

Branching stochastic processes as models of Covid-19 epidemic development

Lebanon - week 53

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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 Lebanon. 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 weekly reported laboratory-confirmed cases

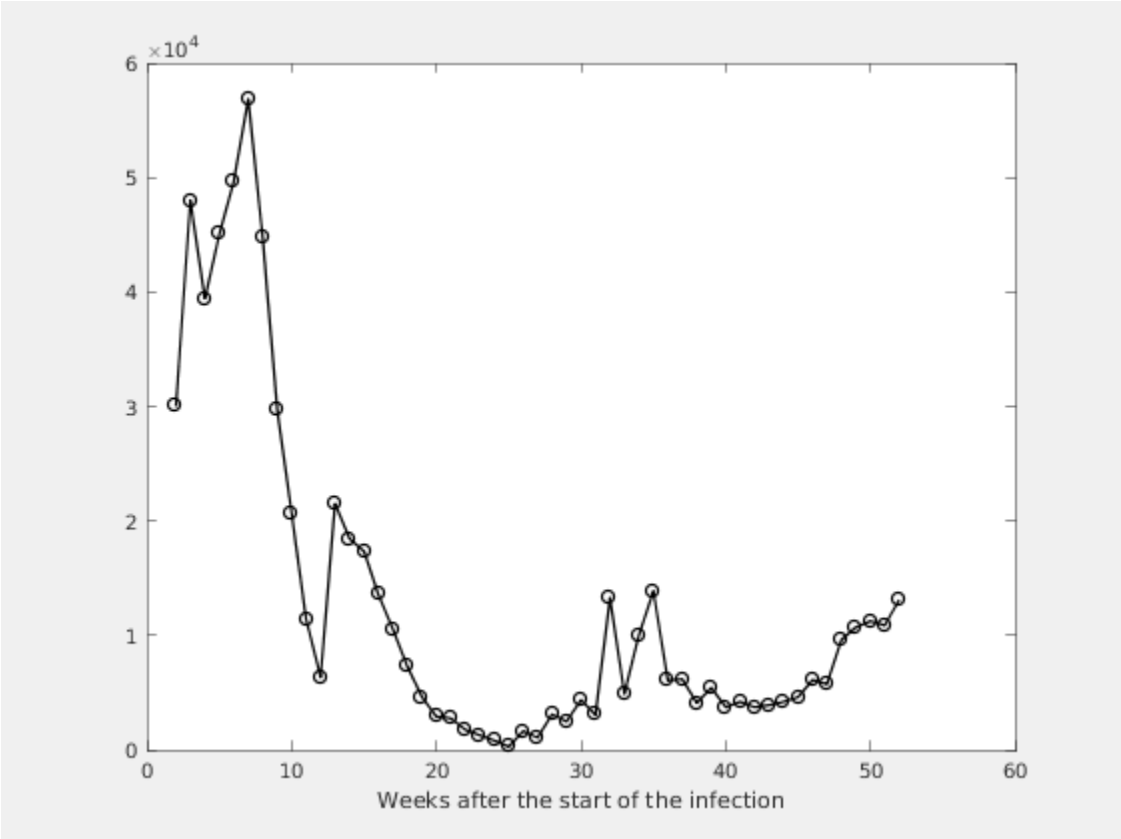
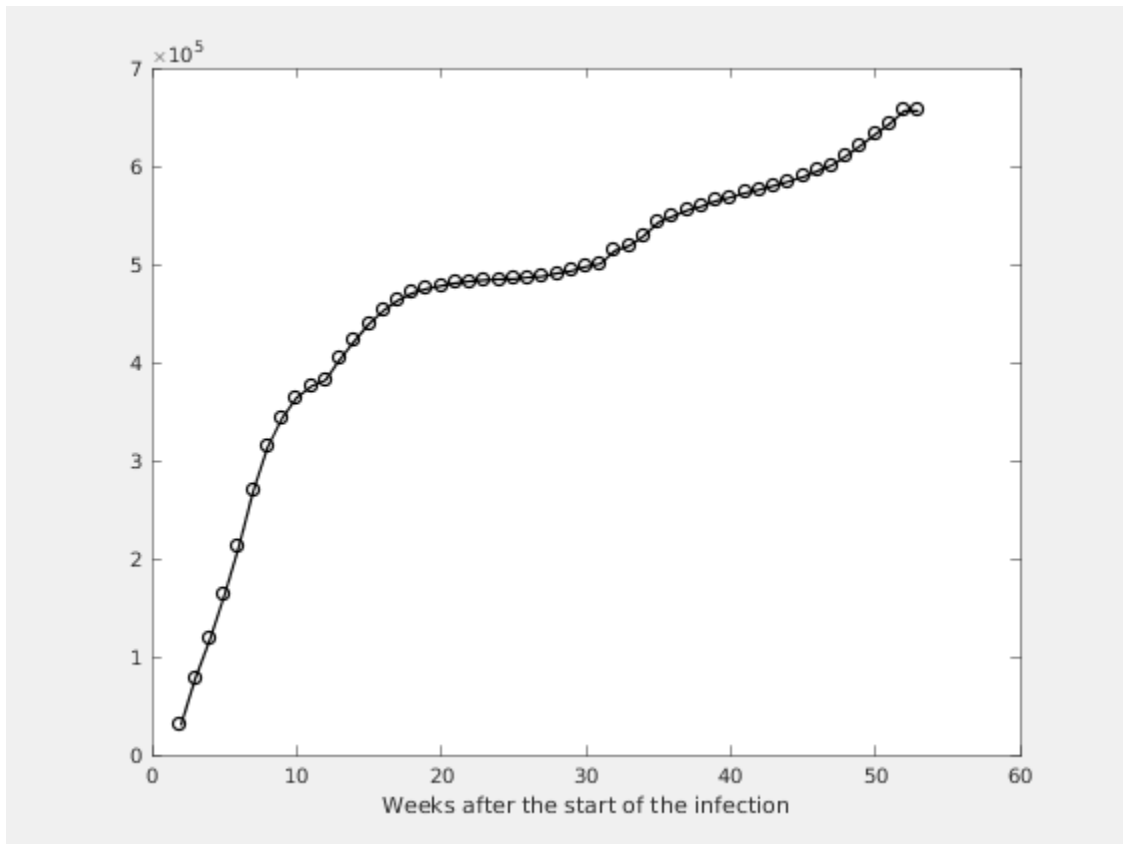


