

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

**Var117 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var117 - 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 Var117. 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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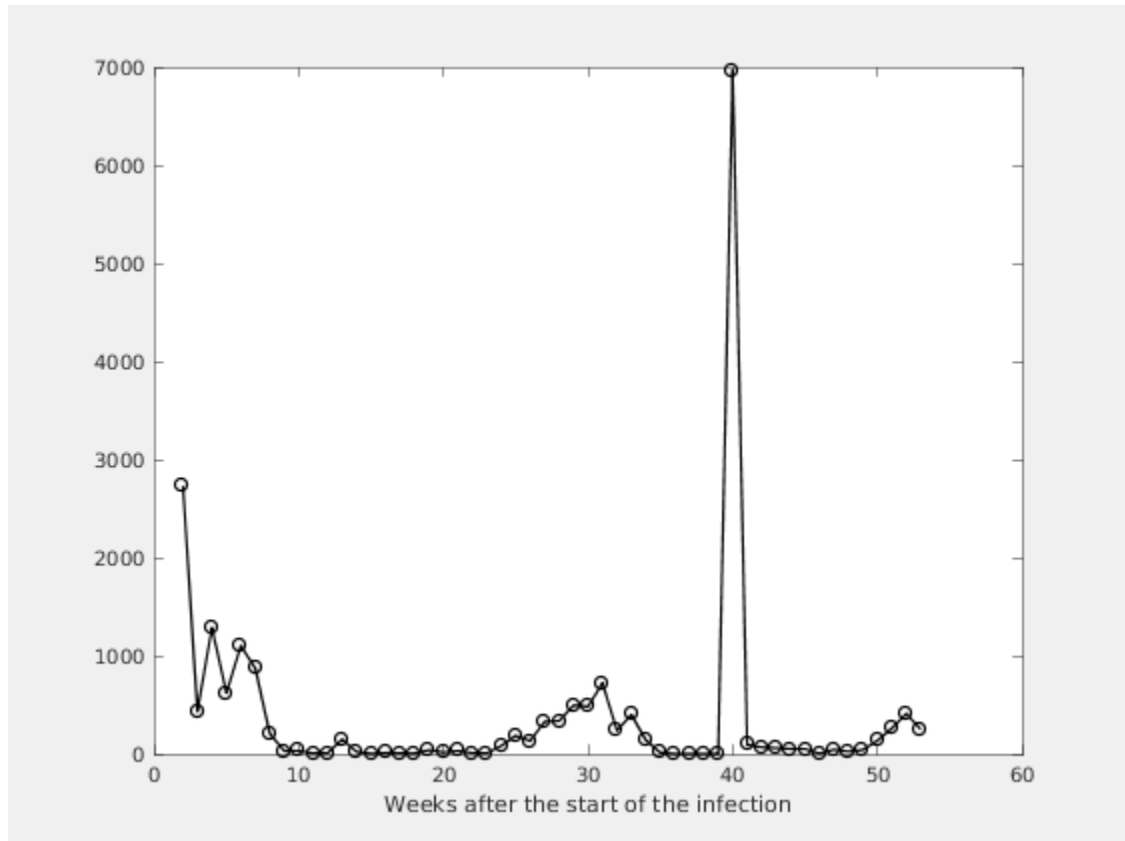
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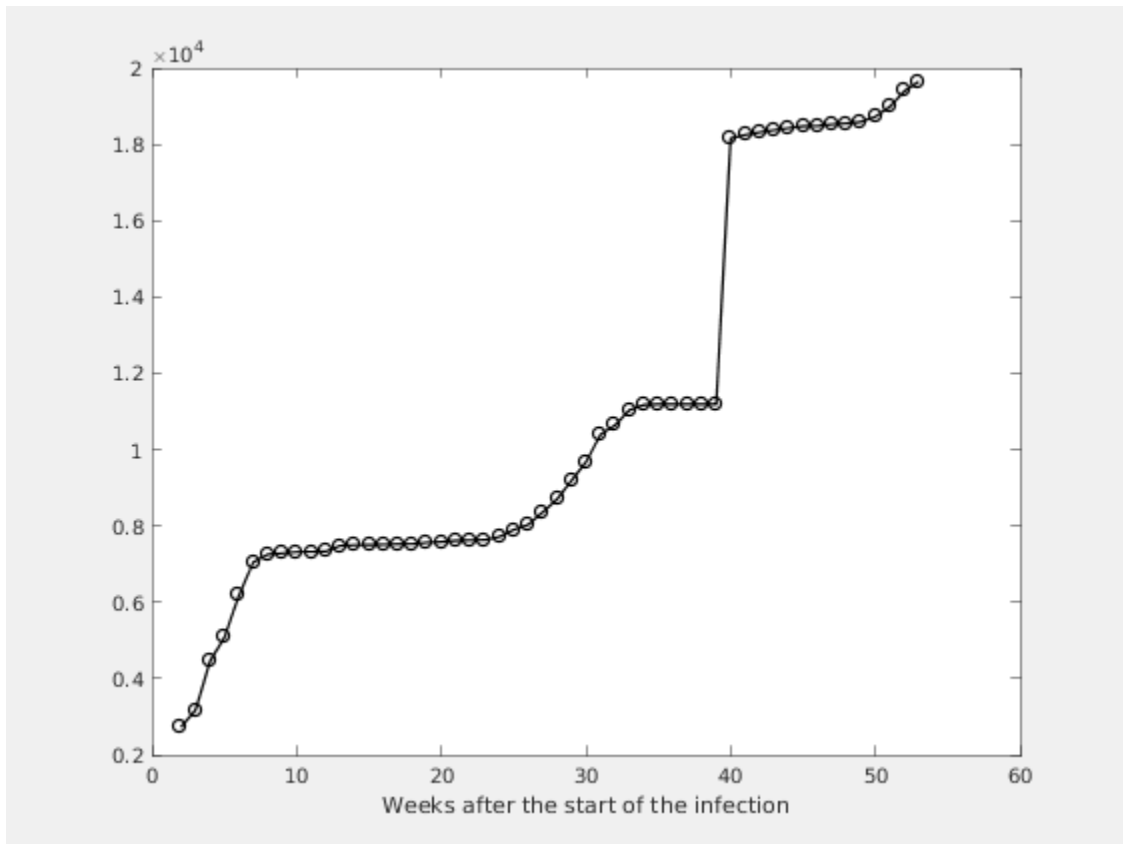
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# Chapter 1. Observed Infection data

