

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

**Var131 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var131 - 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 Var131. 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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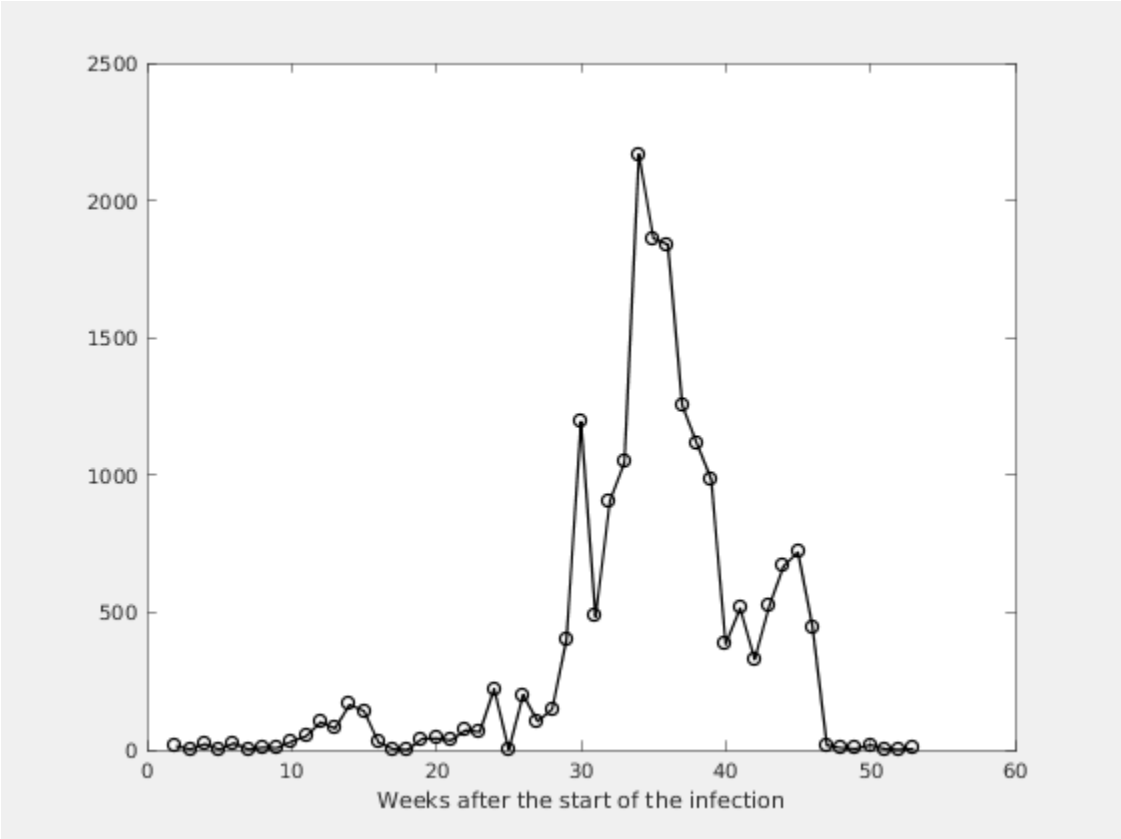
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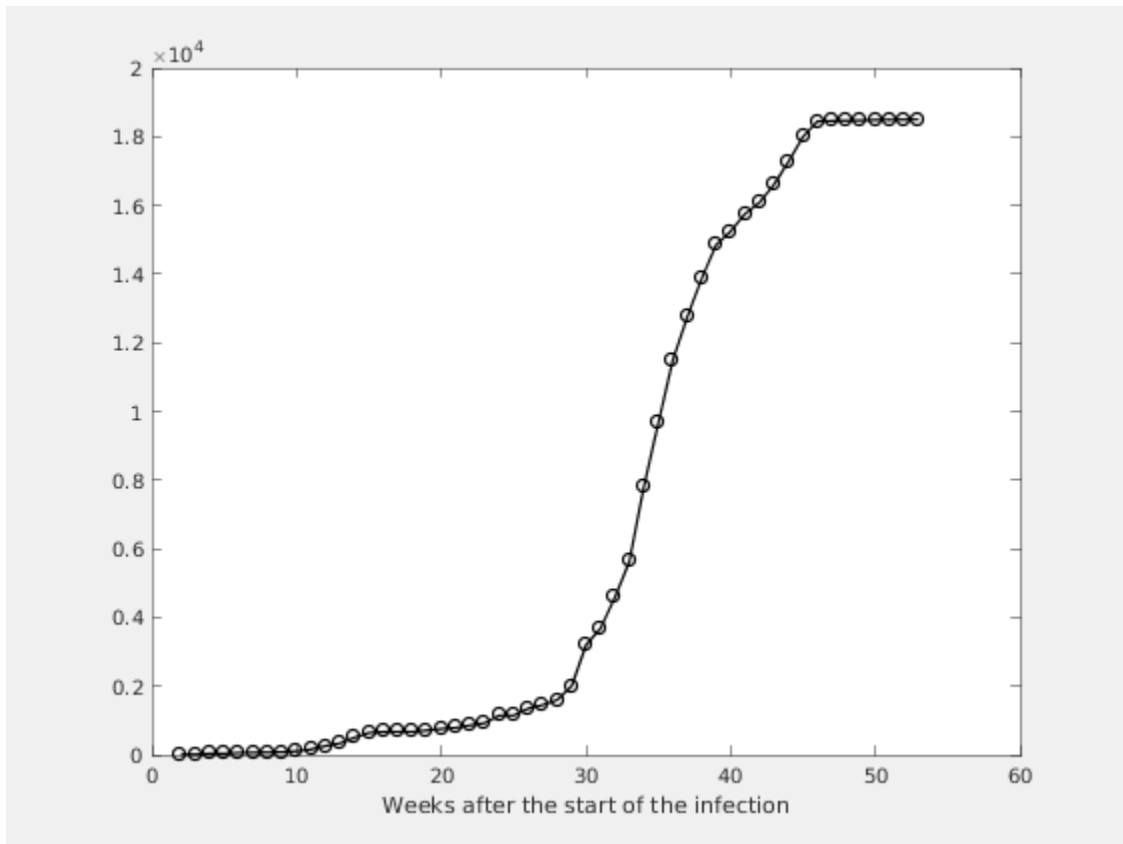
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# Chapter 1. Observed Infection data

