Branching stochastic processes as models of Covid-19 epidemic development

Brazil - 20201214

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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 Brazil. 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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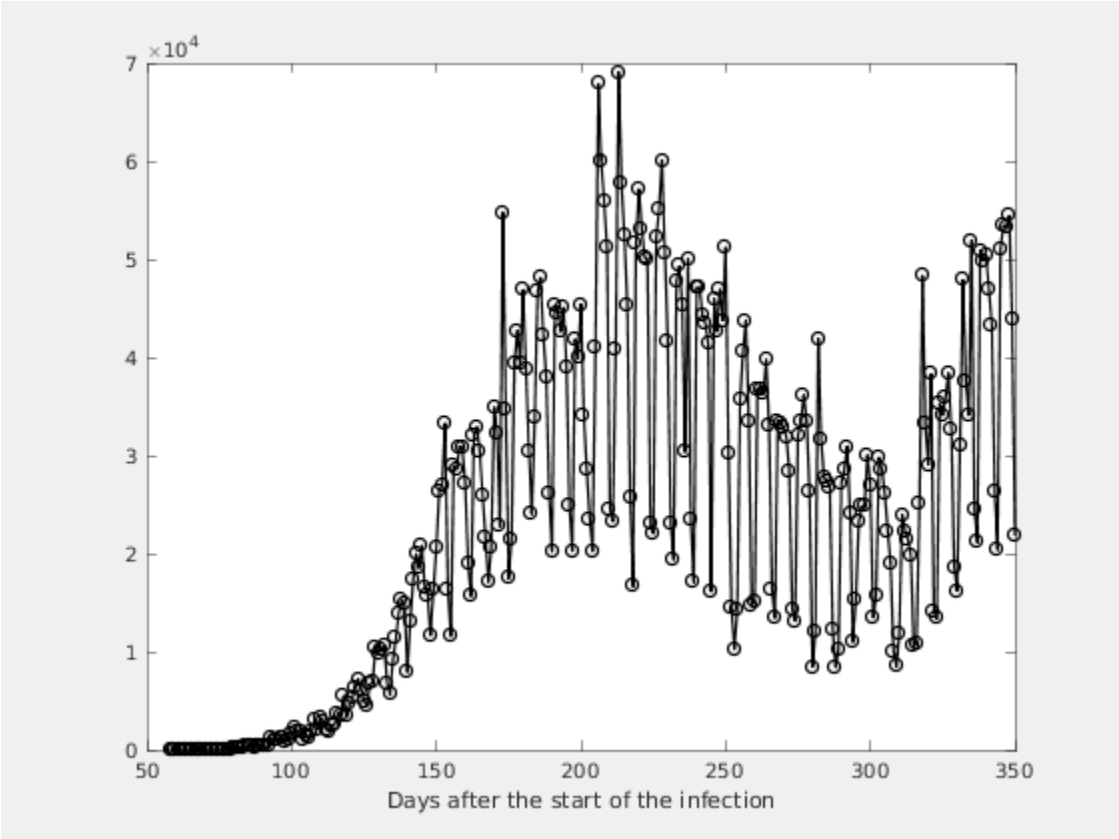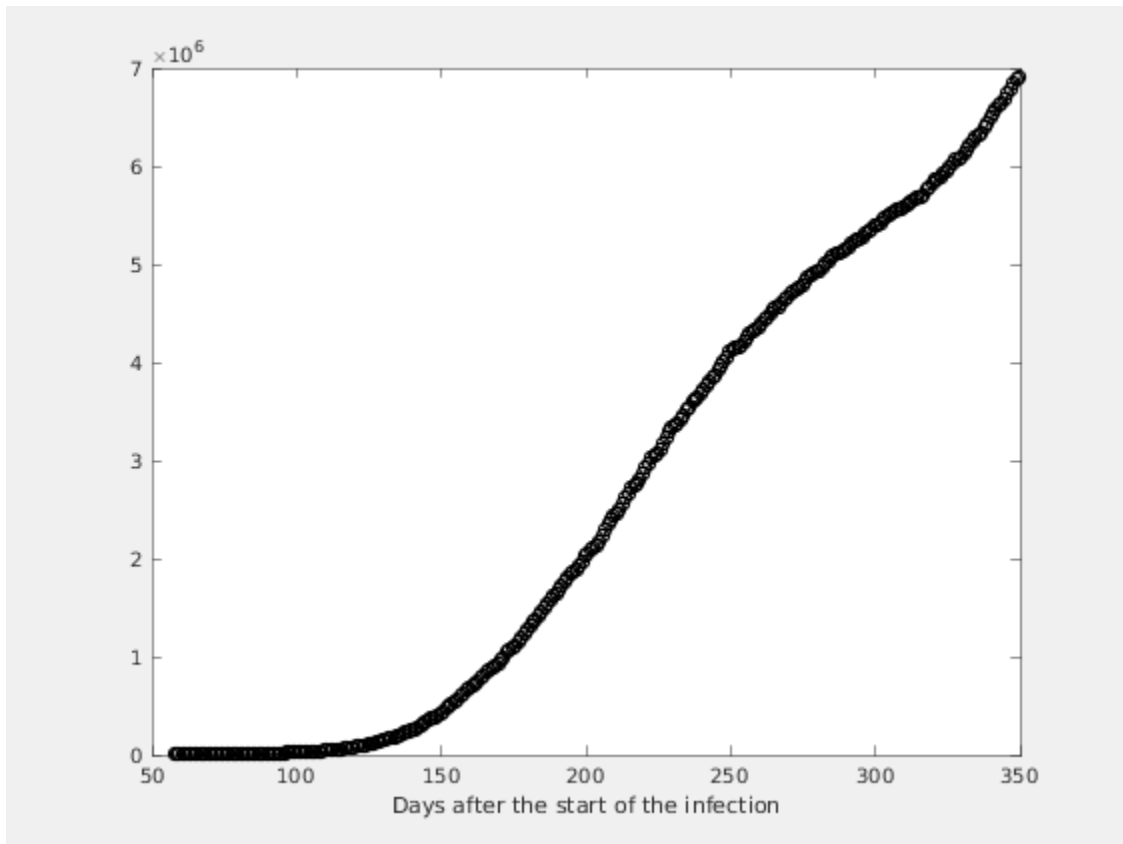
Figure 1.2. Number of the total registered cases

Chapter 2. Estimating of the main parameter and some predictions

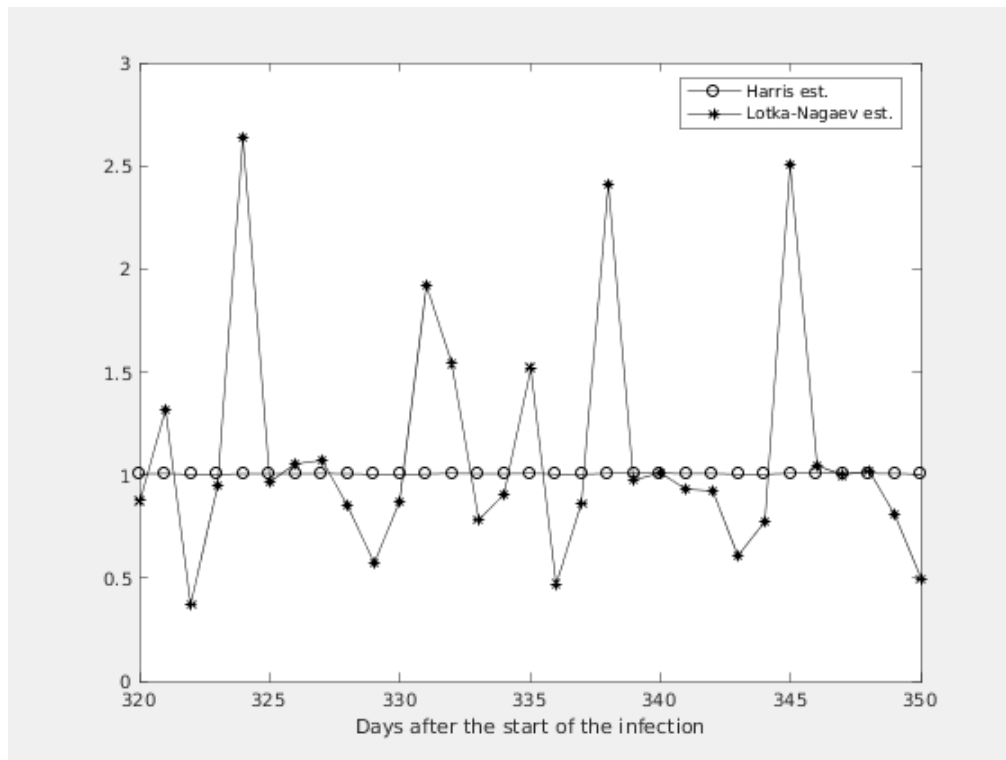**Figure 2.1. The