

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

**Var122 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var122 - 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 Var122. 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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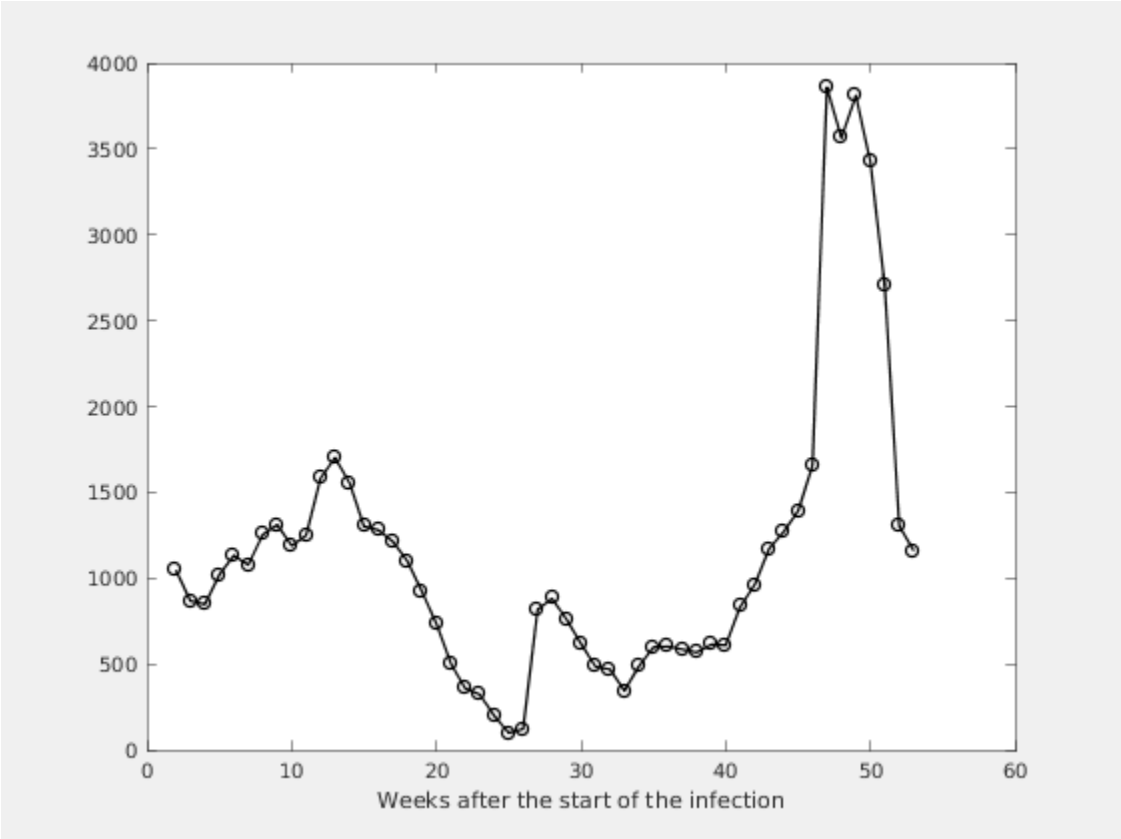
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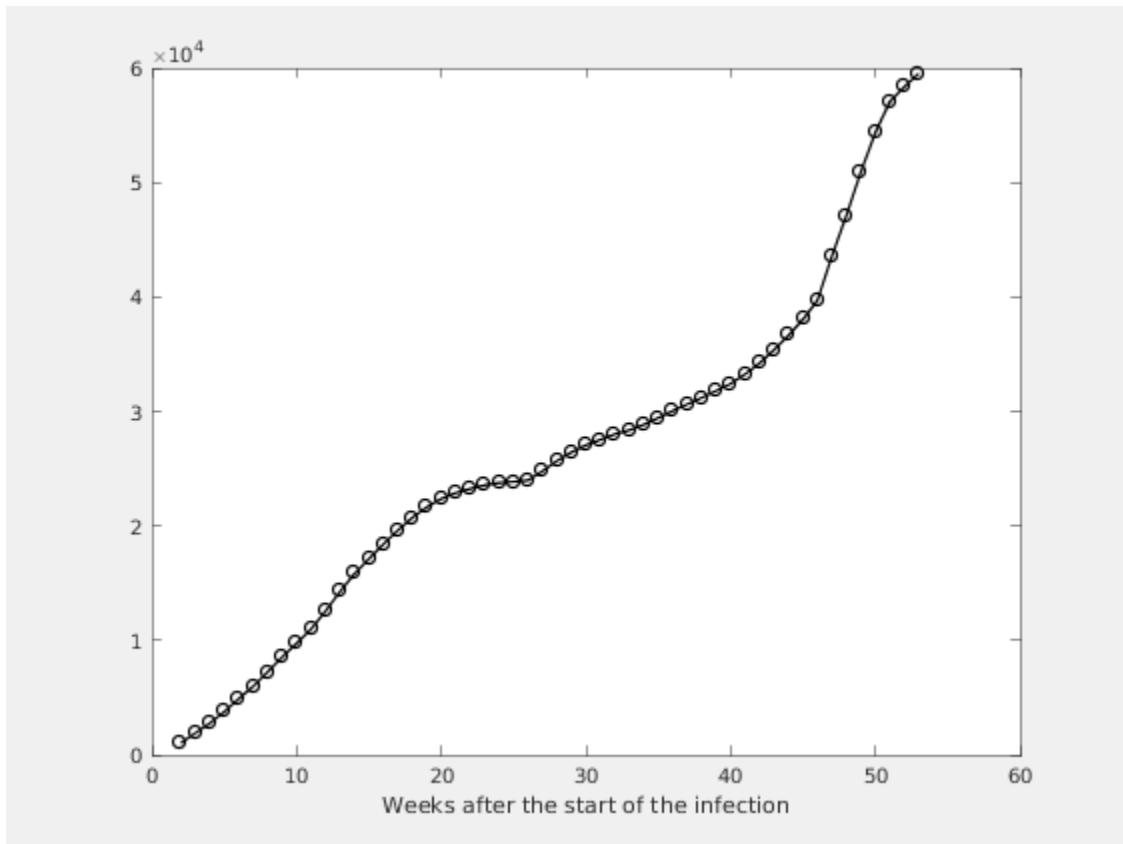
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# Chapter 1. Observed Infection data

