

Branching stochastic processes as models of Covid-19 epidemic development

Belarus - 20201214

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Abstract

The results presented here are obtained using the methodology proposed in the paper <https://arxiv.org/abs/2004.14838> for the country Belarus. 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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Chapter 1. Observed Infection data

Figure 1.1. Number of the daily reported laboratory-confirmed cases

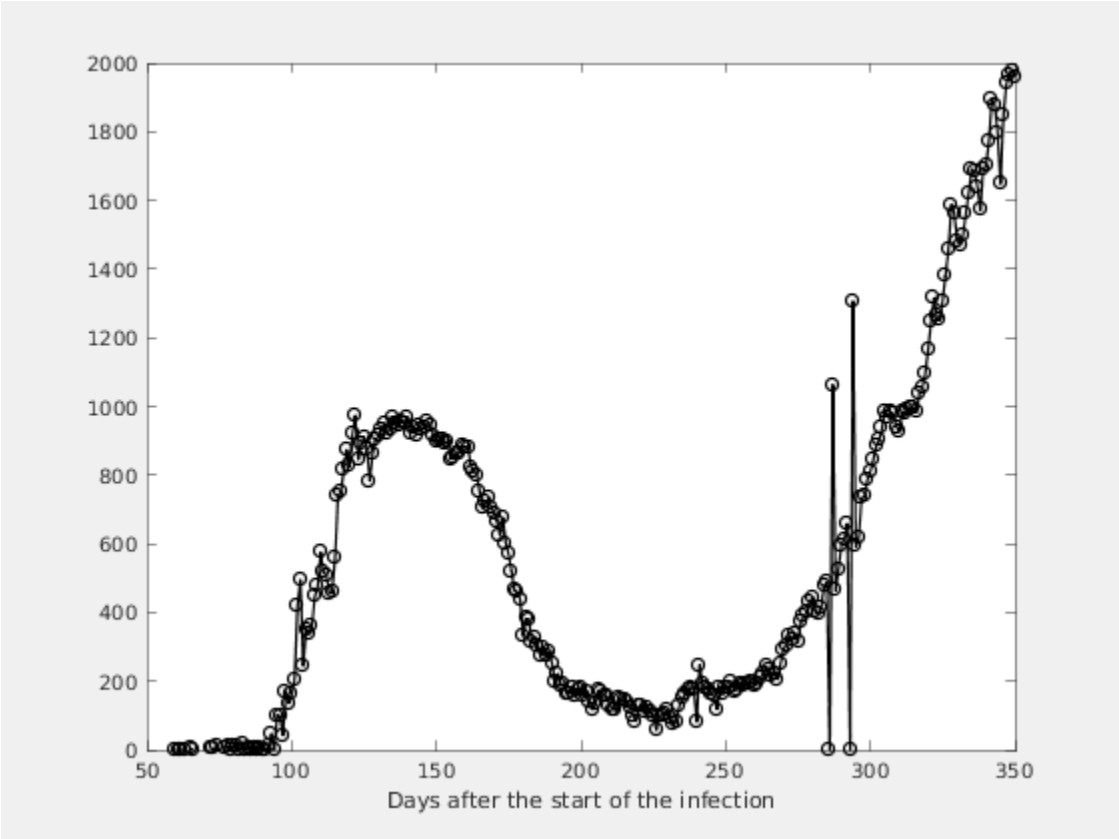
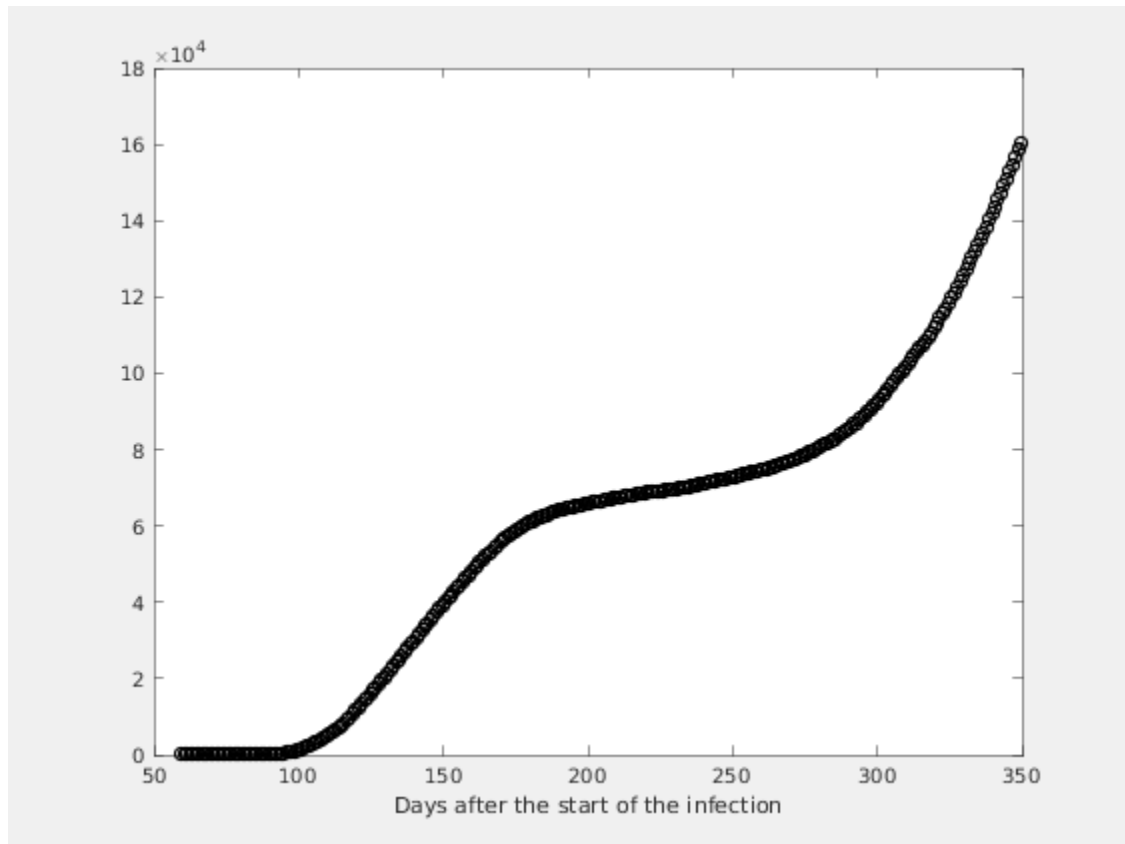


