

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

**Var214 - week 53**

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

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var214 - 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 Var214. 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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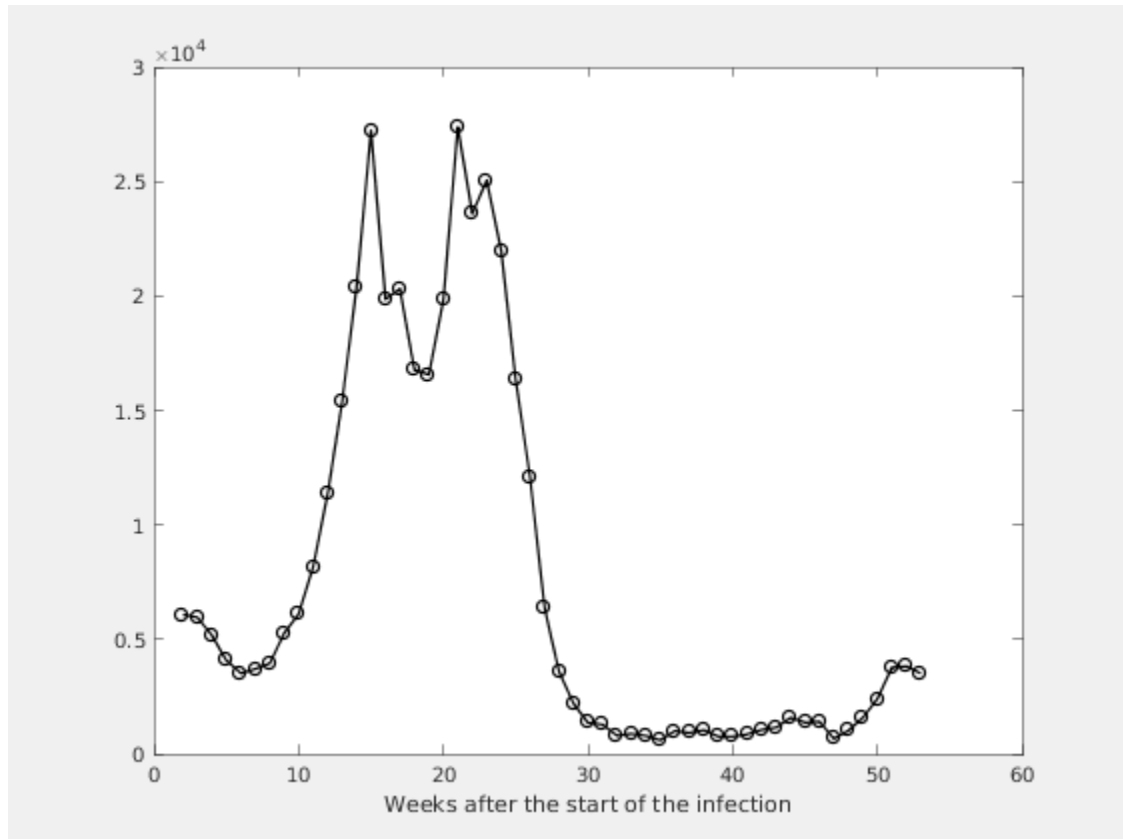
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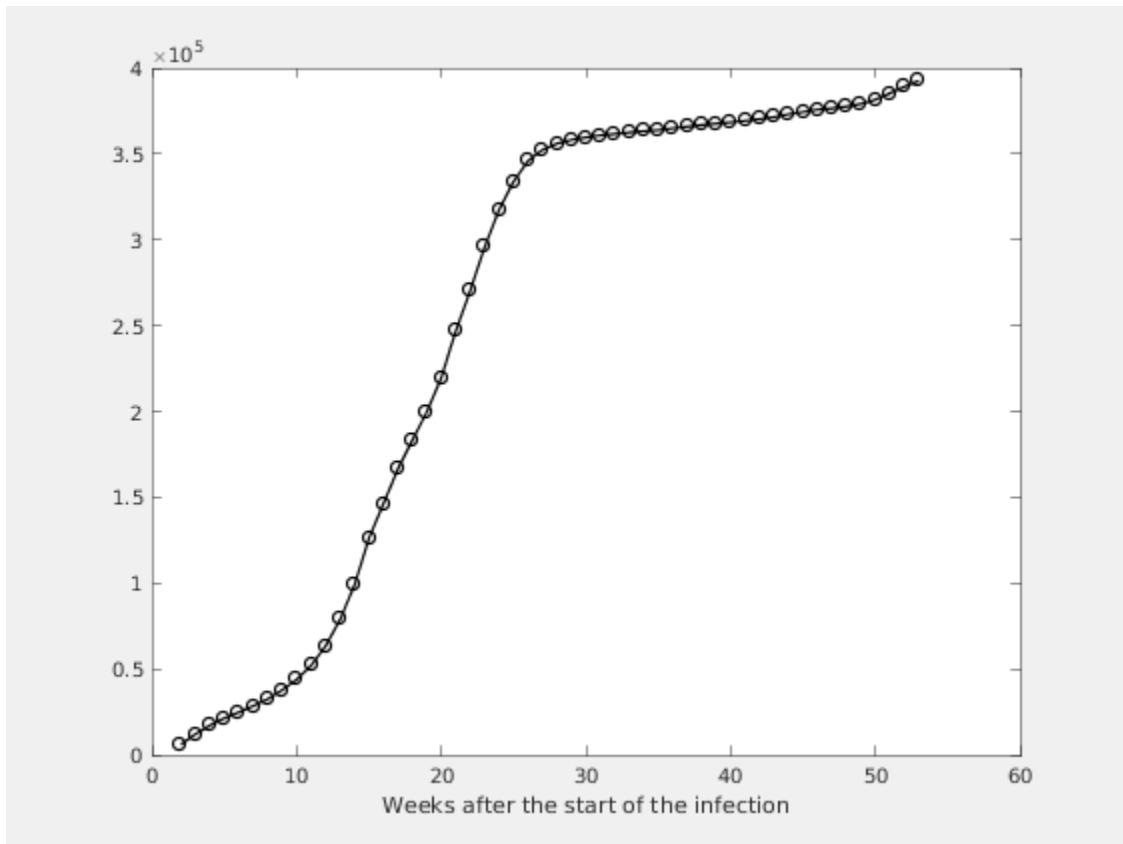
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# Chapter 1. Observed Infection data