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

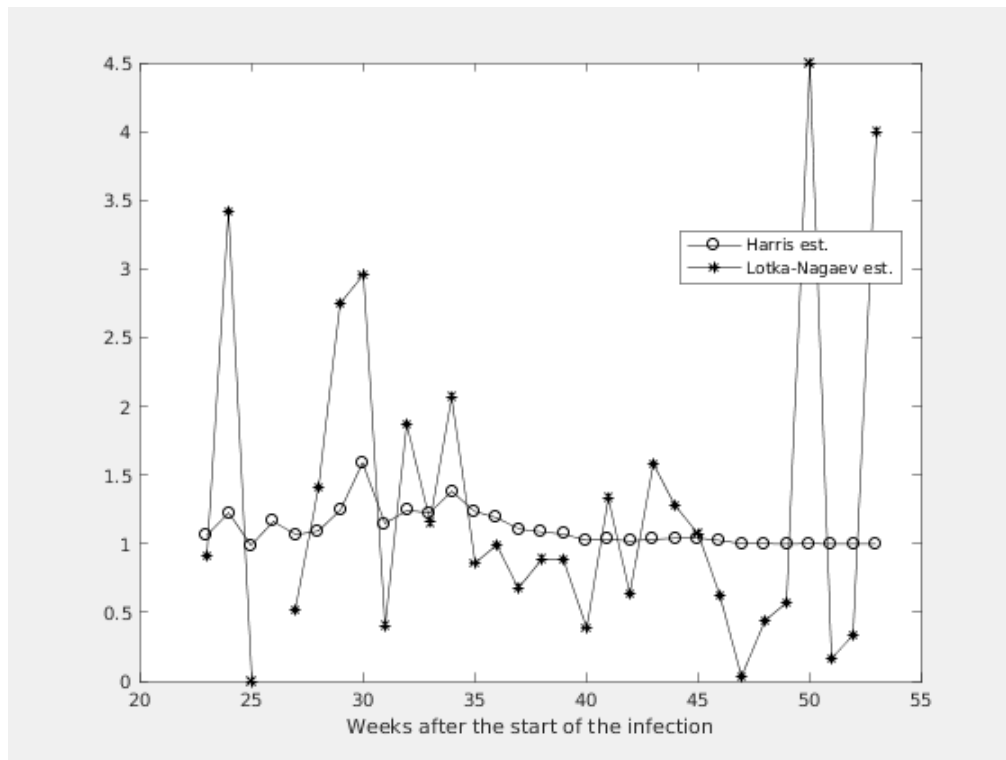
