

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

**Var121 - week 53**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var121 - 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 Var121. 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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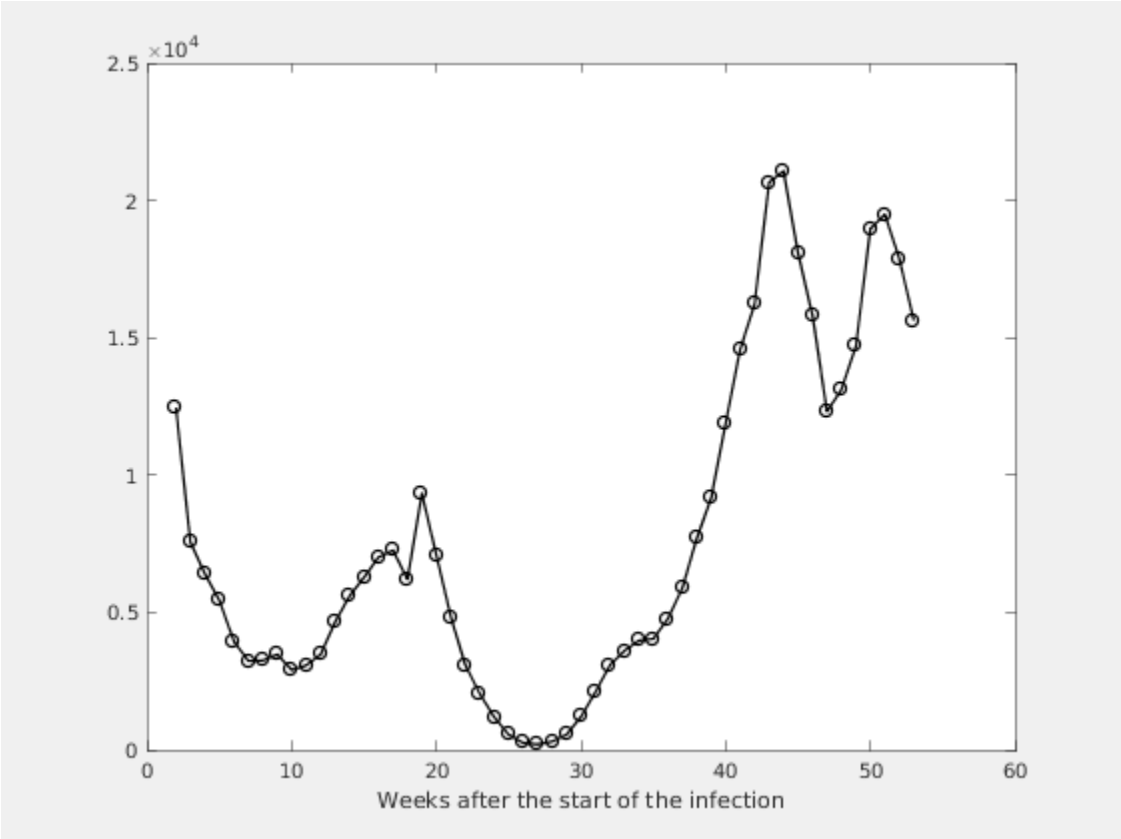
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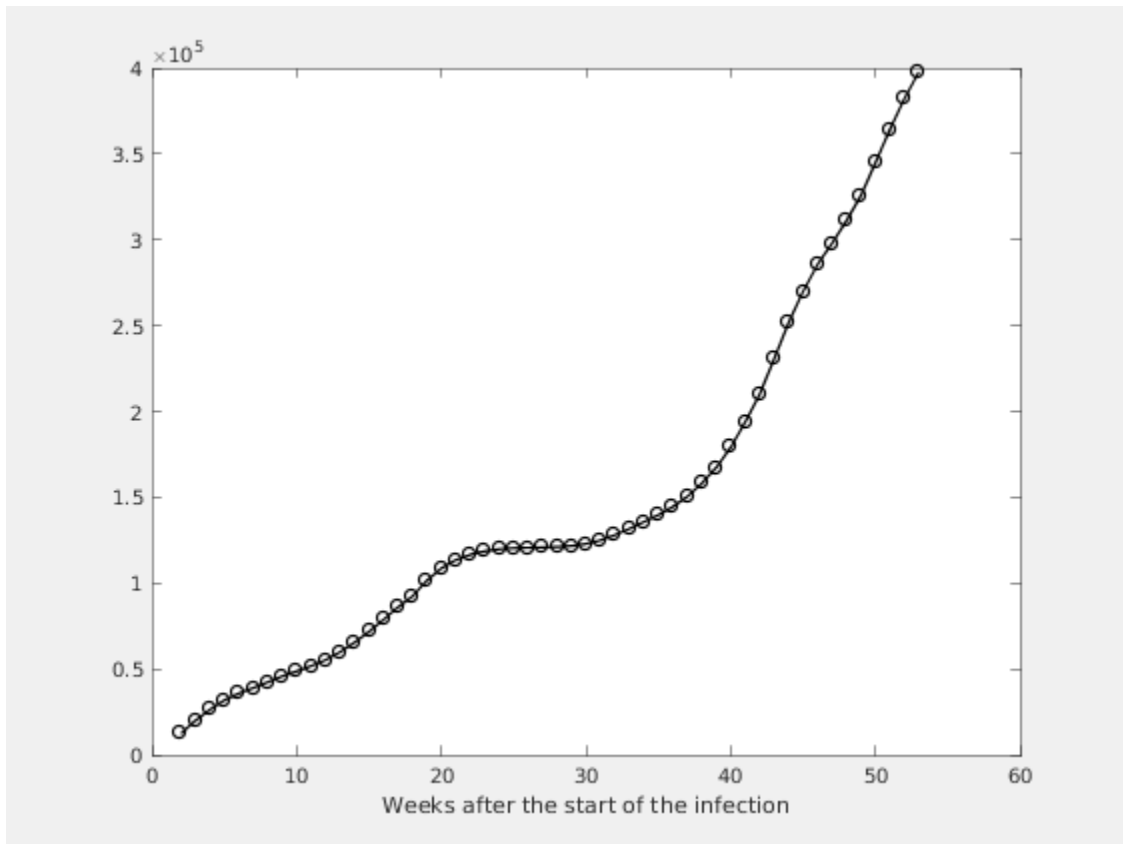
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# Chapter 1. Observed Infection data