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

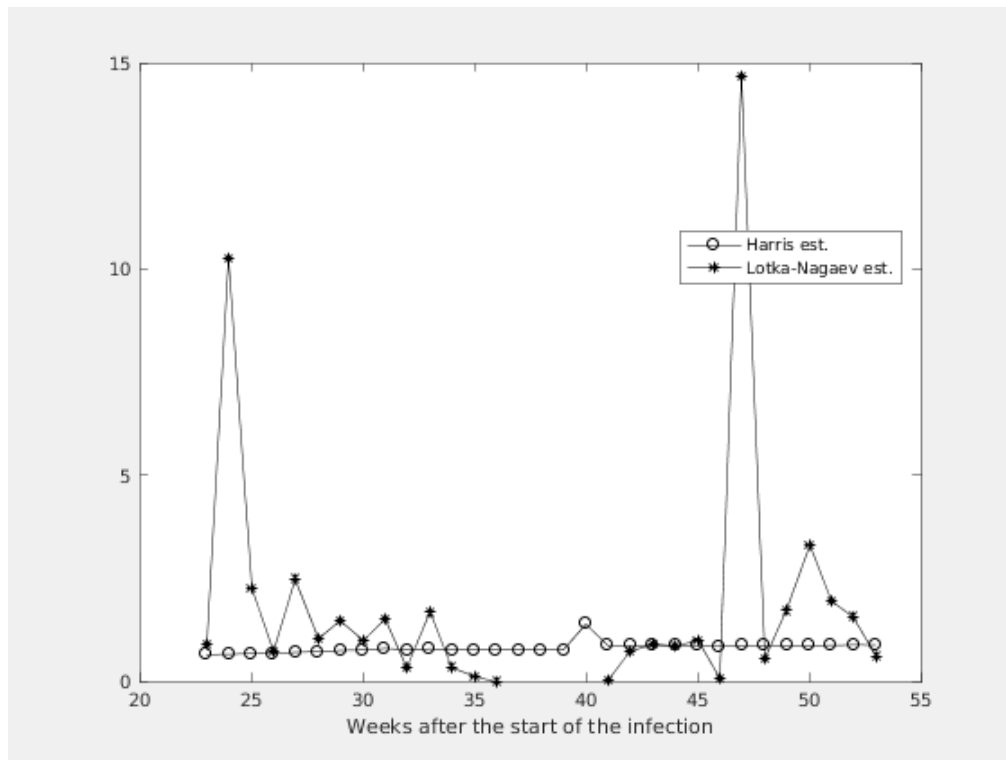
