

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

**Var210 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var210 - 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 Var210. 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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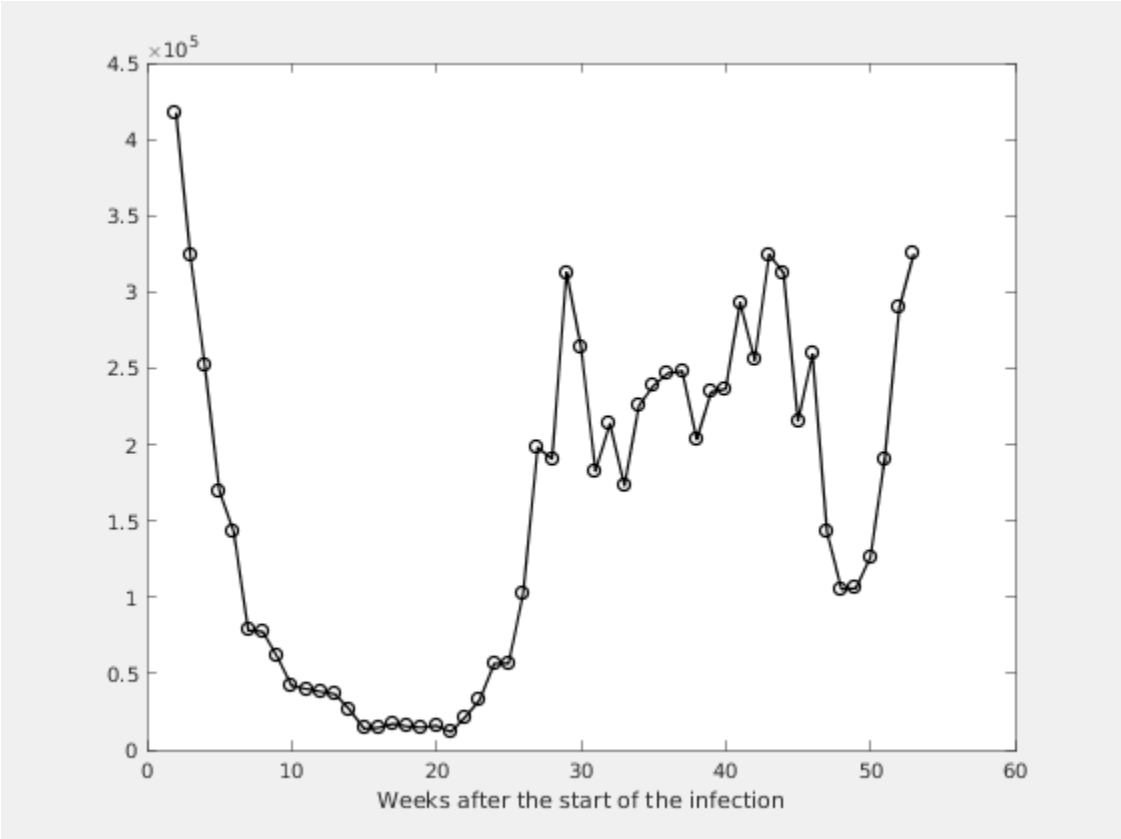
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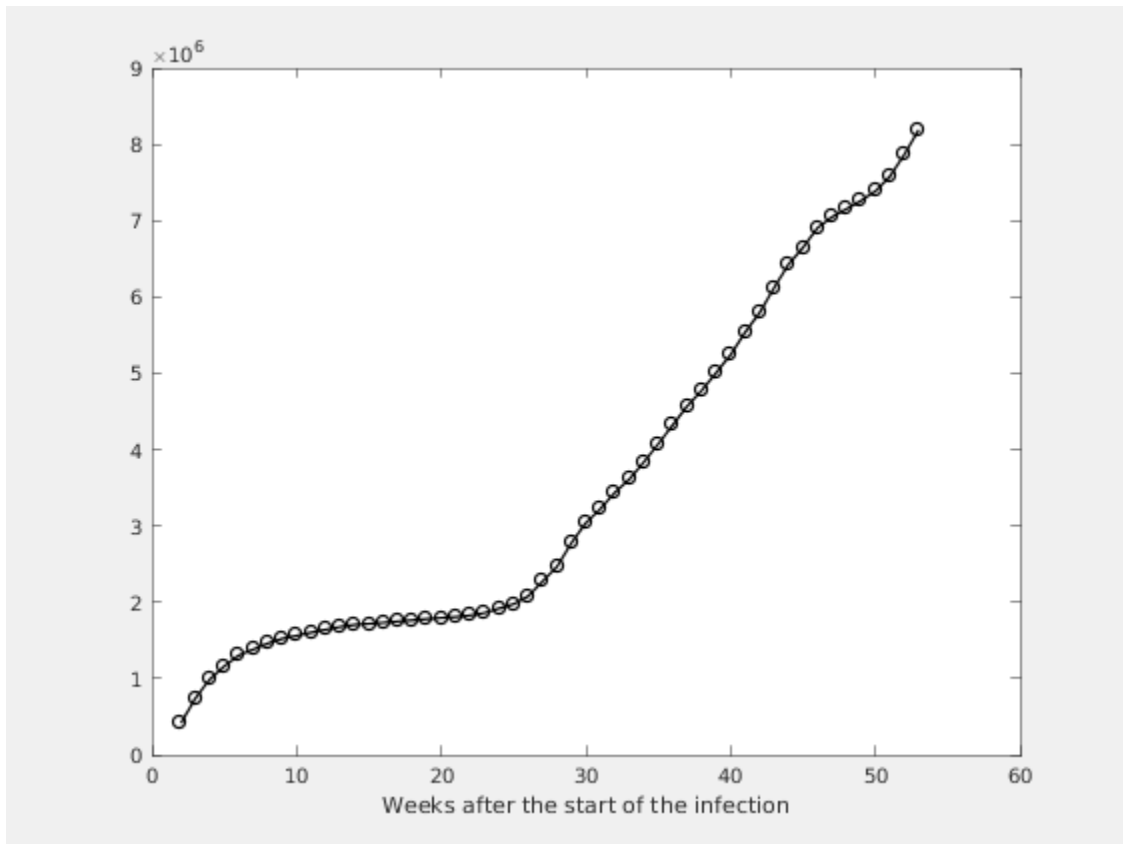
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# Chapter 1. Observed Infection data

