

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

**Var41 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var41 - 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 Var41. 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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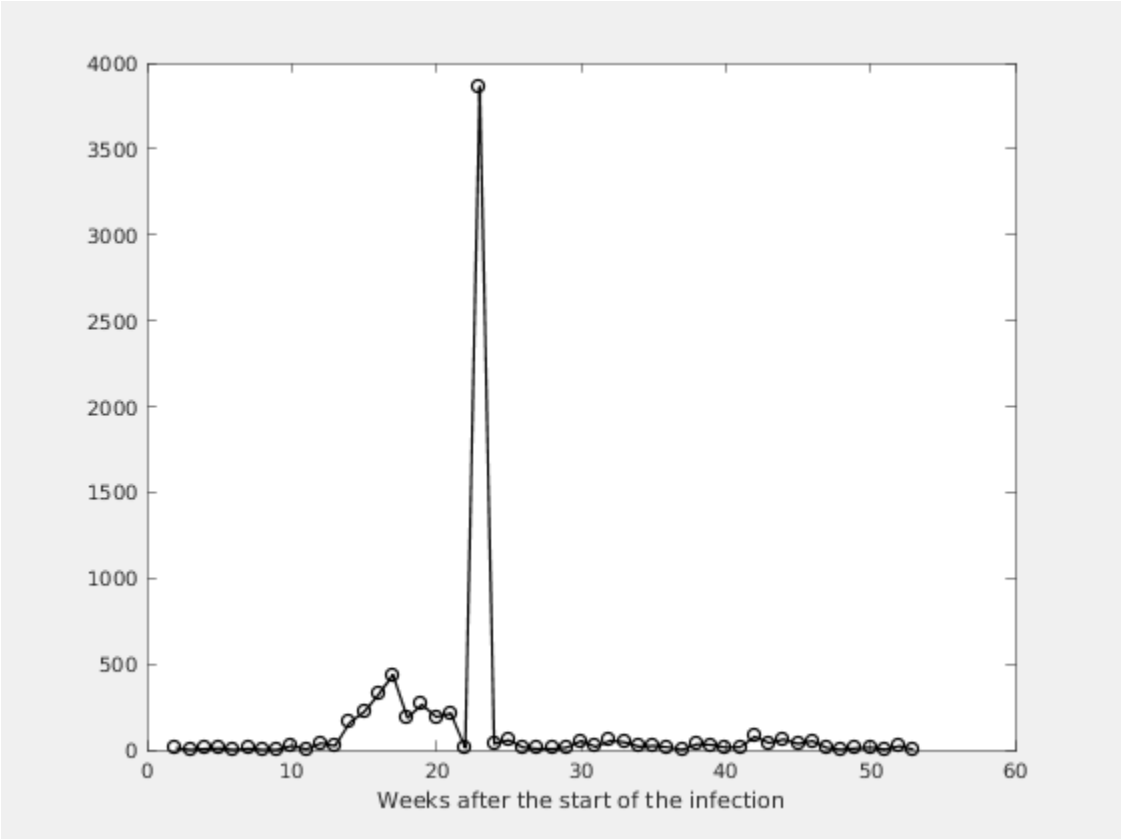
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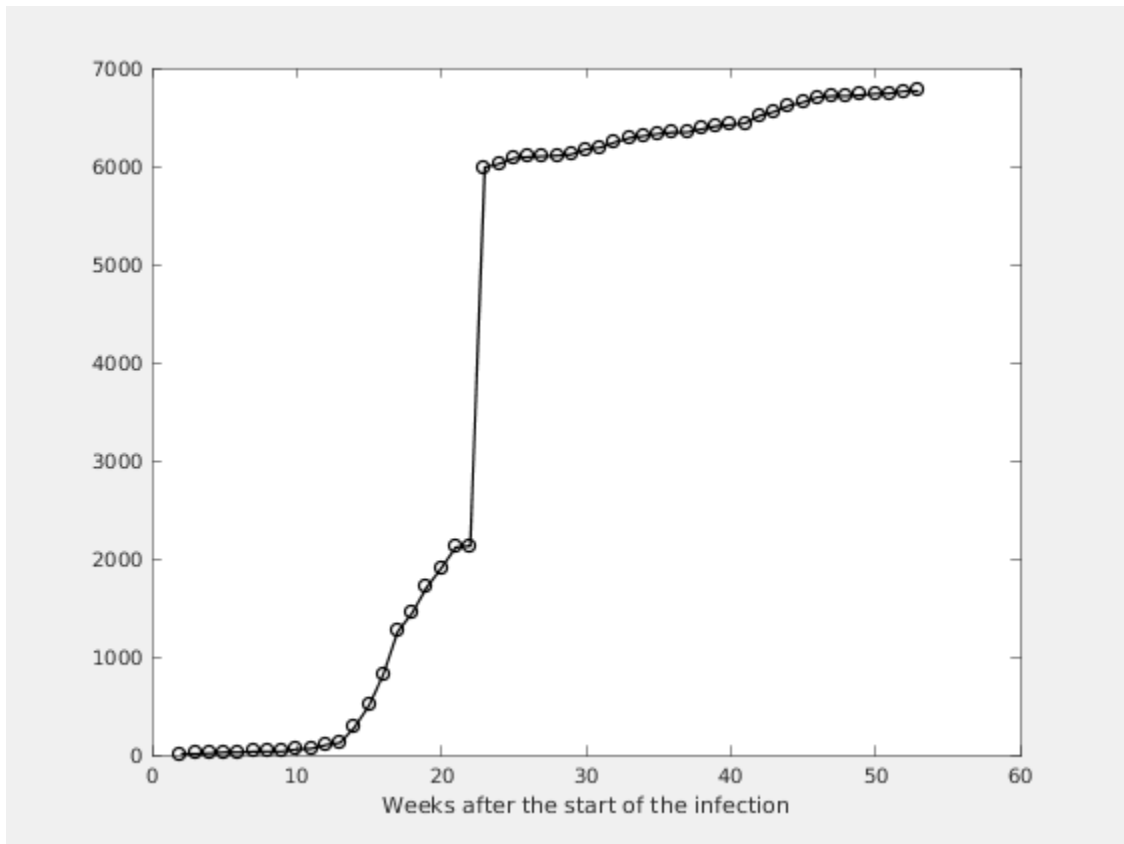
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# Chapter 1. Observed Infection data

