

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

**Var152 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var152 - 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 Var152. 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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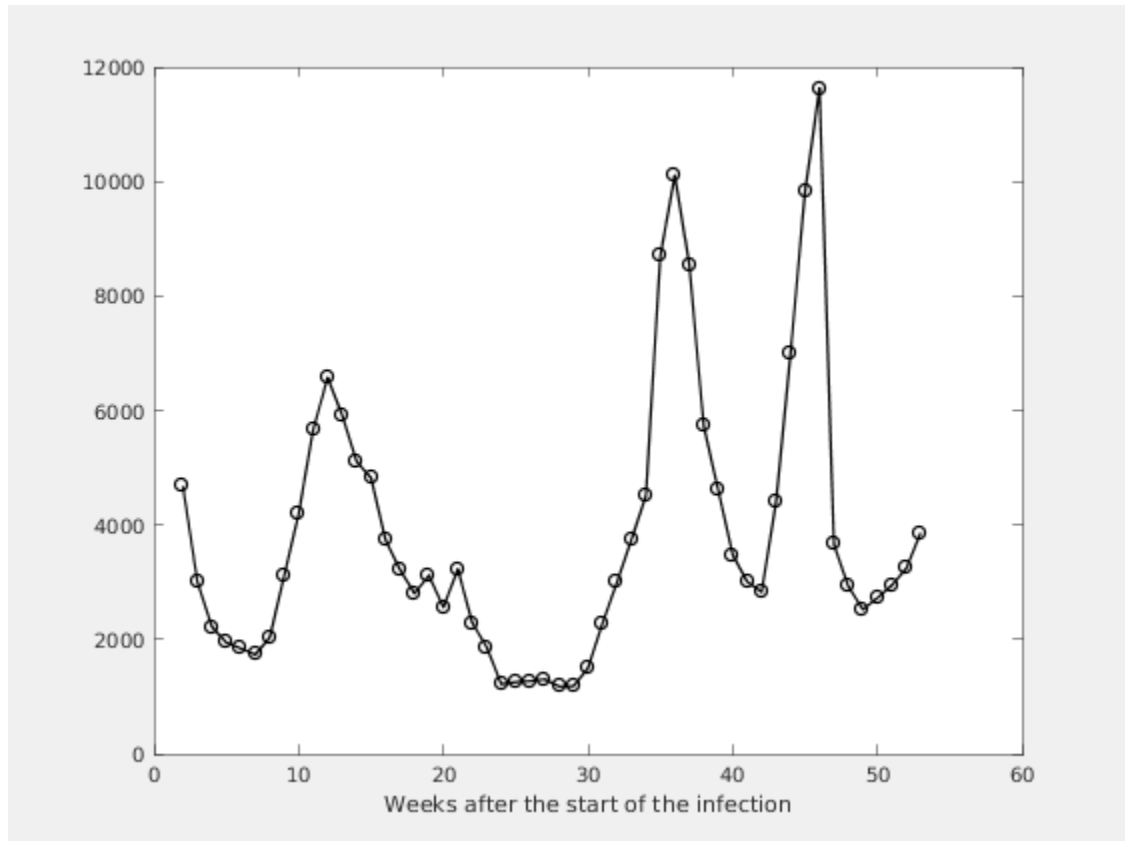
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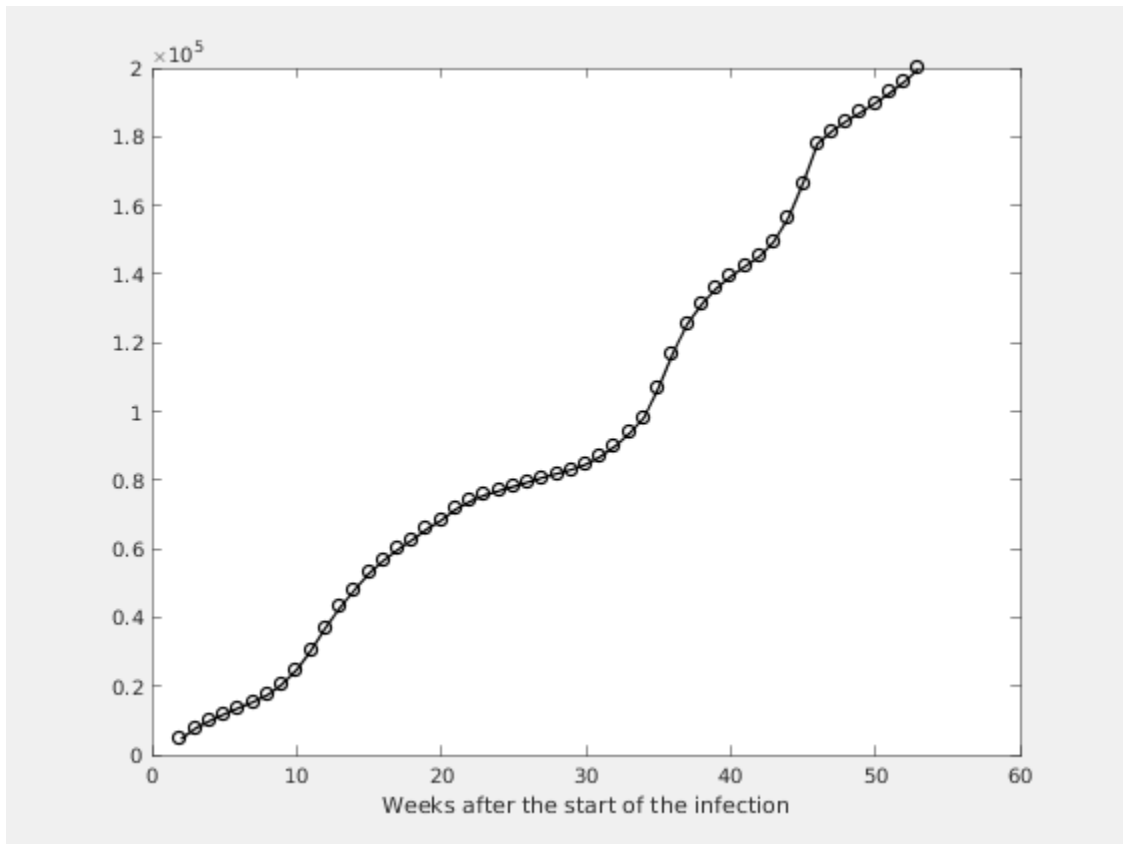
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# Chapter 1. Observed Infection data

