

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

**Var49 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var49 - 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 Var49. 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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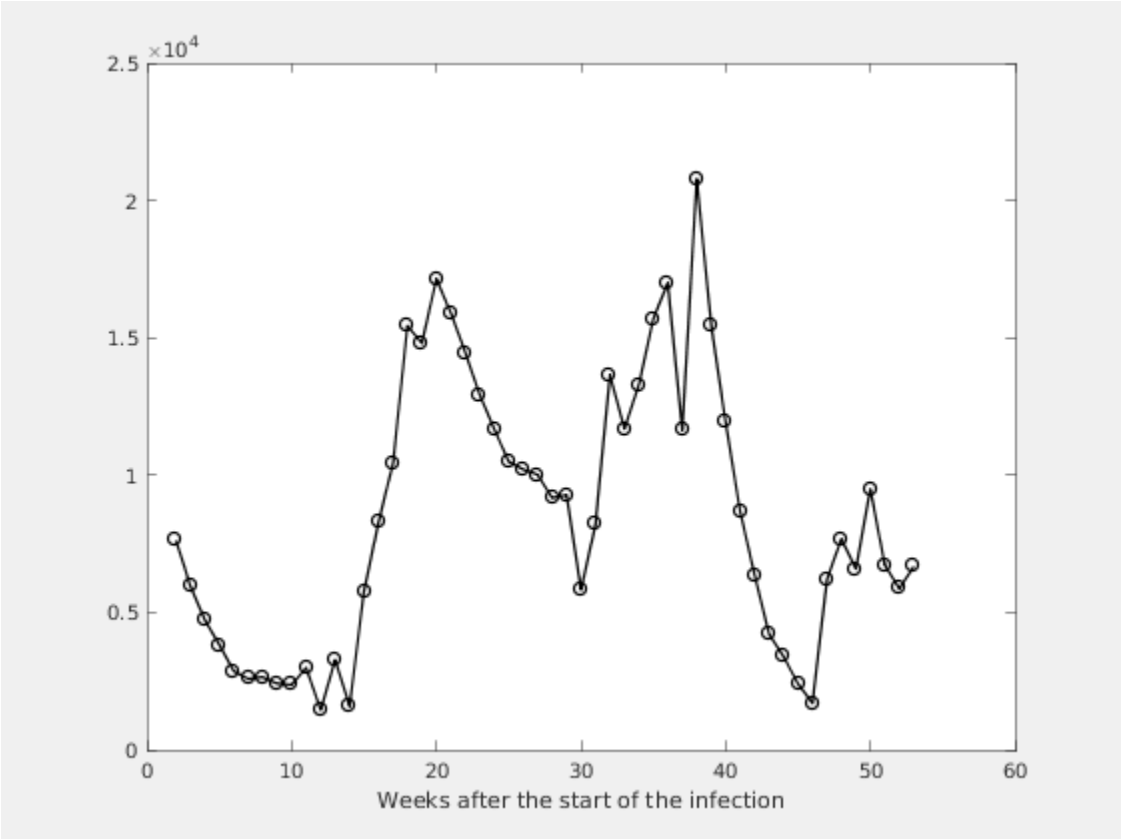
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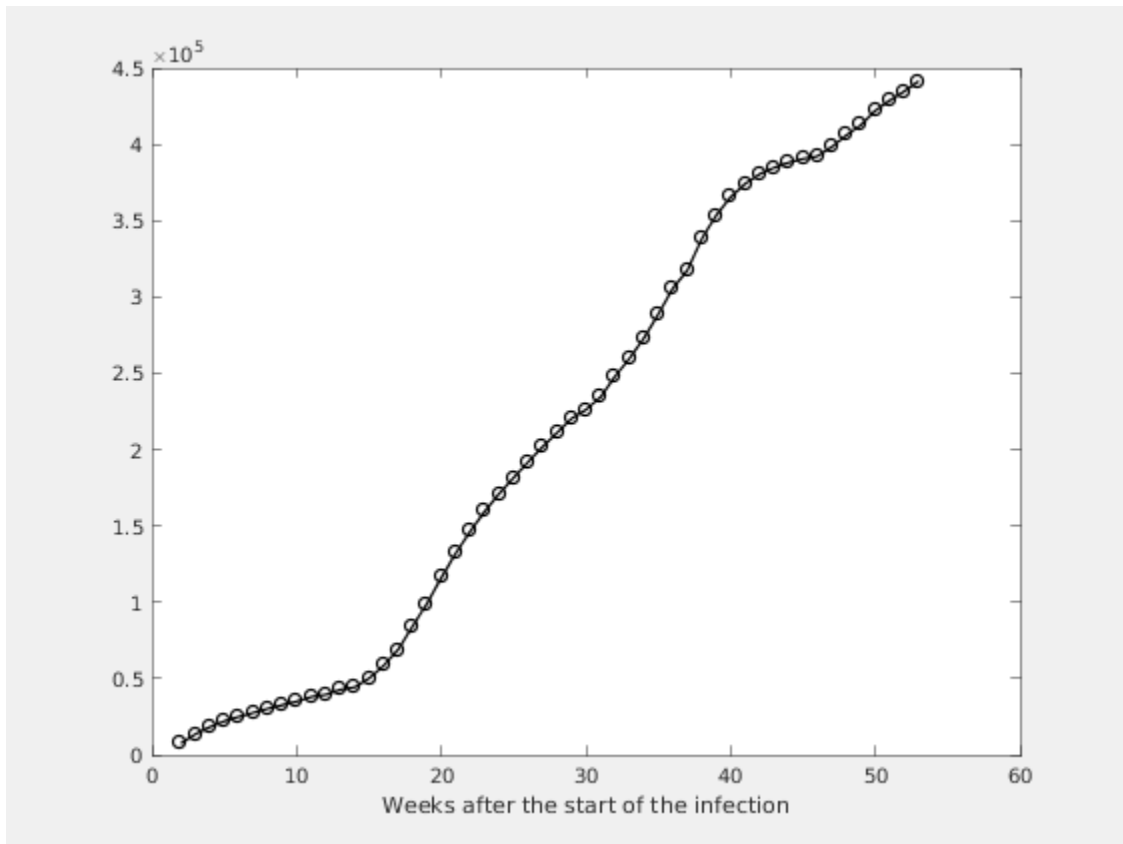
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# Chapter 1. Observed Infection data

