

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

**Var54 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var54 - 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 Var54. 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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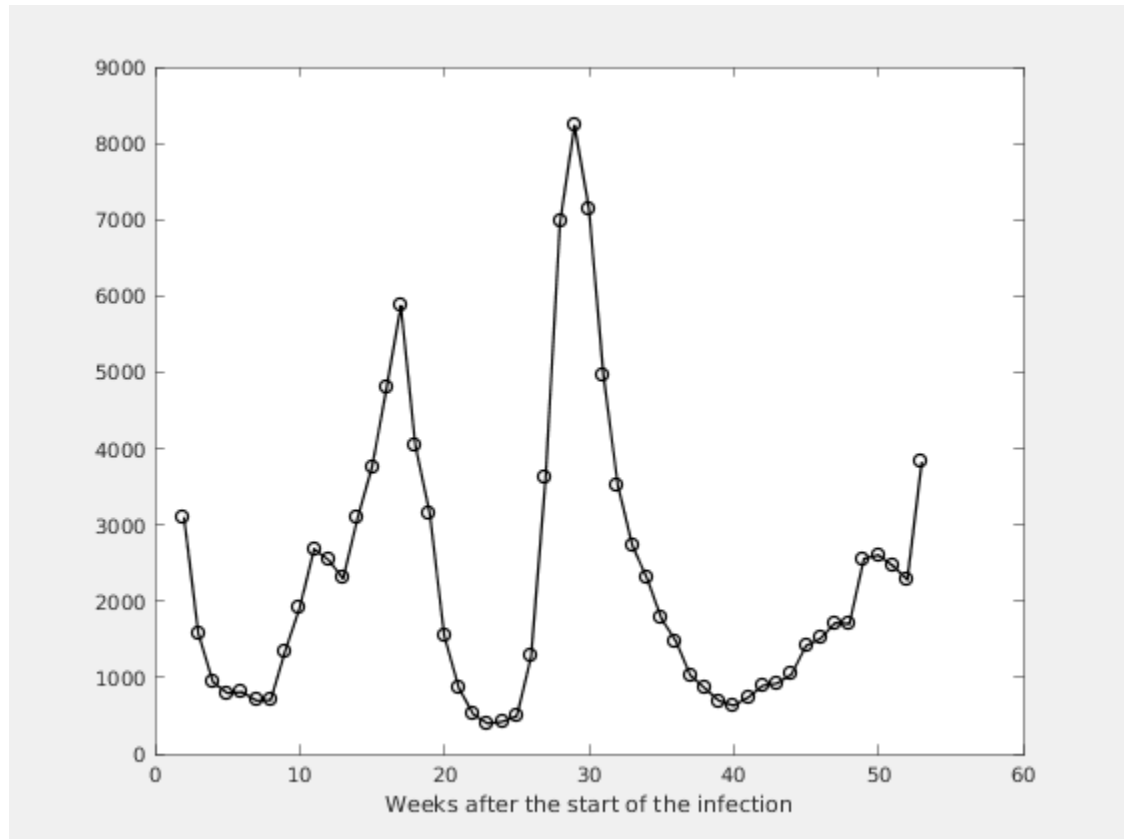
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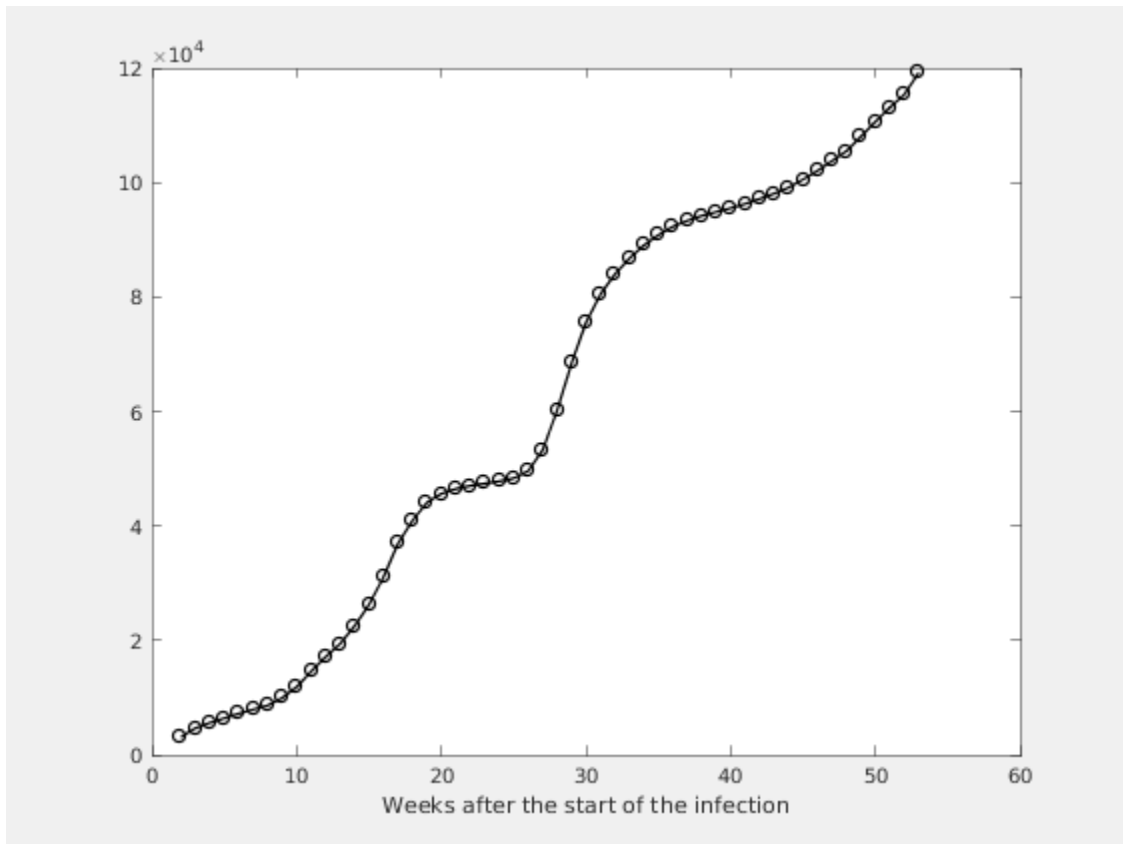
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# Chapter 1. Observed Infection data