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

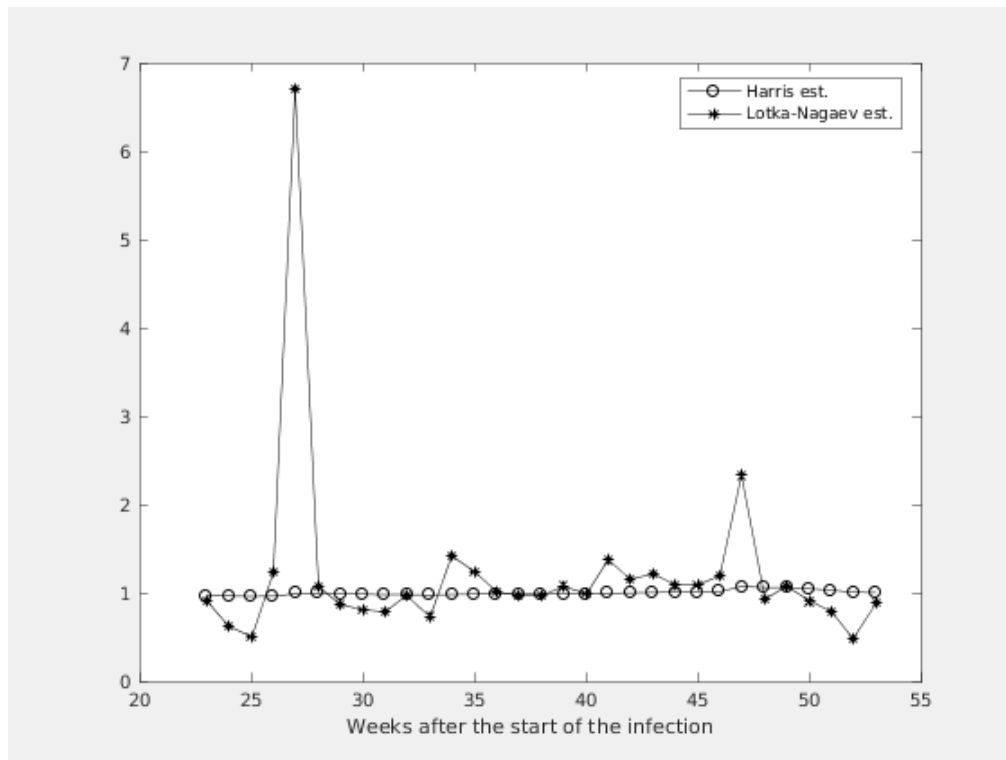
