

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

**Var125 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var125 - 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 Var125. 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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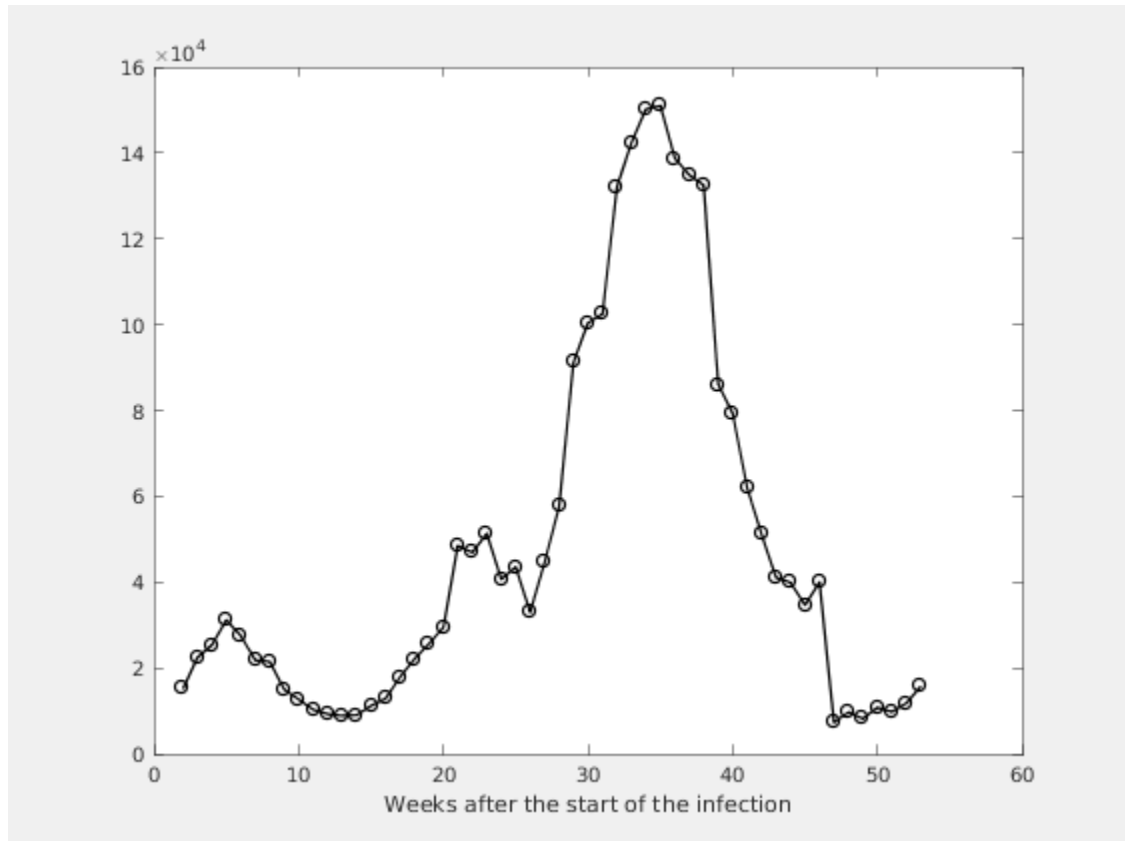
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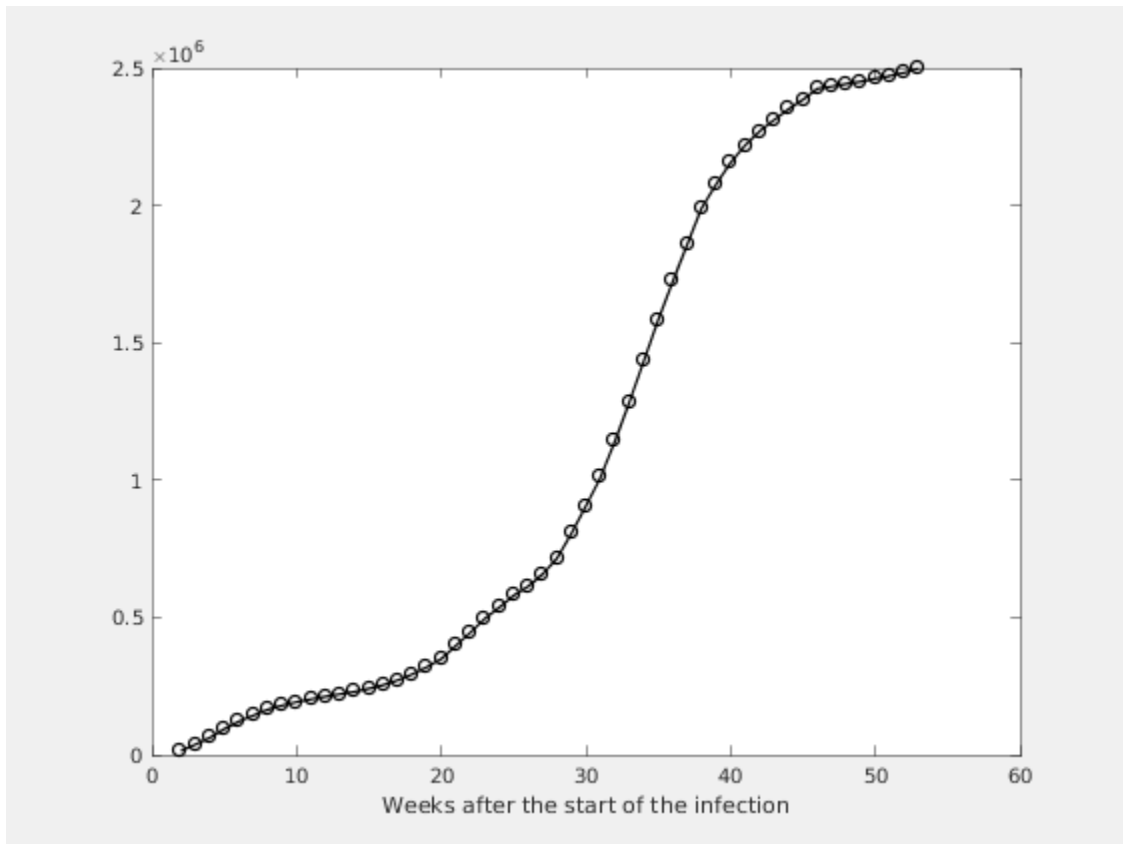
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# Chapter 1. Observed Infection data

