Exploring Monthly Births Trend in Sri Lanka

Abstract

Monthly births are important to a country as they directly influence its population size and demographic structure, economy, and healthcare system. As Sri Lanka is a developing country, analyzing monthly births can be introduced as a major aspect of resource management. The number of monthly births during 2012 – 2021 was obtained from the Register General's Department of Sri Lanka. There has been no attempt to access the forecasting monthly birth count so far. The main objective of the study was to fit a suitable model and forecast future monthly births. In this study, we predicted seasonal Autoregressive Integrated Moving Average (SARIMA) and Holt-Winters methods and did a comparison based on the residuals to find the best model. According to the results, the best fitted model was selected based on Root Mean Squared Error (RMSE), Mean Absolute Error (MAE), and Mean Absolute Percentage Error (MAPE). By the comparison of SARIMA and Holt-Winters methods, the SARIMA (4,1,1)(2,0,0) [12] model was the best-fitted statistical model for this monthly births data. The predicted results for 2022 from this model were compared with the actual monthly birth count to decide the accuracy of the prediction.