

Abstract

The Coronavirus Disease (COVID-19) pandemic of 2019 has spread to over 200 countries and areas throughout the world. The number of confirmed positive COVID-19 cases in Indonesia is increasing every day, notably in West Java, which has the second largest number of confirmed positive COVID-19 cases in Indonesia, with 141,195 instances. The number of daily COVID-19 cases reveal fluctuations, several seasonal and noise patterns. As the significant severity of this pandemic, estimating the future number of the upper limit of daily Covid-19 cases become a major concern to support information and maintain essential public health services. The estimation of the upper limit is carried out in this study utilizing Vector-AR time series process and examined using Value at Risk based historical simulation. Our simulation studies indicate that Vector-AR and historical simulation provide sharp and well estimation for extreme value with a 99% confidence level, infractions on VaR have a minor violation 0.009.

Keywords: *COVID-19, time series, estimation, upper limit, value at risk*