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

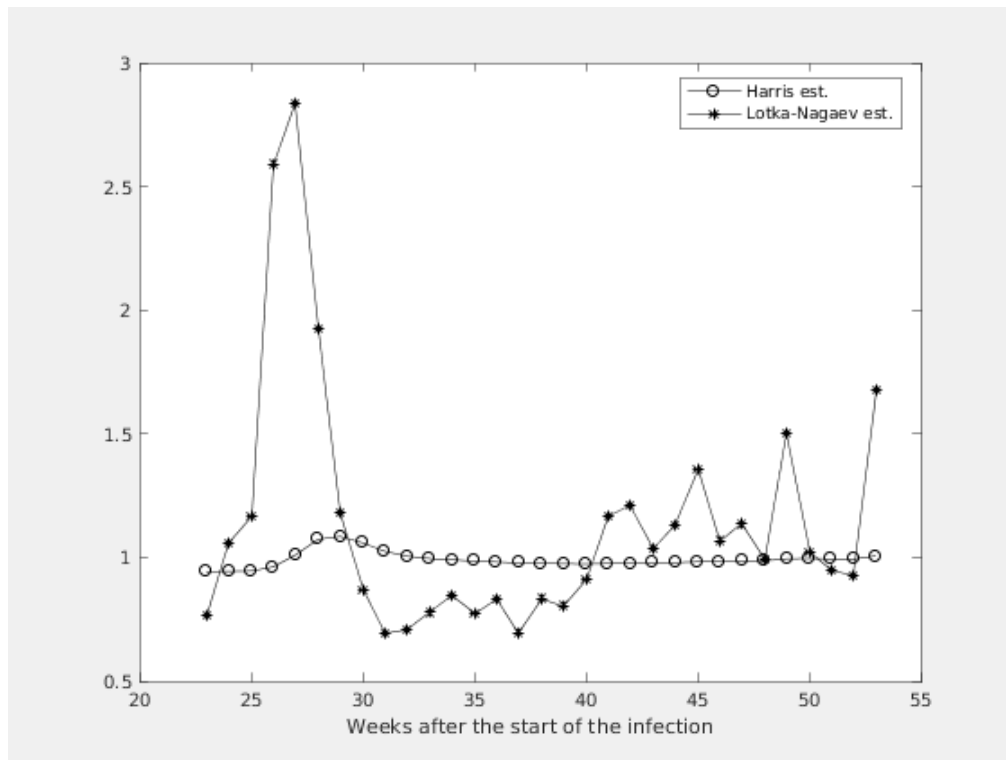
