

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

**Var150 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var150 - week 53**

### **Abstract**

The results presented here are obtained using the methodology proposed in the paper <https://arxiv.org/abs/2004.14838> for the country Var150. 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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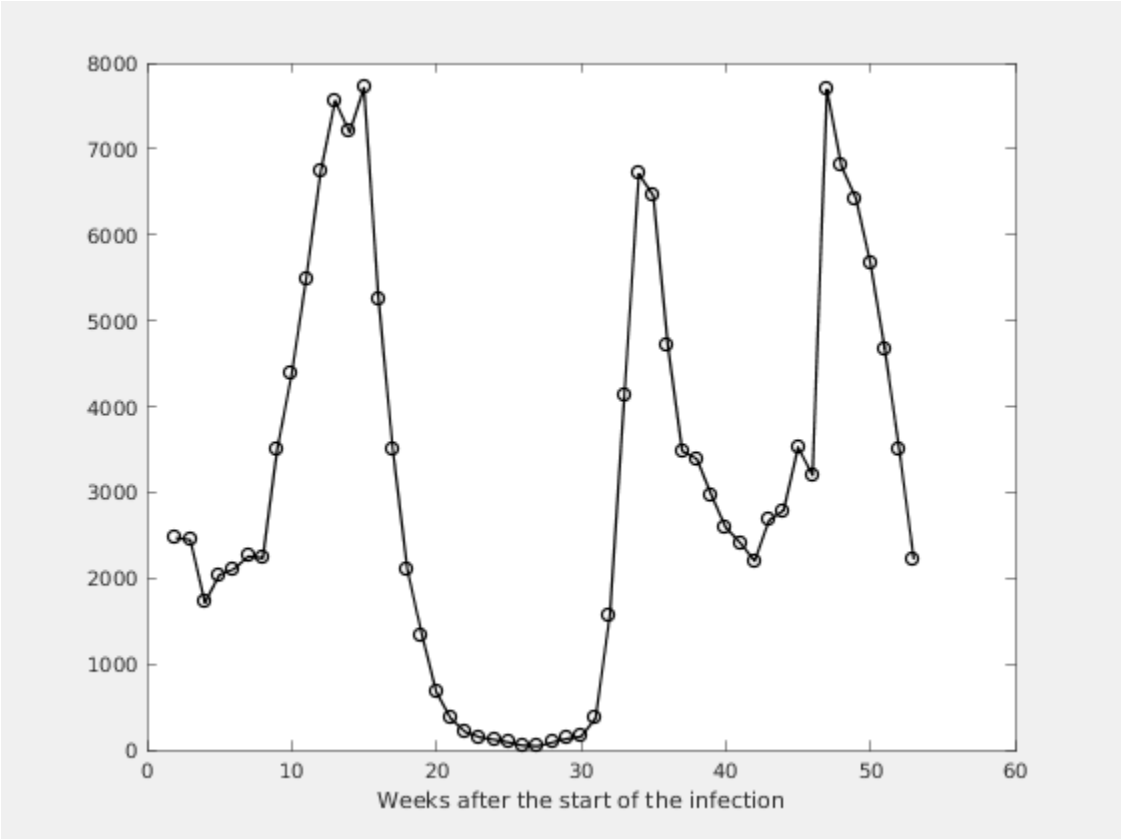
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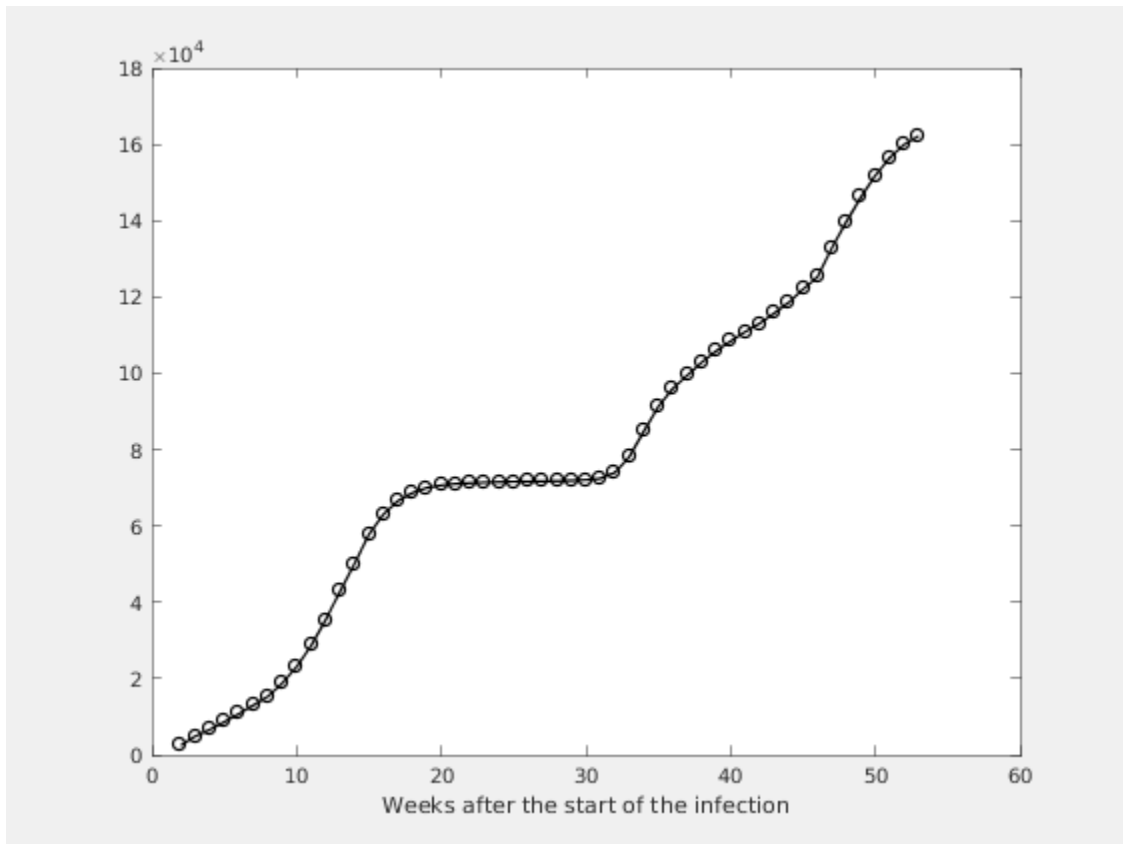
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# Chapter 1. Observed Infection data