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

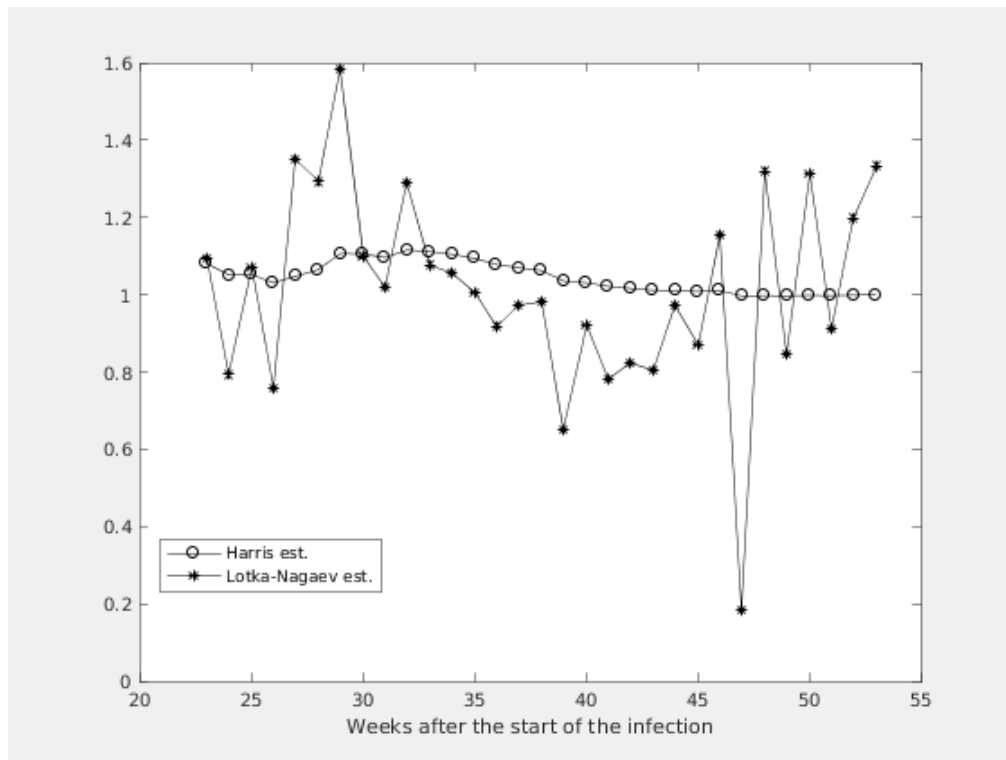
