FORECASTING POST-WAR TOURIST ARRIVALS TO SRI LANKA USING DYNAMIC TRANSFER FUNCTION MODELING METHOD

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ABSTRACT

Tourism plays a big role in terms of economics in the development of a country. Previous studies show the contribution of tourism to national income and its economic impact in Sri Lanka. The arrivals were less during the war period in Sri Lanka due to the uncertainty of security. Forecasting tourist arrivals is essential for planning, policy making and budgeting purposes. The objective of the study is to fit a model to predict tourist arrivals by using dynamic transfer function (DTF) modeling method. The monthly tourist arrivals from June 2009 to June 2016 are extracted from the annual reports of Sri Lanka tourism development authority for this study. Prior to model fittings, the following techniques were carried out: Augmented Dickey- Fuller test, Kruskal- Wallis test, difference method, auto-correlation function and partial auto-correlation function. For model fitting, dynamic transfer function model for univariate time series process was employed. Anderson-Darling test, Lagrange's Multiplier test and White's General test were applied for the residuals analysis. To evaluate the performance of the model on the basis of the fit of the forecasting, mean absolute percentage error (MAPE) was taken into account. It is stated that, over 7.3 million tourists had visited the island during the study period. Also only in the year 2015 nearly 1.8 million tourists had visited and which is the biggest hit in tourism history of Sri Lanka. Further it is noted that, every year there is a positive growth rate. It reveals that, there is dramatic increase in total tourist arrivals after the war. Soon after the war in Sri Lanka, a rapid increase in growth rate in the year 2010 is also observed. According to the MAPE value, it is concluded that, the fitted DTF model explains over 90% accuracy in terms of forecasting tourist arrivals. Based on the ex-post forecast, it is expected that nearly 1.105 million tourists will come to Sri Lanka in the last six months in 2016. It is approximately 14% increase in the arrivals over the last six months in the year 2015.

Keywords: Dynamic transfer function, Forecasting, Tourist arrivals