Figure 1.1. Number of the weekly 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

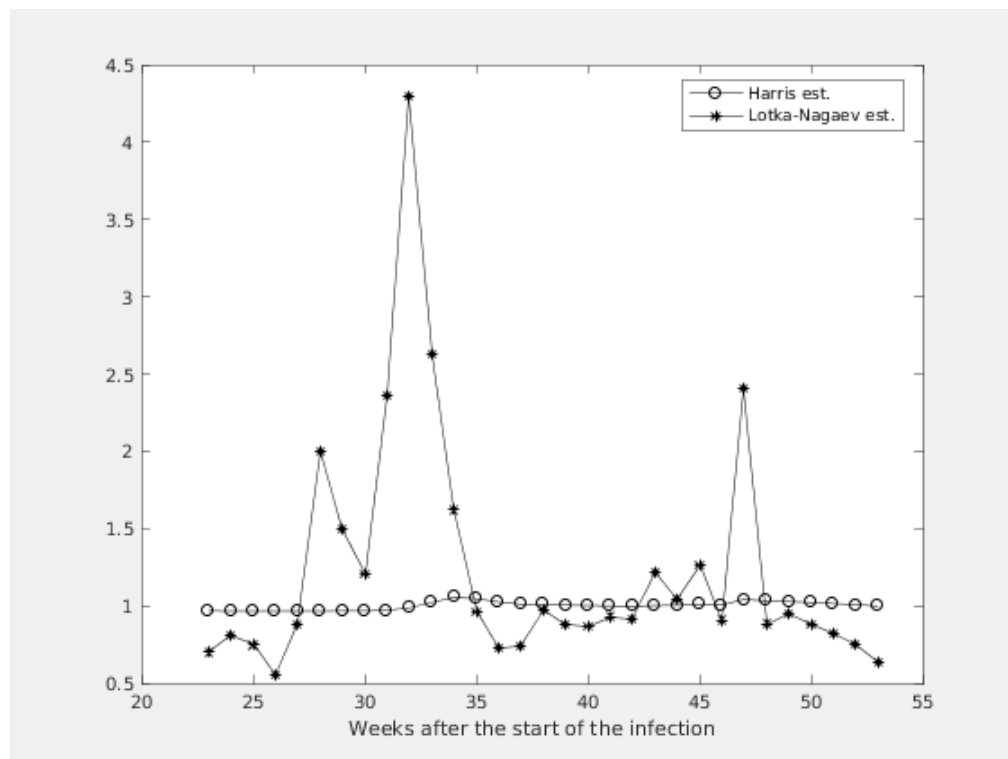
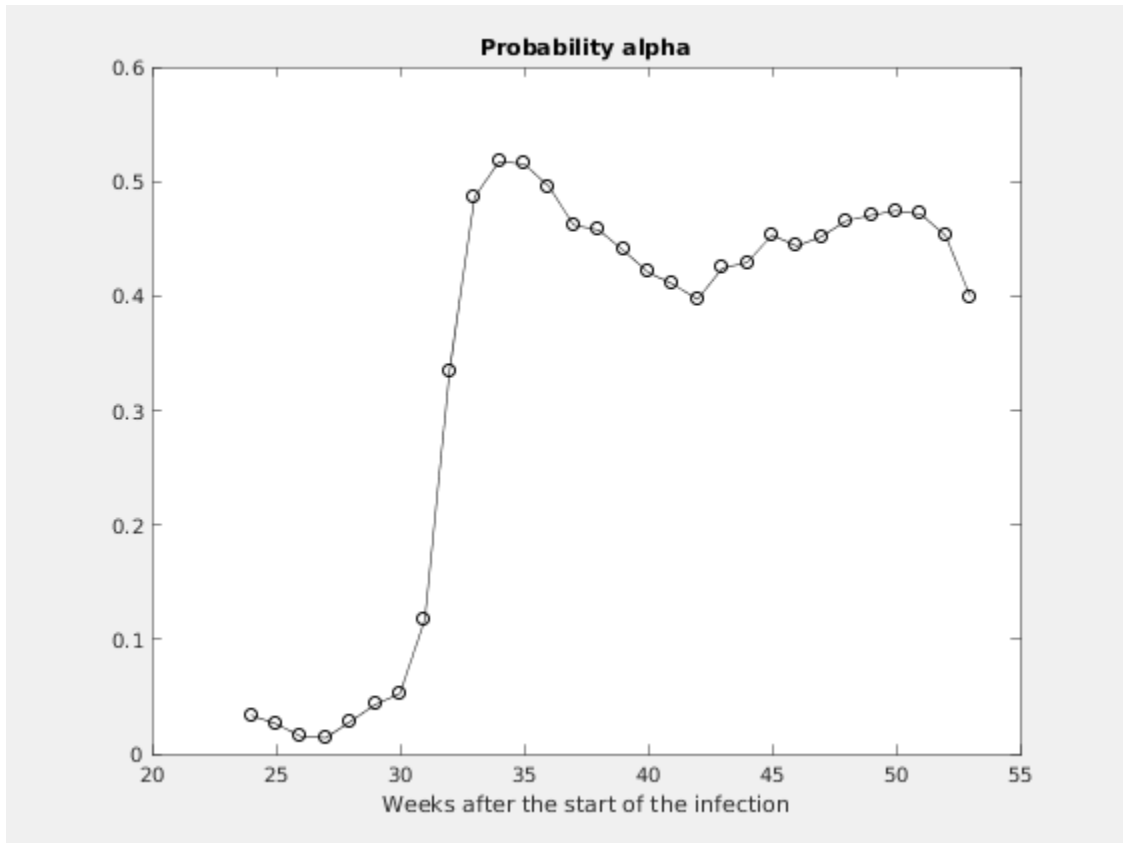
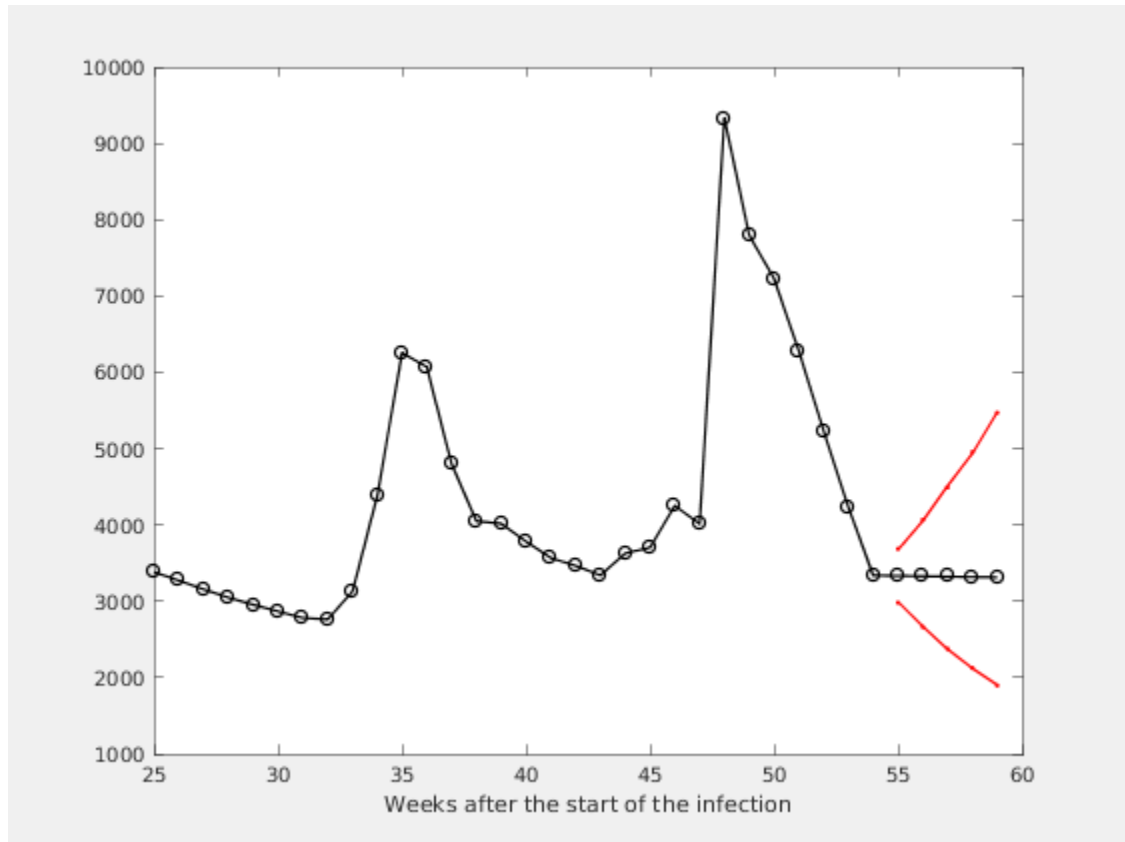