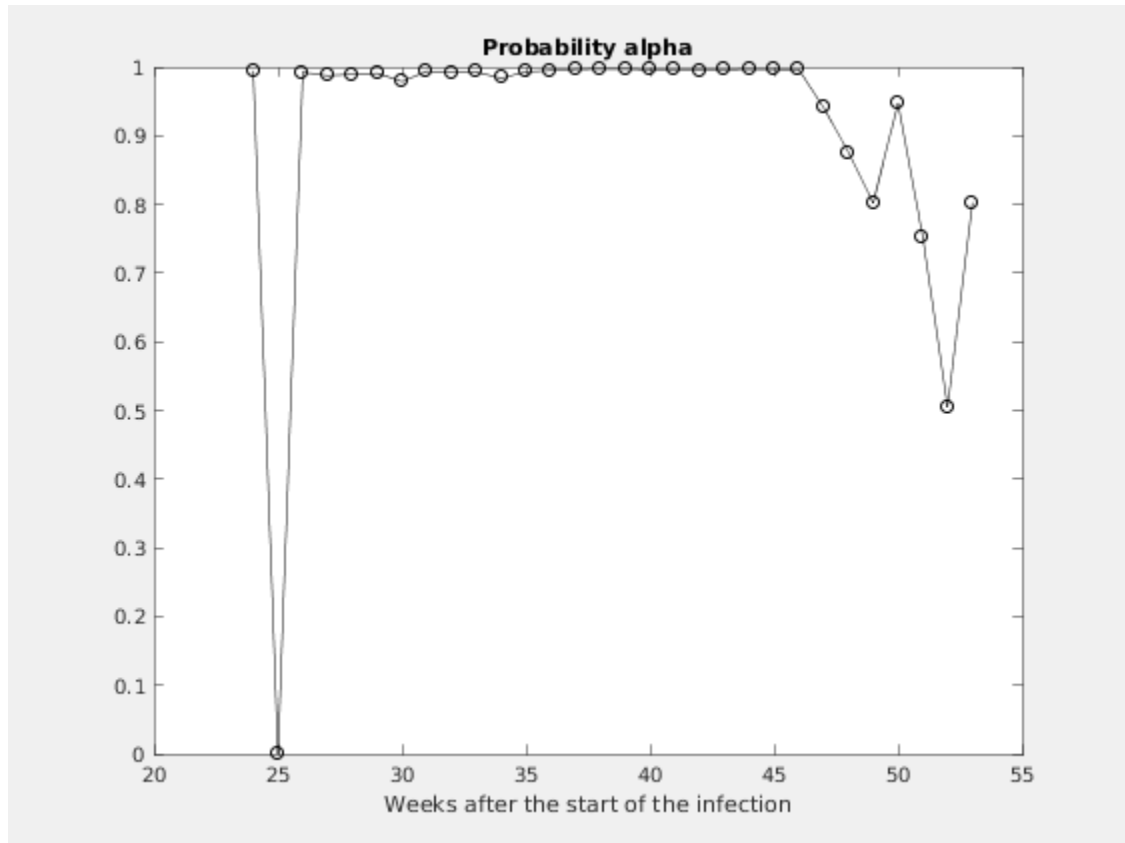
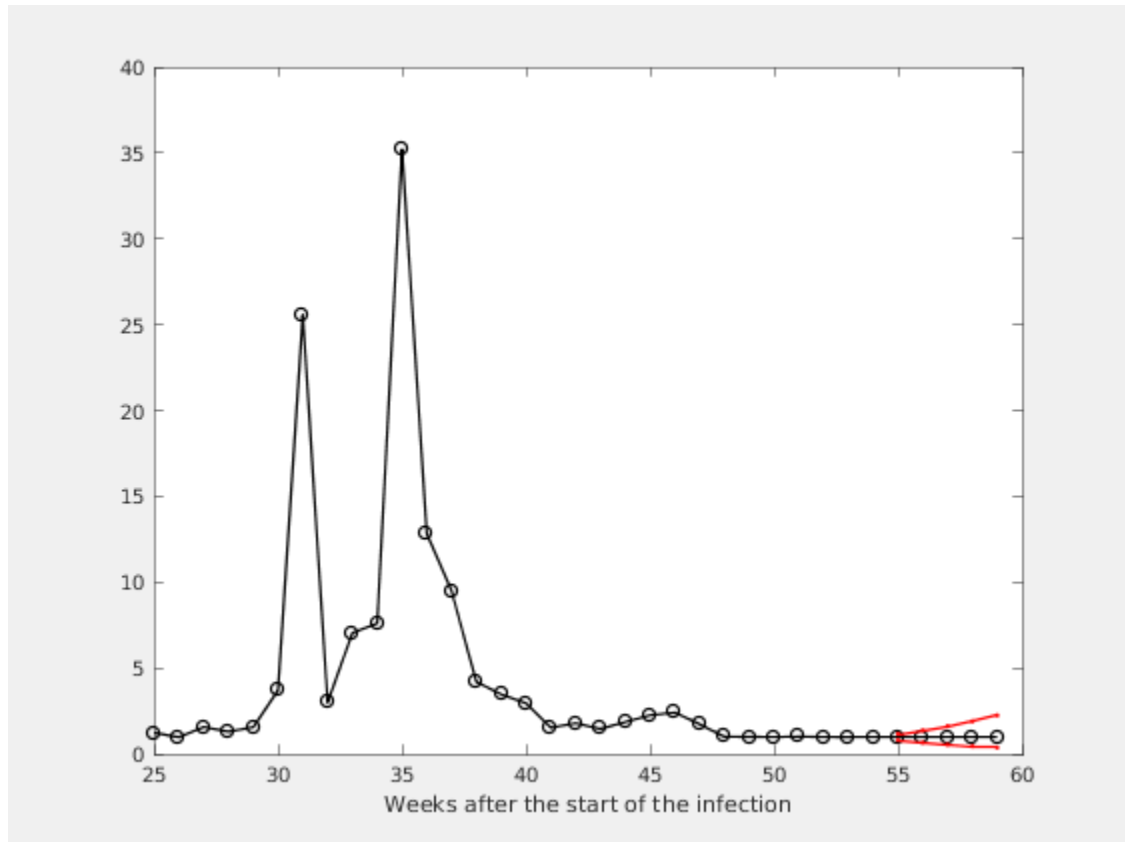


