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Evaluating Nowcasting Methods for COVID-19 Related Fatalities in Sweden

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Abstract

When a fatality occurs due to COVID-19 there is a delay before the authorities receive a report of it in their database. The authorities then report the aggregated number of COVID-19 related fatalities to the public. The number of daily COVID-19 related fatalities for the most recent days close to today is hence only partially observed. For this reason, it is difficult to determine the current trend in daily fatality counts from the reported cases alone. Nowcasting is the task of inferring total counts based on partially observed data by extrapolating cases based on previous knowledge about the reporting delays. Nowcasting methods are applicable to predict the number of daily COVID-19 related fatalities in Sweden, and the results of one nowcasting method is published on the web site Altmejd et al. (2021a), which is often referred to. In this thesis, we aim to comparatively evaluate this nowcasting method with another recent nowcasting method of Günther et al. (2020a). To do so, we define and use proper scoring rules and other evaluative metrics, such as the coverage of 95% prediction intervals. The nowcasting methods can be evaluated in retrospect, since fatalities are rarely reported with a delay in excess of 1-2 months, and hence the true number of daily fatalities can be assumed to be known after 2 months. When applying the nowcasting methods for a "now" varying over 17 instances from February 2 until March 2, 2021, we find that our implementation of of Günther et al. (2020a) performs better than that published at Altmejd et al. (2021a) by almost all metrics.

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