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

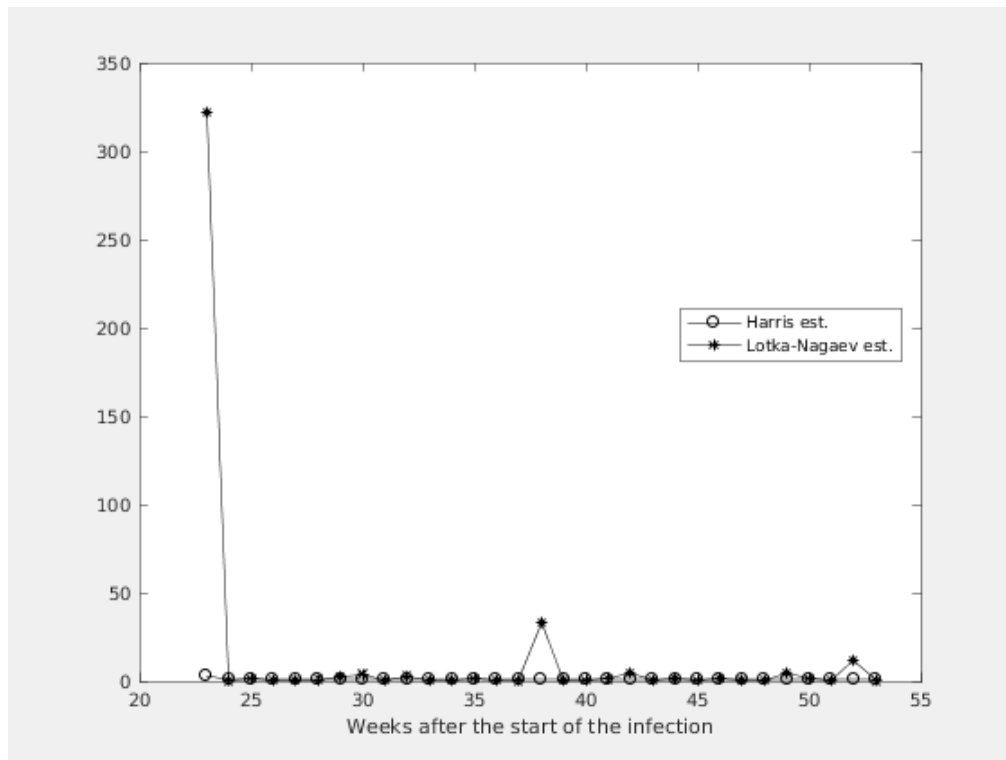
