FORECASTING THE FREQUENCY OF DOMESTIC PASSENGER AIRCRAFT AT THE JUANDA AIRPORT USING ARIMA AND TRANSFER FUNCTION METHOD

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ABSTRACT

The increase of human population is proportional to the need of human population to use transportation services, including air transportation. The development of air transportation services in Indonesia can be seen from the increase in both the number of passengers and goods transported during the last 5 years, especially in the Juanda Airport. Forecasting the number of air passengers in the future is considered important to provide a recommendation on the part of the airport to expand airport capacity. The number of air passengers in the future can be forecasted using the time series analysis approach such as multivariate time series, for example in the transfer function method and univariate time series, for example in ARIMA Box Jenkins method. In the transfer function method, the input series is the number of aircraft, inflation, oil prices, while the output series is the number of air passengers. From out-sample criteria, the best model to forecast the number of domestic passengers at the Juanda airport is univariate time series models, ARIMA(1,1,0)(1,0,0)_{12} because ARIMA model has minimum RMSE values. The best model explained that forecasting the number of domestic air passengers at Juanda Airport this month is related to the number of passengers at 1, 2, 12, 13, 14 months ago.

Key words: air passenger, aircraft, inflation, oil prices, the transfer function, ARIMA