

Application of the Box-Jenkins model to forecast monthly average retail price of spotted sardinella fish in Colombo and suburbs

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This study aimed to investigate an appropriate model to forecast and examine the behaviour of the monthly average retail price of spotted sardinella (*Ambligaster sirm*) fish in Colombo and suburbs. Monthly average retail price of spotted sardinella at Colombo and suburbs markets from January 2010 to December 2017 collected by Hector Kobbekaduwa Agrarian Research and Training Institute were utilized to find out the appropriate model to forecast the price using the Box-Jenkins Autoregressive Integrated Moving Average (ARIMA) procedure. Nominal time series prices were converted into real prices by using the Colombo Consumer Price Indices (CCPI 2013=100). Both nominal and real price series had shown a seasonal pattern. But properties of two price series were different and therefore two different seasonal ARIMA models were identified as the best fitted models to forecast nominal and real prices of spotted sardinella. ARIMA (1,1,0) (0,1,1)¹² was the best model to forecast and explain the behaviour of nominal price while (1,0,0) (1,1,0)¹² was the best model for real price series. Nominal retail prices have been increasing gradually over the years while no noticeable increment in real value forecasts. Even though the nominal price increment over the years did not reflect the real price series prototype of the price changes within a year was more or less similar in both series. By comparing the behaviour of observed and forecasts of real and nominal prices, it can be concluded that the inflation rate will have a higher weight in determining the nominal retail price of Spotted Sardinella than the changes of fishery itself.

Keywords: ARIMA, nominal price, real price, spotted sardinella, time series

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