

Branching stochastic processes as models of Covid-19 epidemic development

Qatar - 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 Qatar. 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

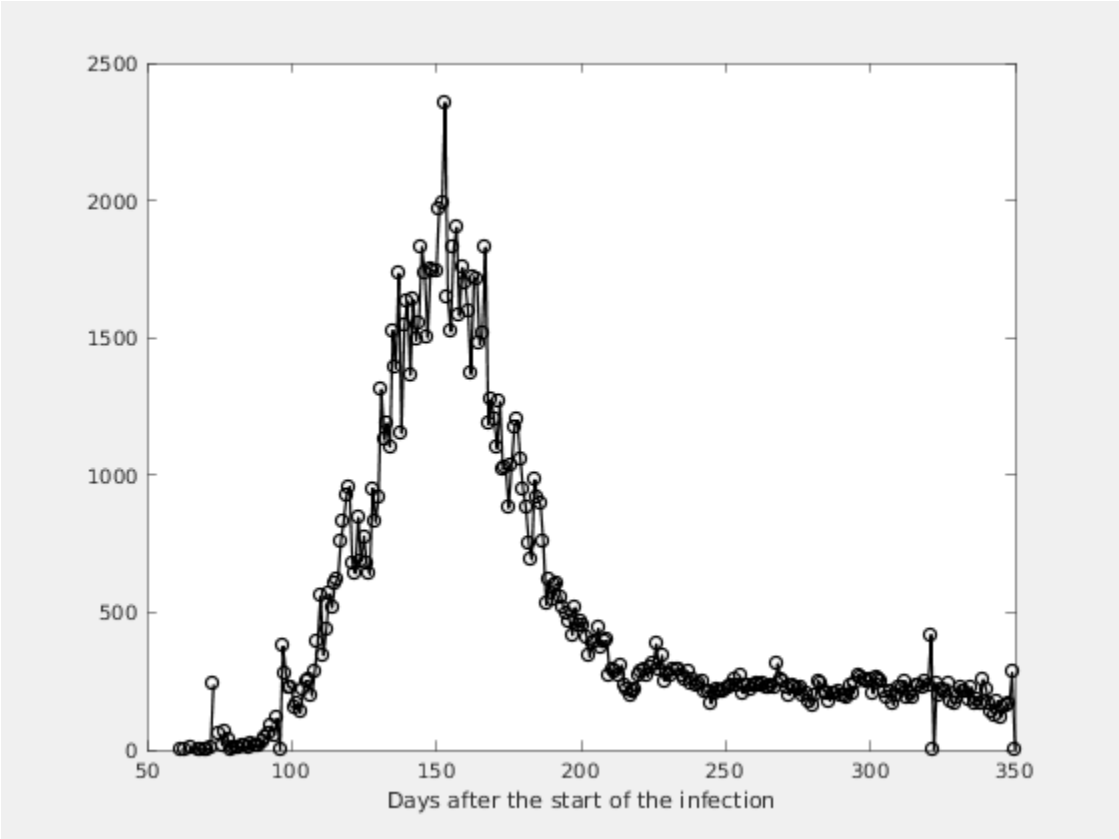
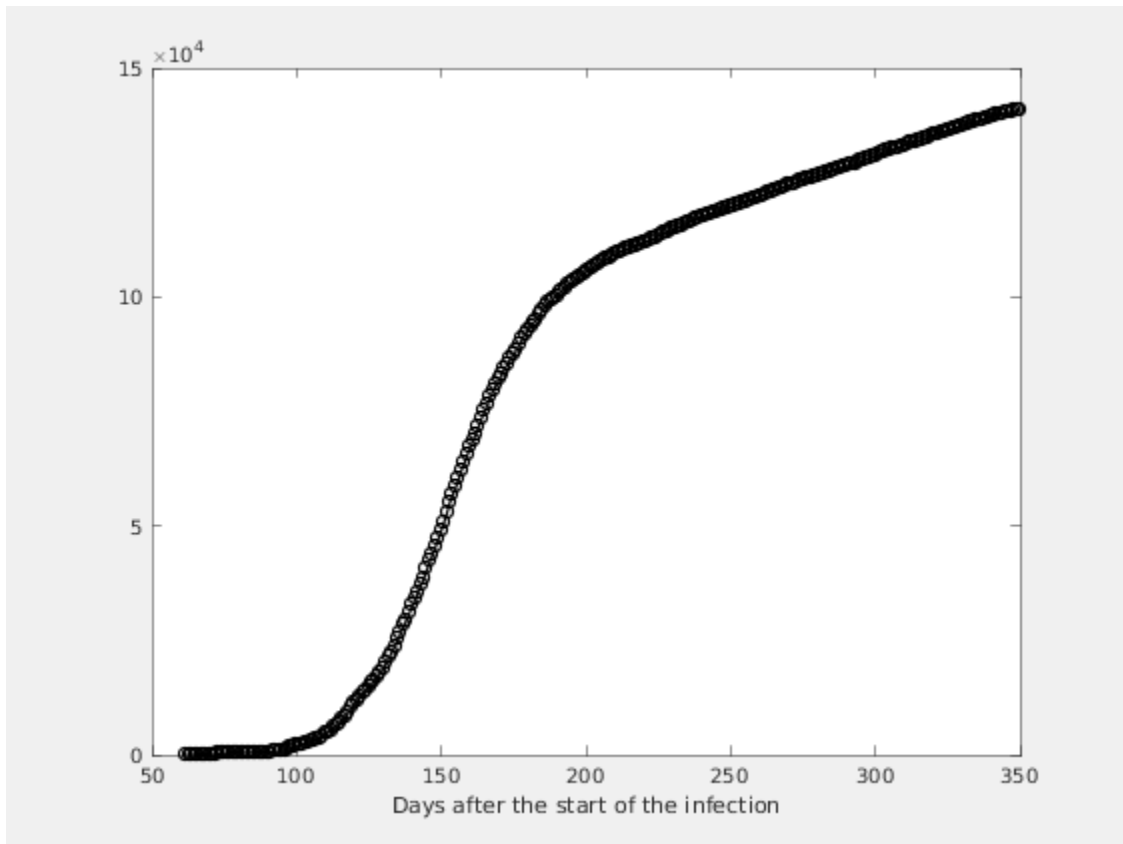


