

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

**Var46 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var46 - 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 Var46. 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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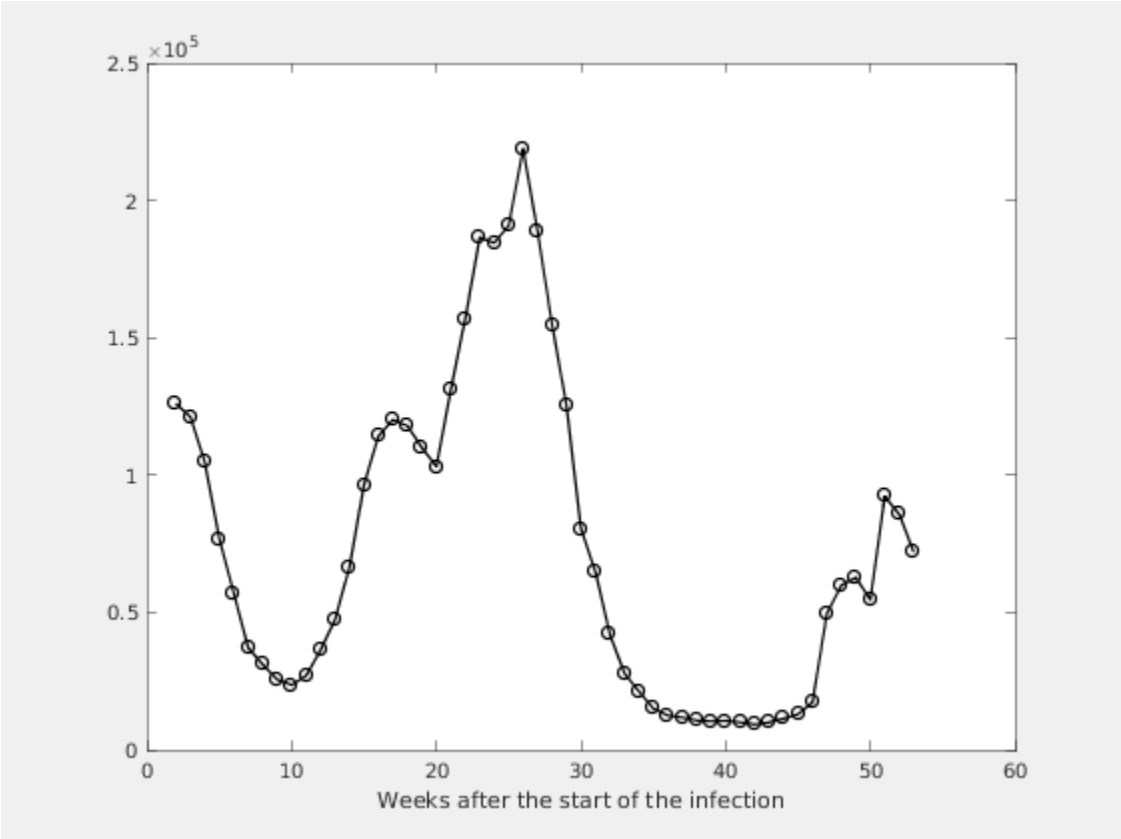
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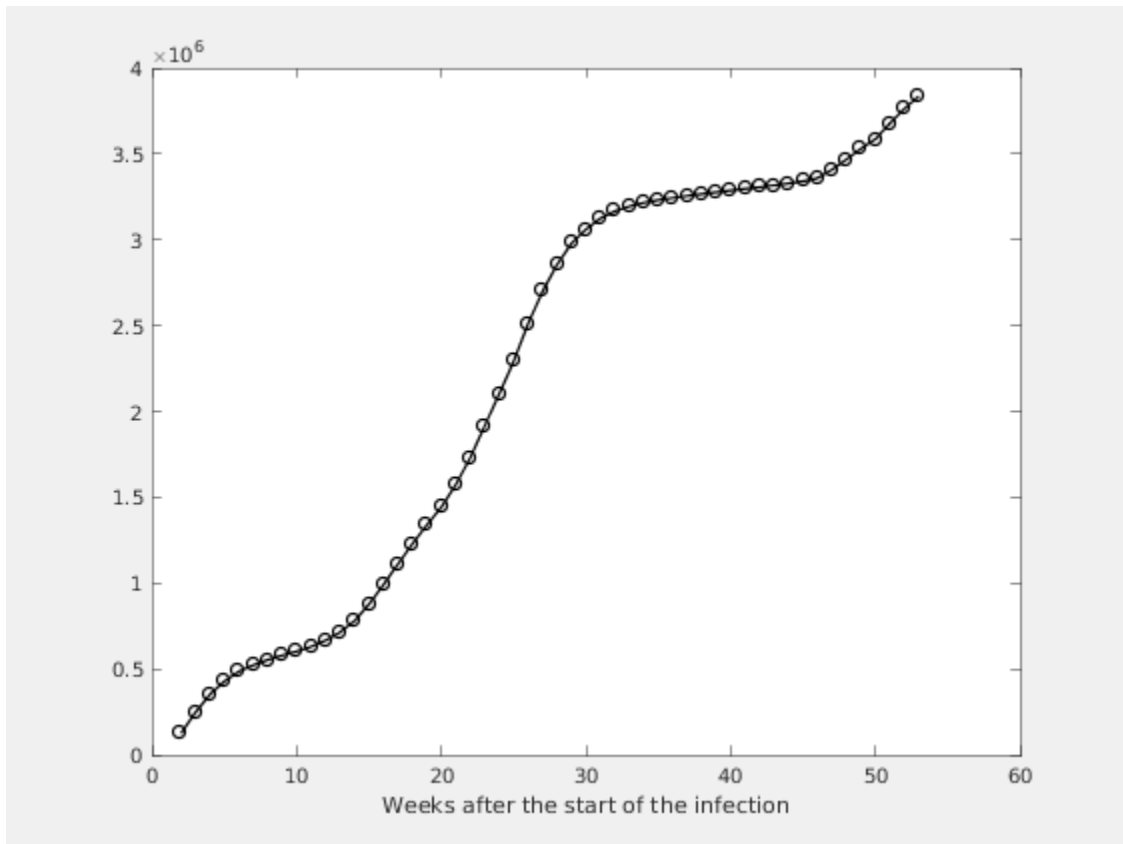
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# Chapter 1. Observed Infection data