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

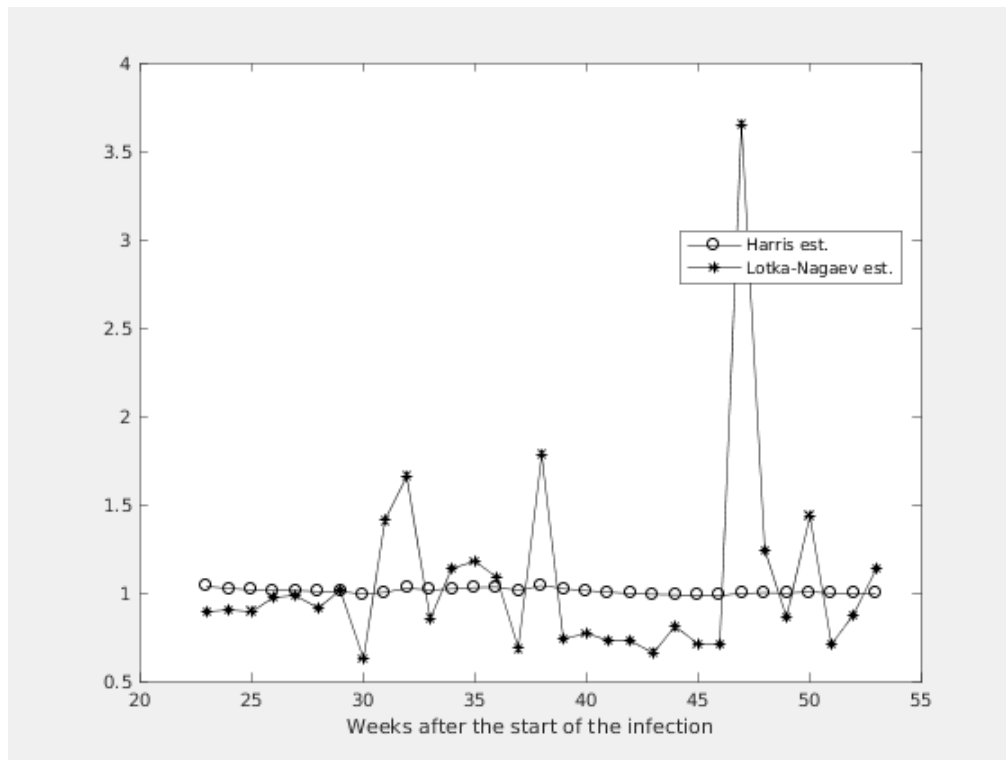