Figure 1.2. Number of the total registered cases



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

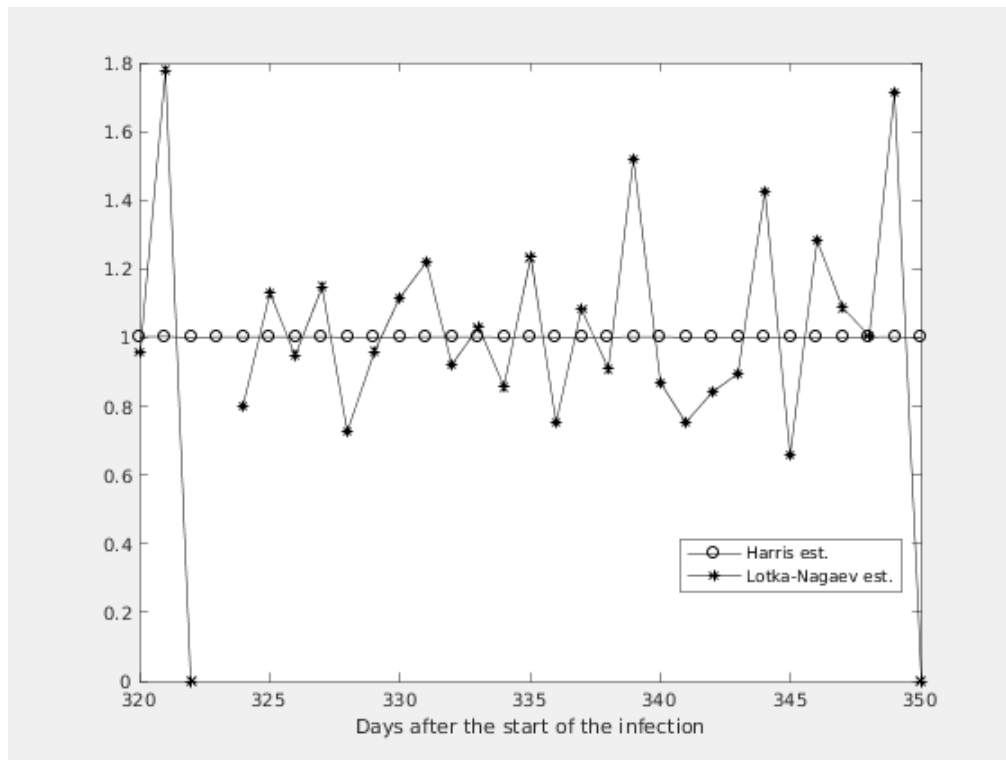


Figure 2.2. Figure

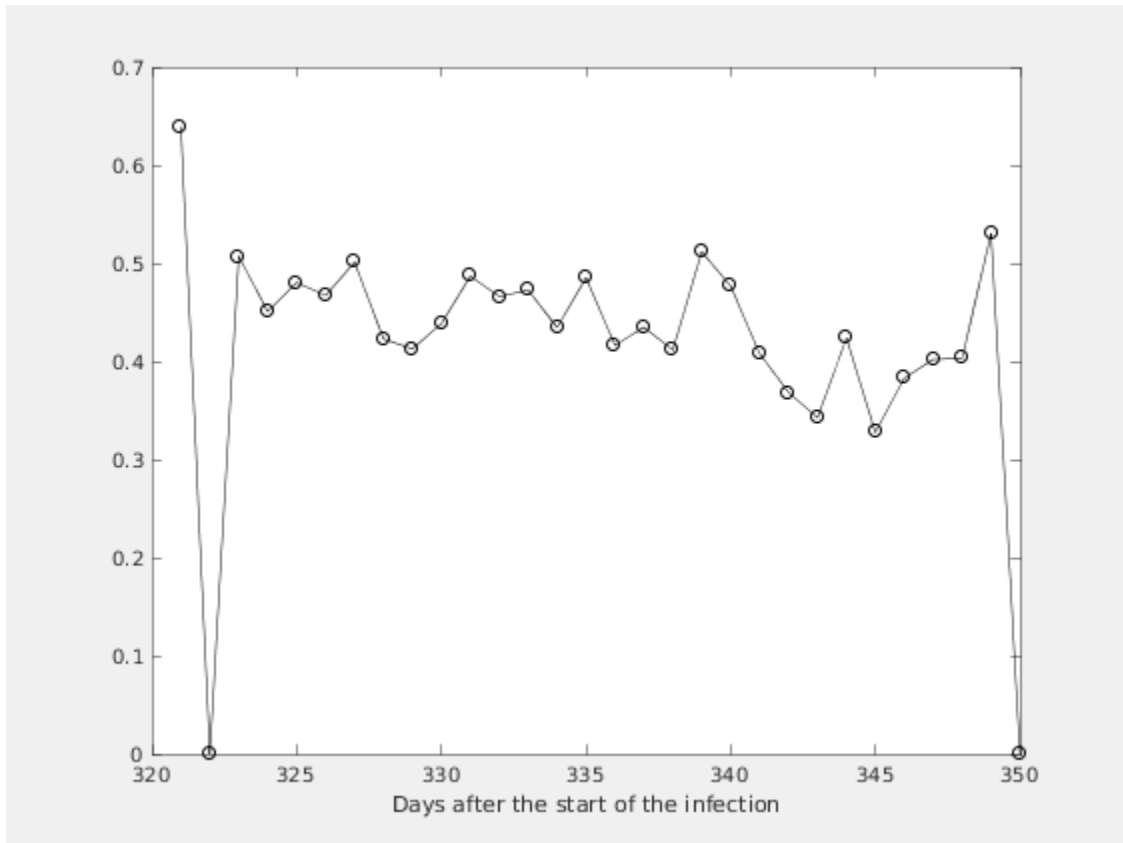


Figure 2.3. Expected number of the nonregistered infected individuals without immigration