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

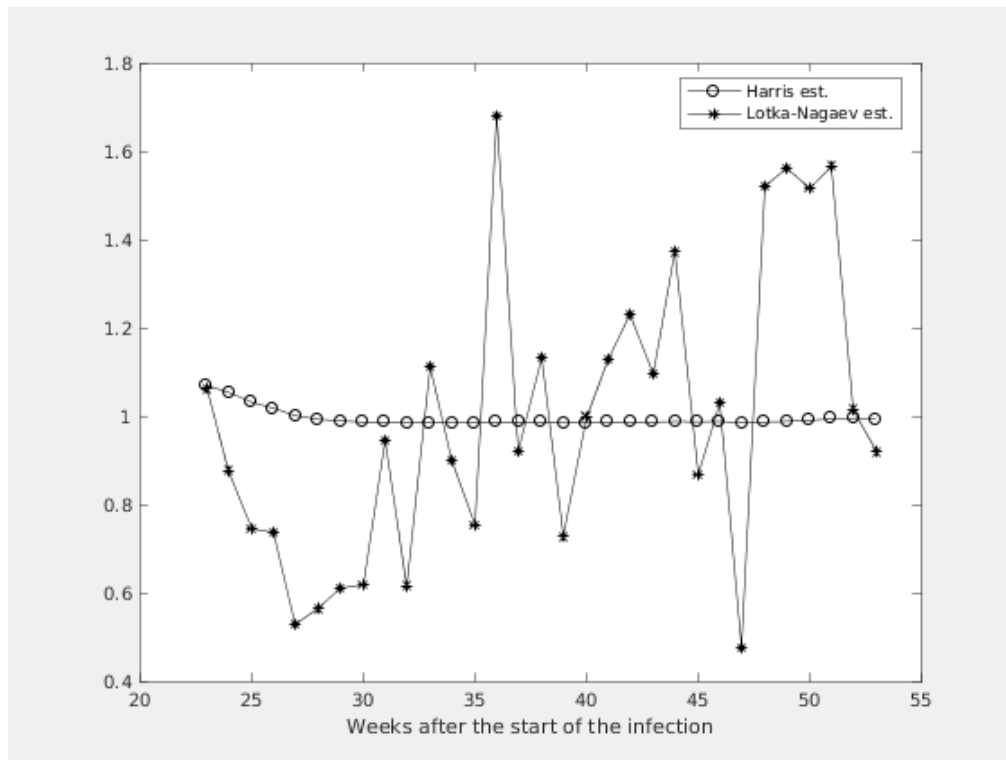