Figure 2.2. Figure

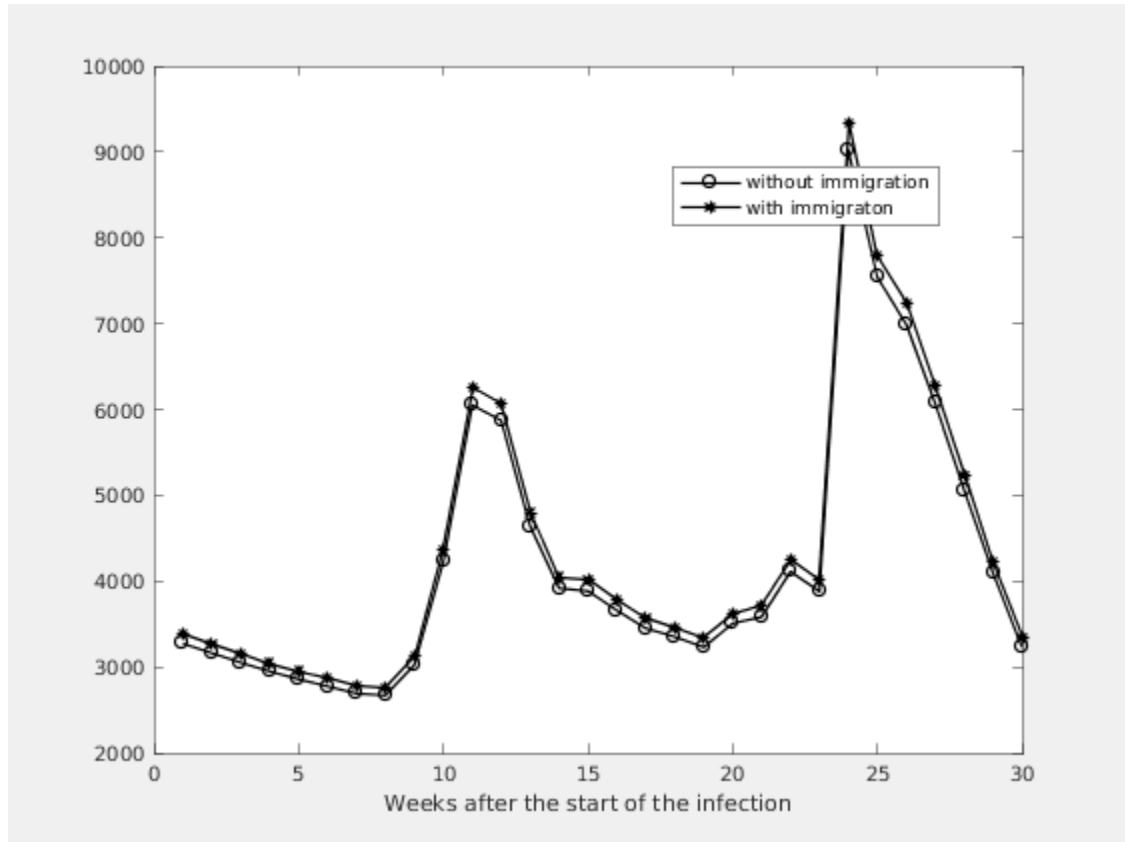




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	1.0283	0.9052 - 1.1514	0.4520	9327	9020
3	1.0219	0.9032 - 1.1406	0.4658	7797	7540
2	1.0145	0.8998 - 1.1291	0.4706	7229	6991
1	1.0066	0.8953 - 1.1179	0.4745	6279	6072
0	0.9984	0.8898 - 1.1070	0.4715	5232	5059