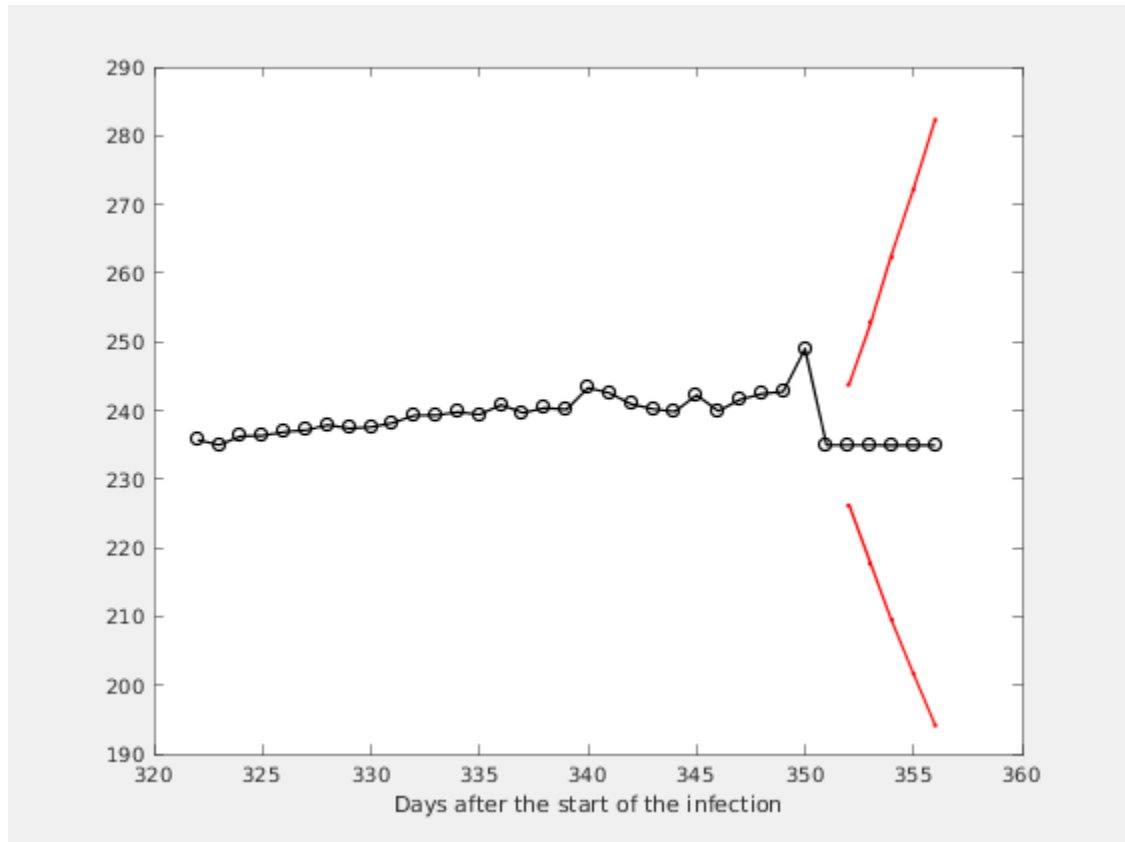
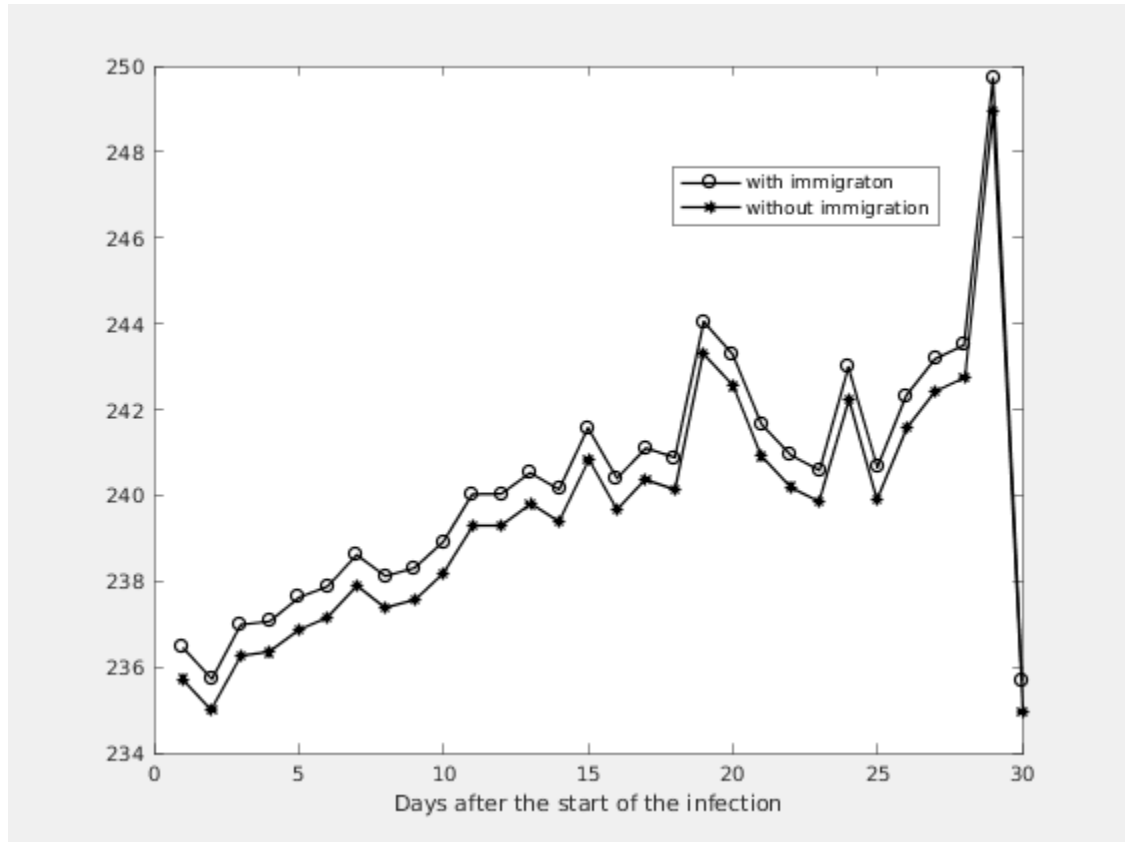


Figure 2.4. Expected number of the nonregistered infected individuals with immigration



Estimation of the model parameters.

k	m	ci	alpha	M1	A1
4	1.0011	0.9633 - 1.0388	0.4236	242	243
3	1.0012	0.9635 - 1.0388	0.3278	240	241
2	1.0012	0.9635 - 1.0388	0.3831	242	242
1	1.0020	0.9645 - 1.0395	0.4020	242	243
0	1.0000	0.9625 - 1.0374	0.4032	243	244