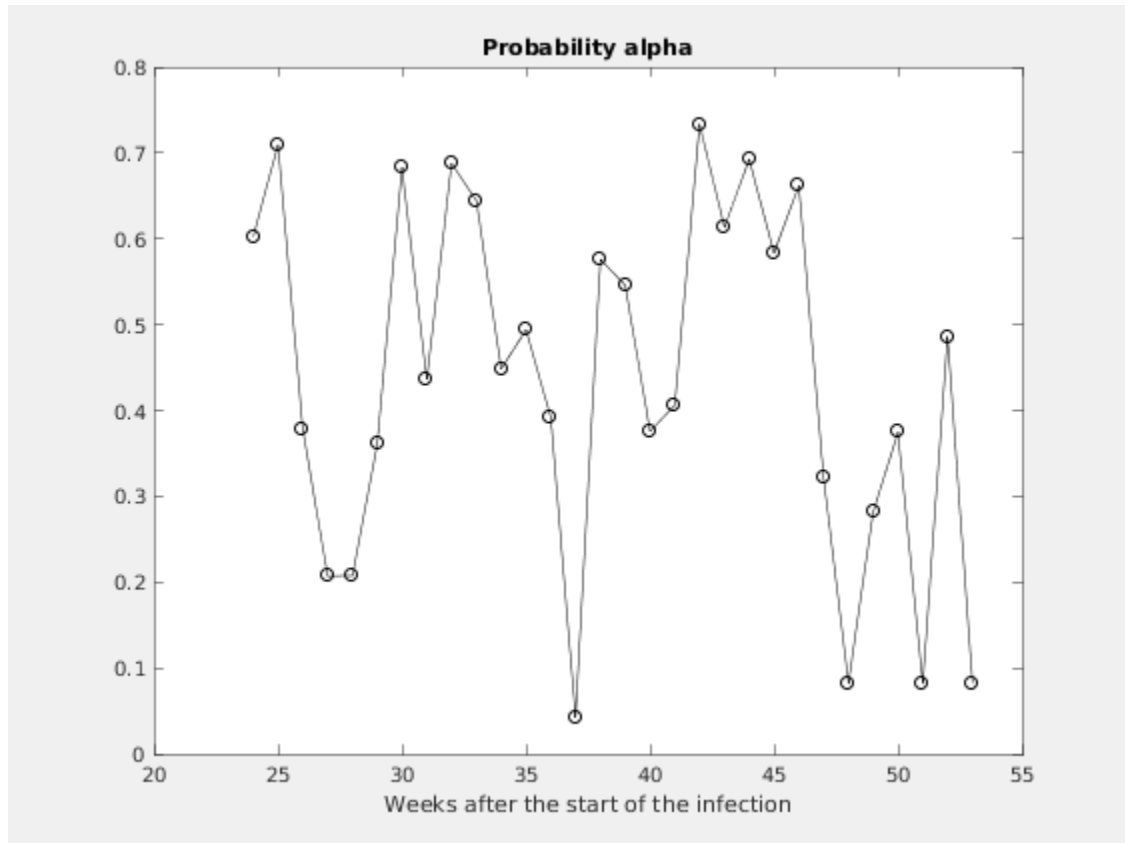
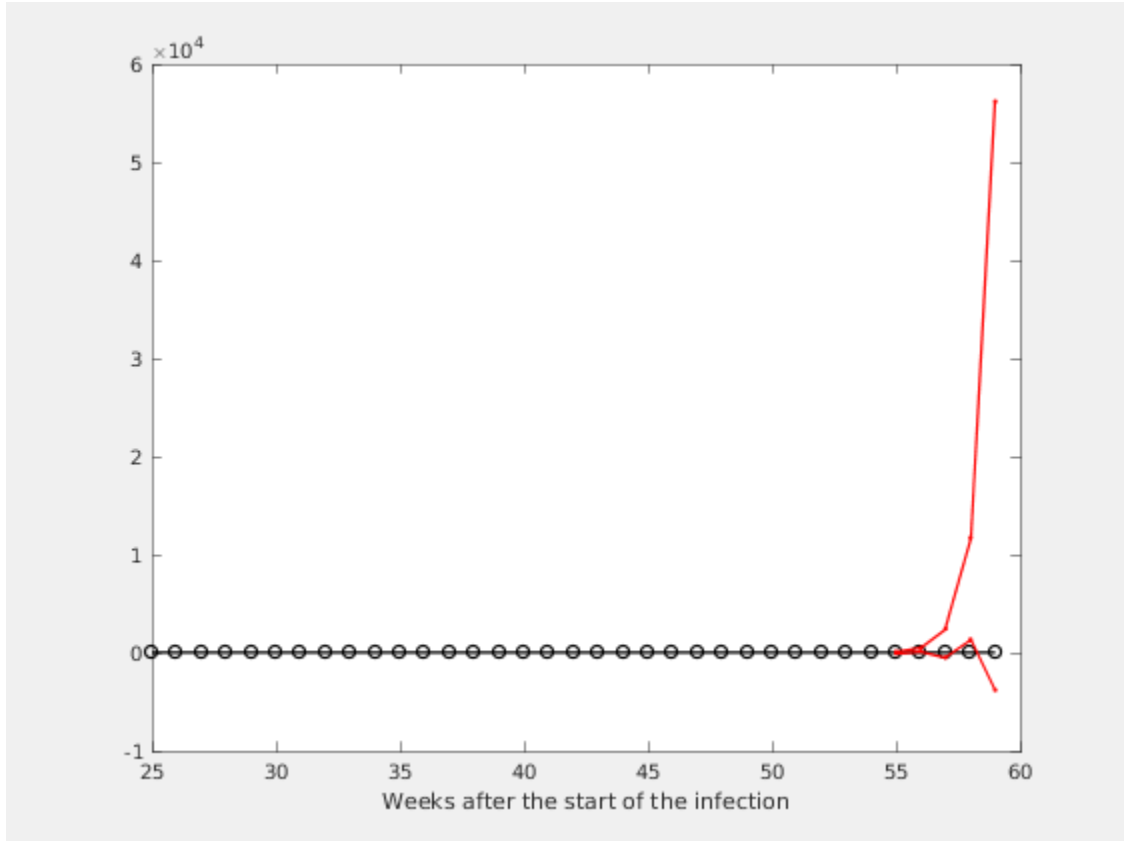