Figure 1.2. Number of the total registered cases



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

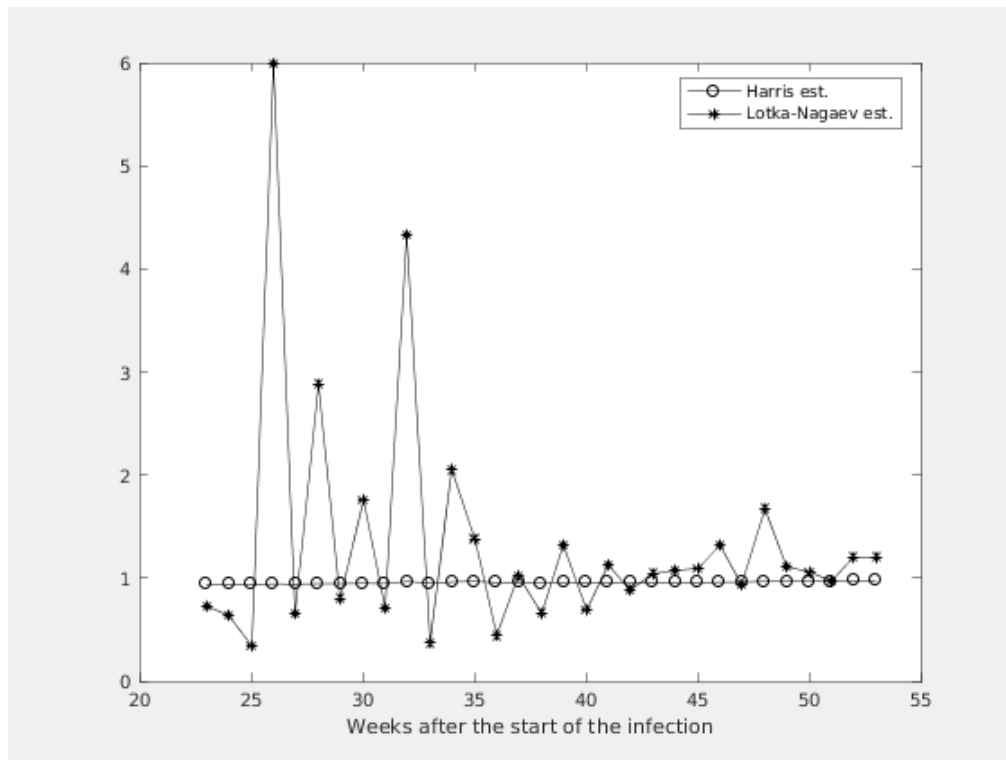


Figure 2.2. Figure

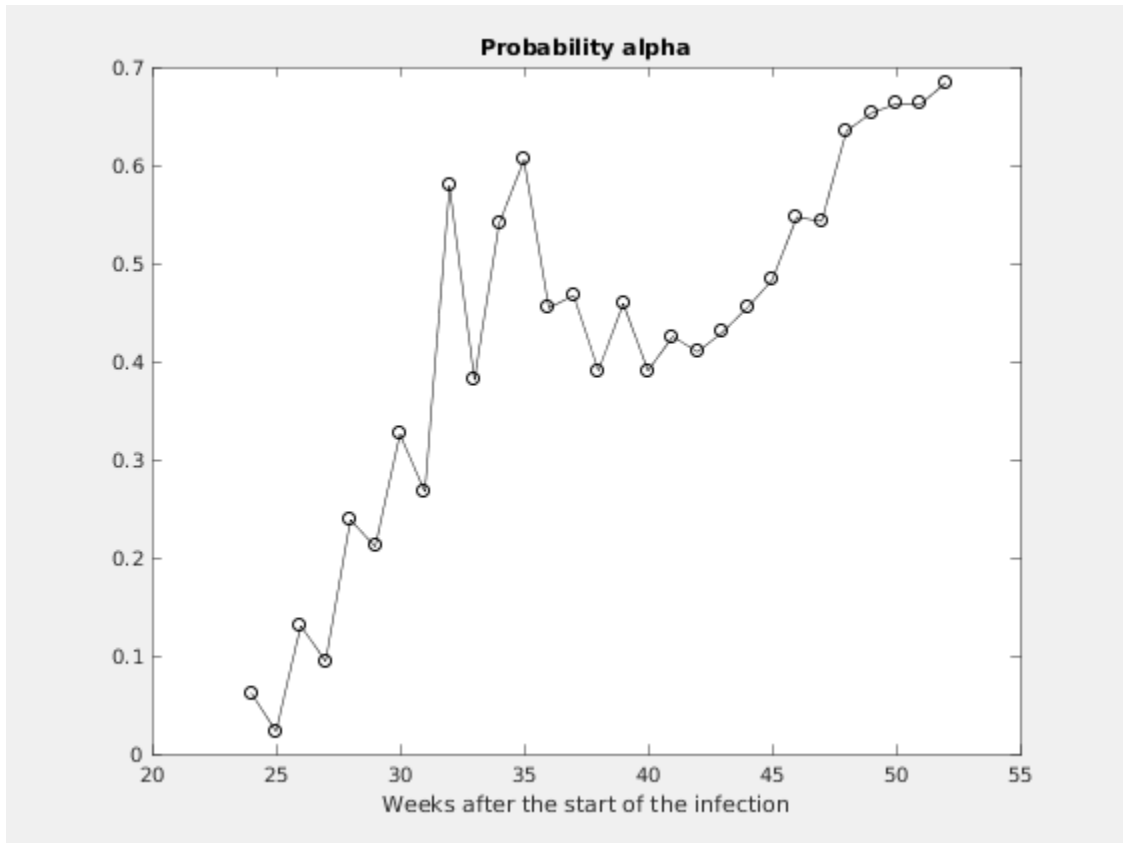


Figure 2.3. Expected number of the nonregistered infected individuals without immigration