Figure 1.1. Number of the weekly reported laboratory-confirmed cases



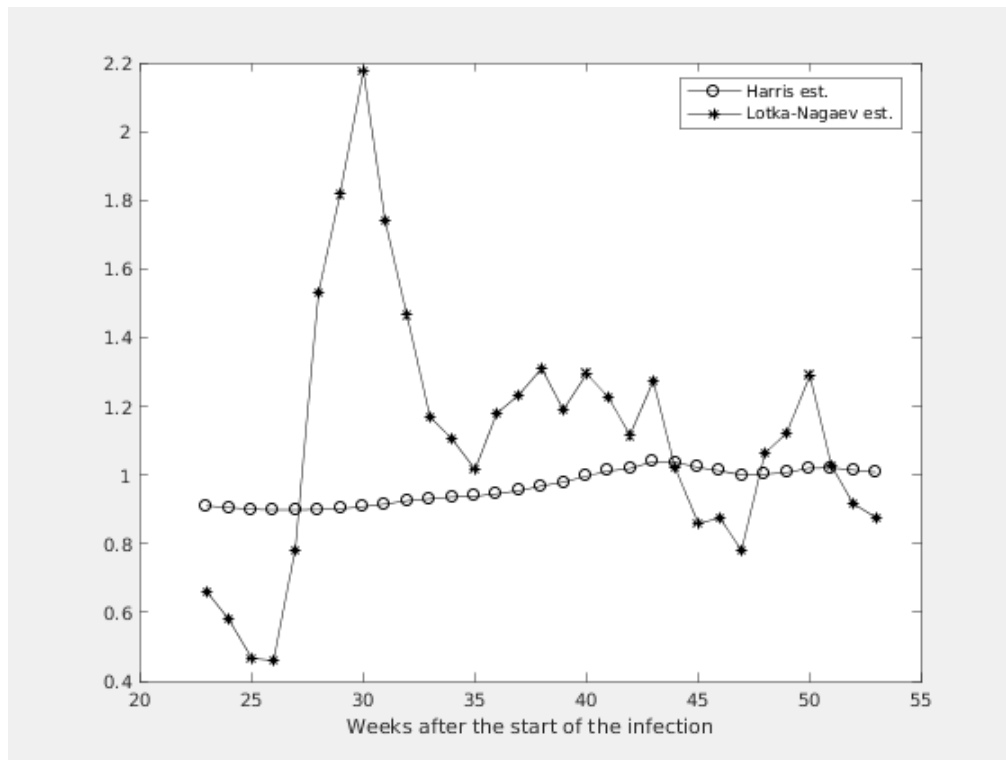
**Figure 1.2. Number of the total registered cases**