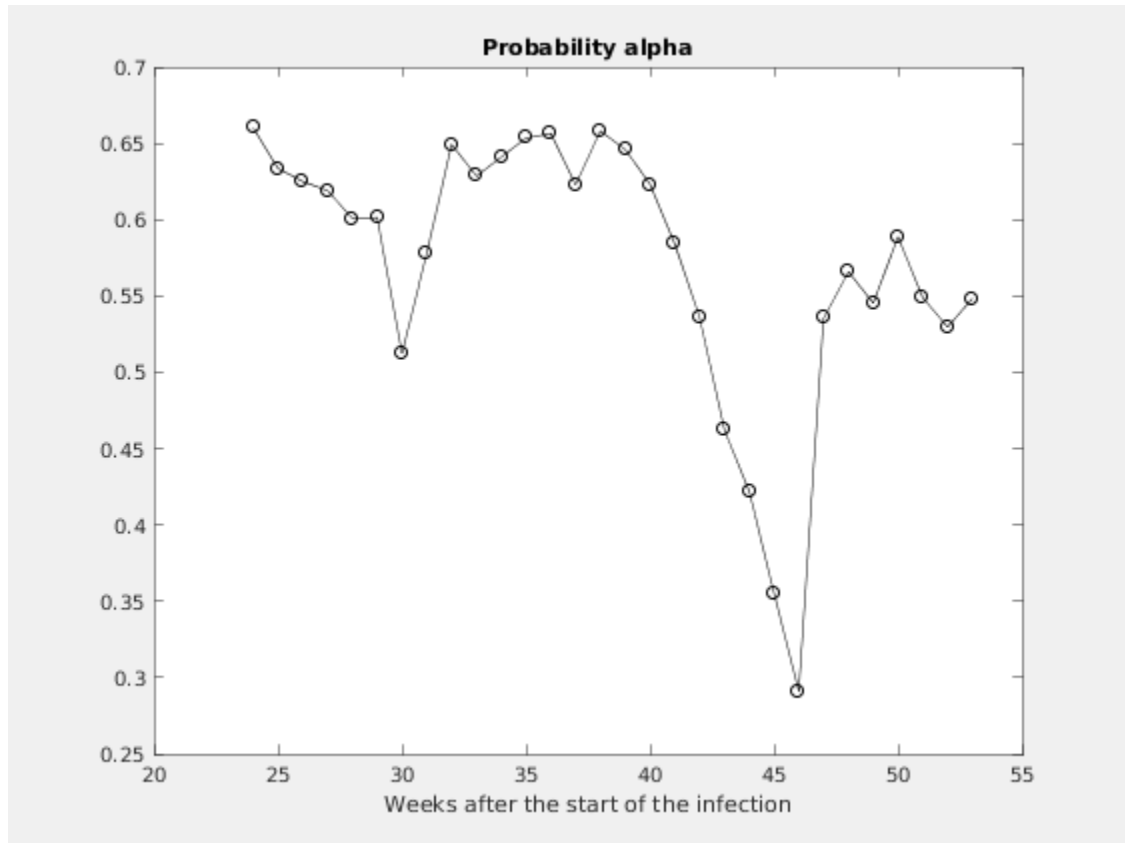
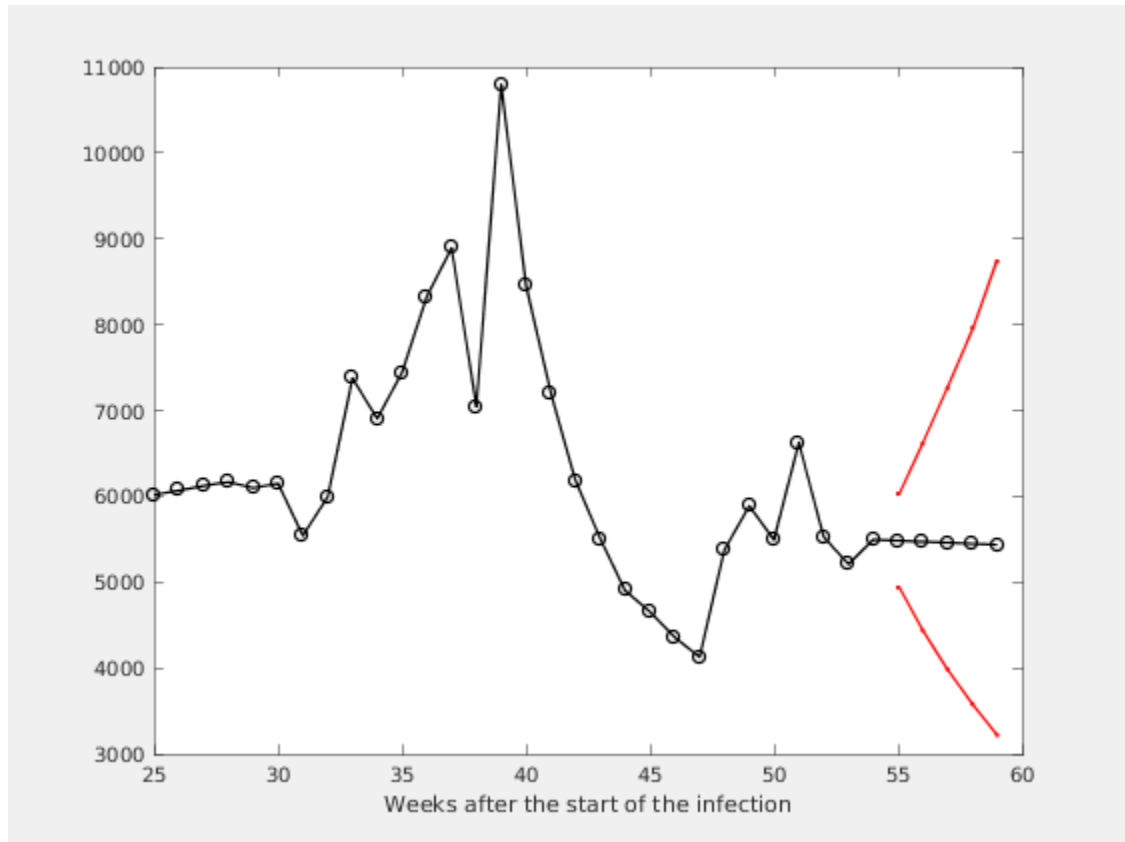


