Branching stochastic processes as models of Covid-19 epidemic development

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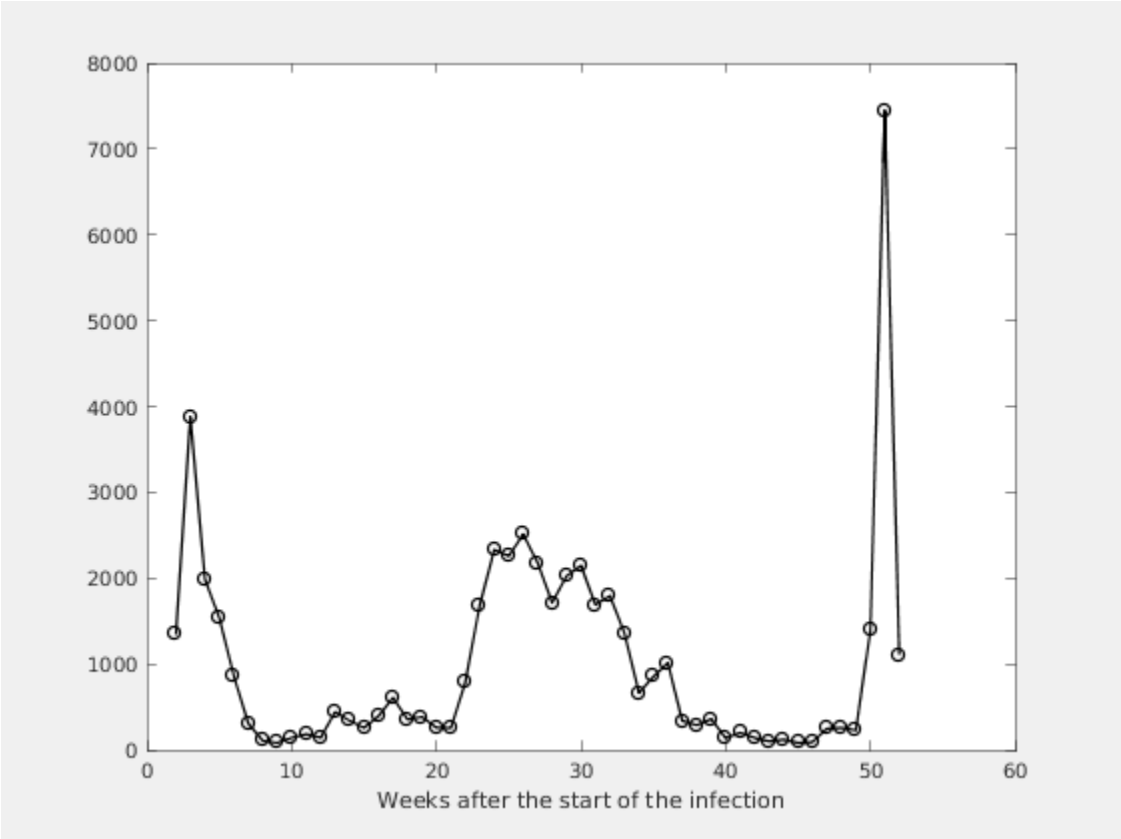**Figure 1.1. Number of the weekly reported laboratory-confirmed cases**
