

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

**Var195 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var195 - 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 Var195. 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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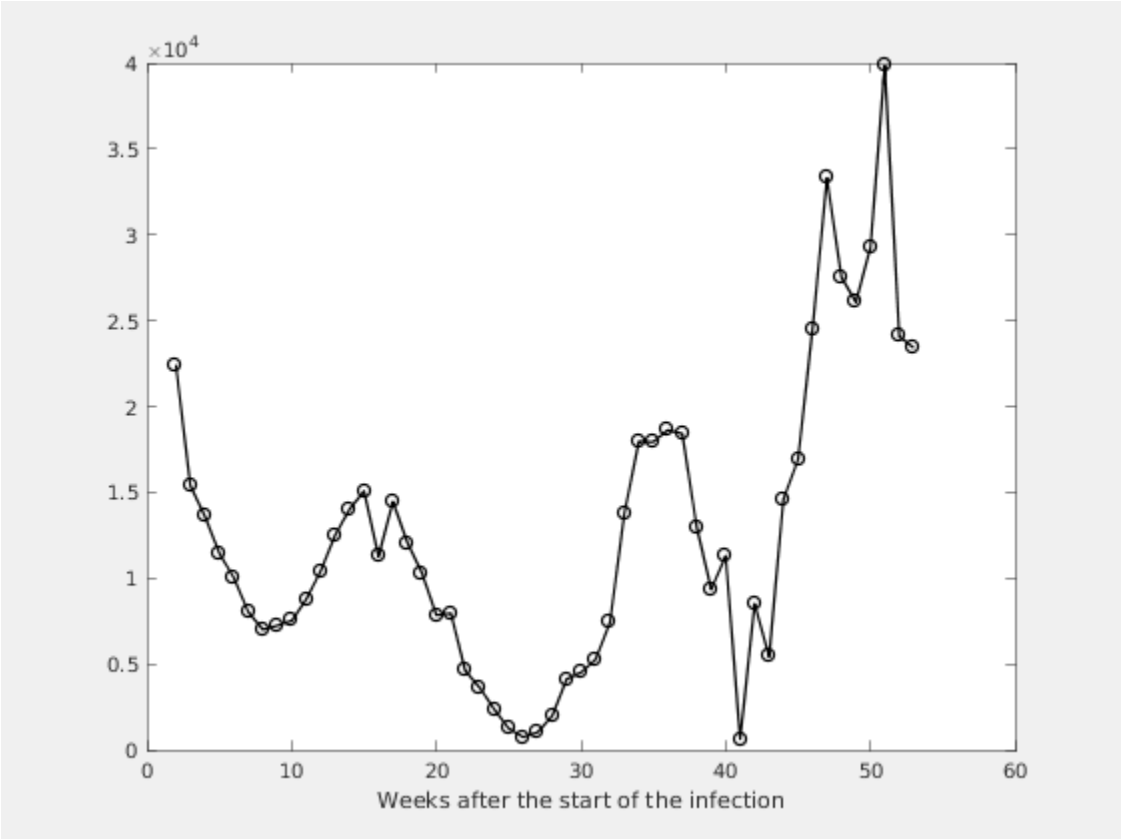
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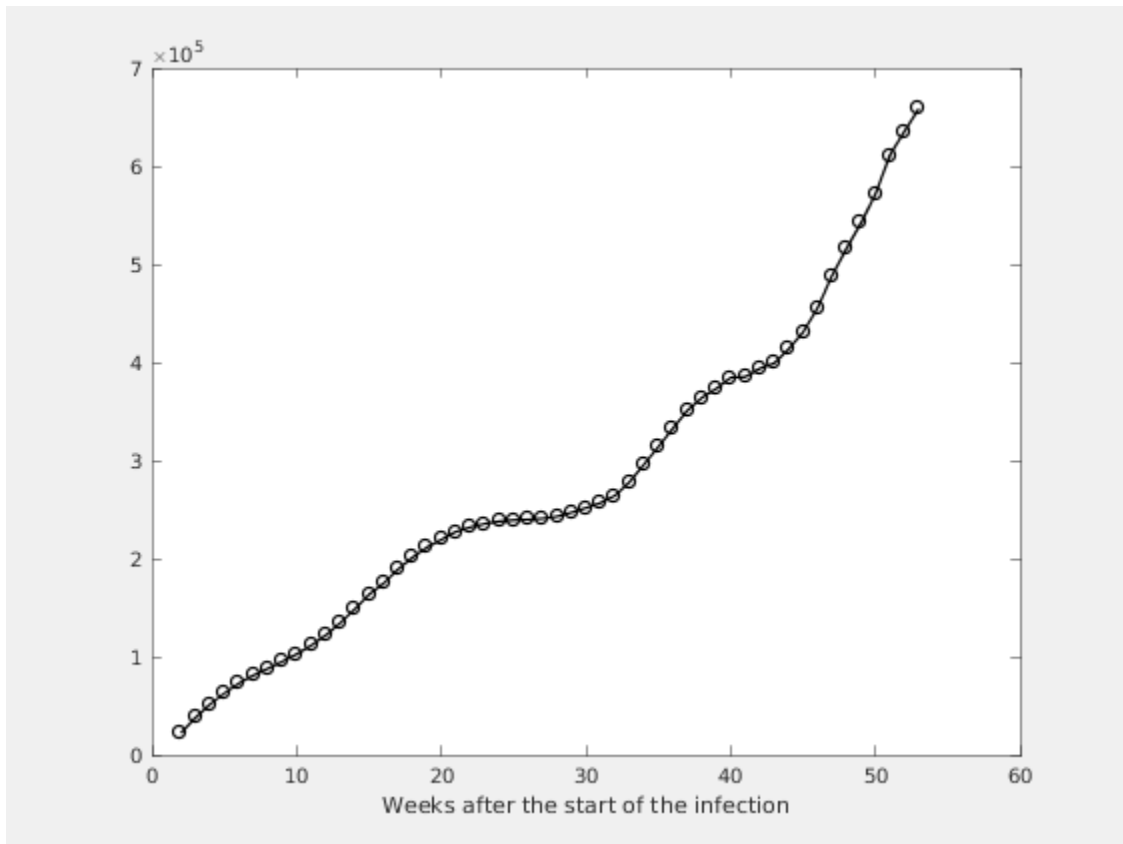
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# Chapter 1. Observed Infection data