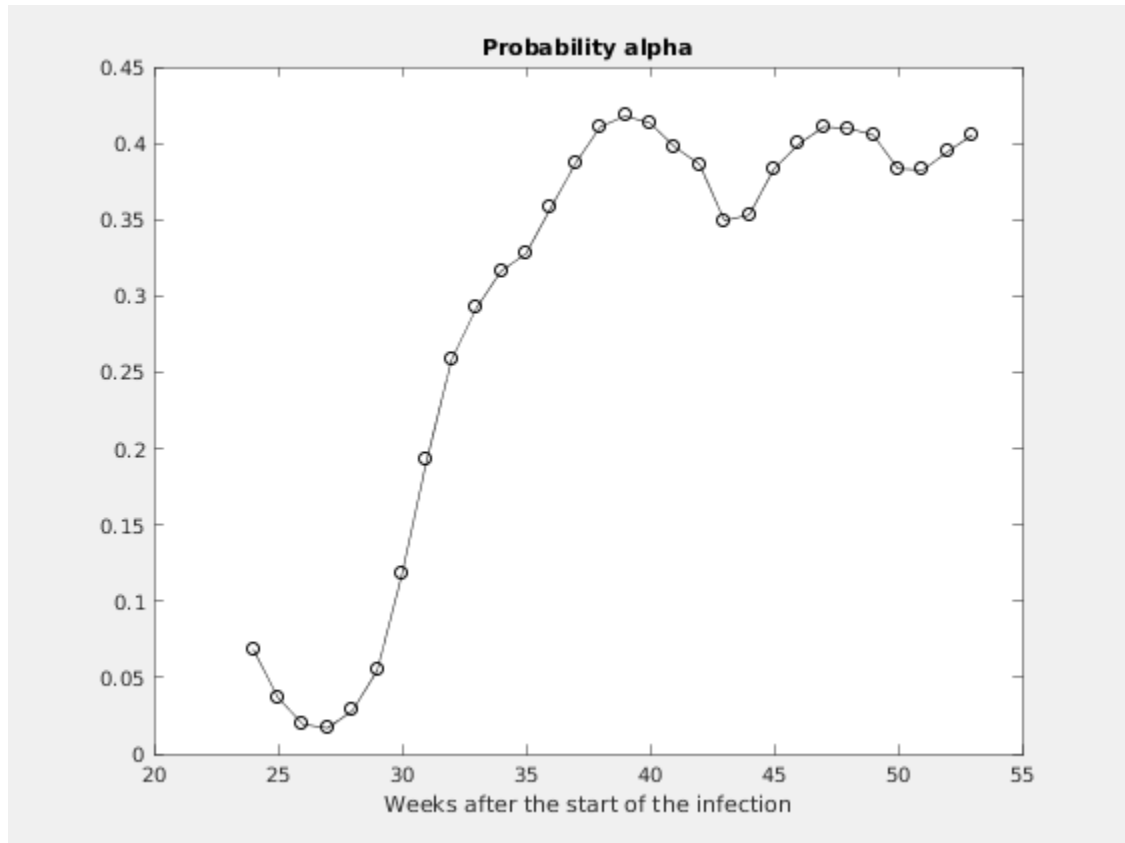
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# Chapter 2. Estimating of the main parameter and some predictions

