Branching stochastic processes as models of Covid-19 epidemic development

BurkinaFaso - week 53

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Abstract

The results presented here are obtained using the methologi proposed in the paper https://arxiv.org/abs/2004.14838 for the country BurkinaFaso. The data comes from European Centre for Disease Prevention and Control available at https://opendata.ecdc.europa.eu/covid19/casedistribution/csv.

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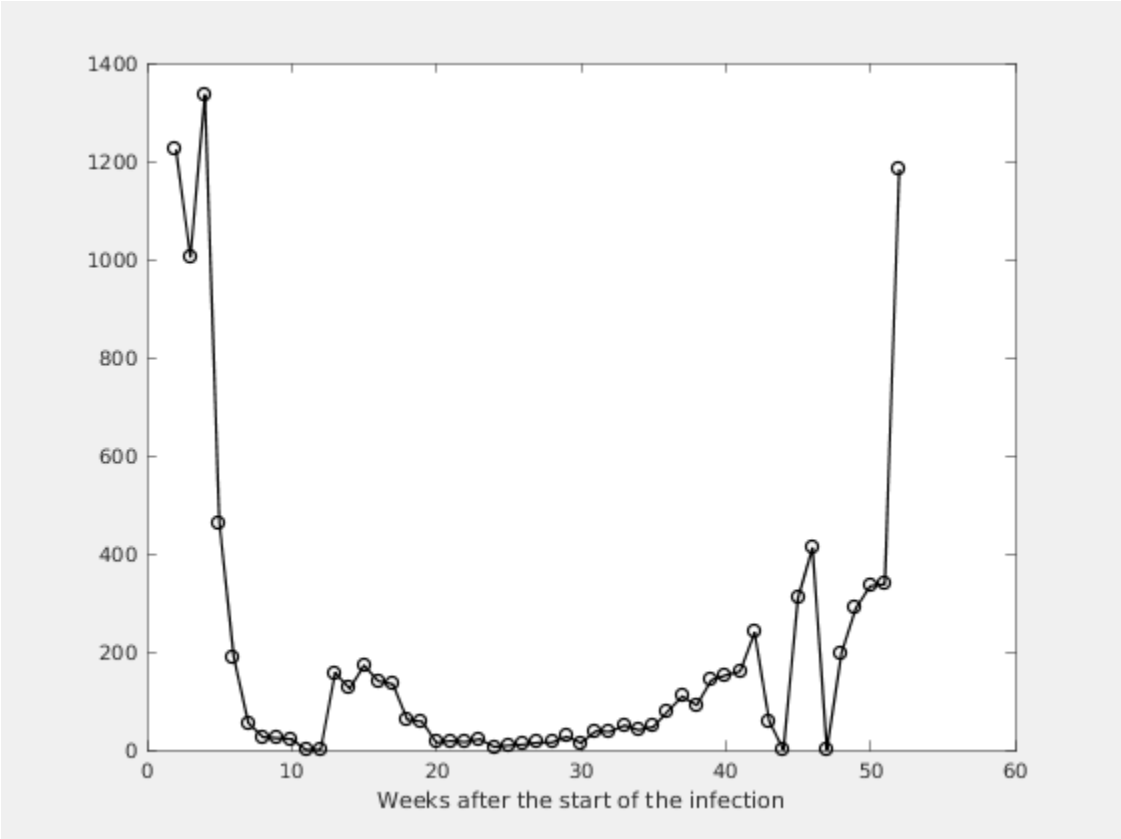**Figure 1.1. Number of the weekly reported laboratory-confirmed cases**
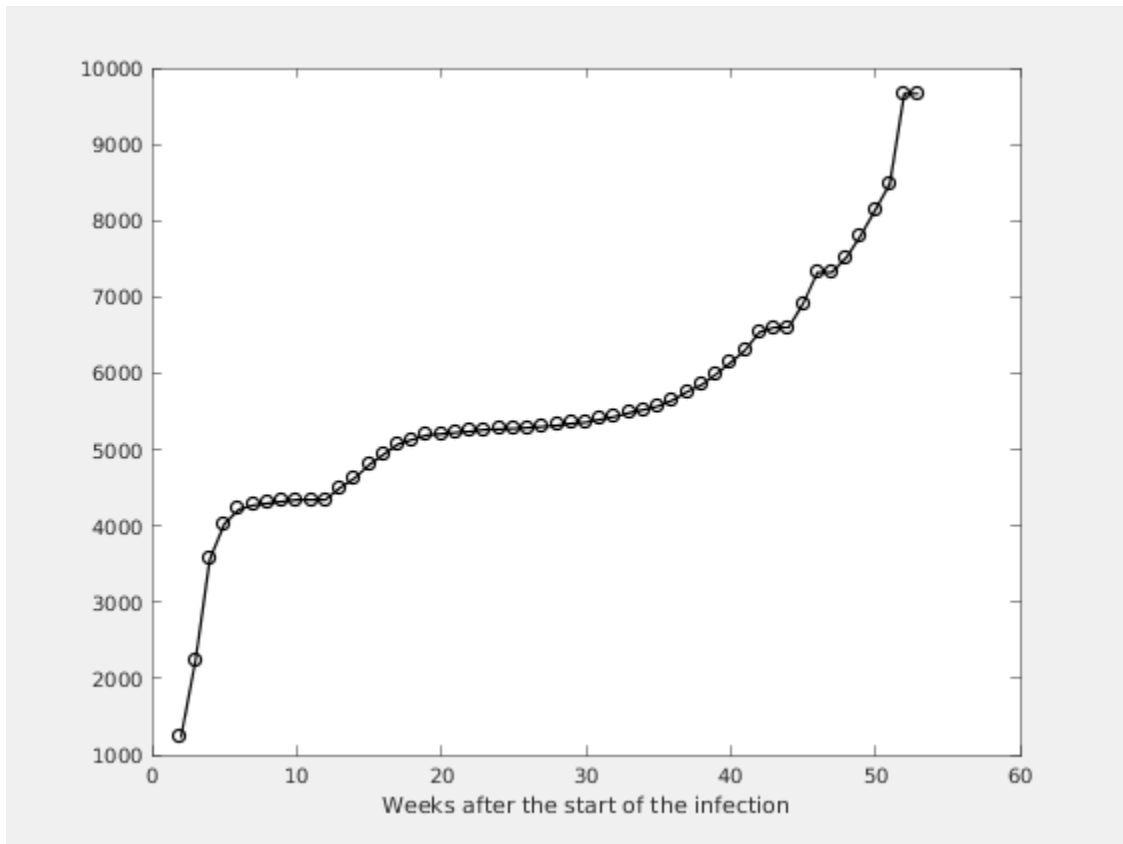