Figure 2.2. Figure

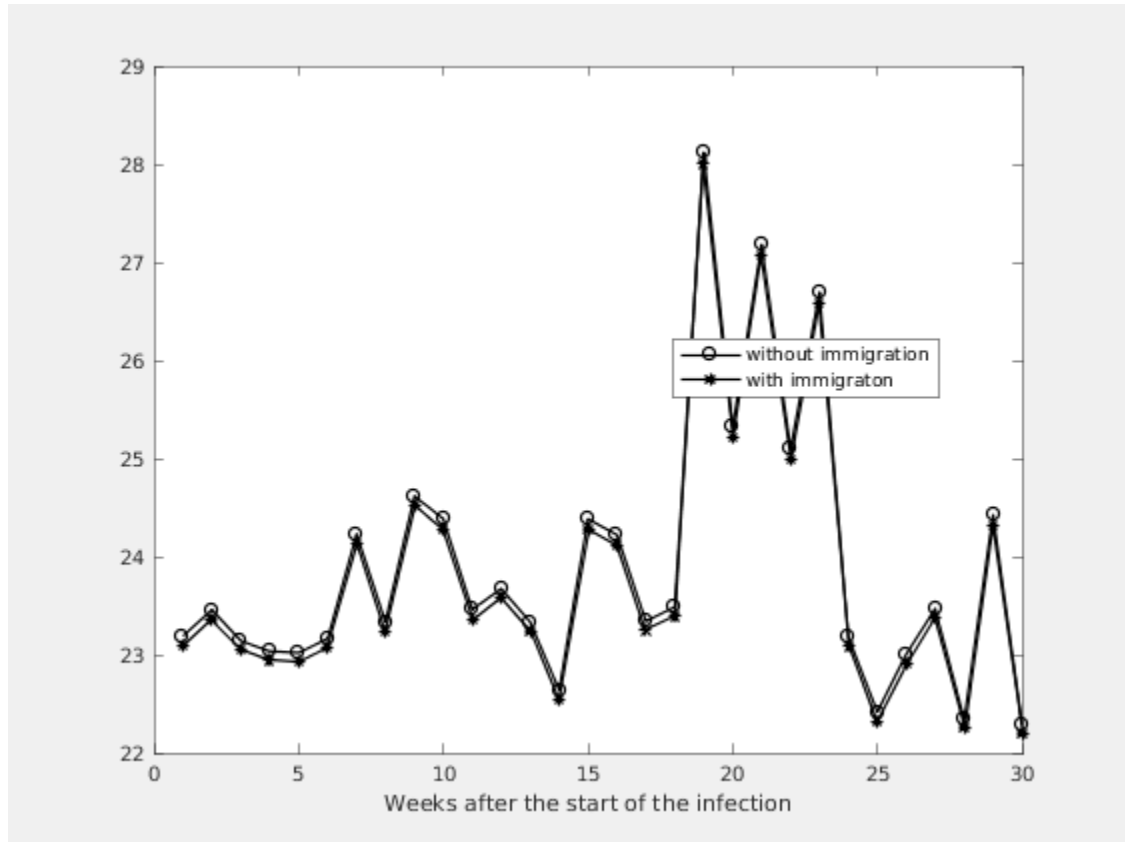




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9999	-3.0690 - 5.0687	0.3227	23	23
3	1.0006	-3.0185 - 5.0197	0.0822	22	22
2	0.9988	-2.9748 - 4.9724	0.2820	23	23
1	1.0019	-2.9256 - 4.9295	0.3746	23	23
0	0.9988	-2.8827 - 4.8804	0.0825	22	22