

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

**Var106 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var106 - 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 Var106. 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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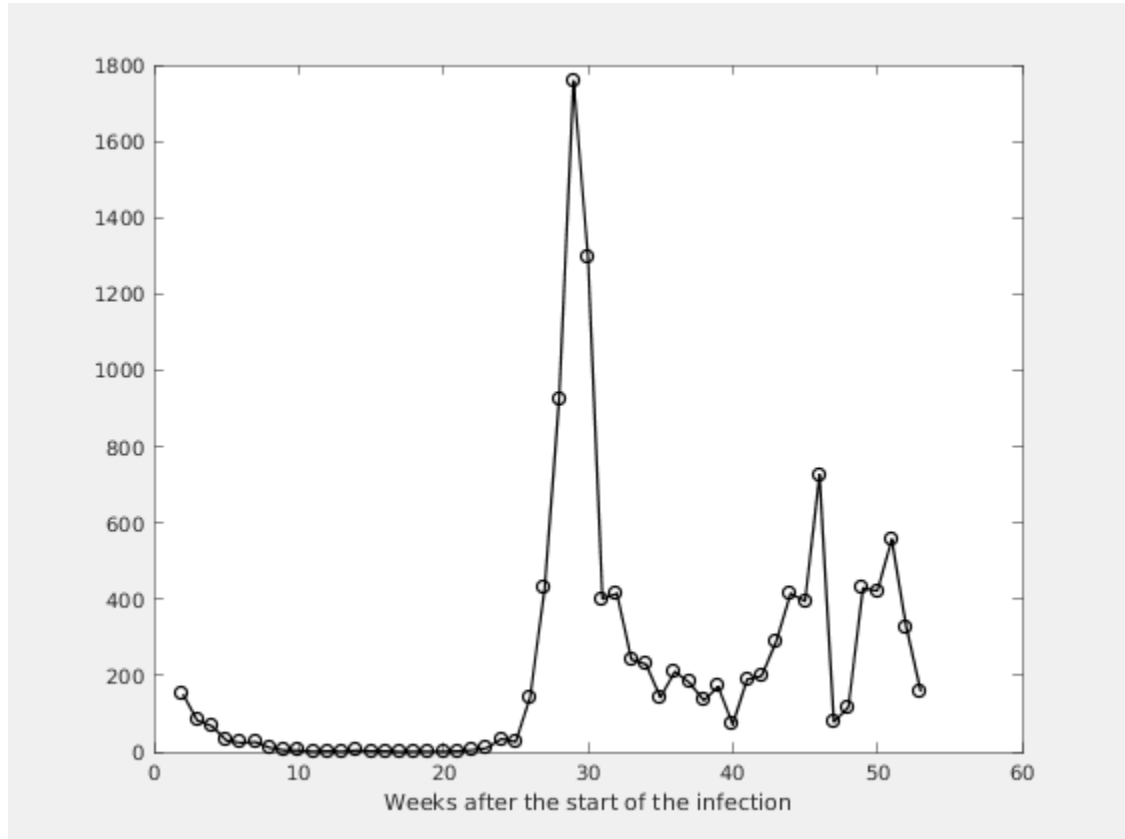
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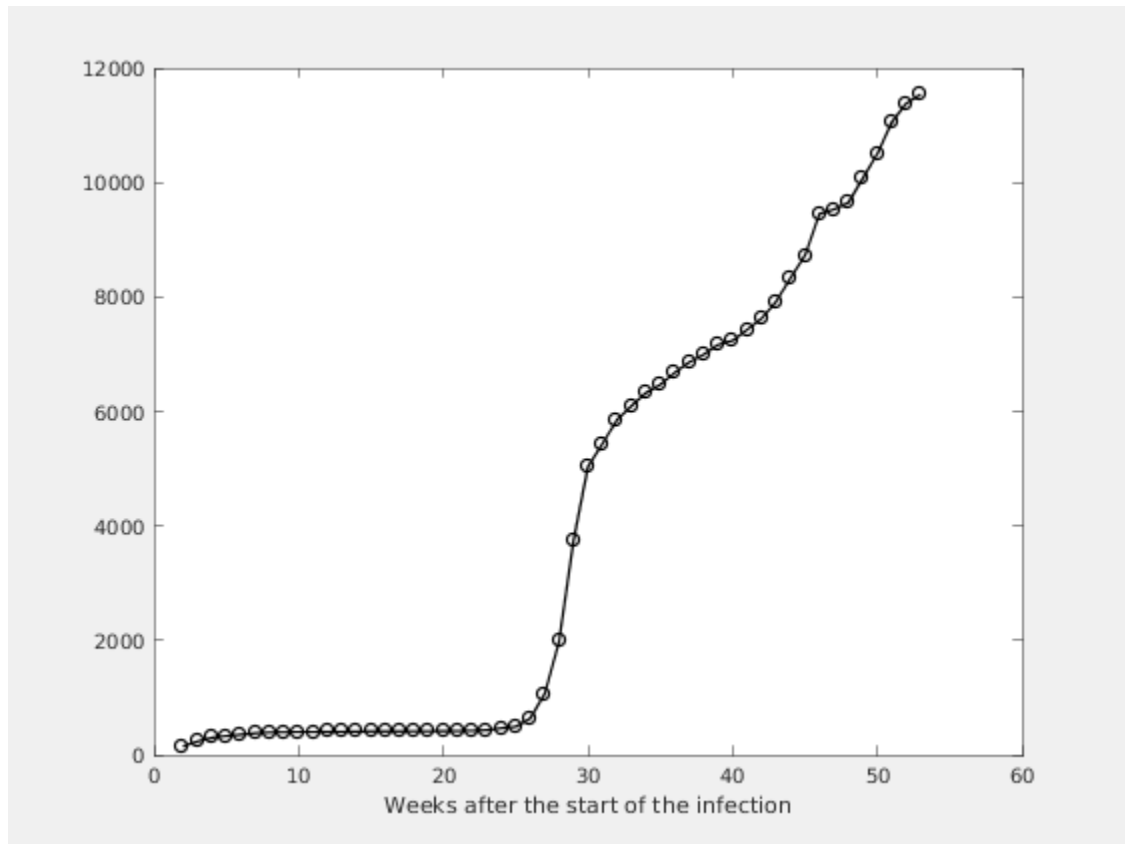
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# Chapter 1. Observed Infection data