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

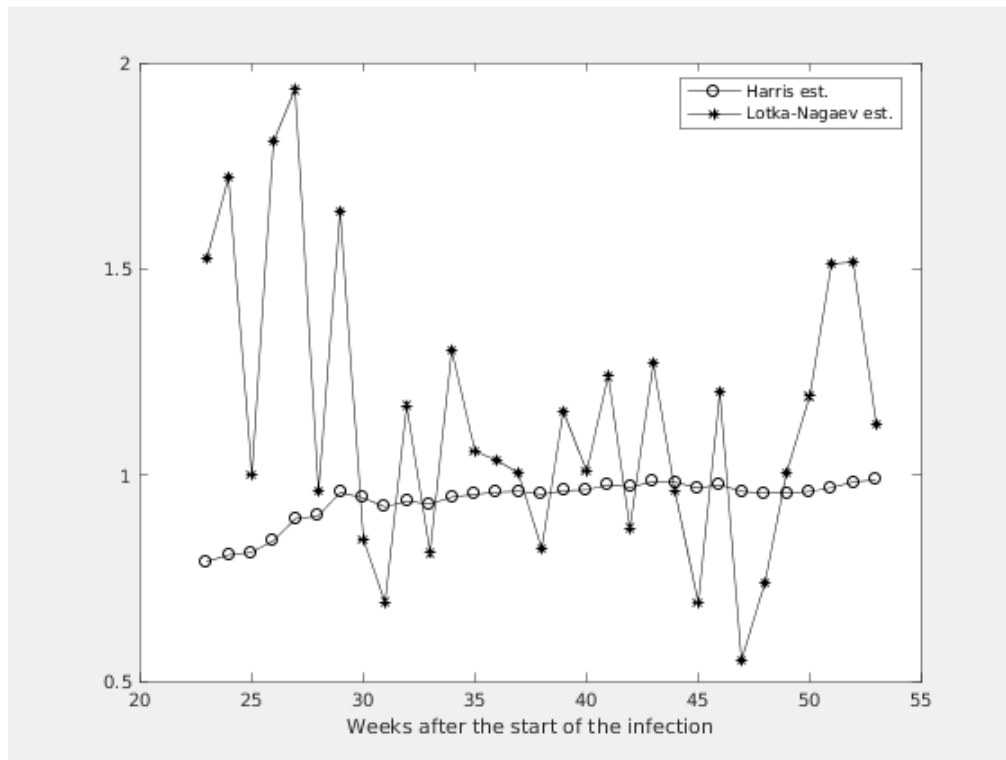