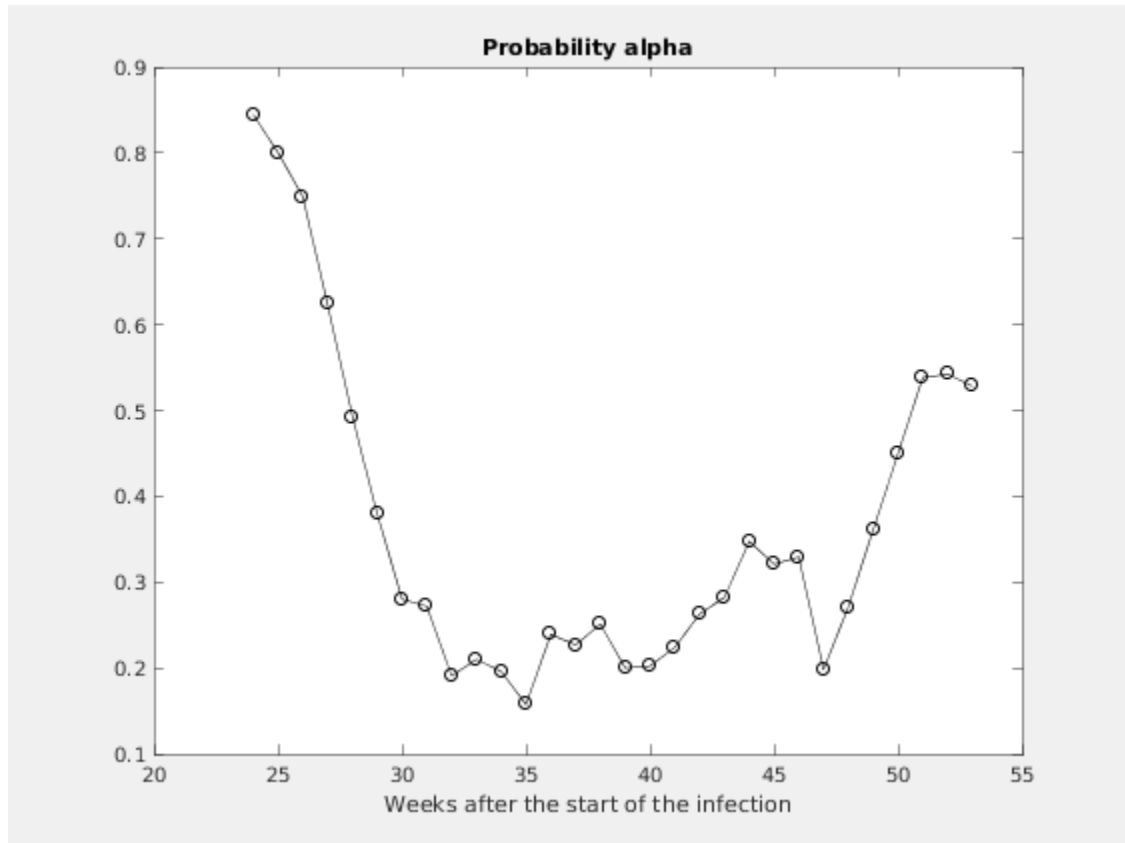
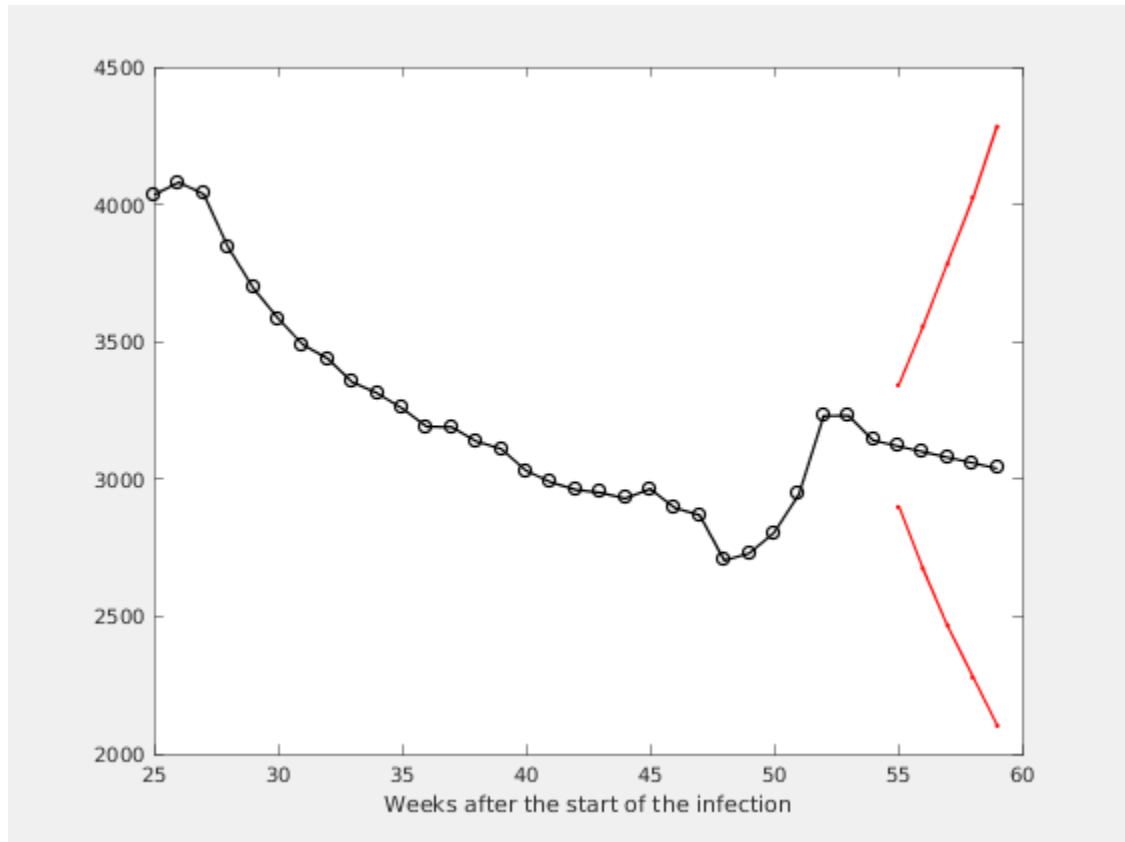


