based on the results of the passenger interview survey. From Origin Destination Matrix can be made several trip distribution model with an analysis of the unconstrained-gravity-model (UCGR) by using three deterrence functions: exponent function, negative exponential function and Tanner function. From these modeling results can be known characteristics of origin and destination passengers at Juanda International Airport.

From the results of this study expected to provide input for planning of air transport facilities and infrastructure are in accordance with future demand. For domestic flights the most appropriate gravity model with Tanner's function with value \( \alpha = 7,252 \) value \( \beta = 0,01 \) and the formula \( T_{ij} = 2,01 \times 10^{-30} \times E_i \times E_j \times C_{ij}^{7,252} \times e^{-0,01 \times C_{ij}} \), where \( E_i \) and \( E_j \) are Gross National Income of origin and destination zones. Whereas for international flights the most appropriate gravity model with Power's function with value \( \alpha = 3,8737 \) and the formula \( T_{ij} = 325,848 \times P_i \times P_j \times C_{ij}^{-3,8737} \); where \( P_i \) and \( P_j \) are parameters of the population of origin and destination zones.

Keywords: Gravity model, Juanda International Airport, trip distribution, Origin Destination Matrix.