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Forecasting Foreign Guest Nights in Ancient Cities of Sri Lanka

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Abstract

Sri Lanka is a home to seven world heritage sites. Kandy, Sigiriya, Anuradhapura, Polonnaruwa, and Dambulla are named as Ancient cities of world heritage sites in Sri Lanka. These cities are highly occupied by international tourists. The high occupancy increases the demand for accommodation. Hence, the hotel industry should adopt various practices to maximize profits and minimize the risk. This can be achieved by accurate forecasting. But, there were least attempts on forecasting occupancy guest nights in Sri Lankan context. Therefore, this study was focused on identifying suitable forecasting techniques for occupancy guest nights of international tourist in Ancient cities of Sri Lanka. Monthly data of foreign guest nights for the period of January 2008 to December 2016 were obtained from Sri Lanka Tourism Development Authority (SLTDA). The Time Series plots and Auto Correlation Function (ACF) were used for pattern recognition. The Seasonal Autoregressive Integrated Moving Average (SARIMA) was tested on forecasting occupancy guest nights. The Anderson-Darling test was used for testing the normality of residuals. The Ljung-Box Q (LBQ) test and ACF and were used for testing independence of residuals. Forecasting ability of the models was assessed by both relative and absolute measurements of errors. The data set was outliers free. The model ARIMA (1,0,1) (1,1,2)₆ satisfied model validation criterion. Both relative and absolute measurements of errors are very low. The performance of the model shows the less deviation and almost captures the pattern of the series. Therefore, future night occupancy by the foreign guests in Ancient cities of Sri Lanka can be forecasted by ARIMA (1,0,1) (1,1,2)₆. The study concluded that the SARIMA is suitable in forecasting occupancy guest nights in Ancient Cities of Sri Lanka. The forecasting occupancy guest nights are an essential discipline in the hotel industry. It leads to planning and decision making to all the departments in hotels. The result of this study is important for the drivers of pricing of products, staffing, maintenance, traffic controls, solid waste management and security of hotel industry in Ancient Cities of Sri Lanka. The series of occupancy guest nights follow wave-like pattern; as such may contain both seasonal and cyclical variation. The SARIMA can capture only the seasonal variation. Therefore, it is recommended to test the Circular Model; in order to see whether the forecasting ability improves.

Keywords: SARIMA, Ancient Cities, Measurements of Errors