

# **Branching stochastic processes as models of Covid-19 epidemic development**

**Belgium - 20201214**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Belgium - 20201214**

### **Abstract**

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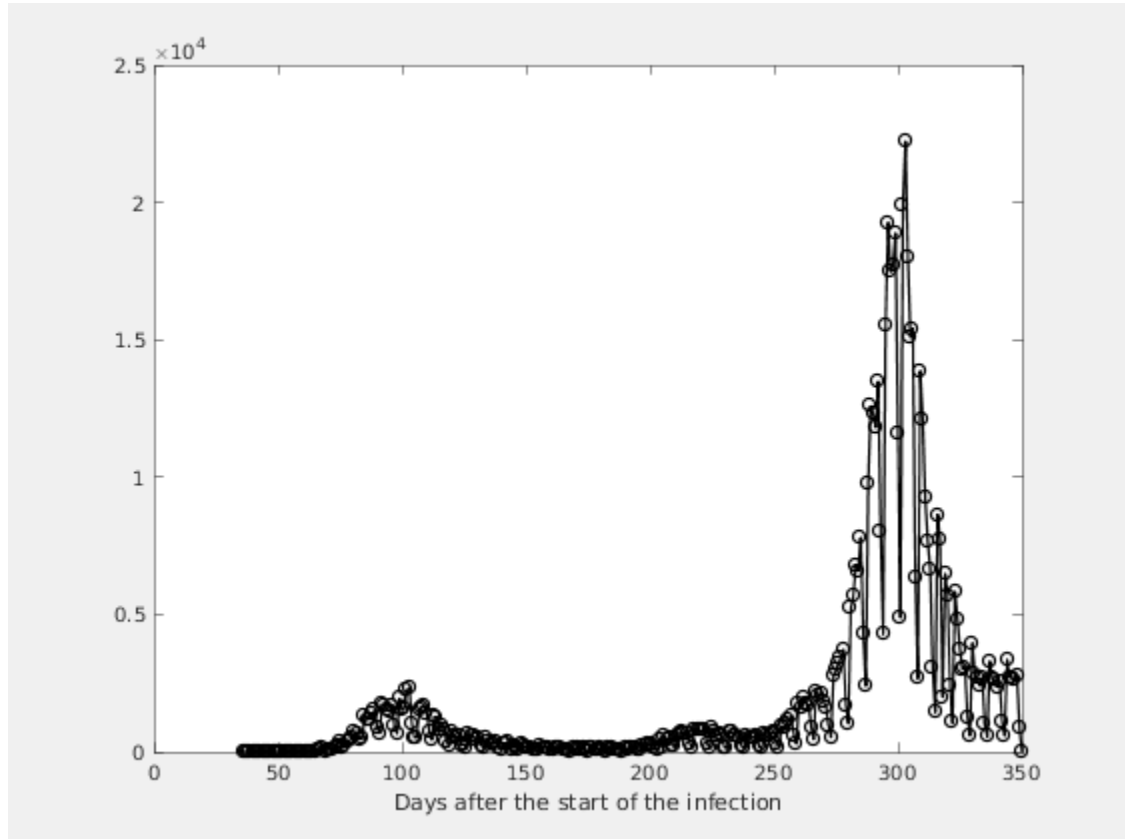
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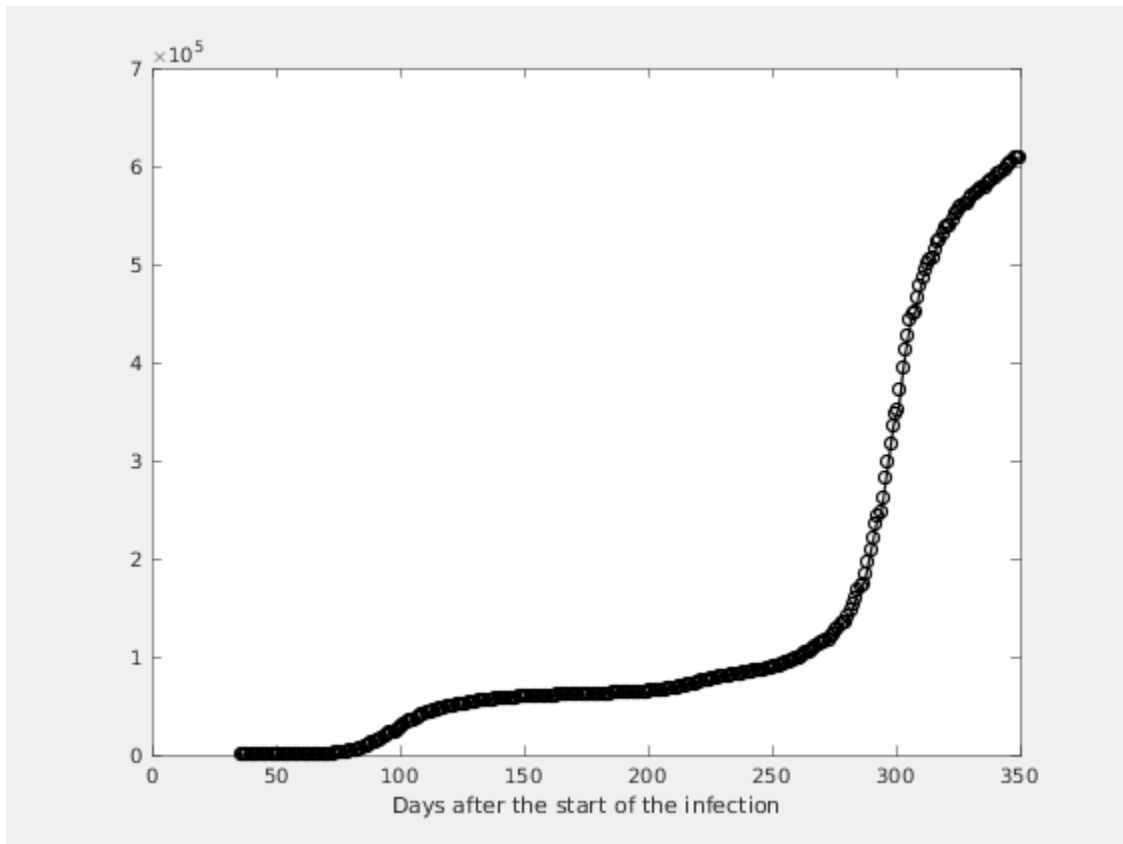
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# Chapter 1. Observed Infection data