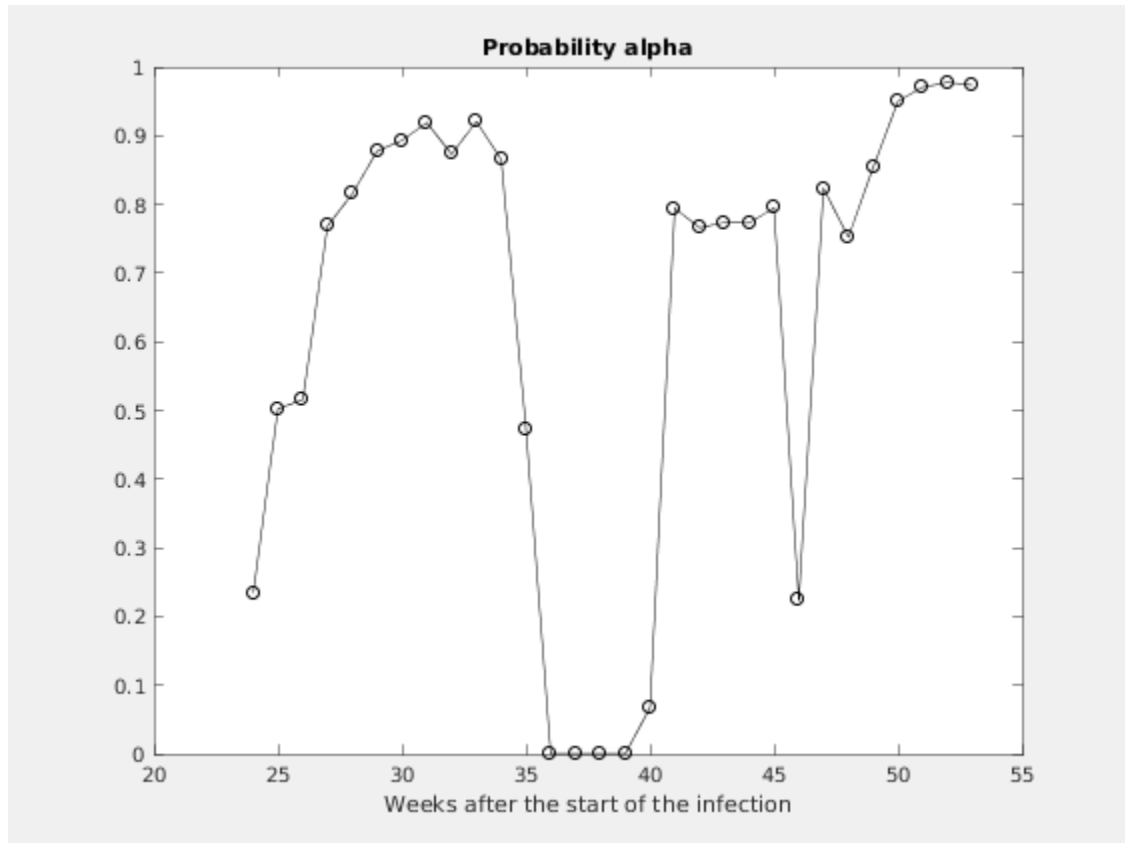
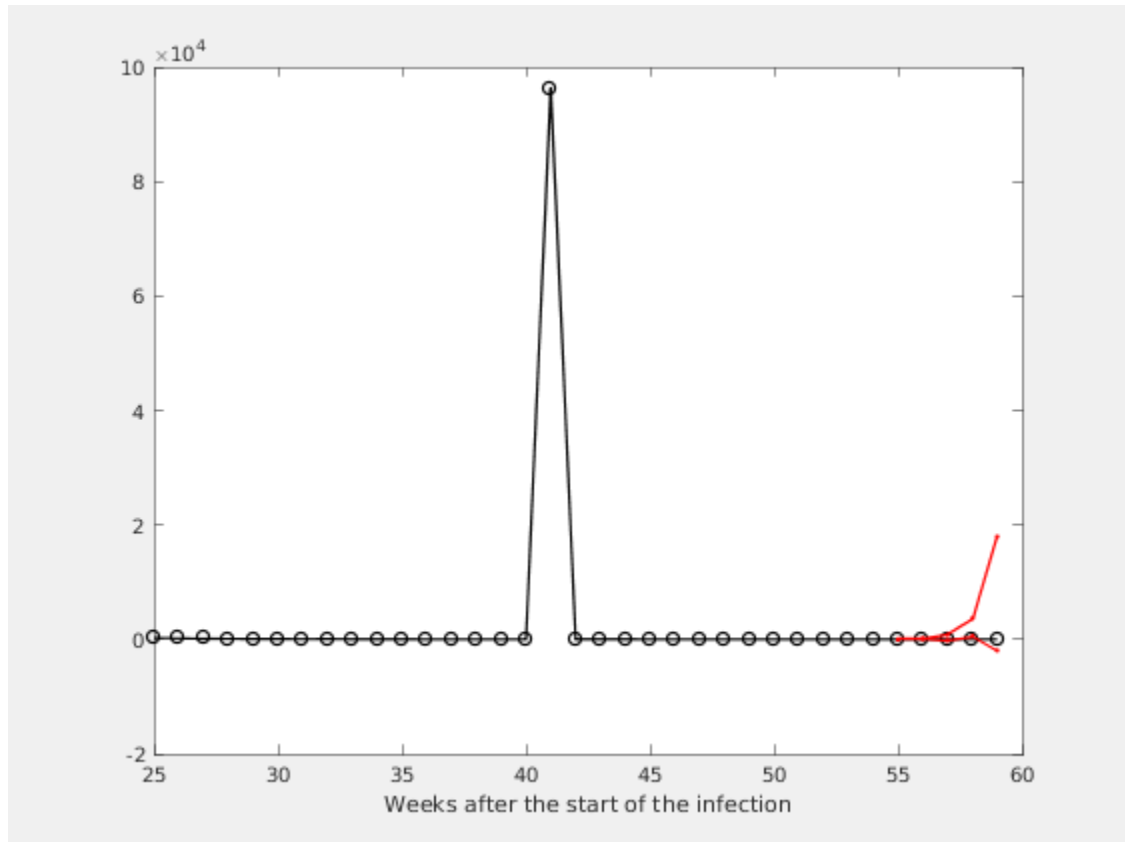