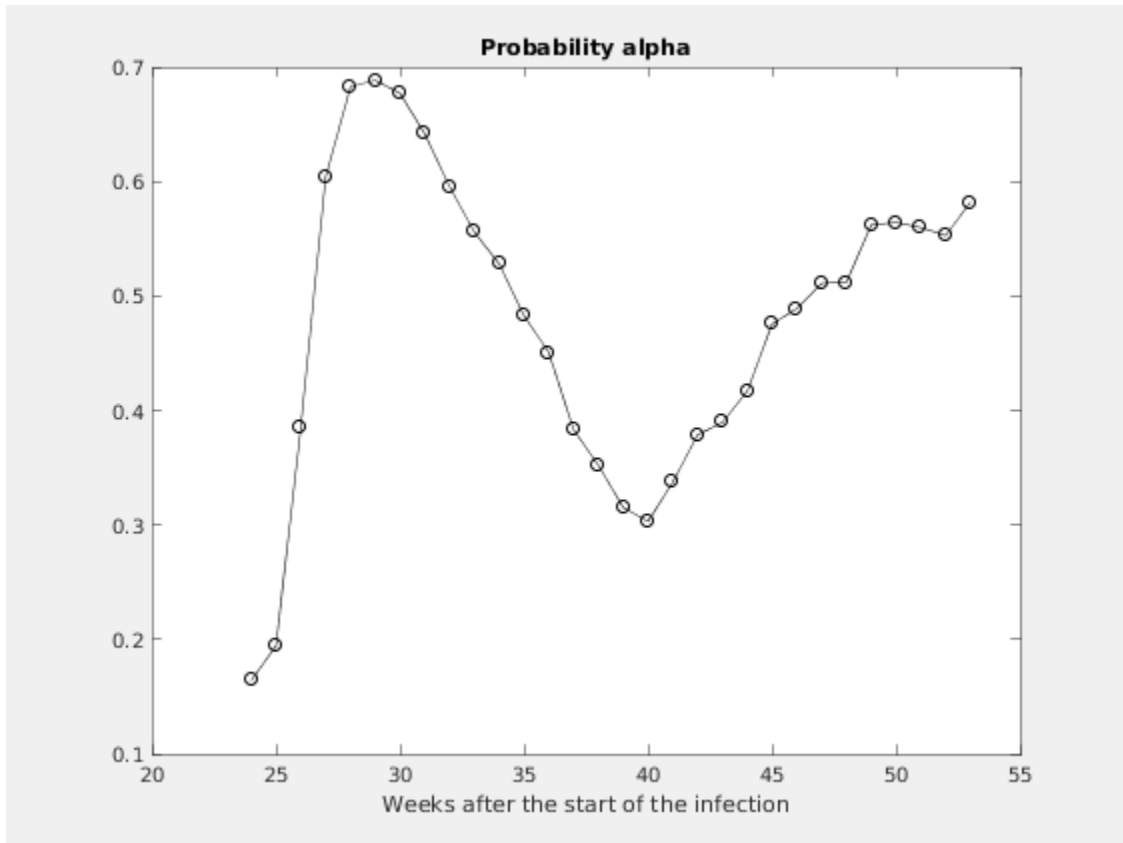
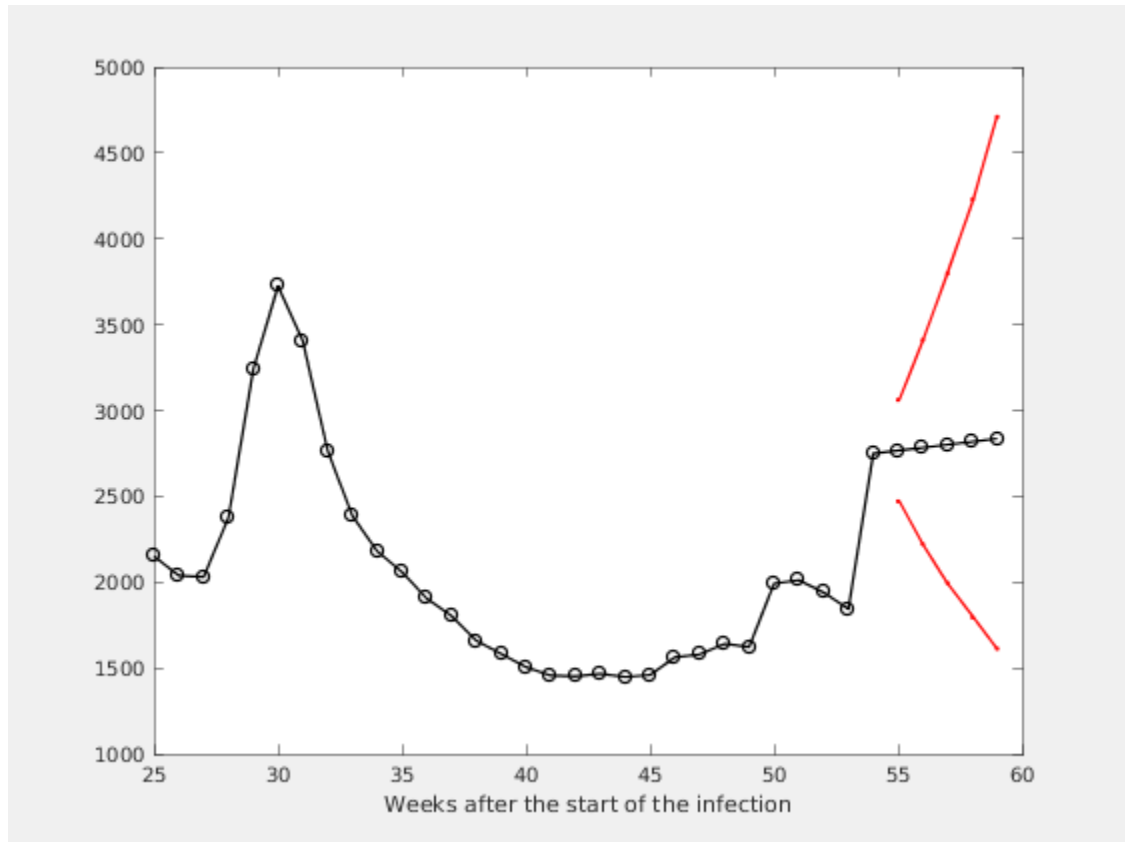