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



**Figure 1.2. Number of the total registered cases**



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# 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

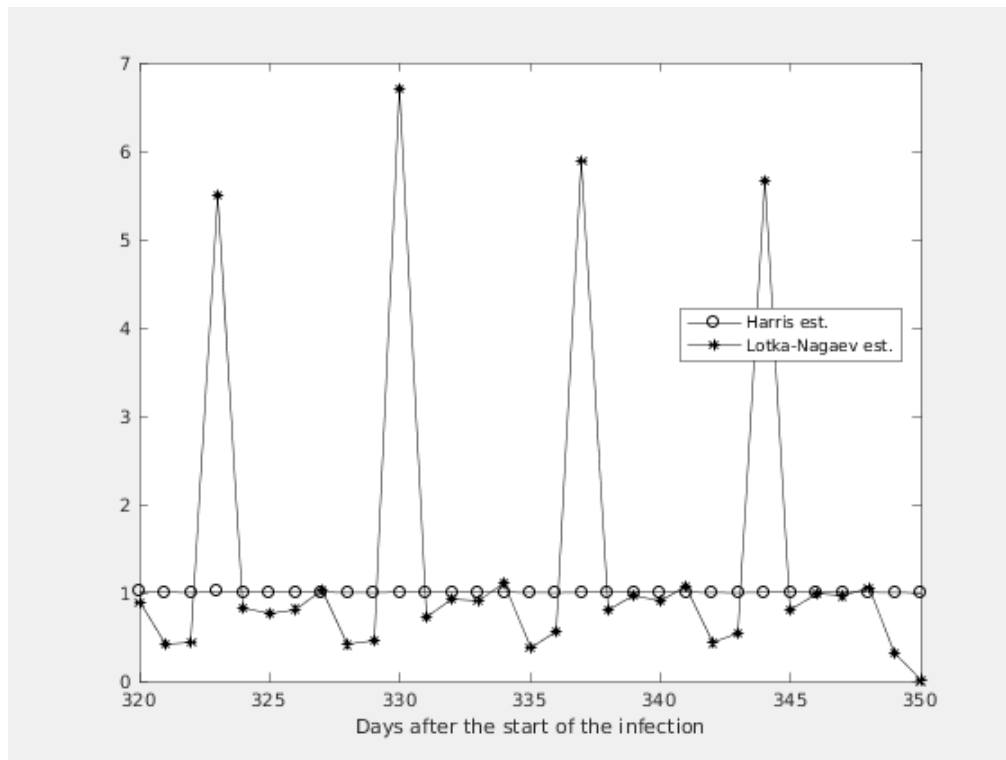
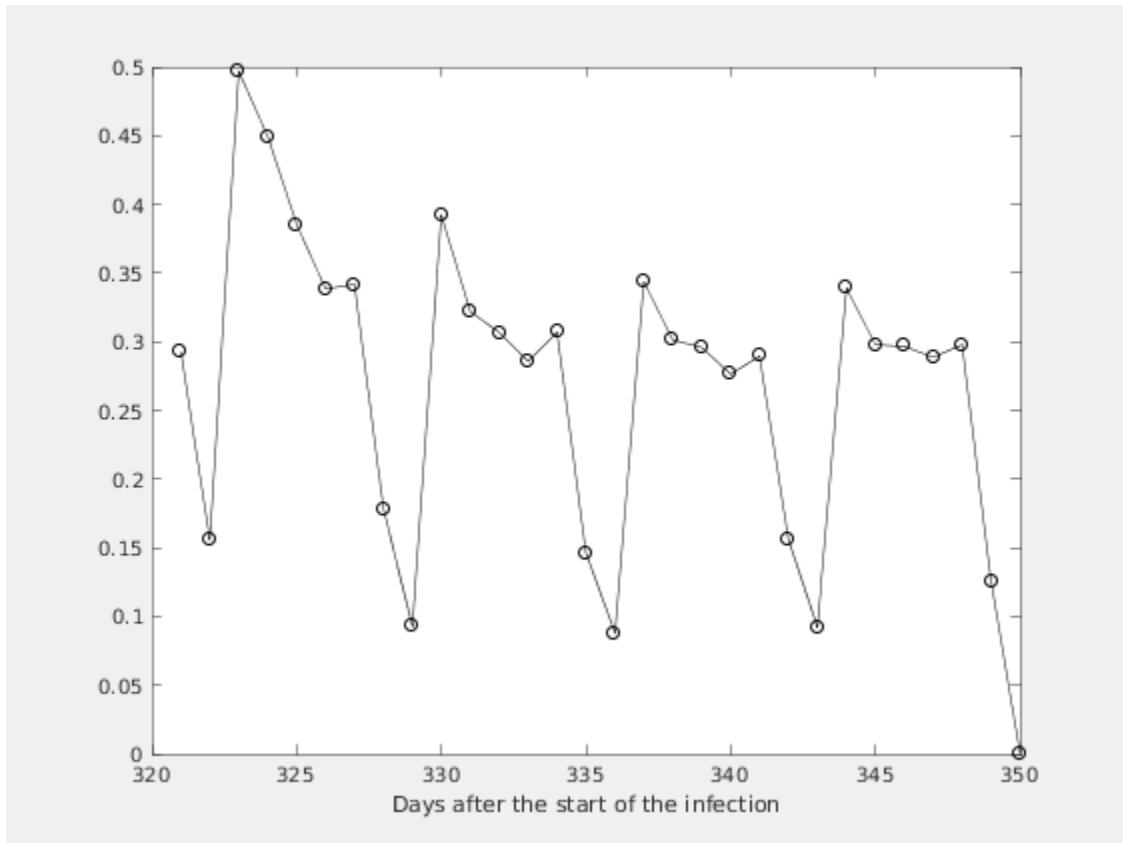
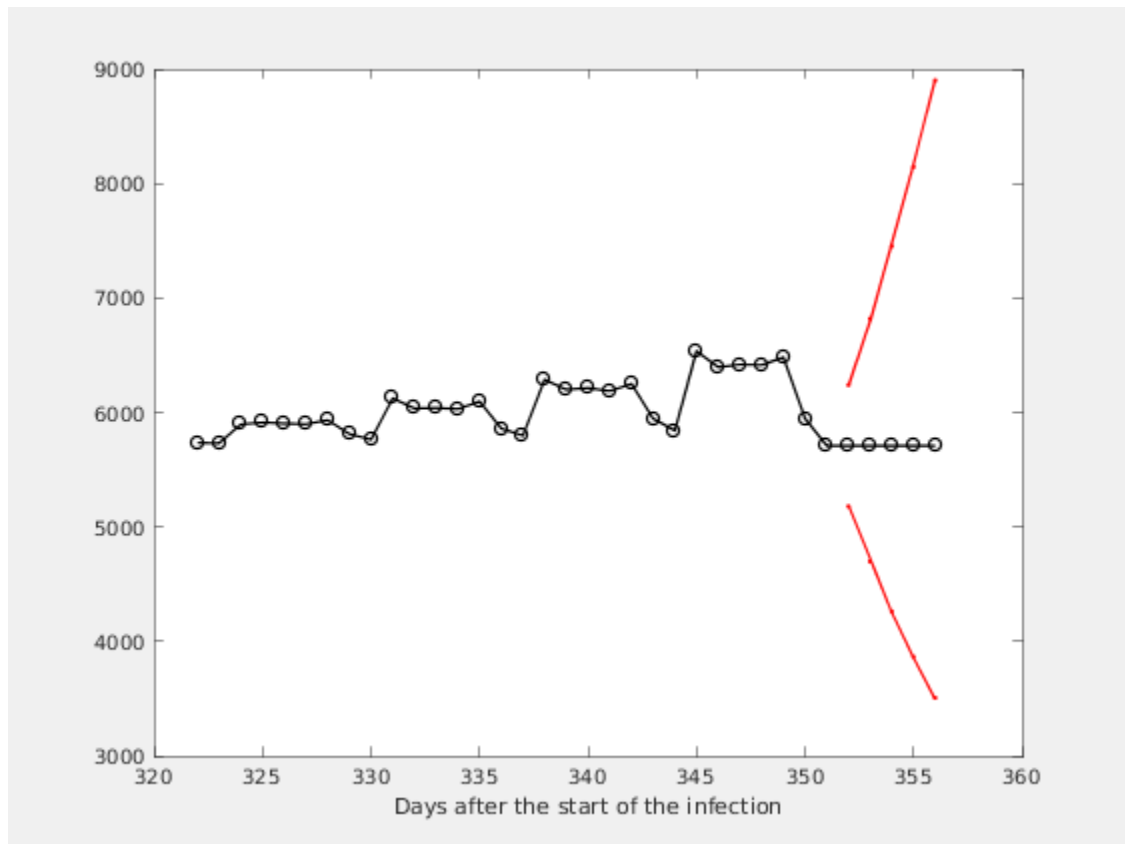