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

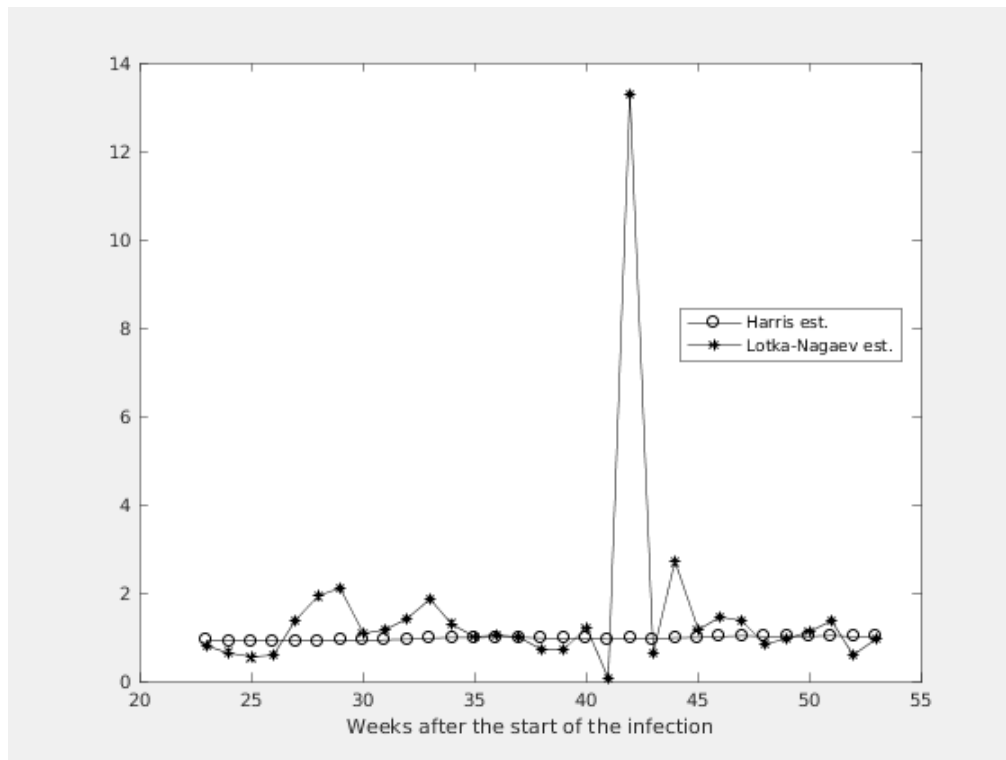