Figure 2.2. Figure

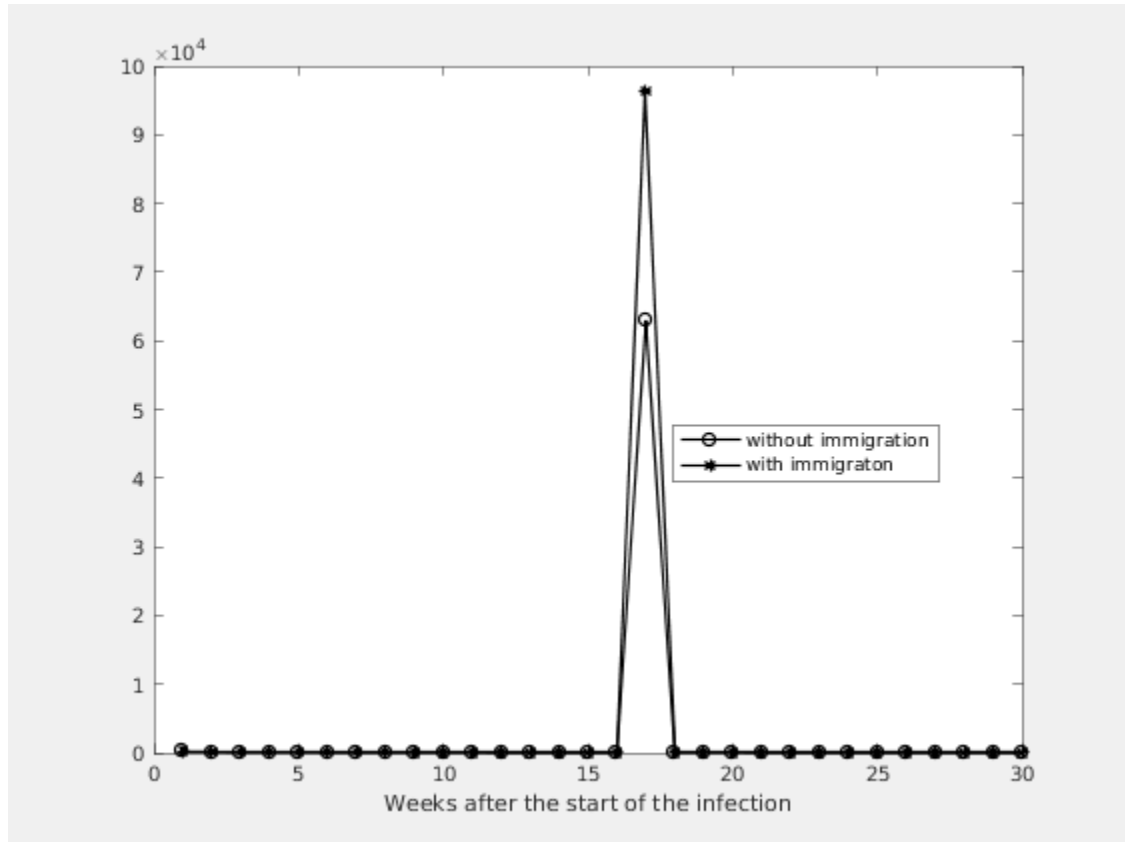




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.8550	-3.4981 - 5.2081	0.8233	9	6
3	0.8604	-3.4355 - 5.1562	0.7523	8	5
2	0.8681	-3.3748 - 5.1110	0.8546	7	5
1	0.8778	-3.3121 - 5.0676	0.9503	7	5
0	0.8721	-3.2561 - 5.0003	0.9709	8	5