Figure 2.2. Figure

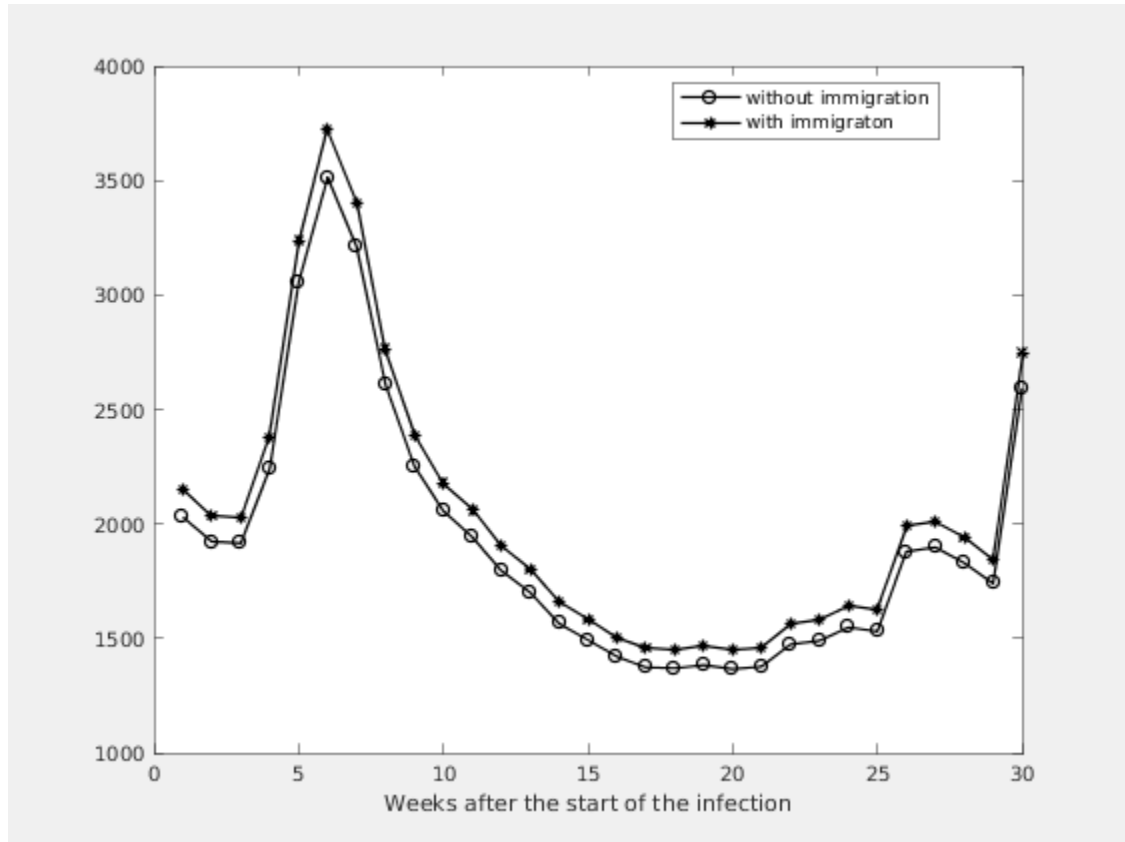




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9948	0.8785 - 1.1111	0.5110	1641	1548
3	0.9954	0.8813 - 1.1095	0.5119	1623	1531
2	0.9942	0.8808 - 1.1077	0.5621	1992	1879
1	0.9927	0.8818 - 1.1037	0.5642	2012	1898
0	1.0063	0.8977 - 1.1148	0.5598	1940	1830