

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

**Var3 - week 53**

**N. Yanev, V. Stoimenova, D. Atanasov**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var3 - 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 Var3. 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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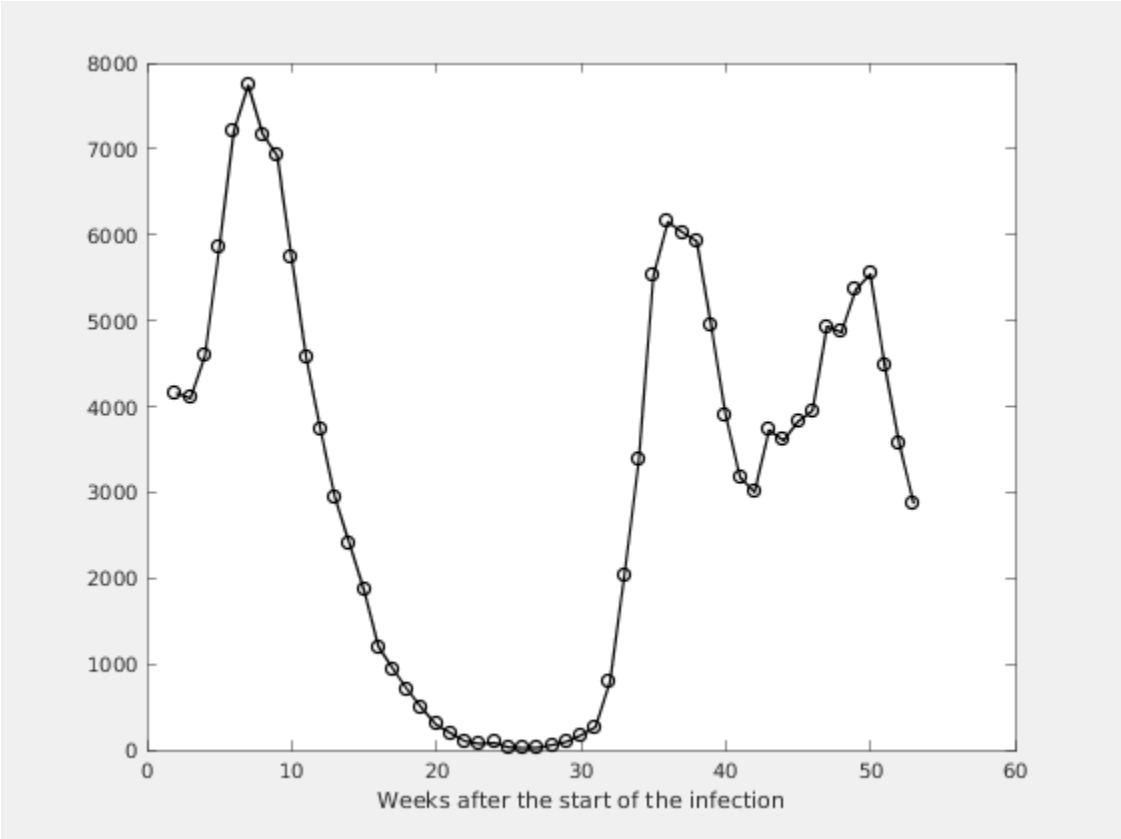
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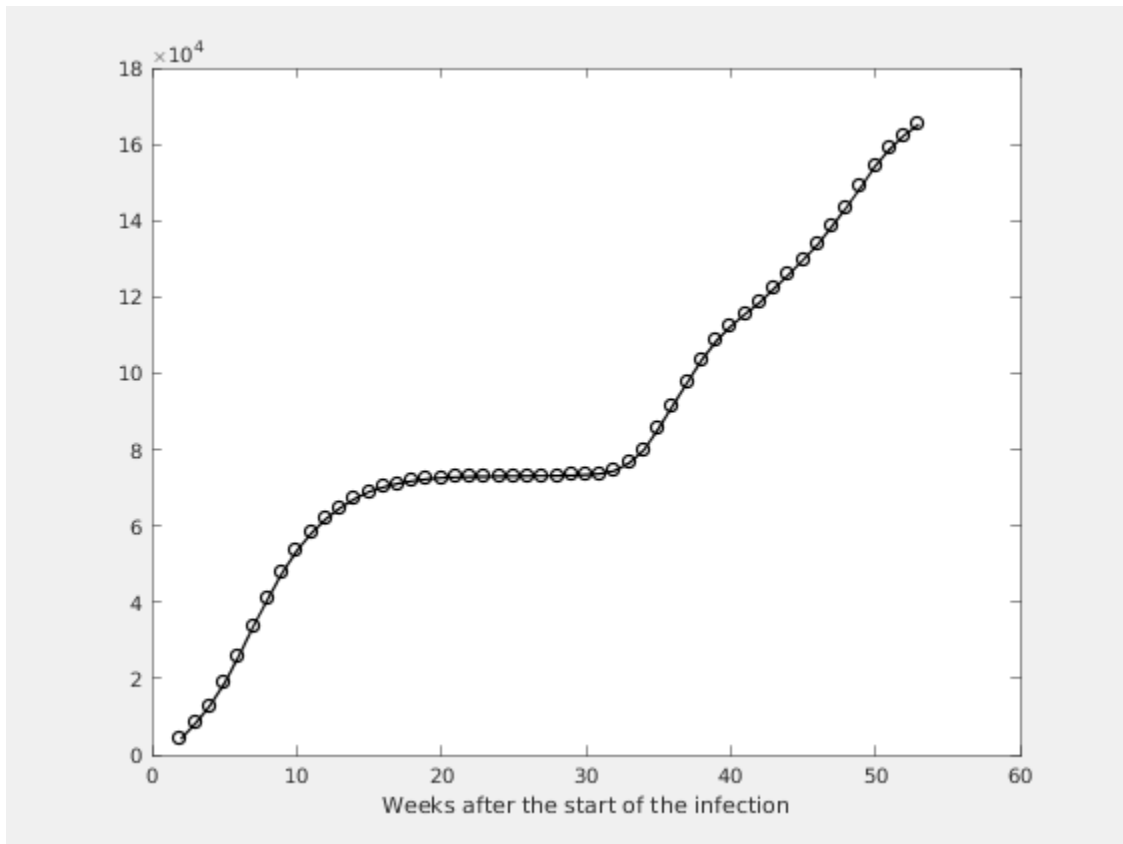
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# Chapter 1. Observed Infection data