Figure 2.2. Figure

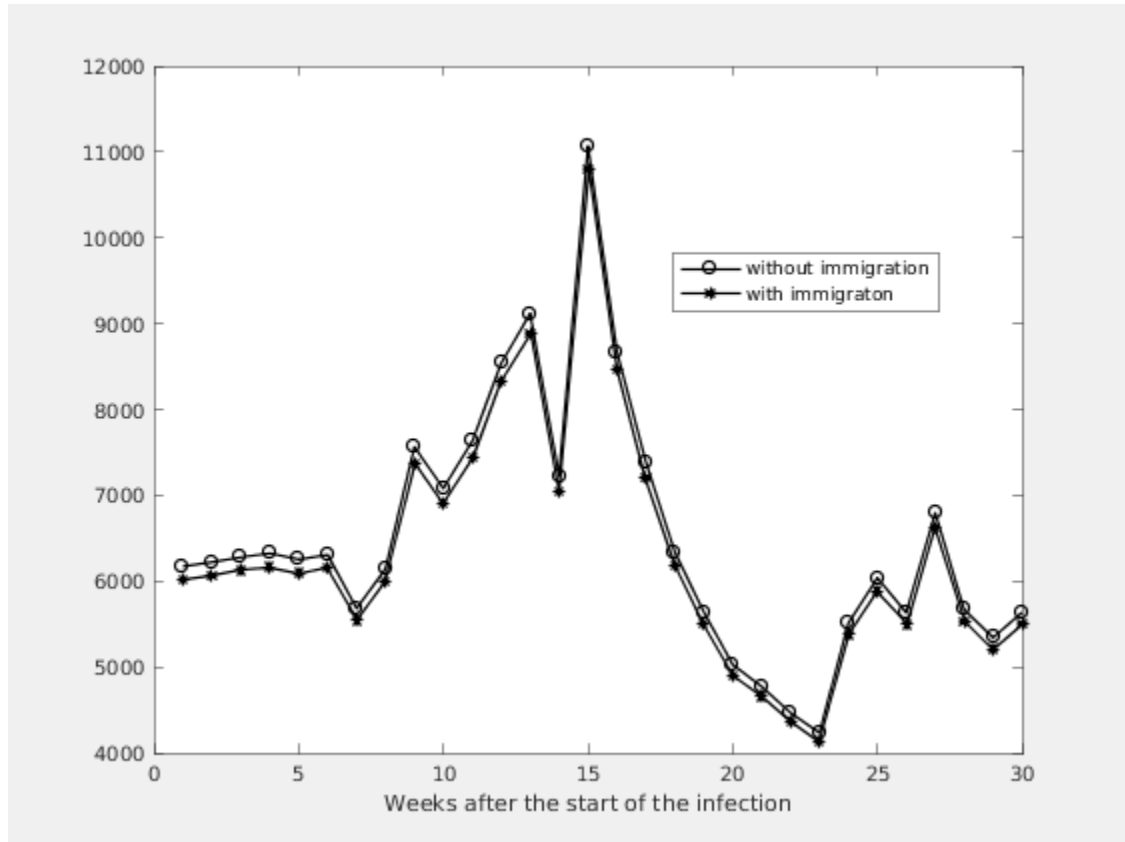




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9975	0.8889 - 1.1061	0.5354	5376	5513
3	1.0045	0.8976 - 1.1114	0.5659	5887	6037
2	0.9979	0.8929 - 1.1028	0.5455	5493	5633
1	0.9959	0.8917 - 1.1001	0.5887	6626	6795
0	0.9978	0.8951 - 1.1005	0.5488	5528	5669