COMPARISON OF PERFORMANCES OF SELECTED FORECASTING MODELS:AN APPLICATION TO DENGUE DATA IN COLOMBO, SRI LANKA

A.M.C.H. Attanayake[a], **S.S.N. Perera**[b] and **U.P. Liyanage**[c]

[a,c]Department of Statistics & Computer Science, Faculty of Science,
University of Kelaniya, Sri Lanka
[a]succ@kln.ac.lk, [c]liyanage@kln.ac.lk

[b]Research & Development Centre for Mathematical Modelling, Faculty of Science,
University of Colombo, Sri Lanka.
[b]ssnp@maths.cmb.ac.lk

Dengue is a one of the diseases in the world which has no exact treatment to recover from the disease. It is rapidly spreading throughout the world by causing large number of deaths [1]. In Sri Lanka, there is an increase of reported dengue cases over recent years. The majority of dengue cases reported in the Colombo district within the Sri Lanka. Effective dengue management and controlling strategies should be implemented to reduce the deaths from the disease. Modelling and predicting the distribution of the dengue will be useful in detecting outbreaks of the dengue and to execute controlling actions beforehand. The objective of this study is to develop an appropriate modelling technique to predict dengue cases. To accomplish this objective, we have chosen our study area as Colombo, Sri Lanka. Seven modelling techniques, namely, Naïve, Seasonal Naïve, Random Walk with Drift, Mean Forecasting, Autoregressive Integrated Moving Average, Exponential Smoothing and TBATS (Trigonometric, Box-Cox Transformation, ARMA errors, Trend and Seasonal components) [2] were chosen in this study to model dengue data. For model development process, monthly reported dengue cases in Colombo from January 2010 to December 2018 were used and validated using the data from January to December in 2019. Mean error, root mean squared error and mean absolute percentage error measurements were used to select the most parsimonious model to predict dengue cases in Colombo, Sri Lanka. Both Exponential and TBATS models were competed in predicting dengue cases by reporting minimum error measures. Therefore, results disclosed that among the selected methods either Exponential Smoothing model or TBATS model can be used to predict dengue cases in Colombo, Sri Lanka.

References

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