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

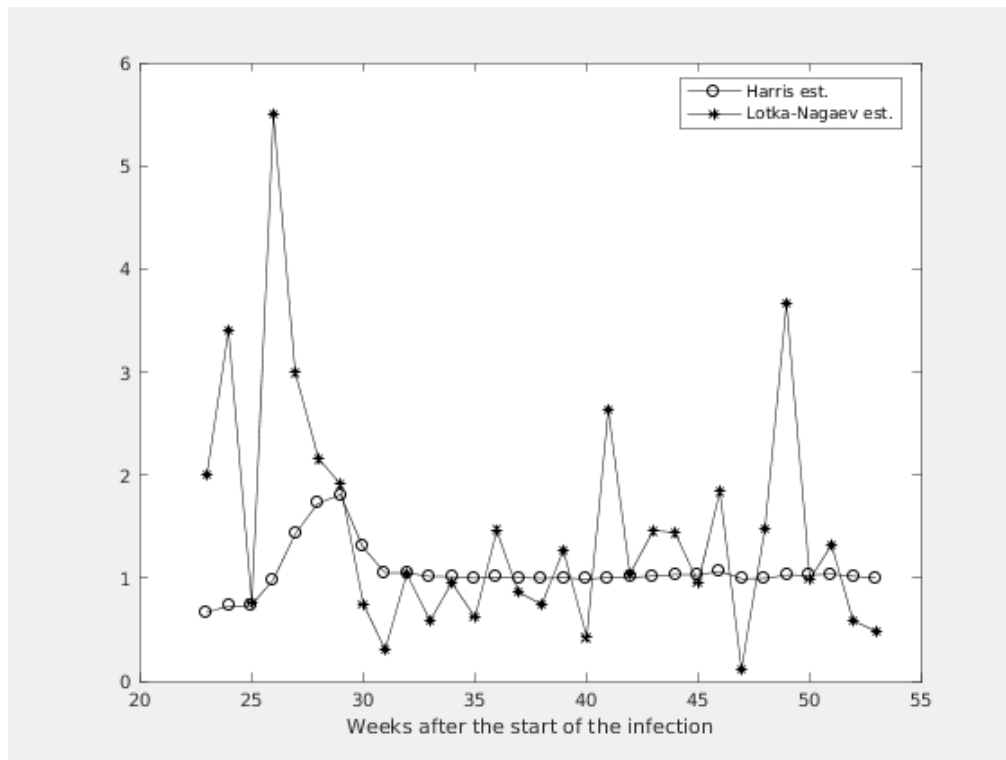