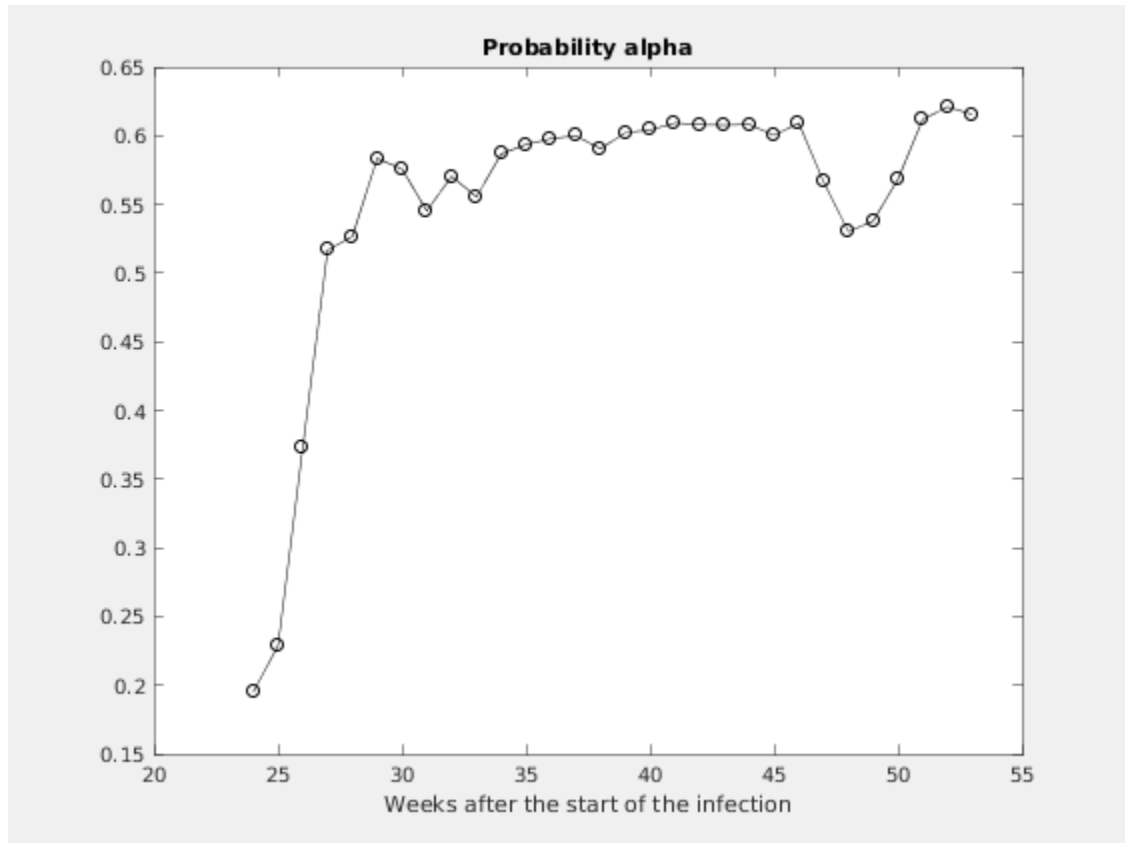
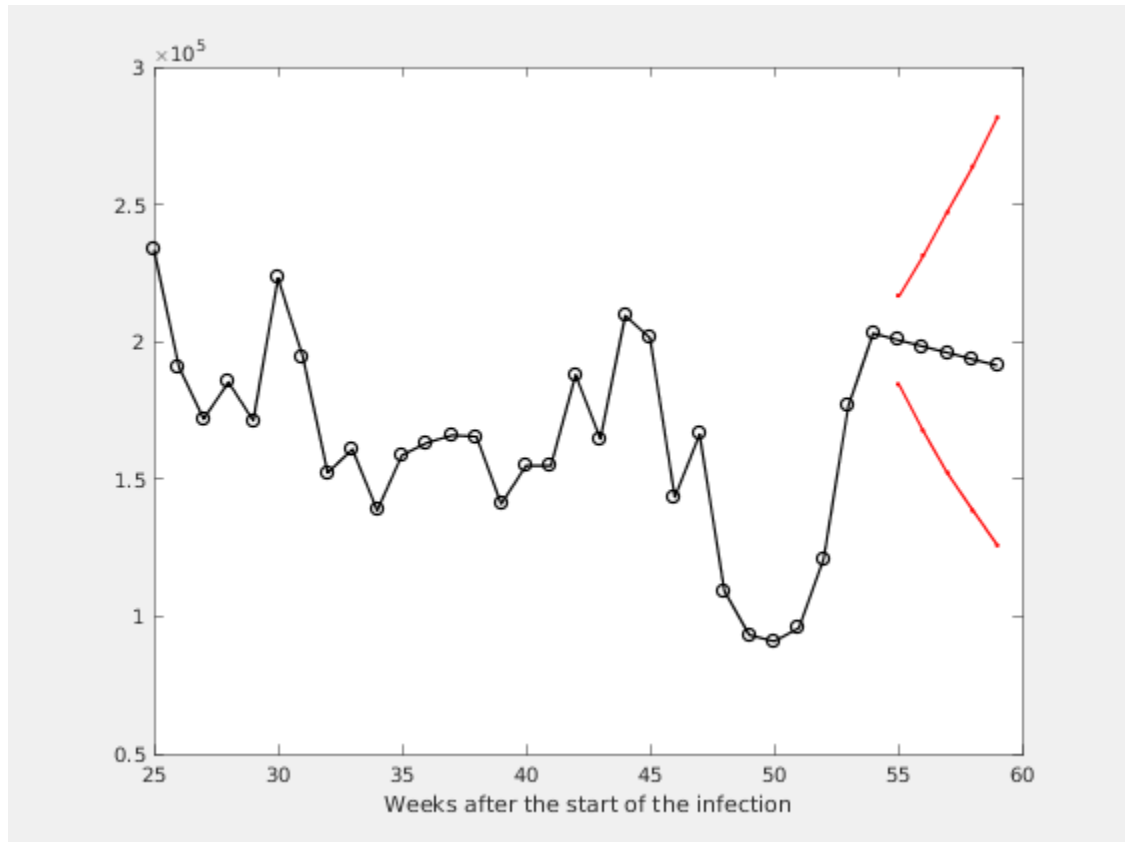