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

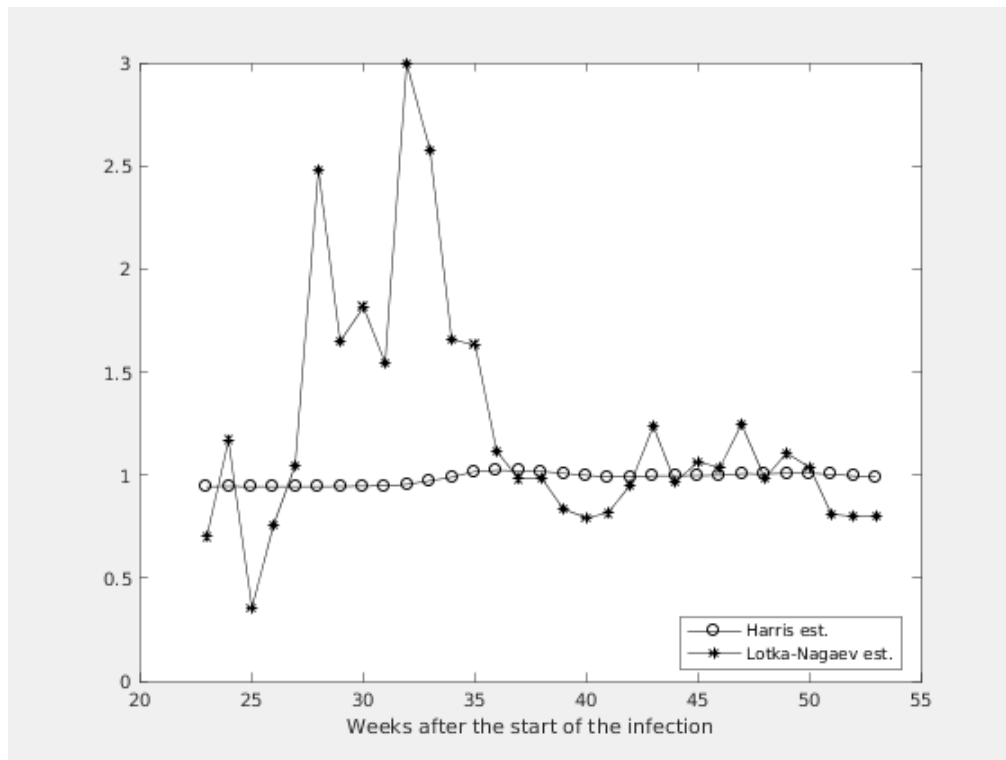