Figure 1.2. Number of the total registered cases

Chapter 2. Estimating of the main parameter and some predictions

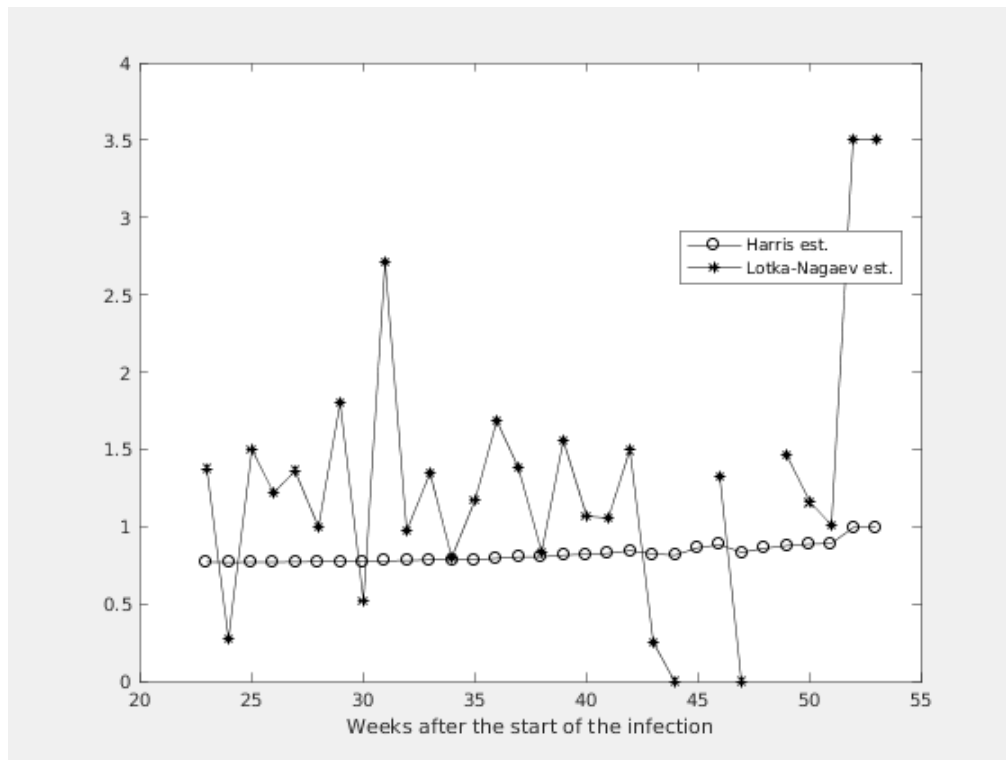**Figure 2.1. The Lotka-Nagaev and the Harris type estimator of the growth rate**
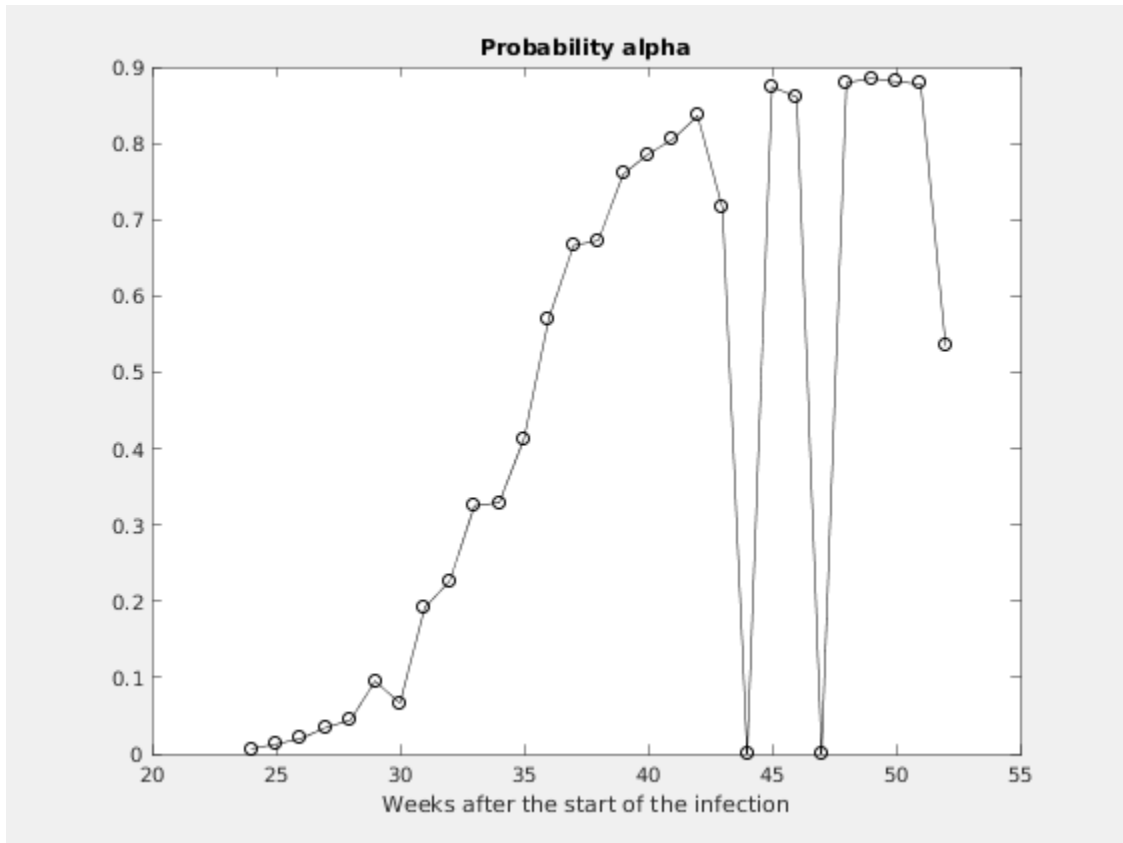
Figure 2.2. Figure

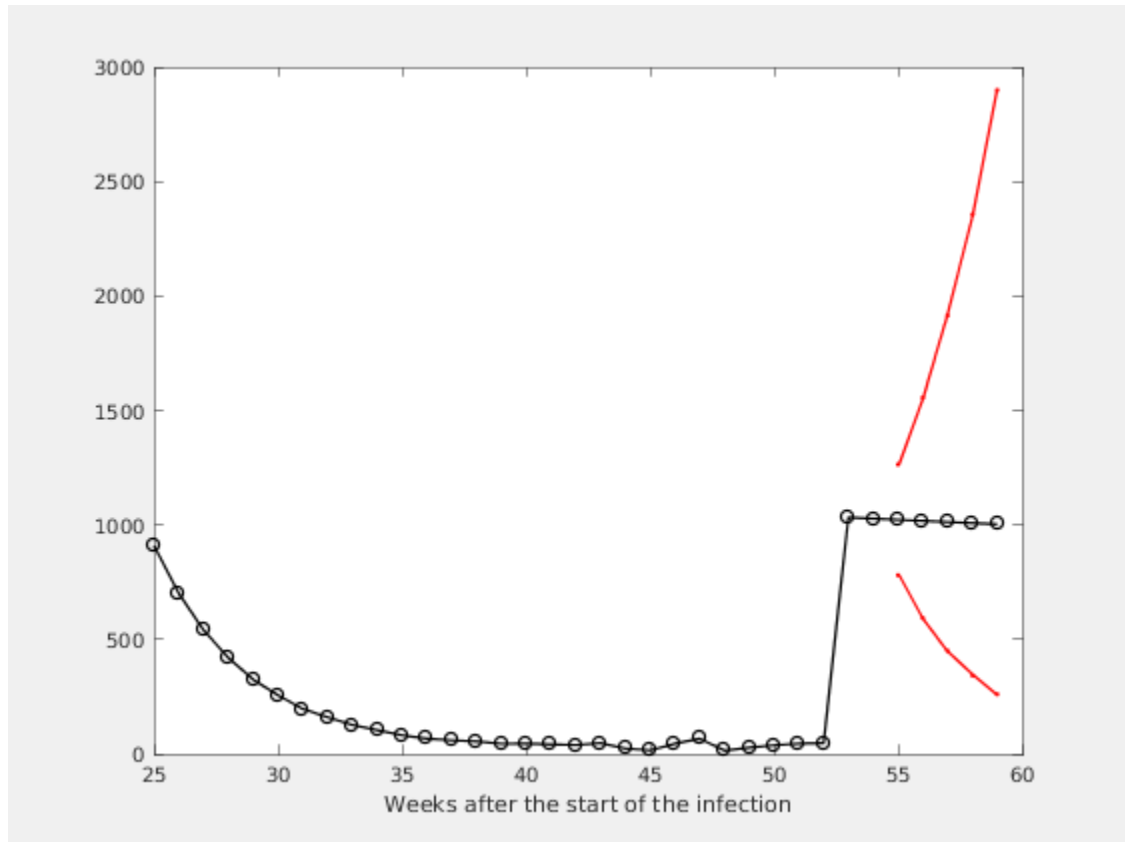**Figure 