2nd International Conference of Multidisciplinary Approaches (iCMA), 2015
Faculty of Graduate Studies,
University of Sri Jayewardenepura,
Sri Lanka
ISSN: 2386 – 1509

FORECASTING TOURIST ARRIVALS TO SRI LANKA USING ARIMA AND ARFIMA APPROACH

A. P. Mary Siamila, N. Satkunanathan

Department of Mathematics and Statistic, University of Jaffna

siamilaarul@gmail.com

Sri Lankan tourism plays a significant role in the generation of income, foreign exchange and provision of employment opportunities. Therefore, forecasting tourist arrivals becomes essential. In this study, we proposed short memory autoregressive integrated moving average (ARIMA) and long memory autoregressive fractionally integrated moving average (ARFIMA) approach to forecast tourist arrivals to Sri Lanka. Further, the Akaike information criteria (AIC), mean absolute percentage error (MAPE), mean absolute error (MAE) and root mean square error (RMSE) were used to measure the forecast accuracy. The secondary time series data were obtained, from January 1980 to December 2014, for this study. Based on the AIC value, ARIMA(2,1,3)(2,0,2) 12 and ARFIMA(1, -0.459601, 0)(0, -0.190273, 2)12 were fitted as a best model in the class of ARIMA and ARFIMA models respectively. In addition, the chosen models were used to forecast the future values of tourist arrivals for a period covering from January 2015 to December 2015. The forecast results showed that the monthly tourist arrivals are expected to increase in 2015 and it will reach approximately 0.209 million and 0.198 million in December 2015, respectively. The approximate 95% forecast confidence interval for monthly tourist arrivals will be 0.134 to 0.323 and 0.114 to 0.313 in December 2015, respectively. Nevertheless, the lowest value of MAPE, MAE and RMSE revealed that ARIMA model brings better results than ARFIMA model.

Keywords: Tourist arrivals, ARIMA models, ARFIMA models, forecast accuracy