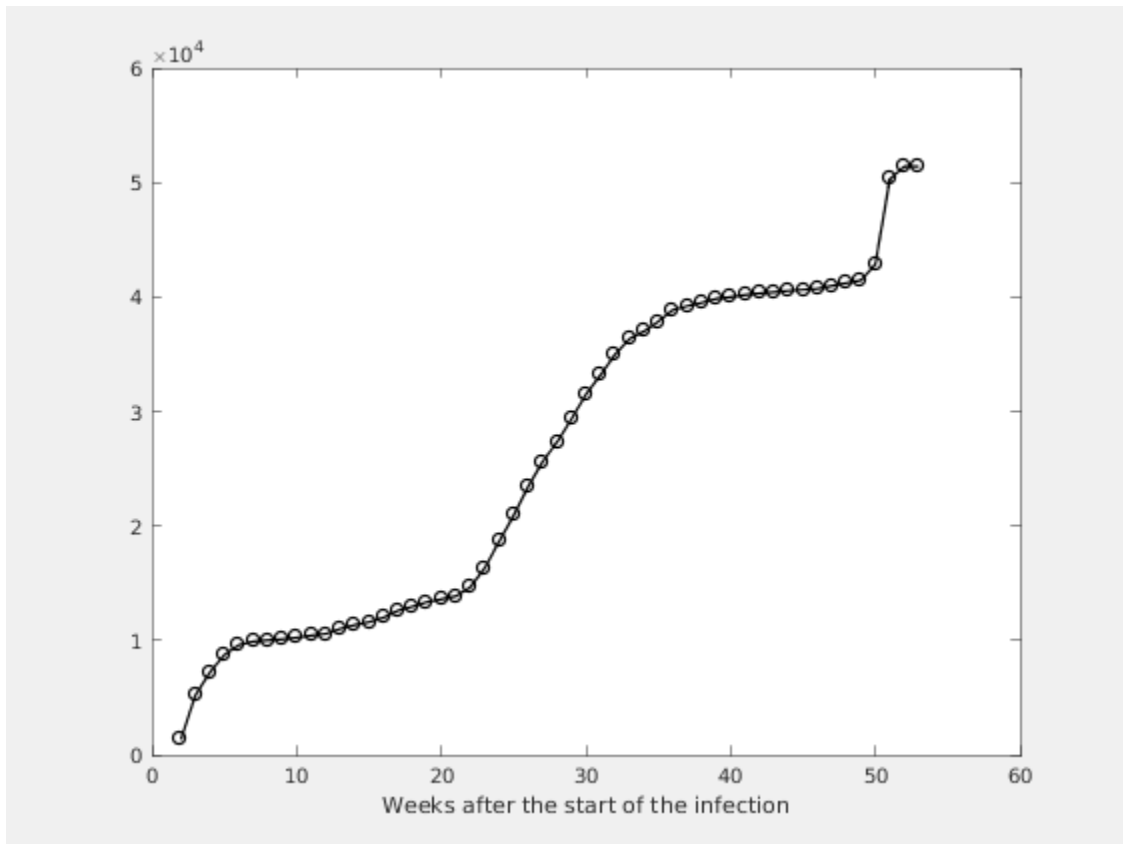
Figure 1.2. Number of the total registered cases

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
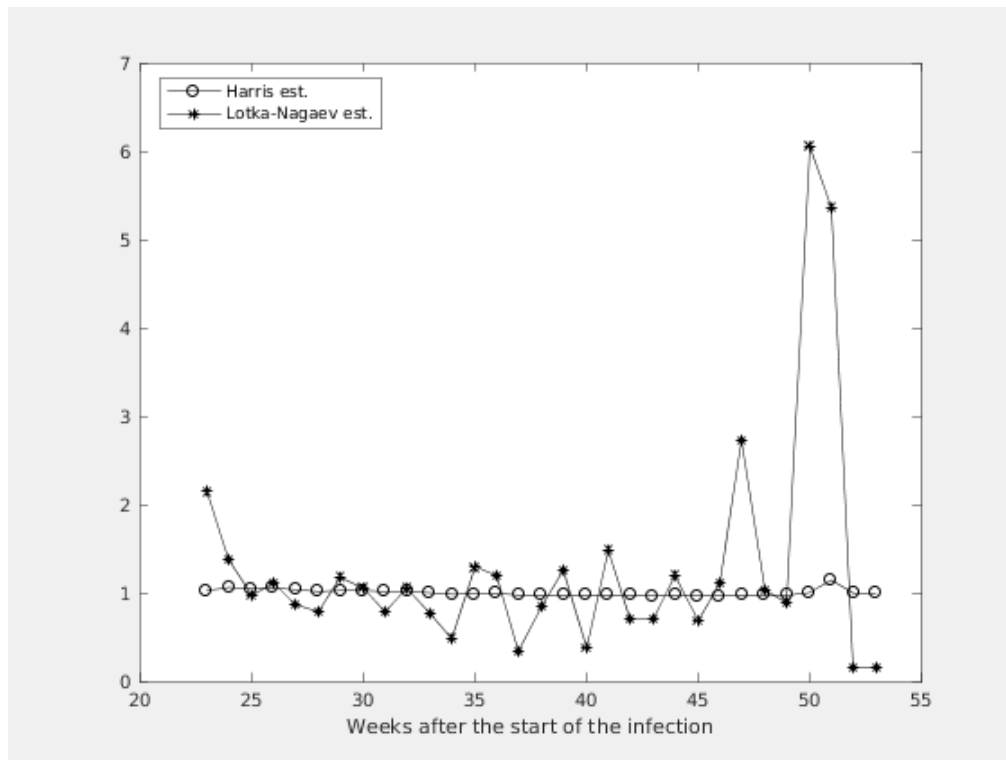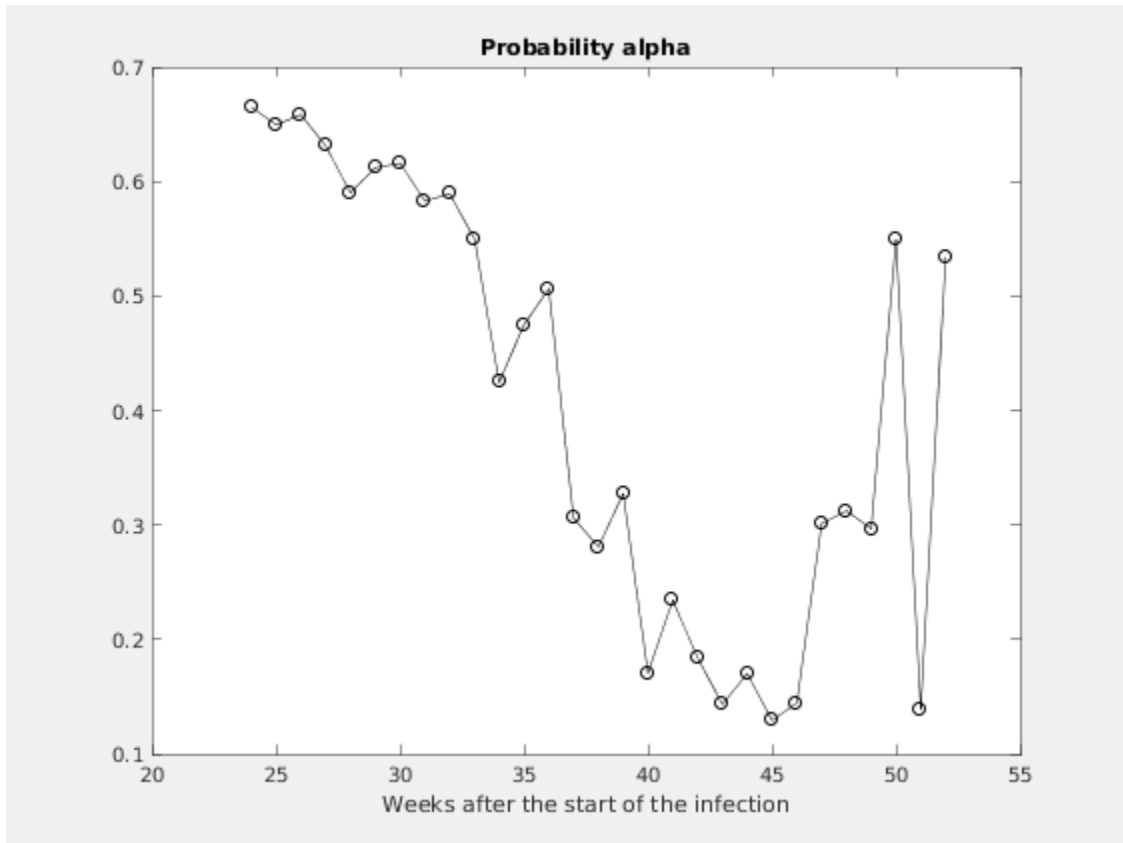