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

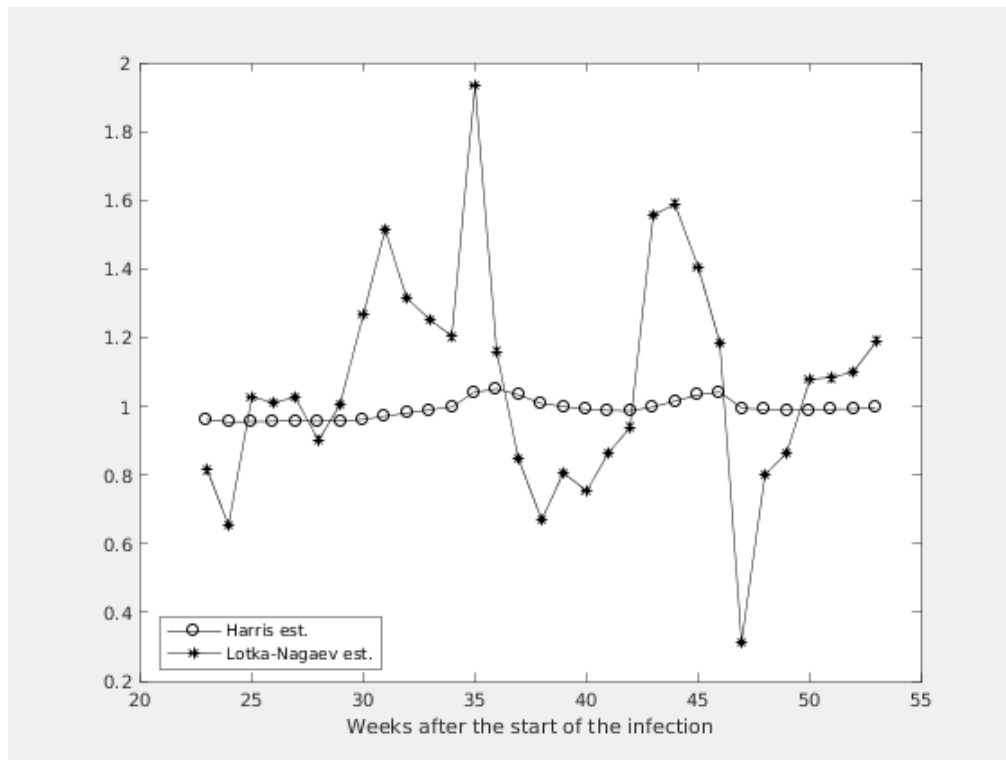