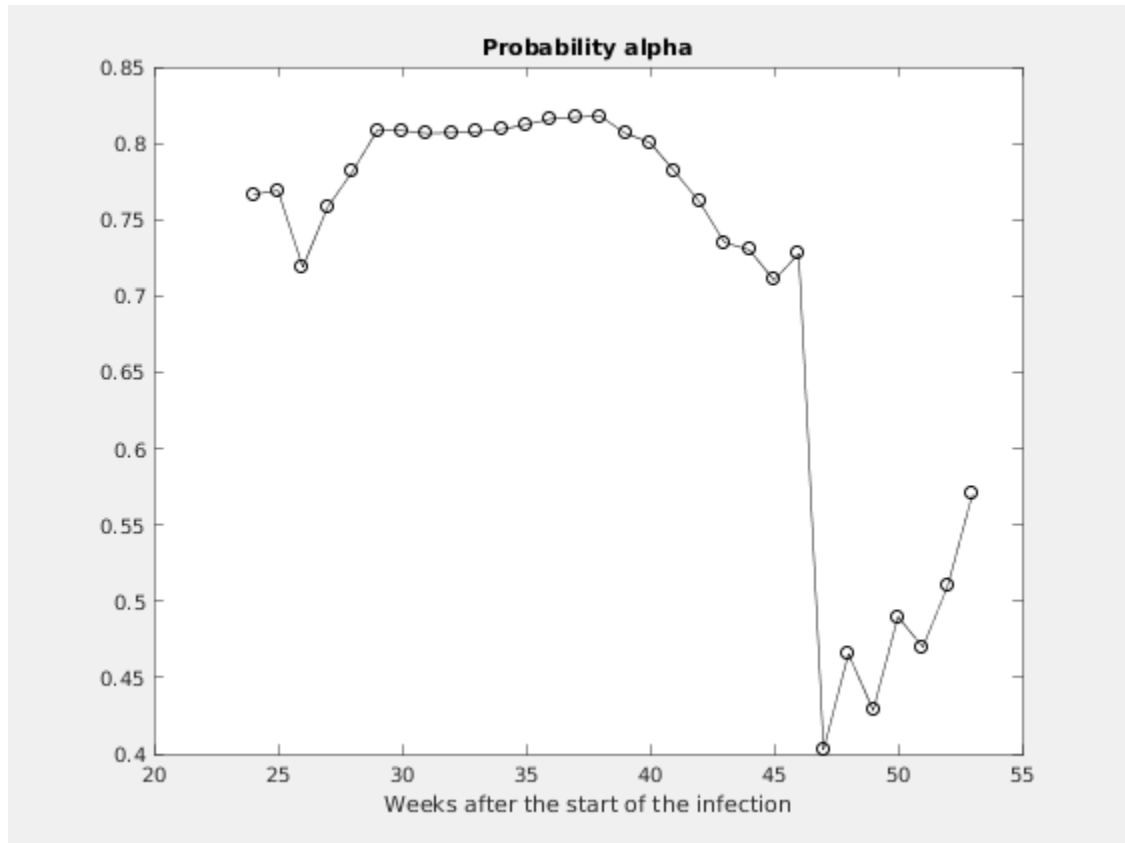
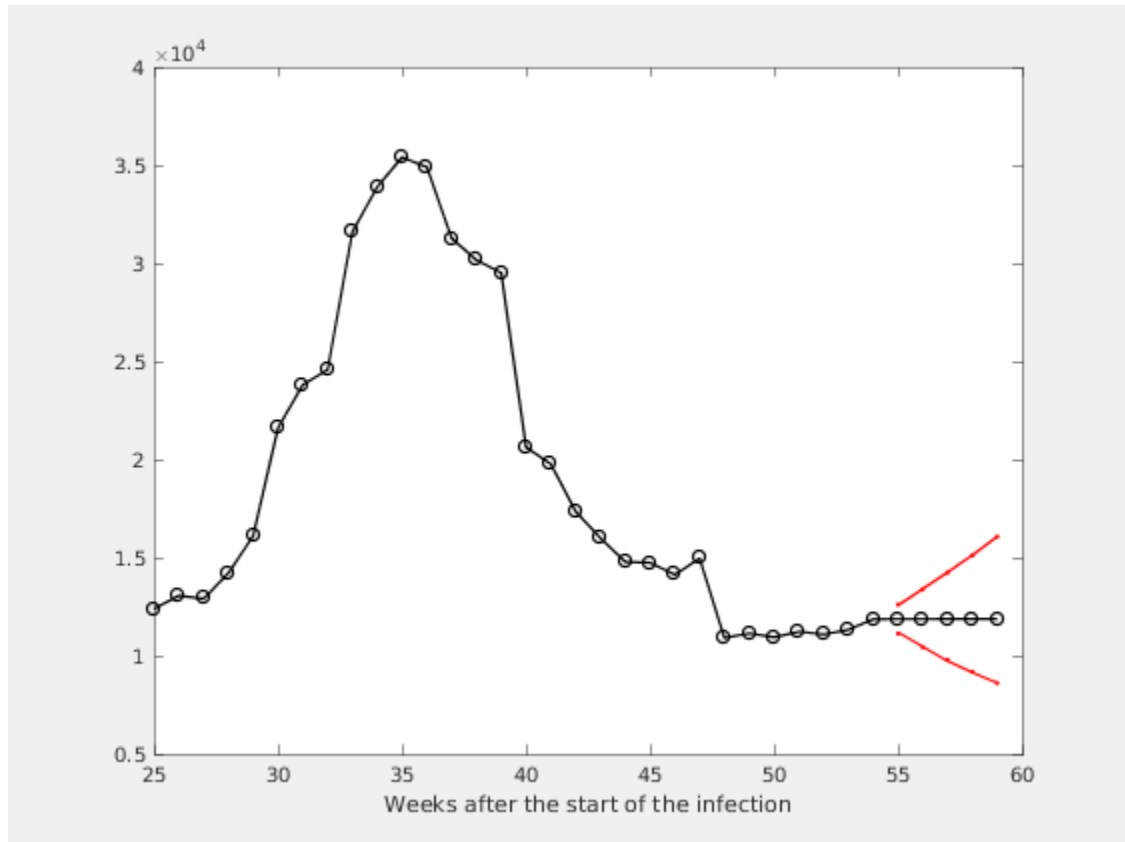