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

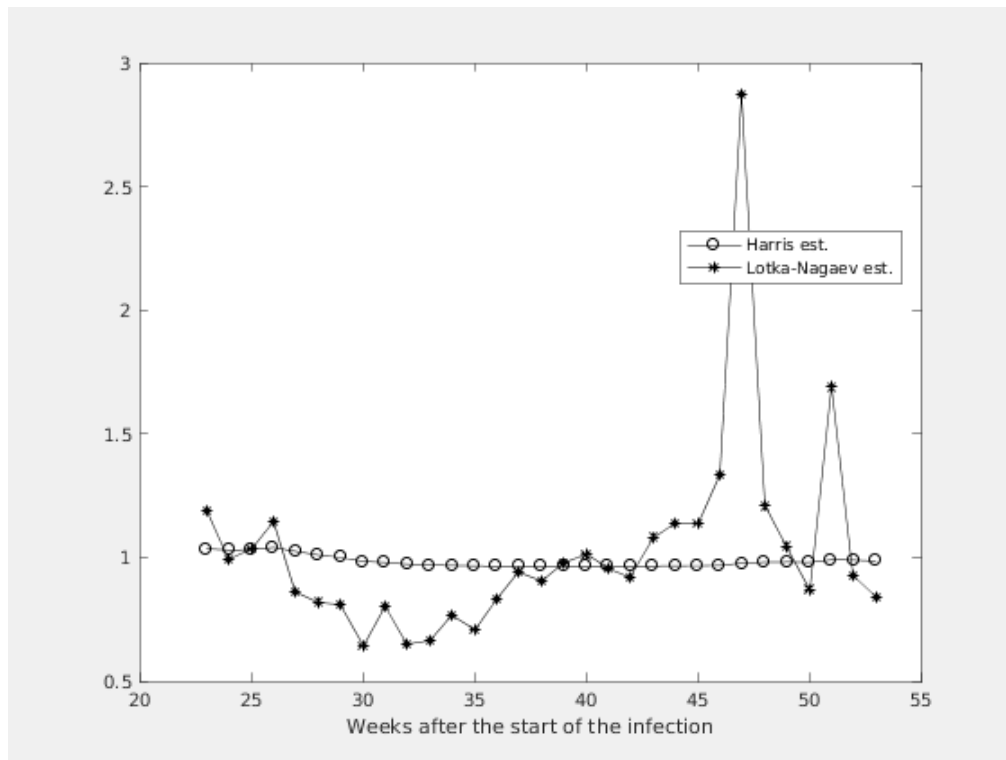