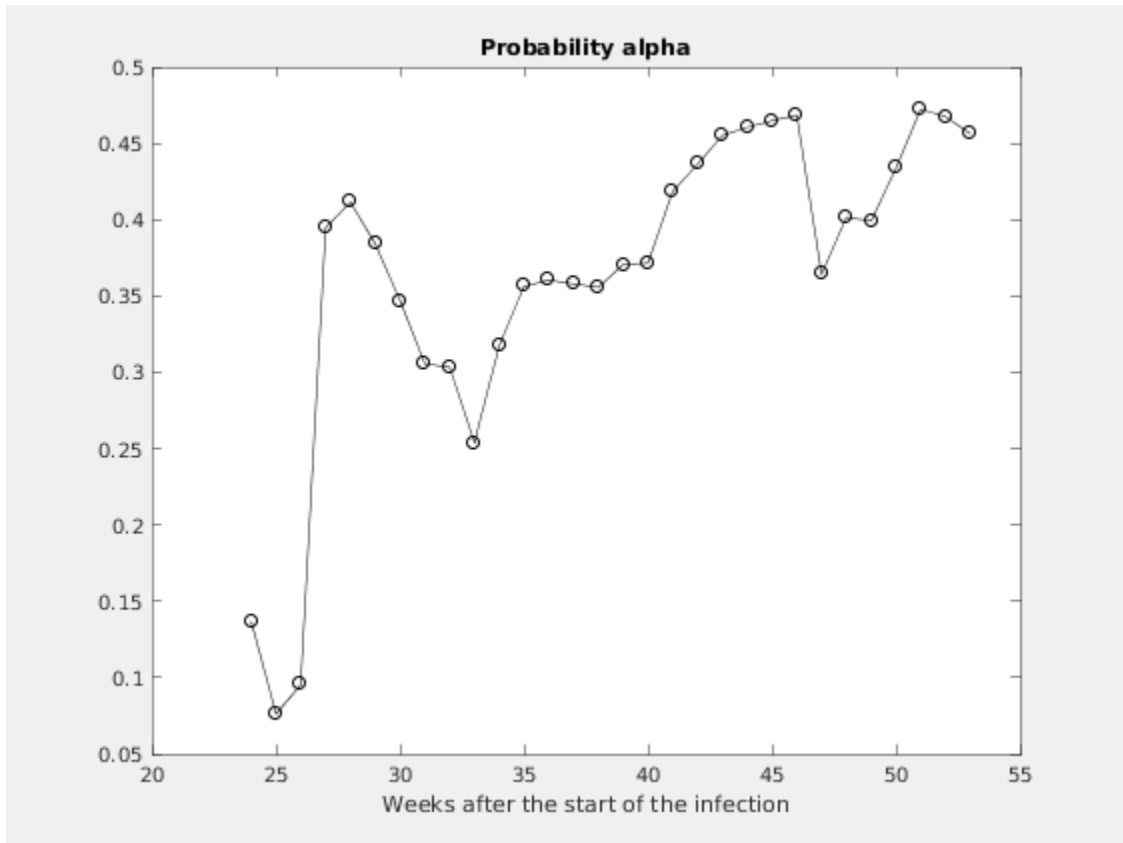
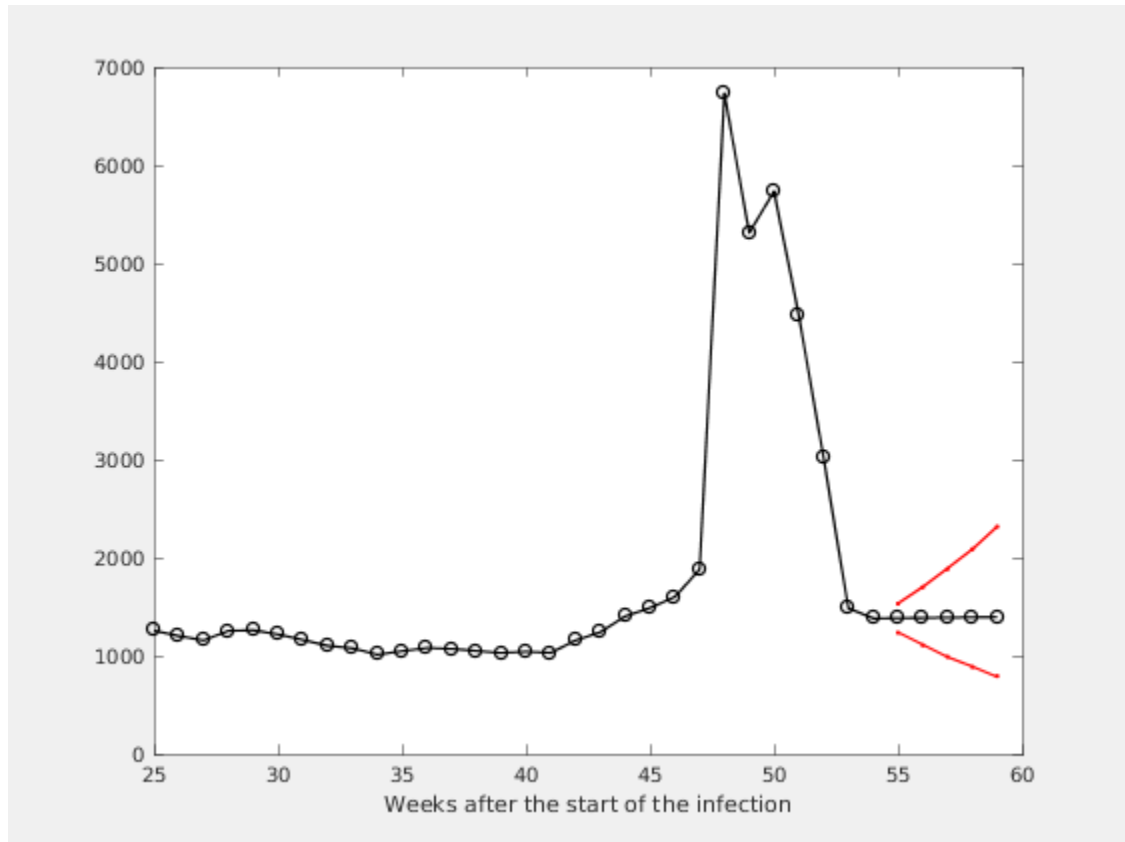


