State estimation of Covid-19 disease in Denmark

Kasper Schou Telkamp

2022-11-24

Contents

Introduction

Write it later

Materials and method

Data

In this project, the daily record of new hospital admissions grouped by region of residence in Denmark are used. The data is publicly available and were obtained on Statens Serum Institut website[1]. In Figure 1

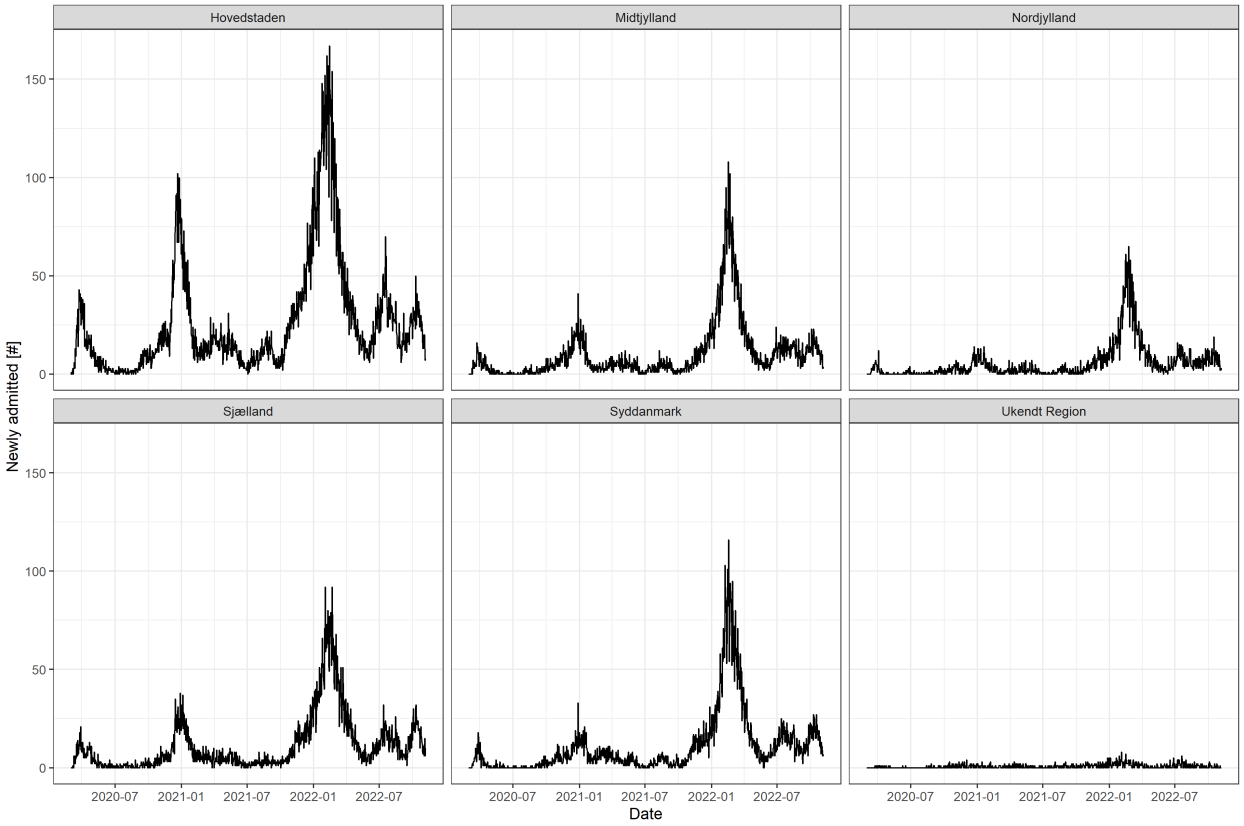

Figure 1: New hospital admissions grouped by region of residence in Denmark.

Generalized linear mixed effect model

Consider a hierarchical model for Y specified by

$$Y \sim \text{Pois}(\lambda) \tag{1a}$$
$$\log(\lambda) = \mathbf{X}\beta + u \tag{1b}$$

where $u \sim \text{N}\big(0, \Sigma(\psi)\big)$.

Seen in this book Madsen & Thyregod (2011) or in this package Brooks et al. (2017)

[1] https://covid19.ssi.dk/overvagningsdata/download-fil-med-overvaagningdata

References

Brooks, M. E., Kristensen, K., van Benthem, K. J., Magnusson, A., Berg, C. W., Nielsen, A., Skaug, H. J., Maechler, M., & Bolker, B. M. (2017). glmmTMB balances speed and flexibility among packages for zero-inflated generalized linear mixed modeling. *The R Journal*, *9*(2), 378–400. https://doi.org/10.32614/RJ-2017-066

Madsen, H., & Thyregod, P. (2011). *Introduction to general and generalized linear models*. CRC Press.