Figure 2.1. The Lotka-Nagaev and the Harris type estimator of the growth rate

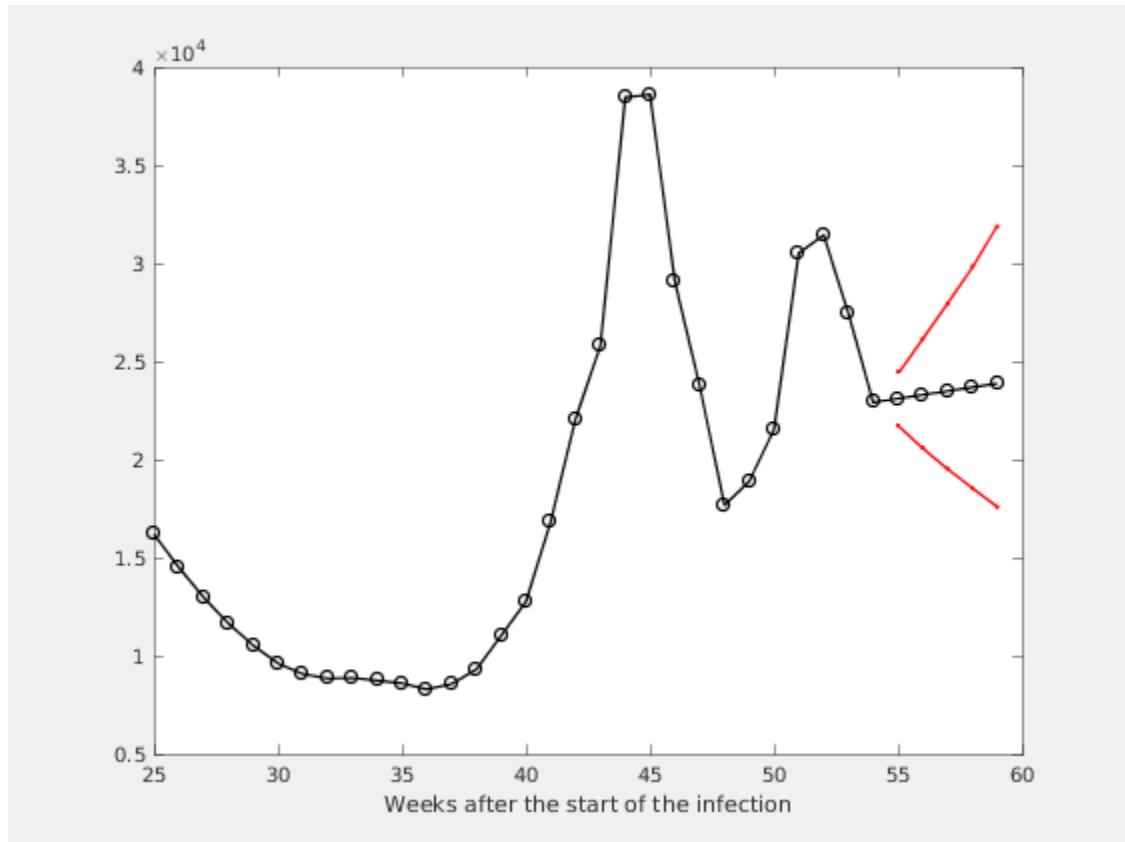


**Figure 2.2. Figure**

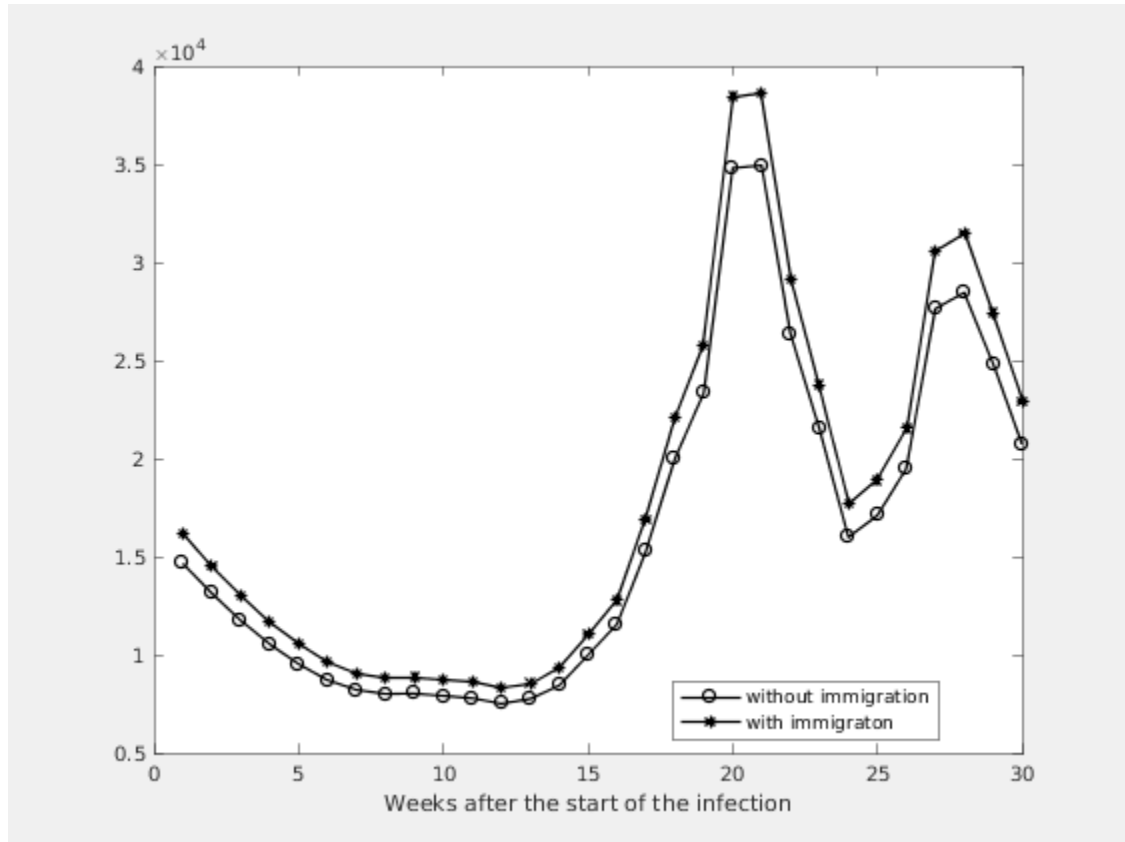




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	1.0072	0.9372 - 1.0771	0.4108	17675	15996
3	1.0200	0.9520 - 1.0880	0.4098	18889	17095
2	1.0204	0.9543 - 1.0865	0.4056	21531	19486
1	1.0149	0.9489 - 1.0809	0.3834	30525	27626
0	1.0083	0.9447 - 1.0719	0.3825	31446	28459