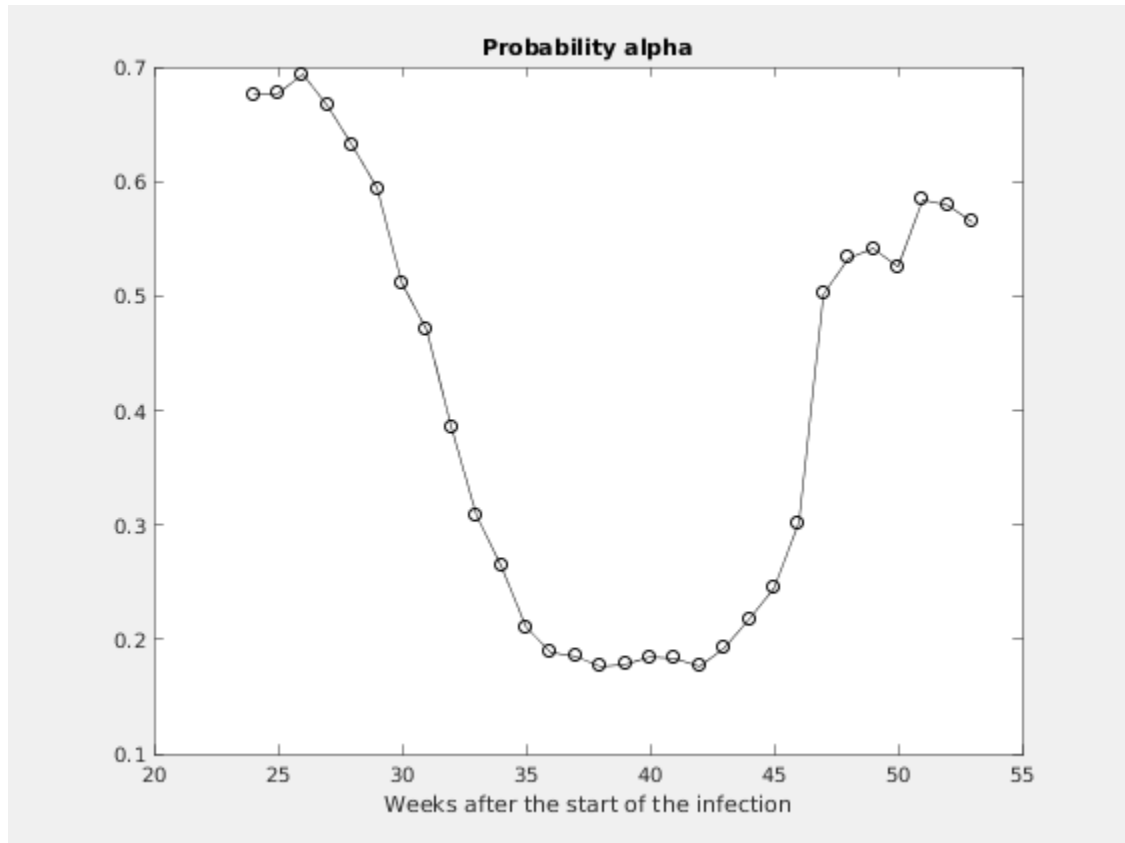
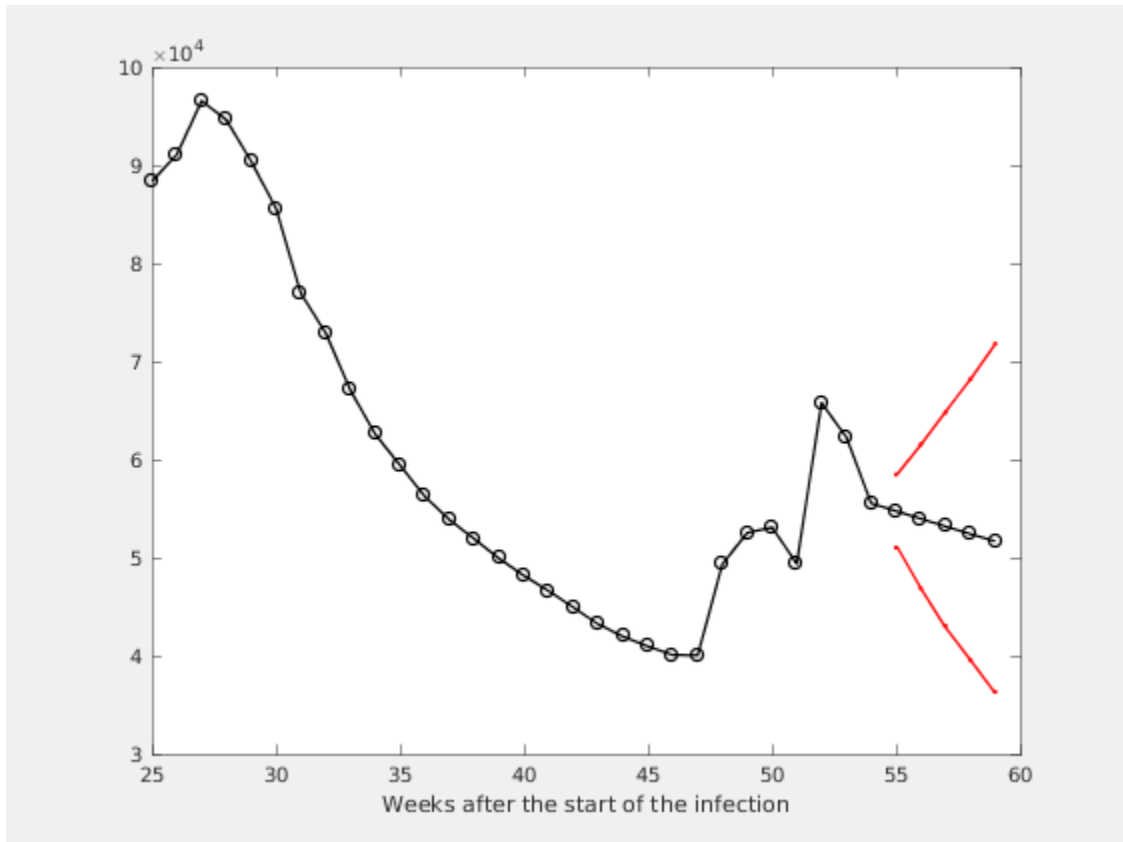


