FORECASTING COVID -19 OUTBREAK IN PHILIPPINES

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ABSTRACT

The Philippines have reported the second highest amount of infected cases among Southeast Asian countries. The country exceeds 330,000 cases since 22nd January 2020 and still reporting a high volume of infected cases. The outbreak of the pandemic in the future might be doubtful. The governors have to understand the future behavior of the outbreak and prepare to manage the spread of the pandemic to make sure the sleek function of the country. Hence, the study has designed to forecast the amount of infected cases of COVID -19 within the Philippines to understand the outbreak of the pandemic. The daily confirmed cases of COVID-19 of the Philippines for the amount of 22nd January 2020 to 27th September 2020 were obtained from the world Health Organization (WHO) database. Time series plots and Auto Correlation Functions (ACF) were used to examine the pattern of the series. The trend models and Double Exponential Smoothing (DES) techniques were tested to forecast the spread of the pandemic. The Anderson Darling test, ACF, and Ljung-Box Q (LBQ)-test were used to test the validation criterion and fit the model. The forecasting ability of the models was assessed by three measurements of errors; Mean Absolute Percentage Error (MAPE), Mean Square Error (MSE), and Mean Absolute Deviation (MAD) in both model fitting and verification process. The results of the study revealed that the trend models were not satisfied with the model validation criterion. But the DES was satisfied with all criteria and the performance of the model was extremely high. Both relative and absolute measurements of errors were very low under the model fitting and verification process. It had been concluded that the DES is the most suitable model to forecast the infected cases within the Philippines. Due to the prevailing situation and the predicted values of the DES, ensures that the Philippines took over 5 years to combat COVID-19. It is recommended to model the outbreaks of the pandemic in other Southeast Asian countries furthermore.

Keywords: Infected Cases, Trend Models, DES, COVID-19

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