Figure 2.2. Figure

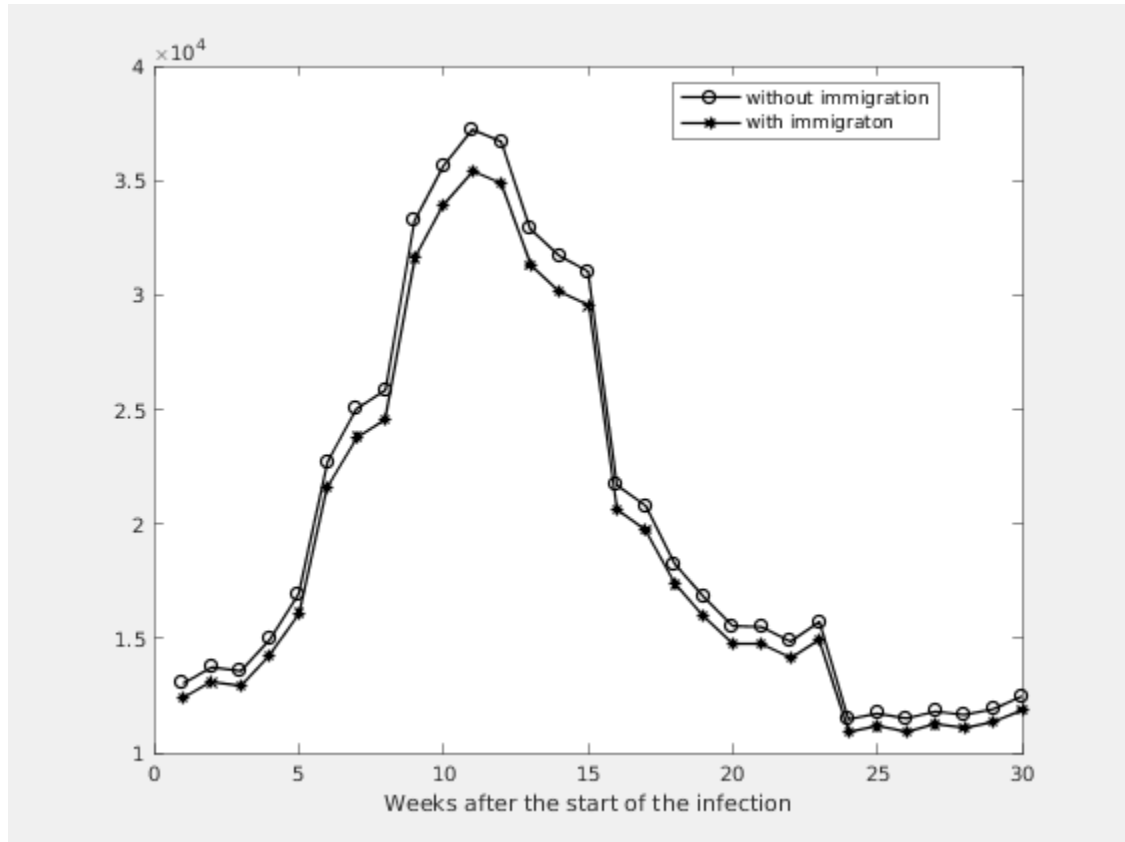




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9971	0.9310 - 1.0633	0.4028	10908	11470
3	0.9982	0.9327 - 1.0637	0.4656	11143	11716
2	0.9978	0.9331 - 1.0626	0.4286	10944	11507
1	0.9986	0.9345 - 1.0628	0.4898	11230	11807
0	1.0002	0.9368 - 1.0636	0.4700	11092	11662