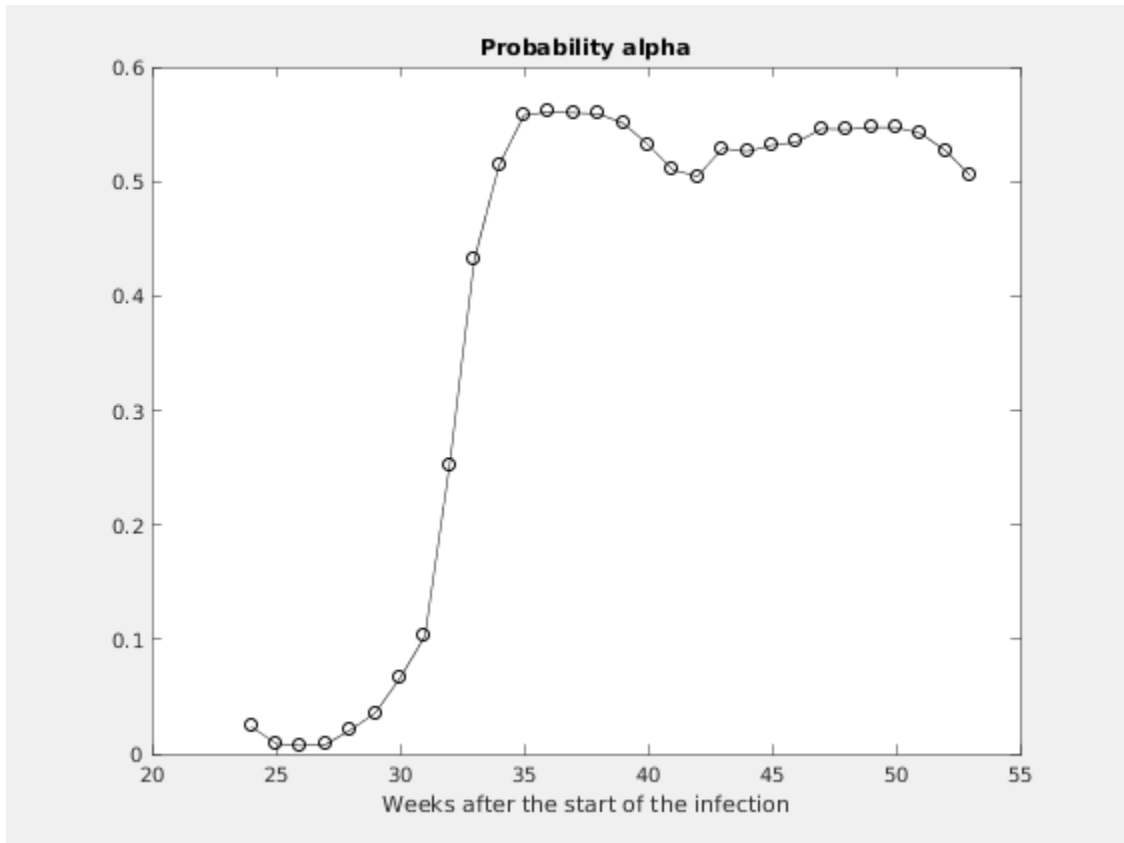
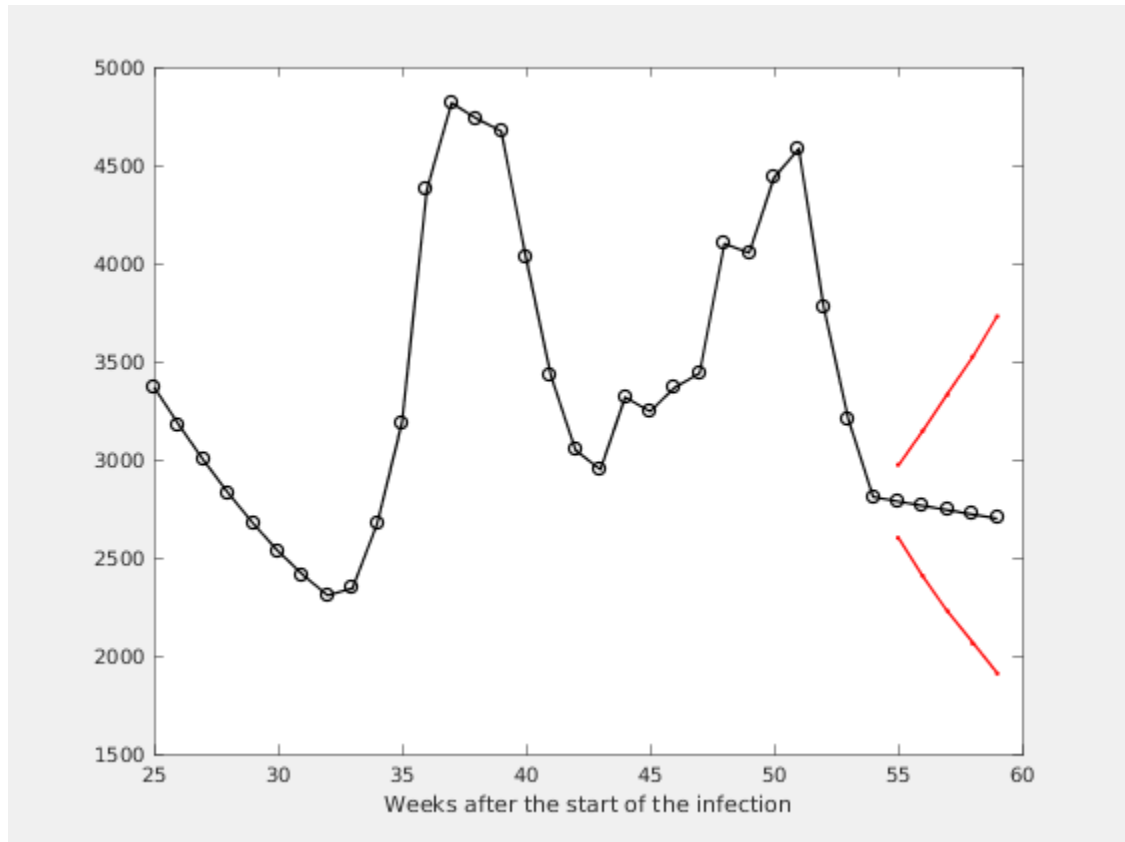