Figure 2.2. Figure

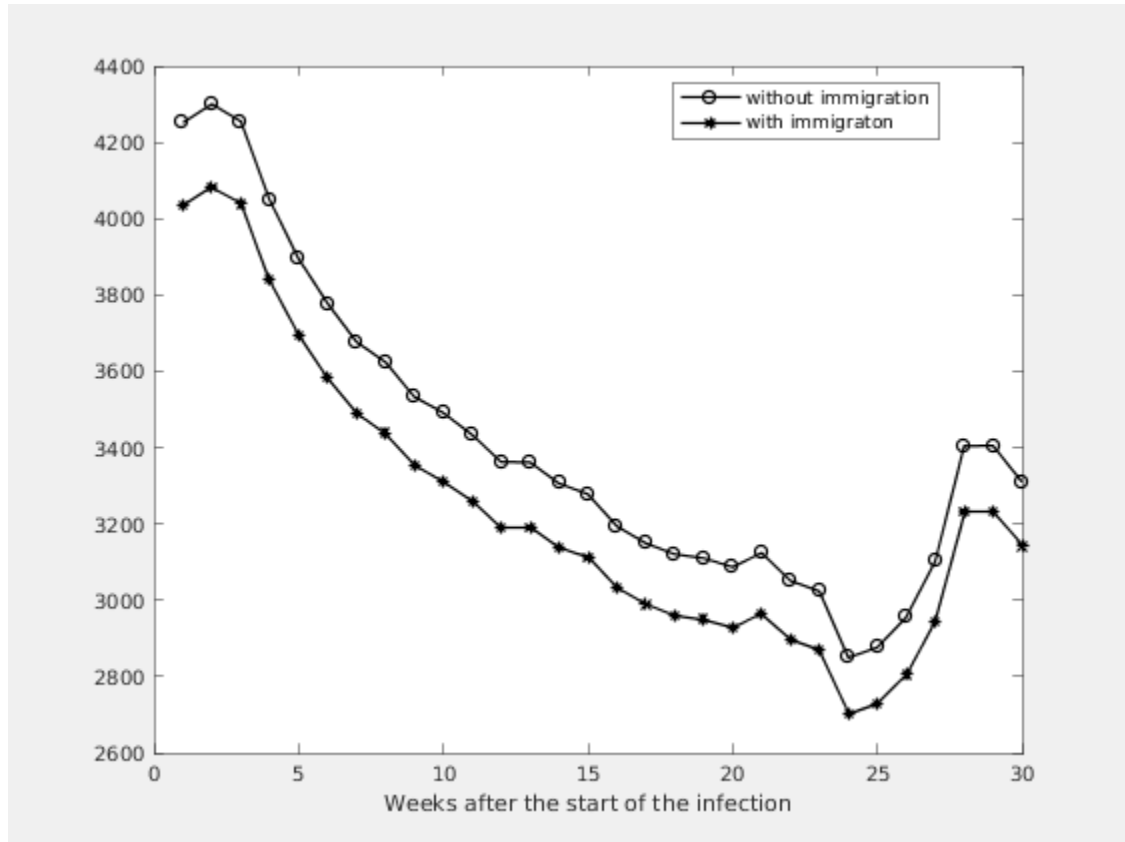




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9881	0.9144 - 1.0619	0.1983	2704	2849
3	0.9903	0.9171 - 1.0635	0.2714	2730	2877
2	0.9939	0.9211 - 1.0668	0.3613	2805	2956
1	0.9942	0.9216 - 1.0667	0.4496	2944	3102
0	0.9934	0.9207 - 1.0661	0.5385	3230	3404