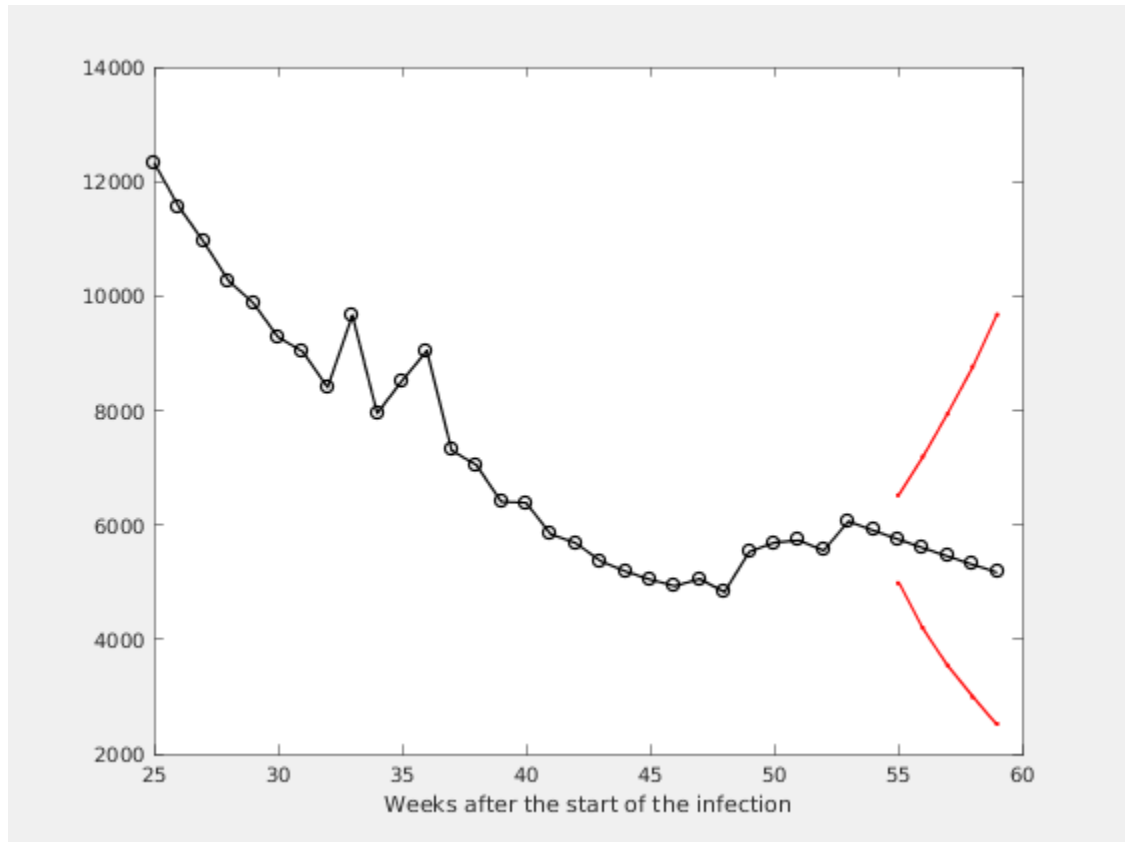
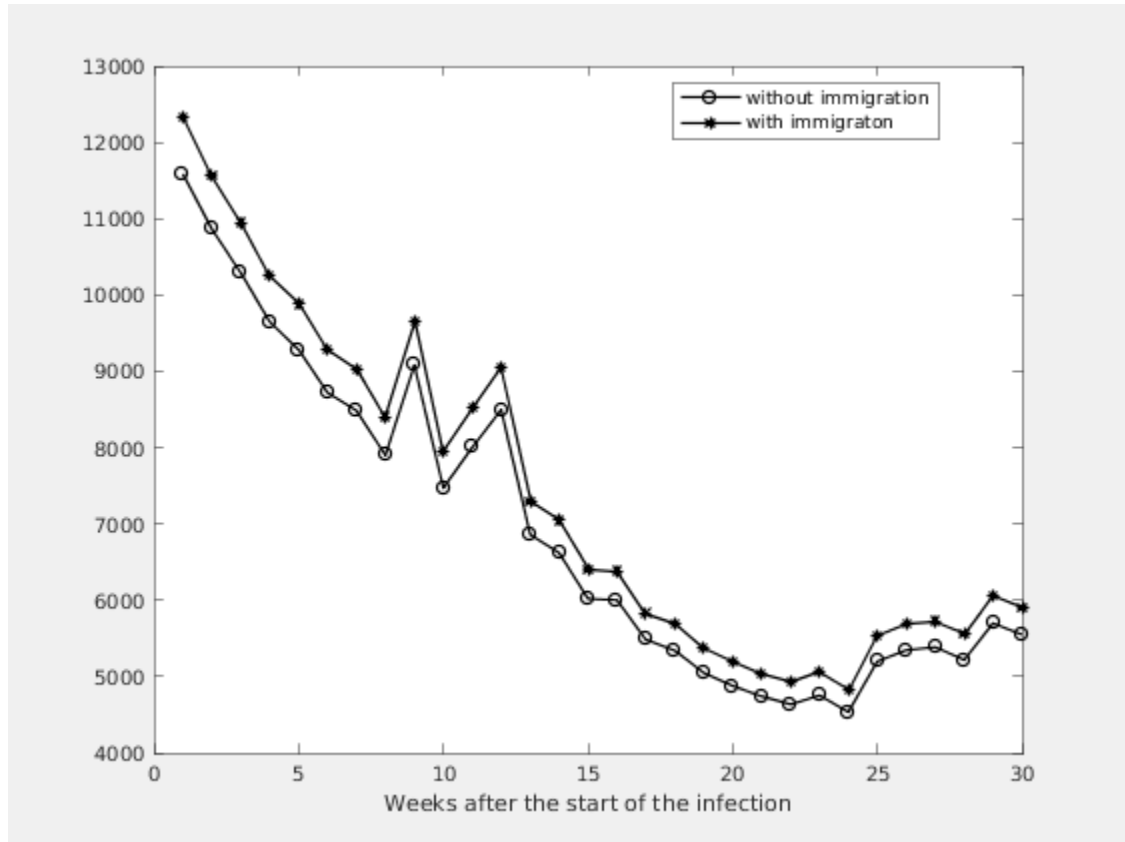


Figure 2.4. Expected number of the nonregistered infected individuals with immigration



Estimation of the model parameters.

k	m	ci	alpha	A1	M1
4	0.9684	0.8278 - 1.1090	0.5429	4827	4536
3	0.9698	0.8300 - 1.1096	0.6349	5533	5199
2	0.9698	0.8324 - 1.1071	0.6531	5690	5347
1	0.9737	0.8390 - 1.1085	0.6625	5732	5386
0	0.9737	0.8415 - 1.1059	0.6623	5552	5217