Figure 2.2. Figure

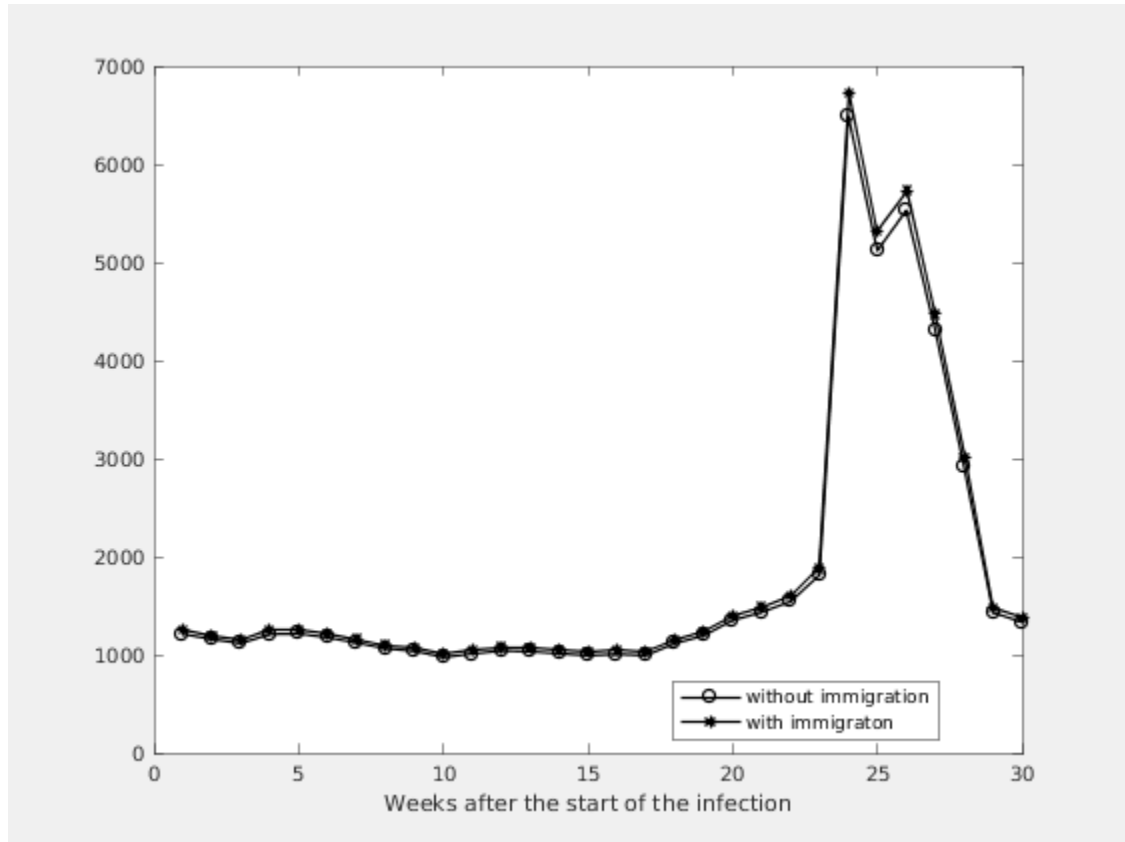




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	1.0586	0.9300 - 1.1873	0.3643	6731	6489
3	1.0467	0.9246 - 1.1688	0.4016	5311	5121
2	1.0304	0.9141 - 1.1468	0.3992	5734	5528
1	1.0045	0.8927 - 1.1163	0.4339	4470	4310
0	1.0019	0.8937 - 1.1101	0.4724	3017	2909