Figure 1.2. Number of the total registered cases



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

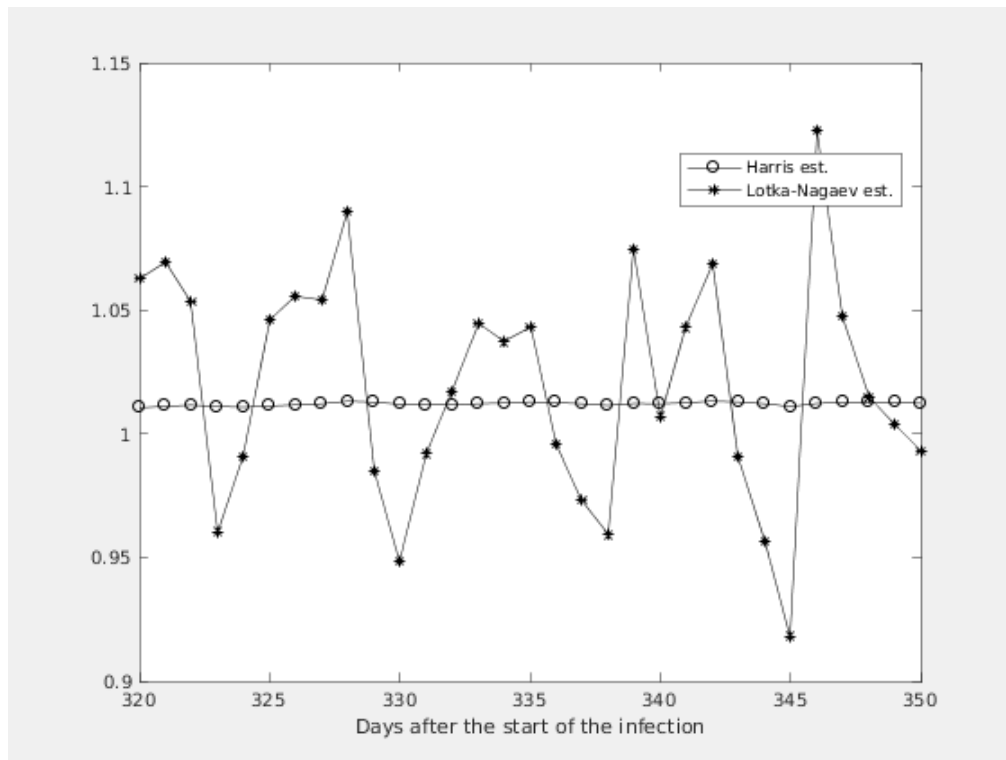


Figure 2.2. Figure

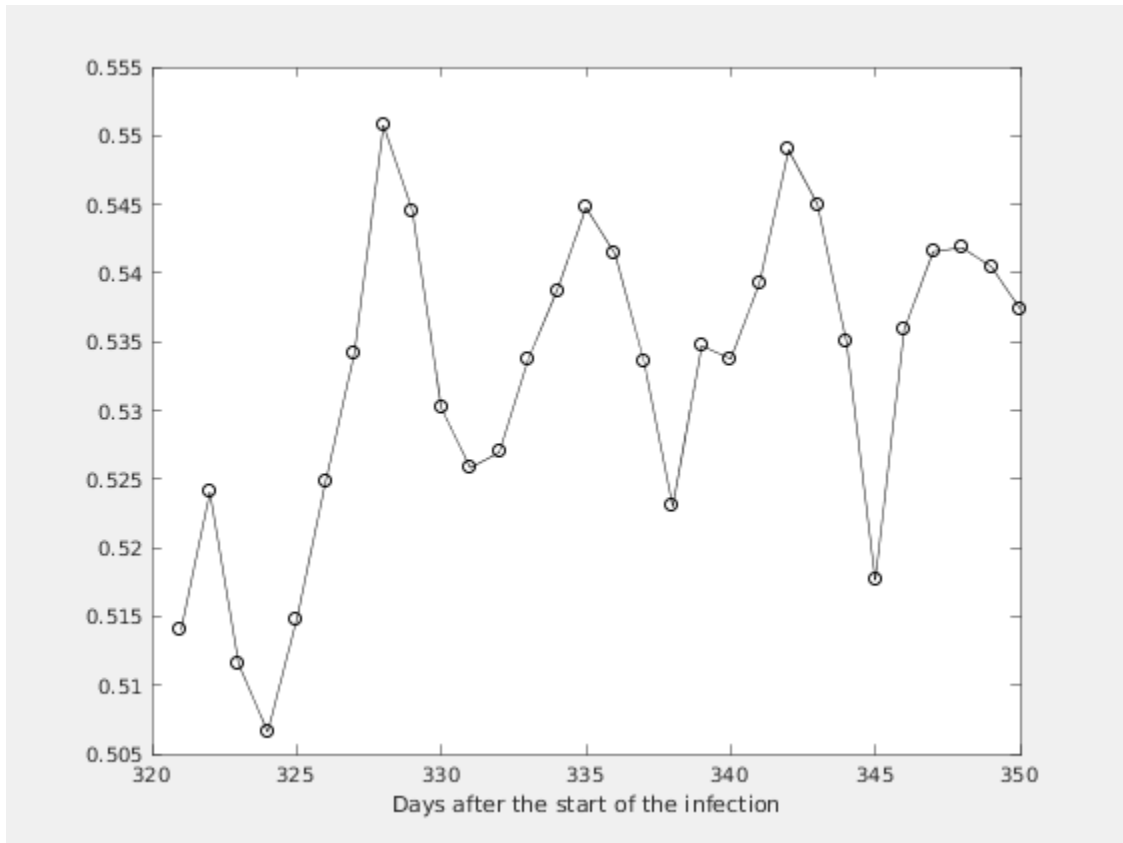


Figure 2.3. Expected number of the nonregistered infected individuals without immigration