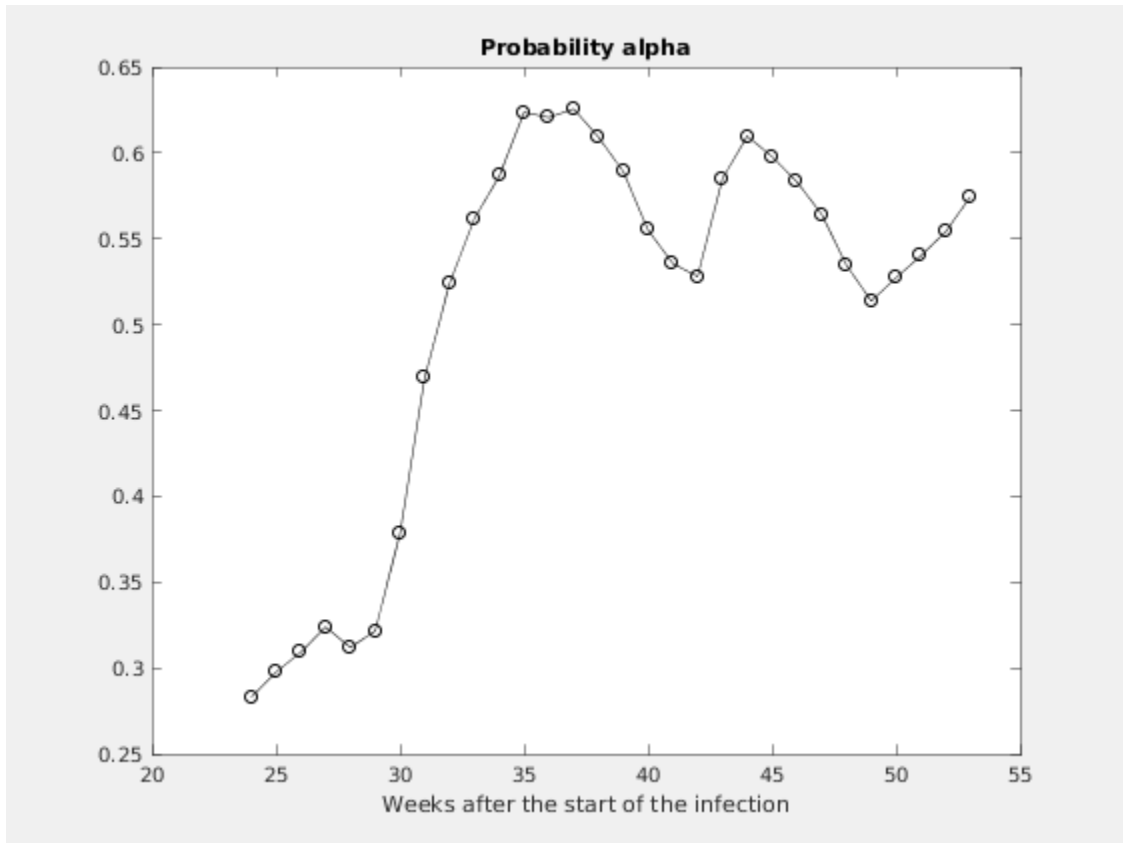
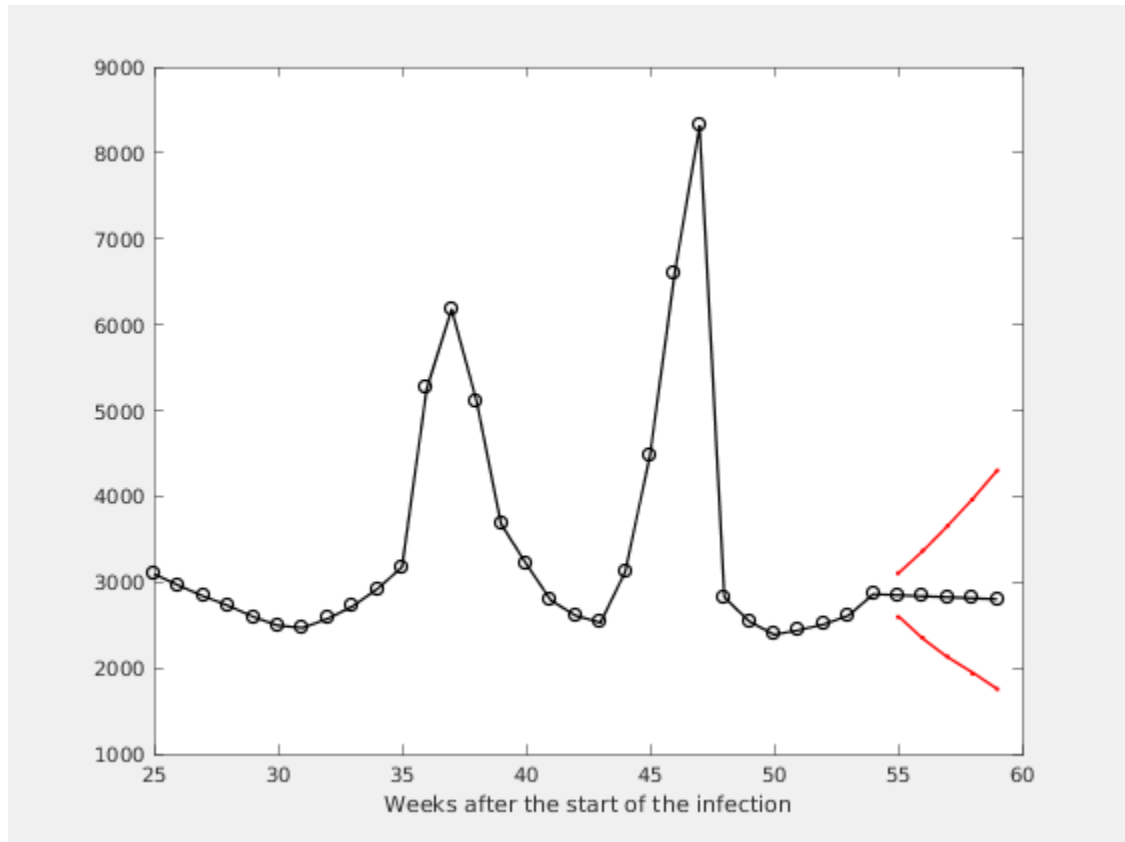