Figure 2.2. Figure

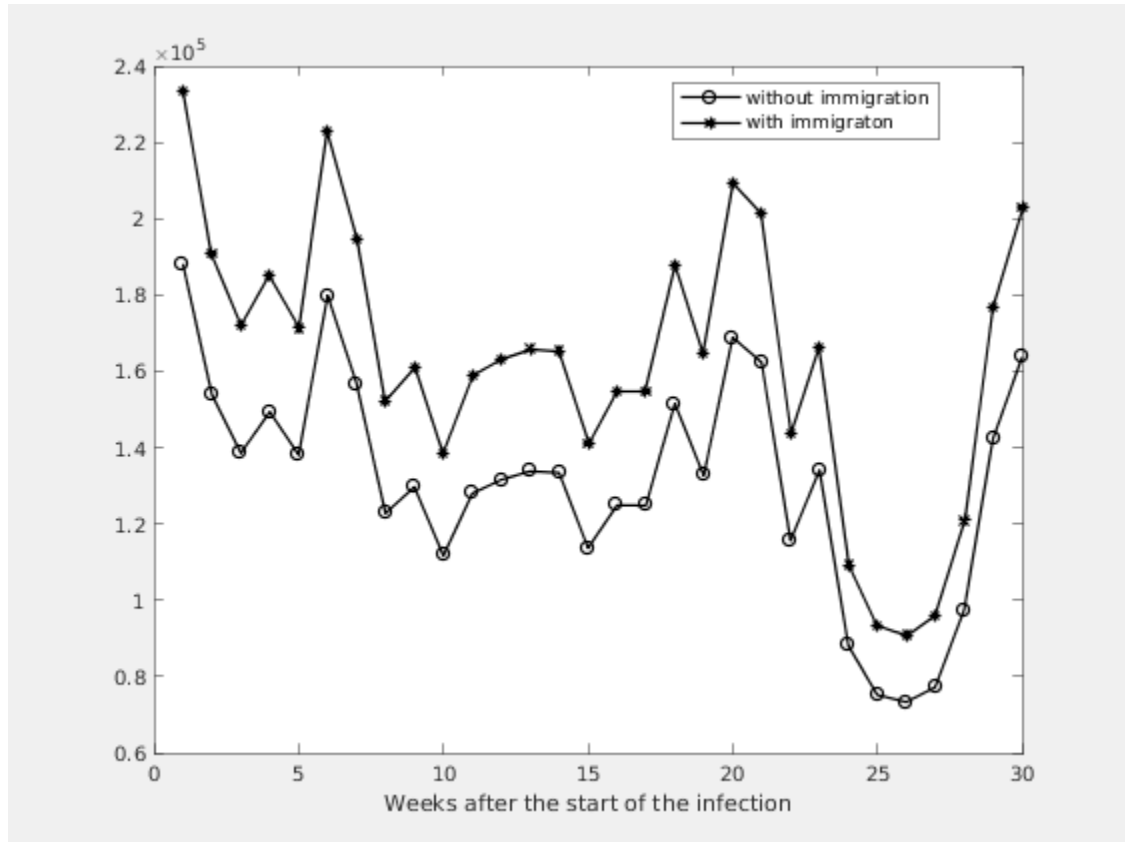




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9564	0.8743 - 1.0386	0.5664	109269	88083
3	0.9599	0.8789 - 1.0408	0.5302	93280	75194
2	0.9693	0.8897 - 1.0489	0.5380	90961	73324
1	0.9831	0.9043 - 1.0619	0.5684	95811	77234
0	0.9882	0.9085 - 1.0680	0.6120	120919	97474