

ABSTRACT

TIME SERIES MODELING AND FORECASTING USING AUTOREGRESSIVE INTEGRATED MOVING AVERAGE (ARIMA) AND RANDOM WALK

By

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Autoregressive integrated moving average (ARIMA) is a combination of Autoregressive (AR) model and Moving Average (MA) model. The ARIMA model has order (0,1,0) is called RandomWalk model. The ARIMA model using past and present value to produce short-term forecasting. The purpose of this research is to determine the best ARIMA model for forecasting the Consumer Price Index (CPI) and health commodities price index Bandar Lampung city in the period January to June 2014. The ARIMA model has assumption that the series data are stationary. The CPI and health commodities price index of Bandar Lampung is not stationary, then we applied differencing to make the data stationary. To find the best model ARIMA, first we check the stationary data by using time series plot, Autocorrelation Function (ACF), and unitroot test. Then the time series model was found by using ACF and Partial Autocorrelations Function (PACF). The best model was found by using criteria Mean Square Error (MSE), Akaike's Information Criterion (AIC) and Bayesian Information Criterion (BIC). The best model is ARIMA (1,1,0) for CPI and ARIMA (0,1,0) for health commodities price index.

Key Word : time series, forecasting, CPI, ARIMA