Lotka-Nagaev and the Harris type estimator of the growth rate**
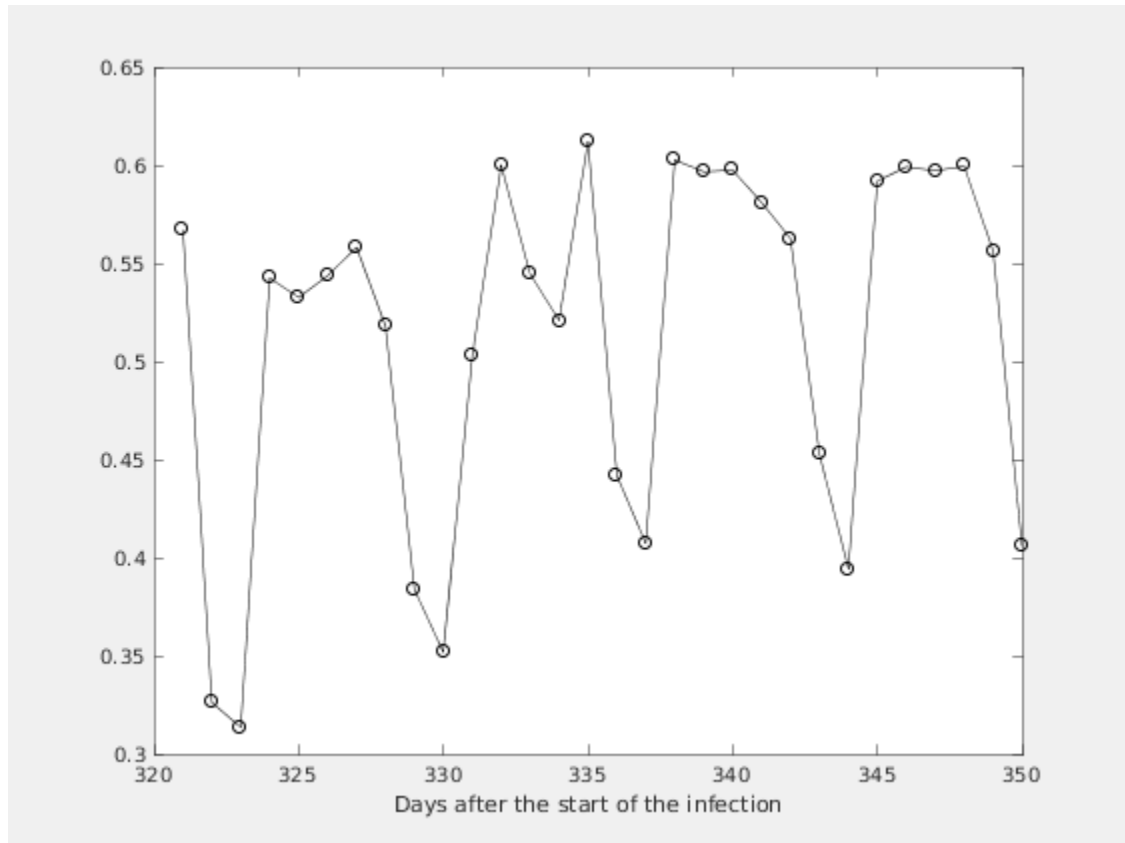
Figure 2.2. Figure

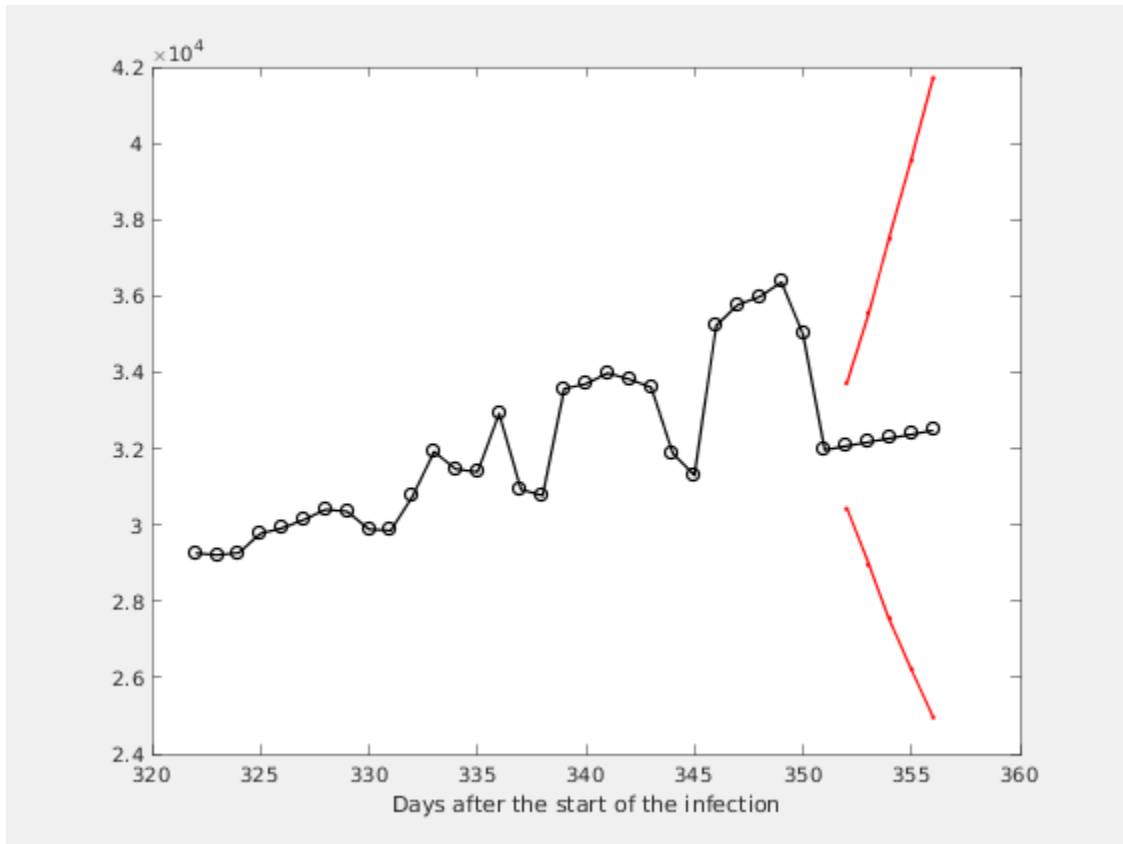**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**
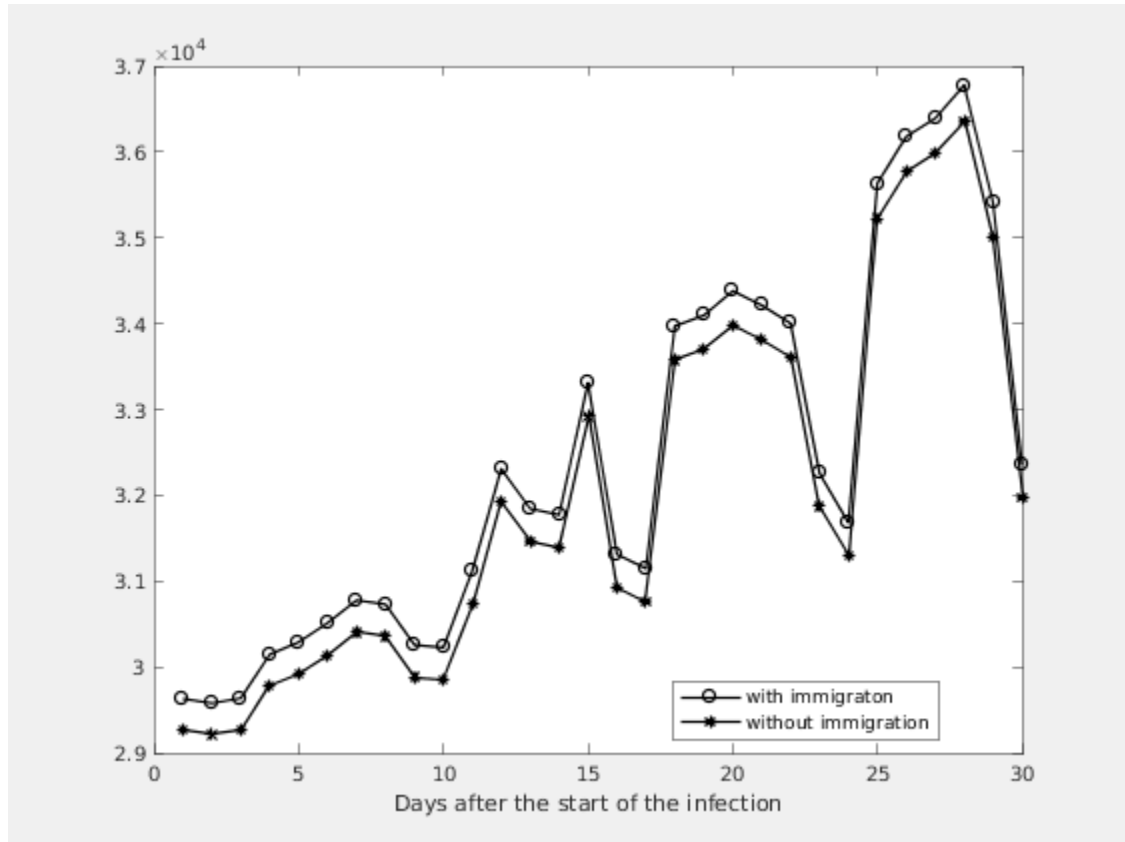
Figure 2.4. Expected number of the nonregistered infected individuals with immigration

Estimation of the model parameters.

```
 k |    m      |          ci         | alpha  |  M1   |   A1   |
-----------------------------------------------------------------
 4  |  1.0080  |  0.9561 - 1.0600  |  0.3942  |  31300  |  31682  |
 3  |  1.0079  |  0.9552 - 1.0606  |  0.5919  |  35226  |  35633  |
 2  |  1.0080  |  0.9556 - 1.0604  |  0.5991  |  35769  |  36180  |
 1  |  1.0064  |  0.9543 - 1.0585  |  0.5972  |  35979  |  36391  |
 0  |  1.0032  |  0.9514 - 1.0550  |  0.5995  |  36362  |  36777  |
```