2.3. Expected number of the nonregistered infected individuals
without immigration**
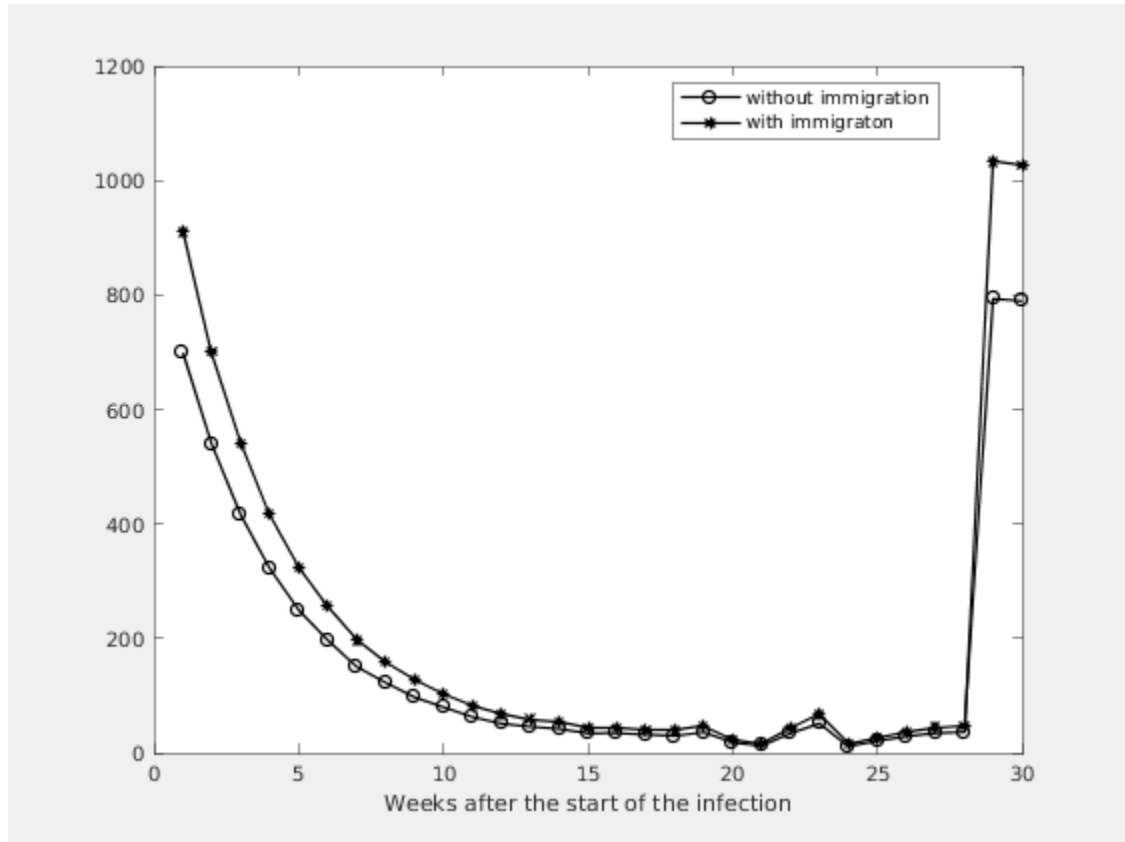
Figure 2.4. Expected number of the nonregistered infected individuals with immigration

Estimation of the model parameters.

```
k |    m     |         ci        | alpha  |  A1  |   M1  |
------------------------------------------------------------
4  |  0.8756  |  0.6717 - 1.0796  | 0.0000 |  15  |  11   |
3  |  0.8860  |  0.6825 - 1.0896  | 0.8792 |  27  |  21   |
2  |  0.8912  |  0.6907 - 1.0917  | 0.8852 |  37  |  29   |
1  |  0.9953  |  0.7975 - 1.1930  | 0.8810 |  45  |  35   |
0  |  0.9953  |  0.8038 - 1.1868  | 0.8778 |  47  |  36   |
```