Figure 2.2. Figure

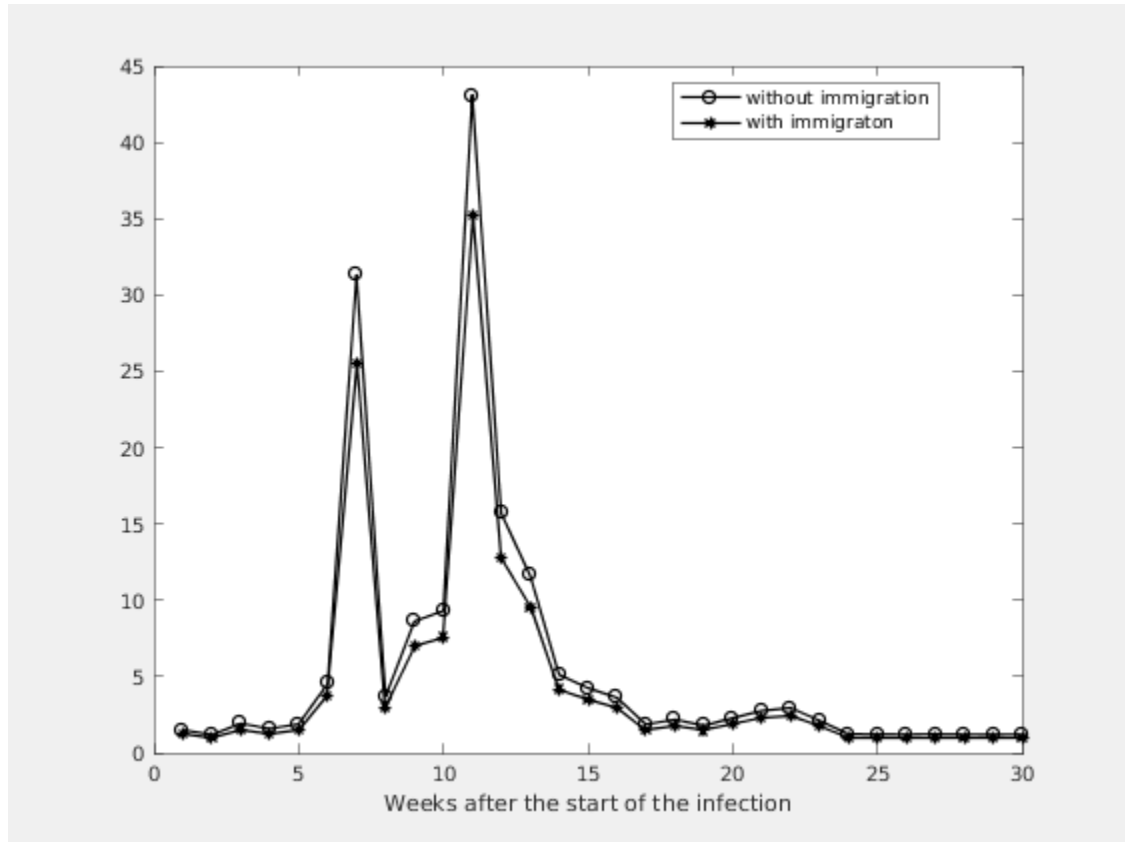




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9995	0.8088 - 1.1901	0.9410	1	1
3	1.0002	0.8118 - 1.1886	0.8760	1	1
2	0.9994	0.8131 - 1.1857	0.8022	1	1
1	0.9993	0.8145 - 1.1841	0.9471	1	1
0	0.9995	0.8165 - 1.1824	0.7531	1	1