Figure 2.2. Figure

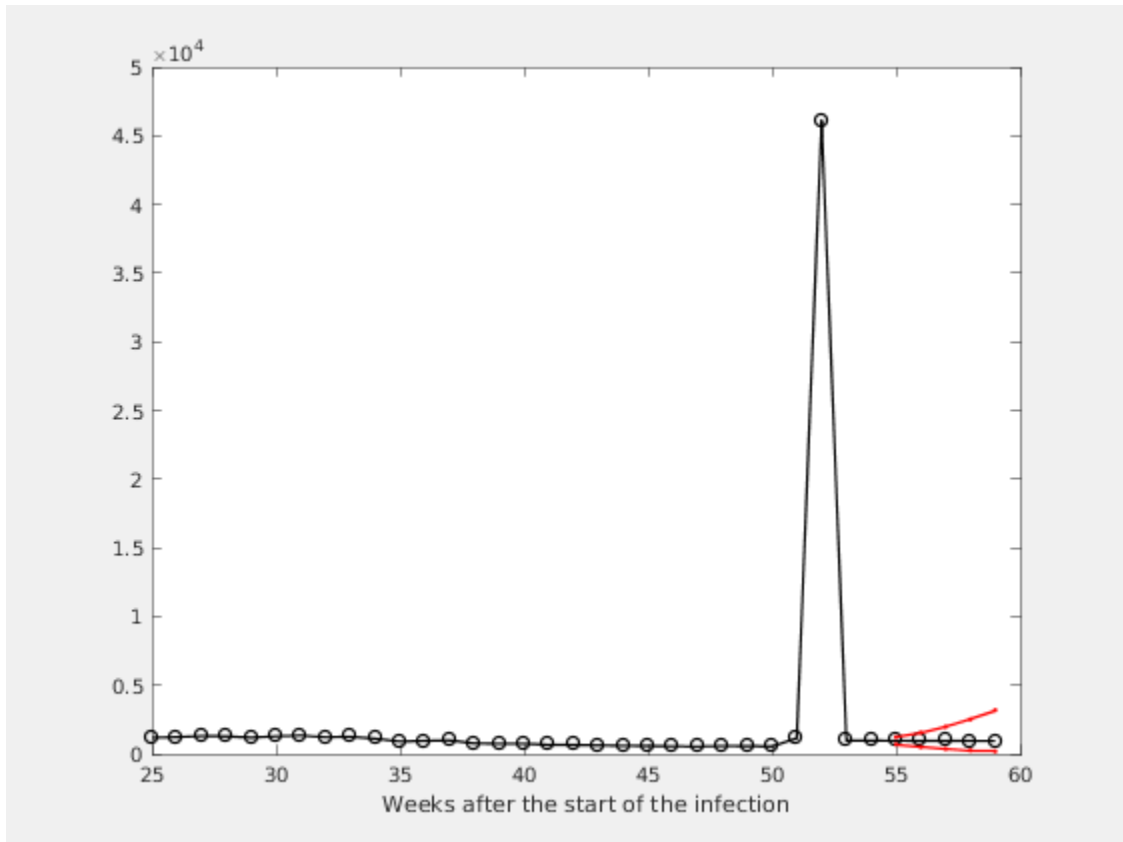**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**
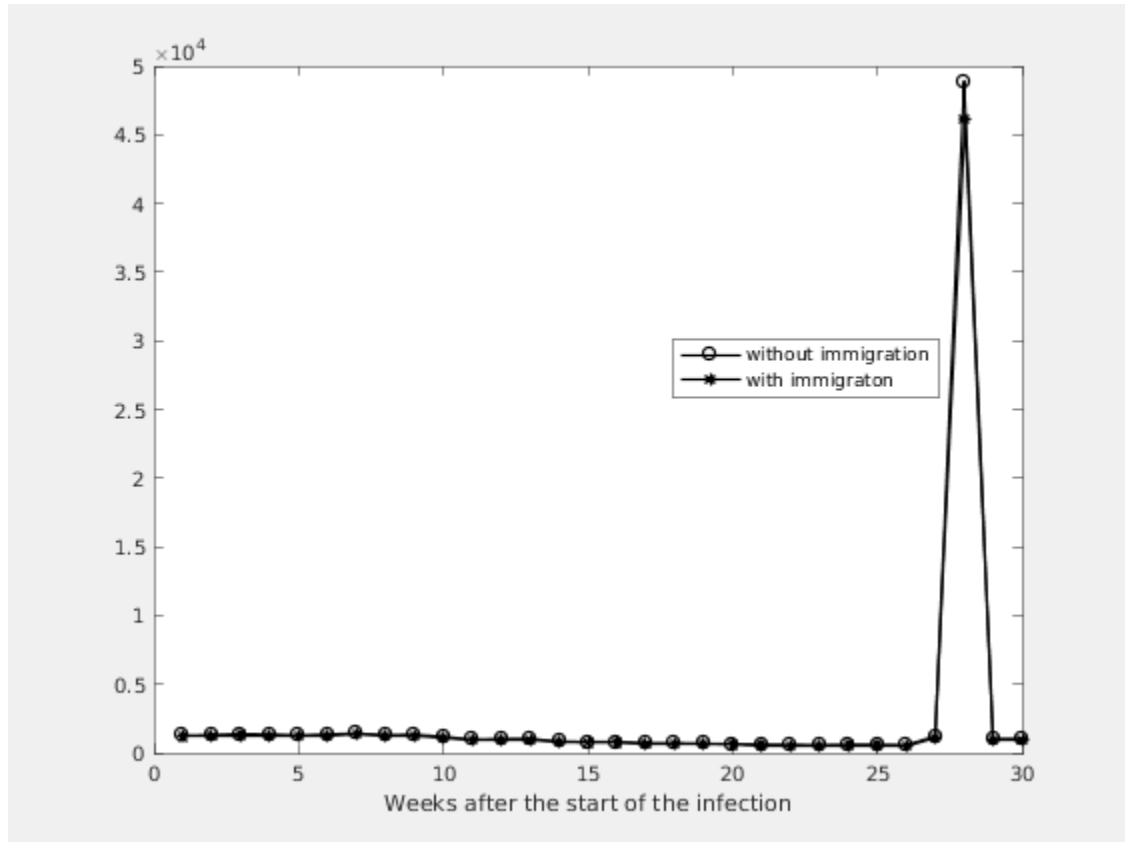
Figure 2.4. Expected number of the nonregistered infected individuals with immigration

Estimation of the model parameters.

```
k |    m     |         ci        | alpha |  A1   |   M1   |
---------------------------------------------------------
4 |  0.9730  | 0.8151 - 1.1309  | 0.3011 |  576 |  610   |
3 |  1.0011  | 0.8452 - 1.1570  | 0.3124 |  566 |  600   |
2 |  1.1425  | 0.9814 - 1.3035  | 0.2966 |  543 |  576   |
1 |  0.9953  | 0.8100 - 1.1806  | 0.5491 | 1140 | 1209   |
0 |  0.9953  | 0.7106 - 1.2800  | 0.1391 | 46100 | 48889 |
```