Figure 2.2. Figure

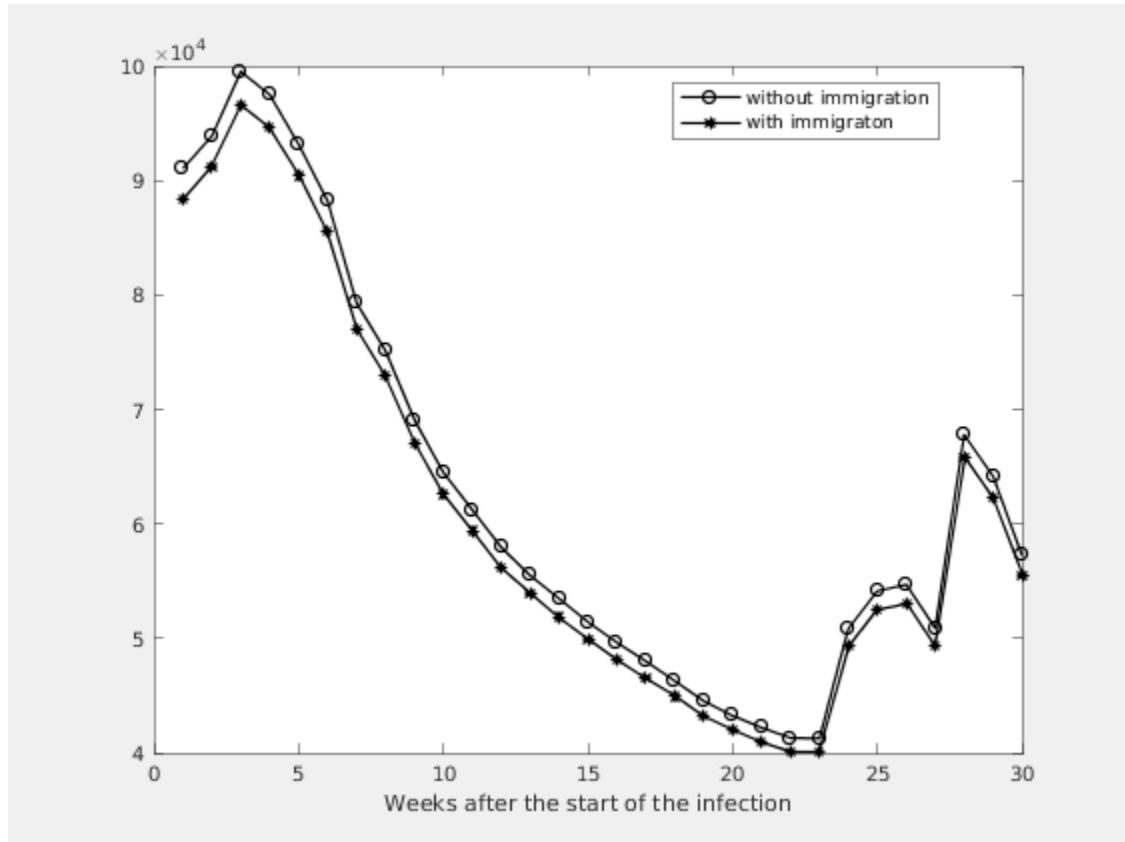




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9817	0.9119 - 1.0516	0.5016	49351	50857
3	0.9798	0.9107 - 1.0488	0.5330	52536	54139
2	0.9906	0.9228 - 1.0584	0.5416	53088	54708
1	0.9890	0.9224 - 1.0556	0.5254	49384	50891
0	0.9856	0.9159 - 1.0554	0.5839	65772	67779