Figure 2.2. Figure

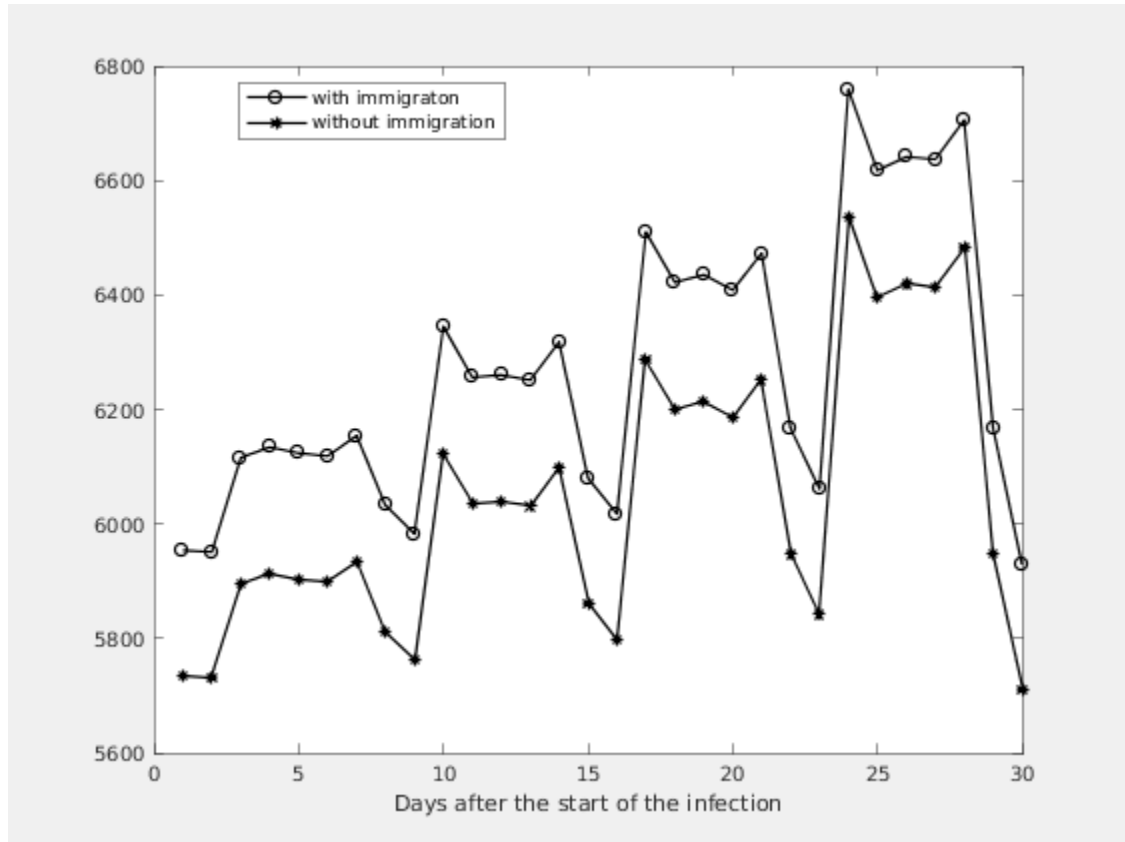




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	M1	A1
4	1.0045	0.9098 - 1.0993	0.3391	6536	6759
3	1.0043	0.9100 - 1.0987	0.2980	6395	6618
2	1.0046	0.9106 - 1.0985	0.2967	6419	6642
1	1.0014	0.9078 - 1.0950	0.2887	6415	6637
0	1.0000	0.9068 - 1.0932	0.2979	6483	6706