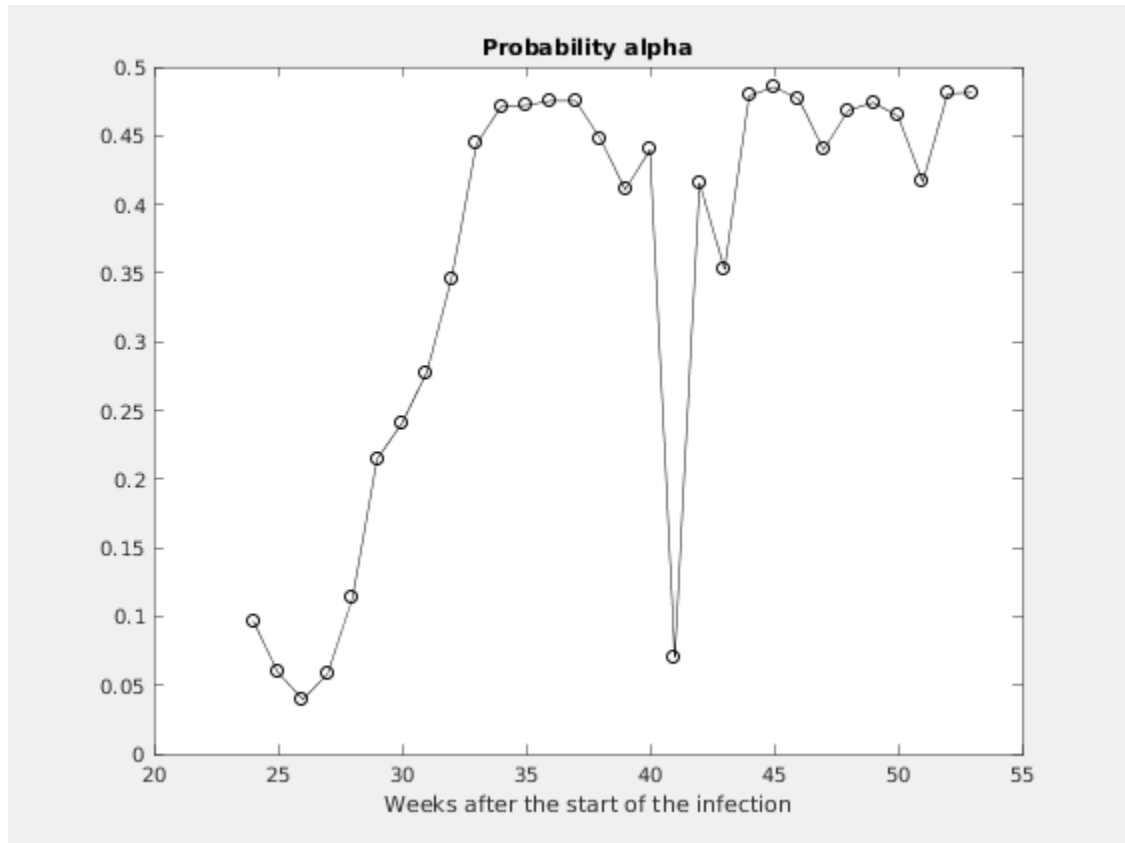
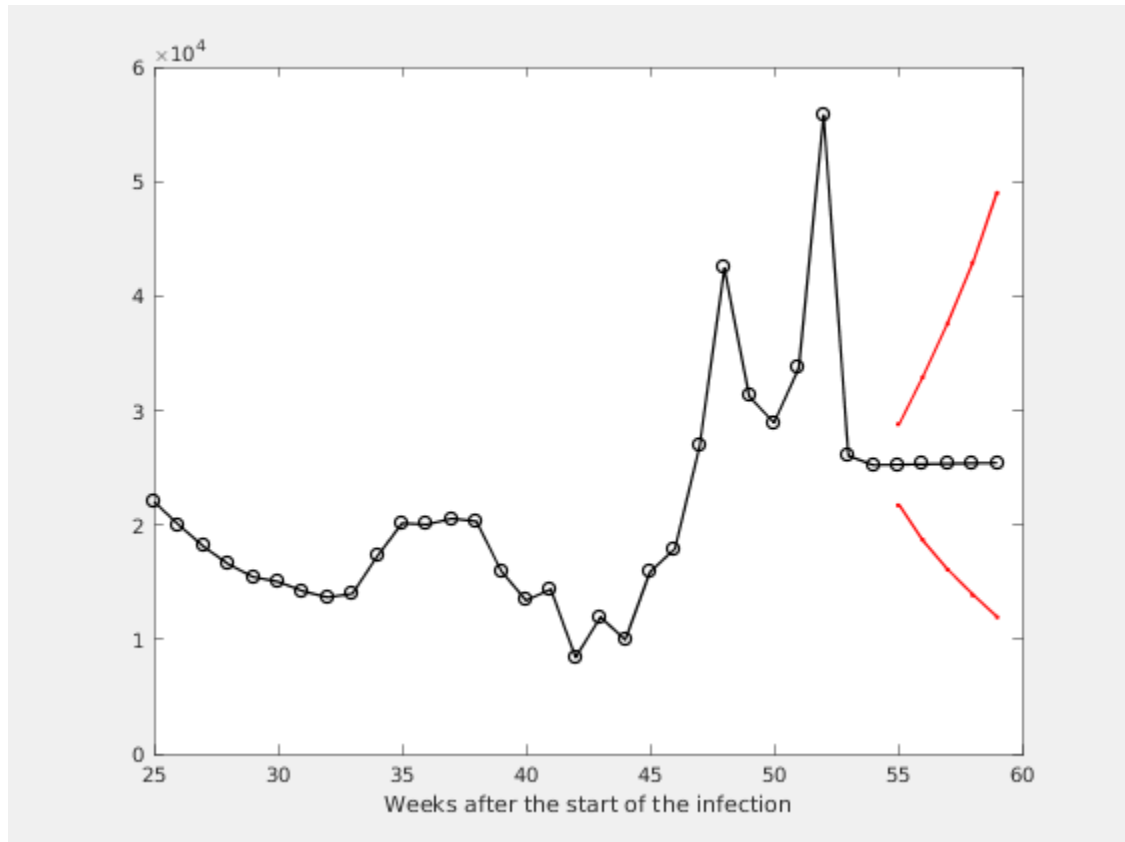