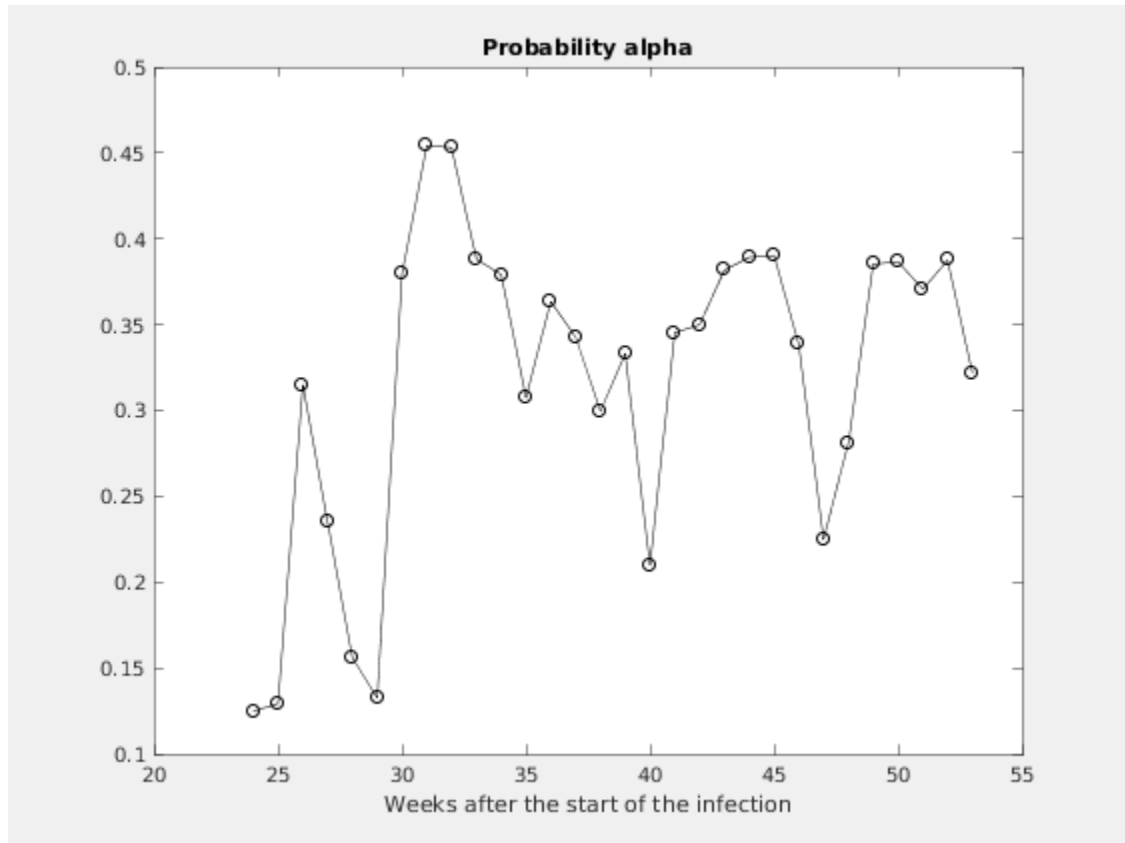
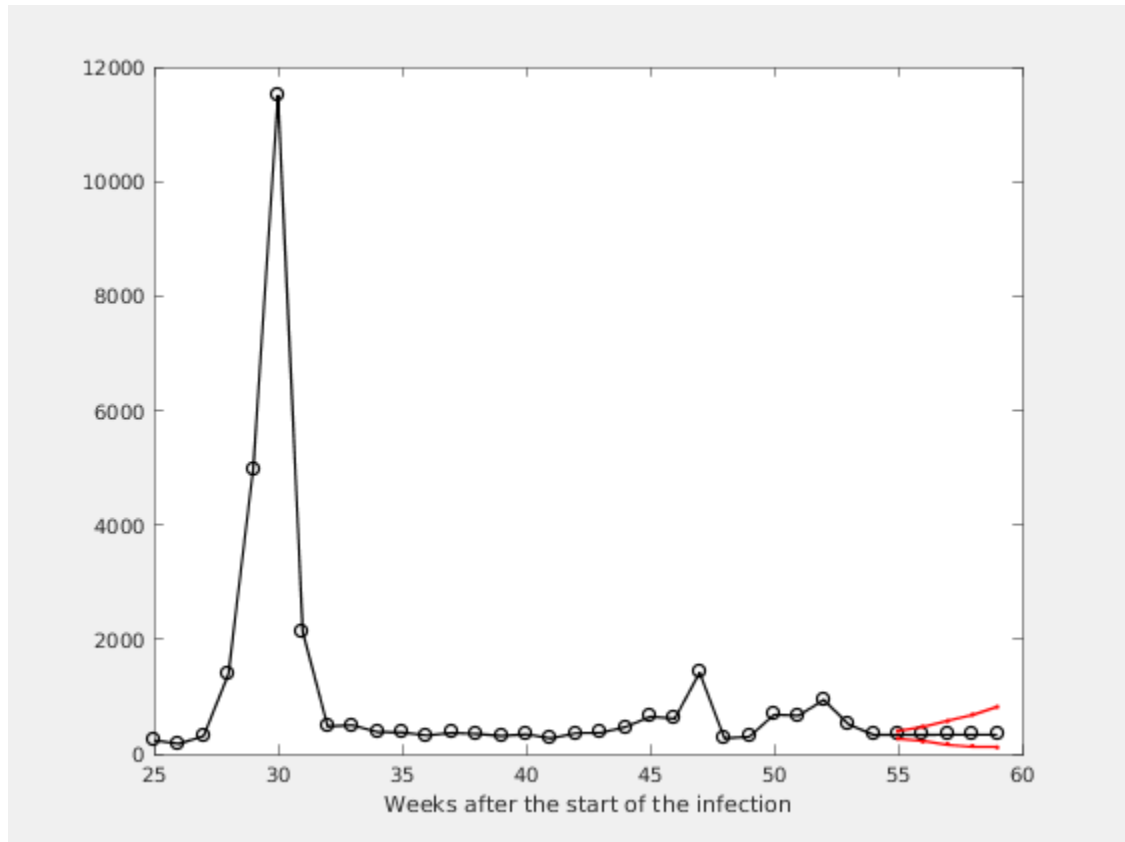