Figure 2.2. Figure

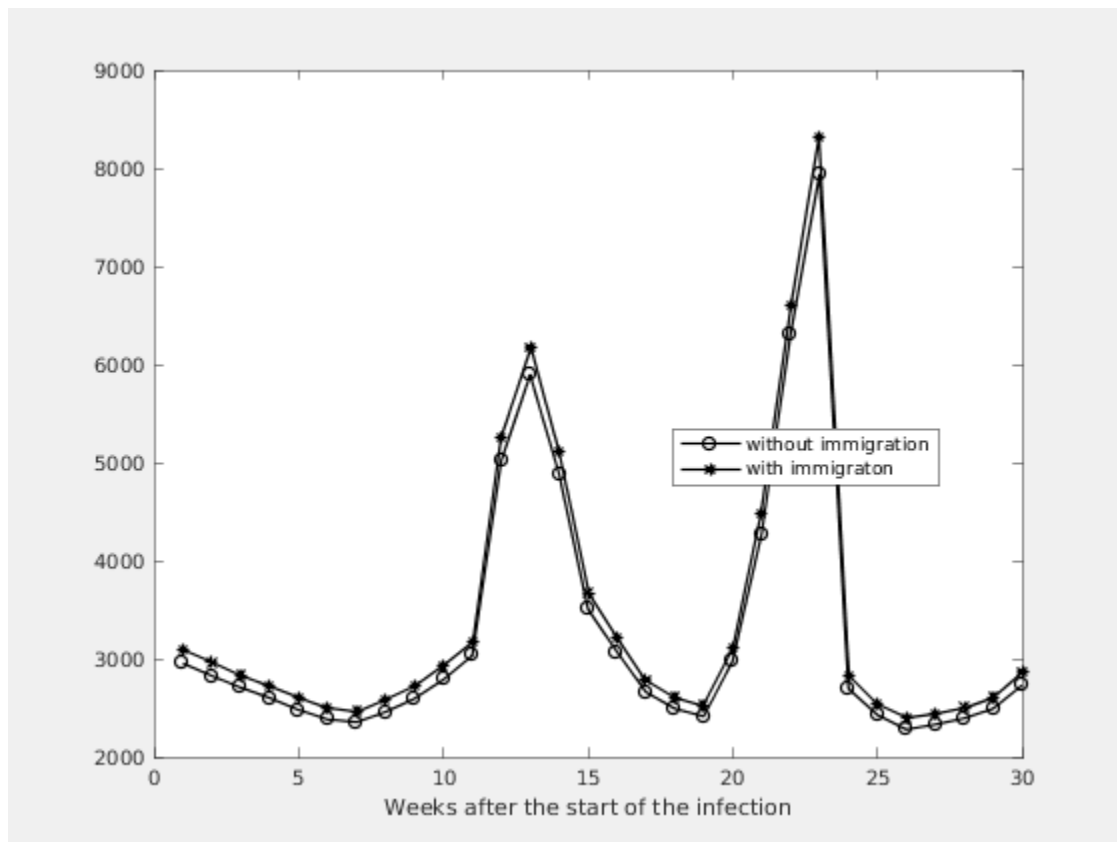




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9883	0.8898 - 1.0869	0.5643	2824	2695
3	0.9895	0.8927 - 1.0864	0.5347	2543	2427
2	0.9909	0.8957 - 1.0860	0.5137	2389	2280
1	0.9925	0.8990 - 1.0861	0.5273	2441	2330
0	0.9958	0.9039 - 1.0878	0.5402	2508	2394