Figure 2.2. Figure

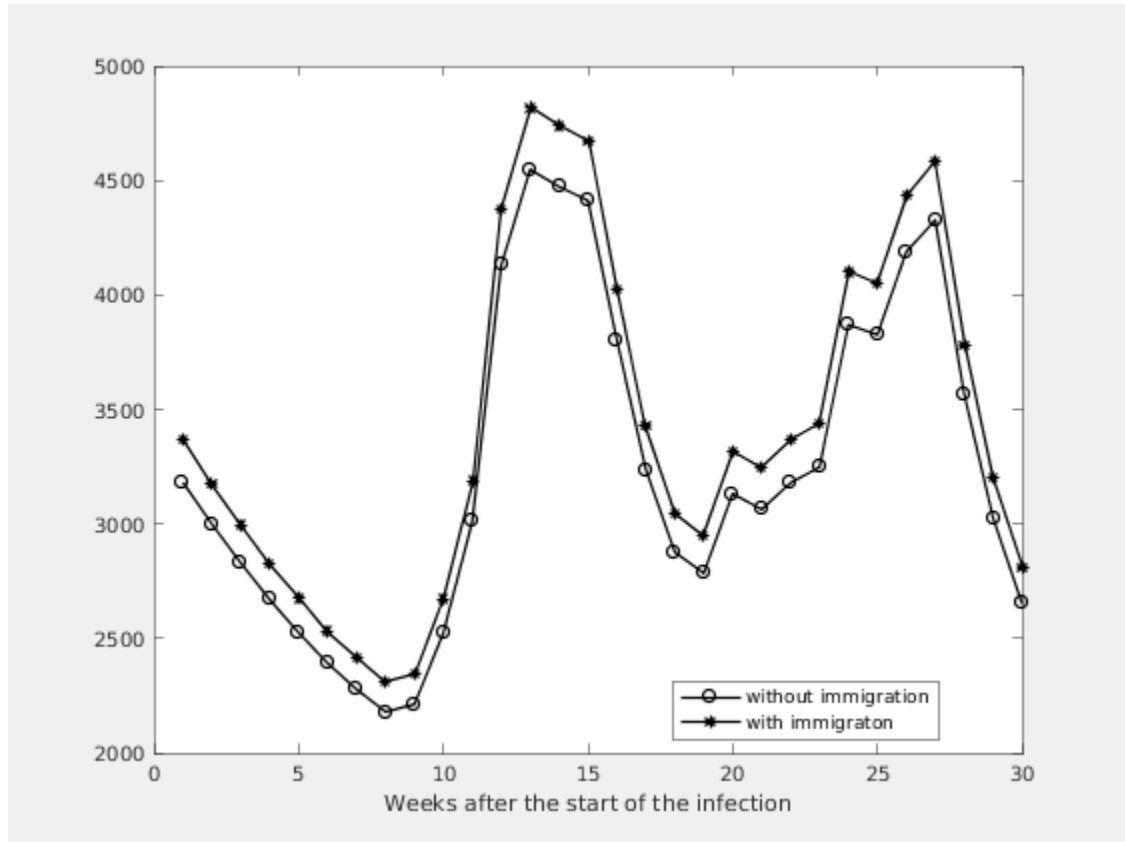




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	1.0084	0.9330 - 1.0838	0.5460	4100	3871
3	1.0093	0.9361 - 1.0826	0.5455	4053	3827
2	1.0020	0.9306 - 1.0735	0.5472	4437	4189
1	0.9963	0.9268 - 1.0658	0.5473	4583	4327
0	0.9920	0.9238 - 1.0603	0.5420	3779	3568