Figure 2.2. Figure

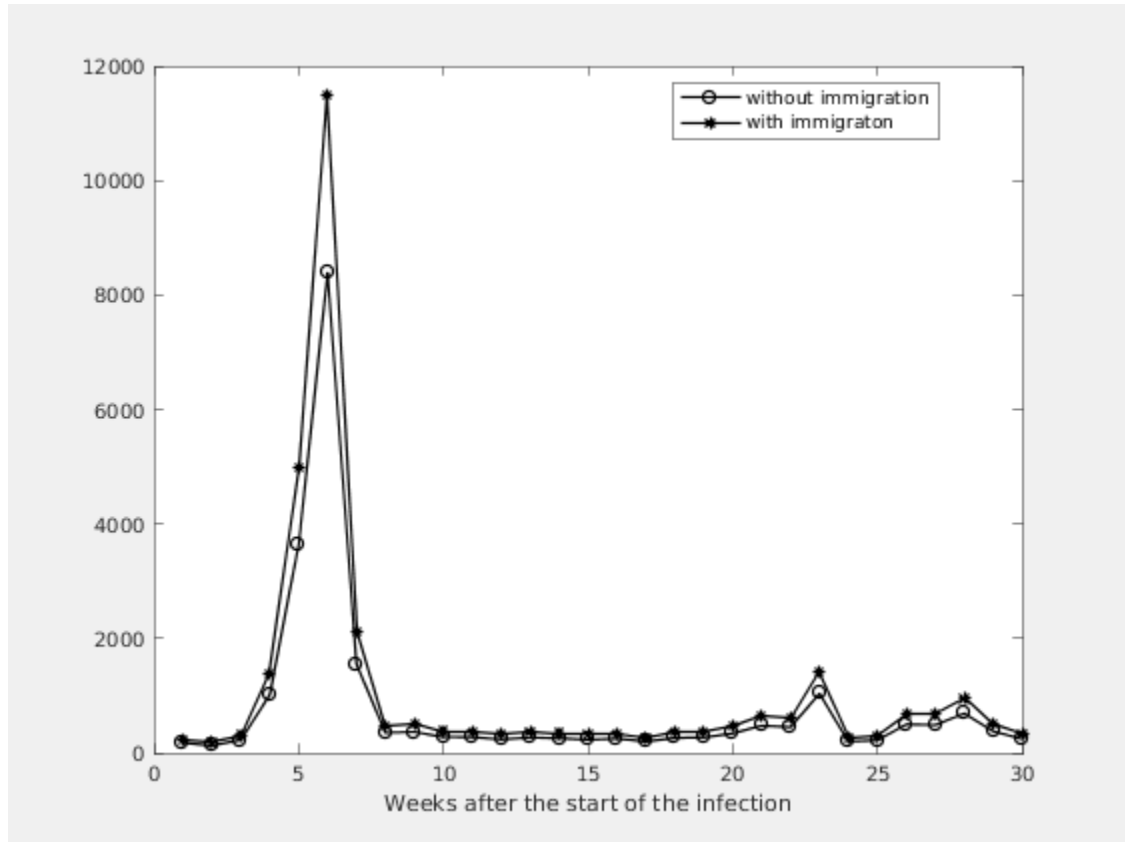




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	1.0288	0.8206 - 1.2370	0.2250	272	198
3	1.0269	0.8216 - 1.2322	0.2812	299	218
2	1.0387	0.8200 - 1.2573	0.3853	684	499
1	1.0159	0.8042 - 1.2276	0.3867	669	488
0	1.0006	0.7945 - 1.2067	0.3706	946	690