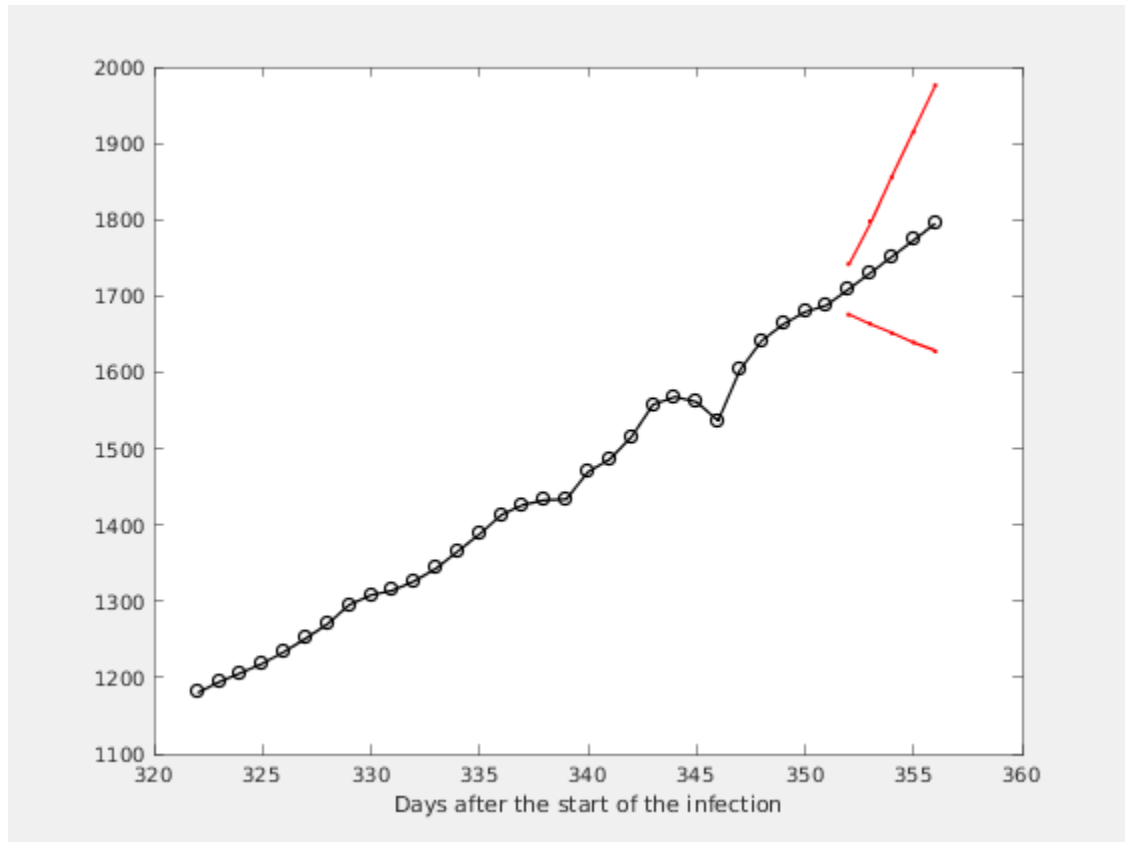
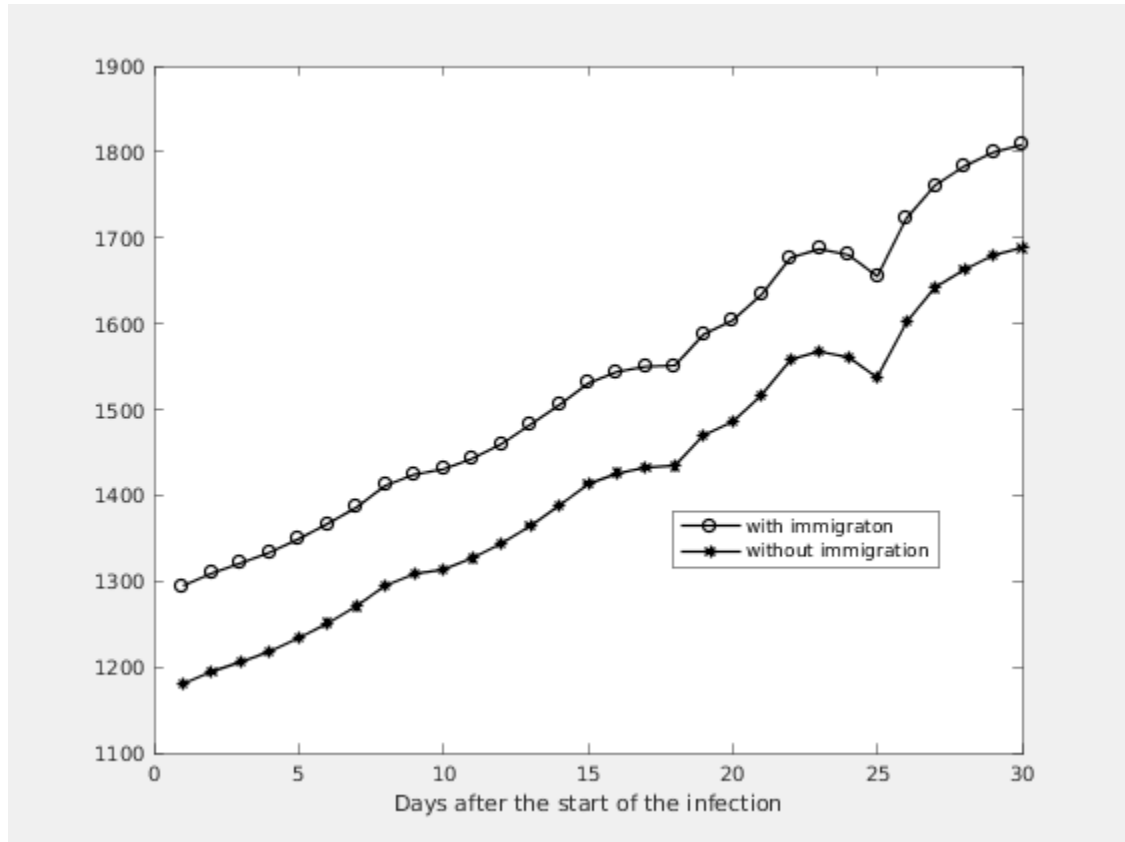


Figure 2.4. Expected number of the nonregistered infected individuals with immigration



Estimation of the model parameters.

k	m	ci	alpha	M1	A1
4	1.0123	0.9918 - 1.0328	0.5350	1561	1680
3	1.0127	0.9923 - 1.0331	0.5177	1537	1655
2	1.0127	0.9924 - 1.0330	0.5359	1603	1722
1	1.0126	0.9925 - 1.0328	0.5416	1641	1761
0	1.0124	0.9924 - 1.0324	0.5418	1663	1783