MODELLING FARMER TERM OF TRADE PADDY CROP WITH TRANSFER FUNCTION METHOD AND MULTIVARIATE ADAPTIVE REGRESSION SPLINES TIME SERIES

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ABSTRACT

Gorontalo is one of the centers of national maize production. High maize production is expected to boost the welfare of farmers. One indicator that can be used to see the level of welfare of farmers is the Farmer's Term of Trade (FTT). The development of FTT paddy crop Gorontalo quite influenced by the growing paddy of maize. Maize paddy developments in economic theory cannot be separated from the production of maize. In this study will be conducted analysis of the FTT paddy crops and see the effect of maize harvested area to FTT paddy crops. Methods to be used in this study is the transfer function method and multivariate adaptive regression spline time series (TS_MARS). The transfer function is the modeling that combines time series and causal methods. In addition to modeling the transfer function involves a series as the output variable (Y) also involves a series of other data that affect the output variable, the variable is called input variables. As the output variable is the FTT paddy crops as input variables while the harvested area of maize (which describes the production of maize). The second modeling is modeling by using the method of MARS time series. MARS is a nonparametric regression modeling for high-dimensional data. Meanwhile TS MARS modeling is MARS where the predictor variable is the value of lag time series. In this study predictor variables are used not only lag of one time series data. In addition to lag time series data is also used other variables series and its lag as predictor variable. Such a method is referred to as TS MARS semi multivariate. The results of this study indicate harvested area of maize Gorontalo previous months affect FTT paddy crops Gorontalo. Transfer function model that forms do not meet the assumption of normality. RMSE value of MARS time series models is smaller than the model transfer function so that MARS time series models better to predict the FTT paddy crops in Gorontalo. The results of MARS time series prediction model is closer than the actual value of the transfer function model.

Key words: FTT paddy crops, Transfer Functions, TS multivariate semi MARS, RMSE, Forecasting