Figure 2.2. Figure

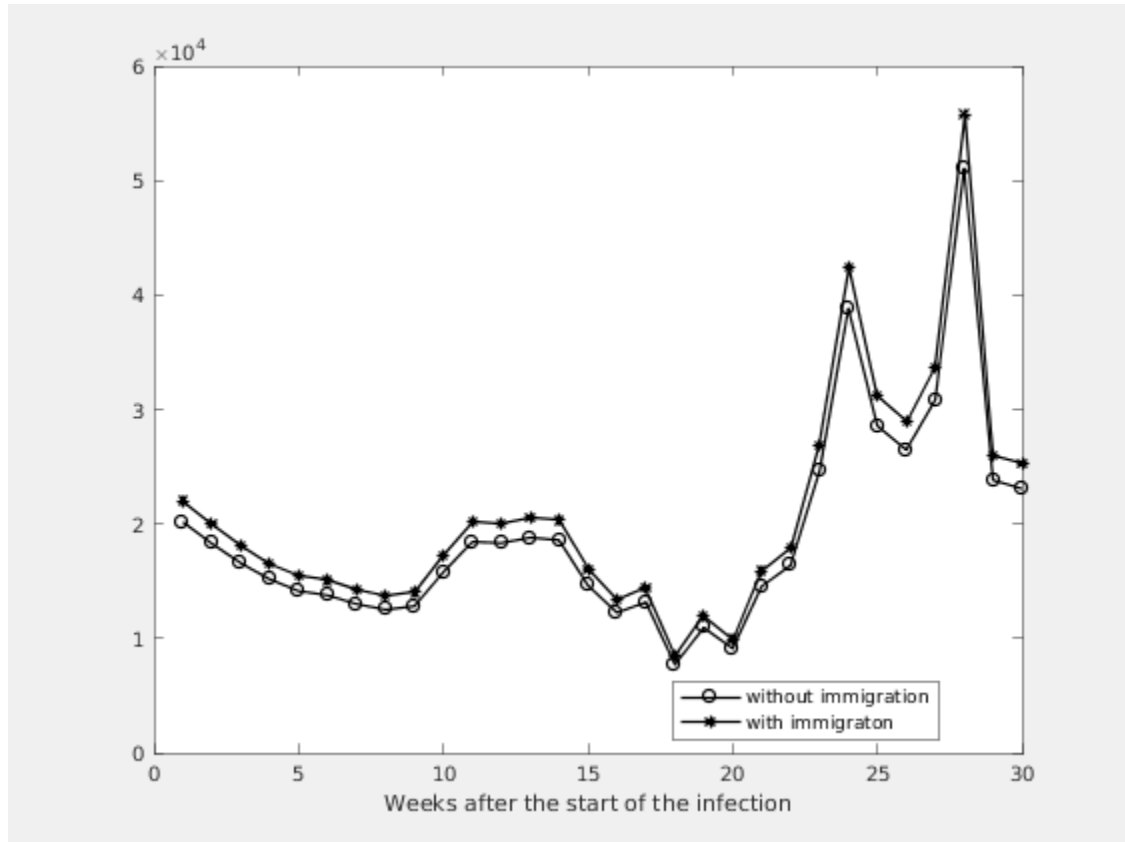




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	1.0071	0.8367 - 1.1775	0.4398	42421	38806
3	1.0125	0.8493 - 1.1758	0.4686	31225	28565
2	1.0305	0.8731 - 1.1878	0.4741	28928	26464
1	1.0027	0.8508 - 1.1546	0.4644	33712	30840
0	1.0015	0.8533 - 1.1498	0.4166	55790	51036