

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

**Eritrea - week 53**

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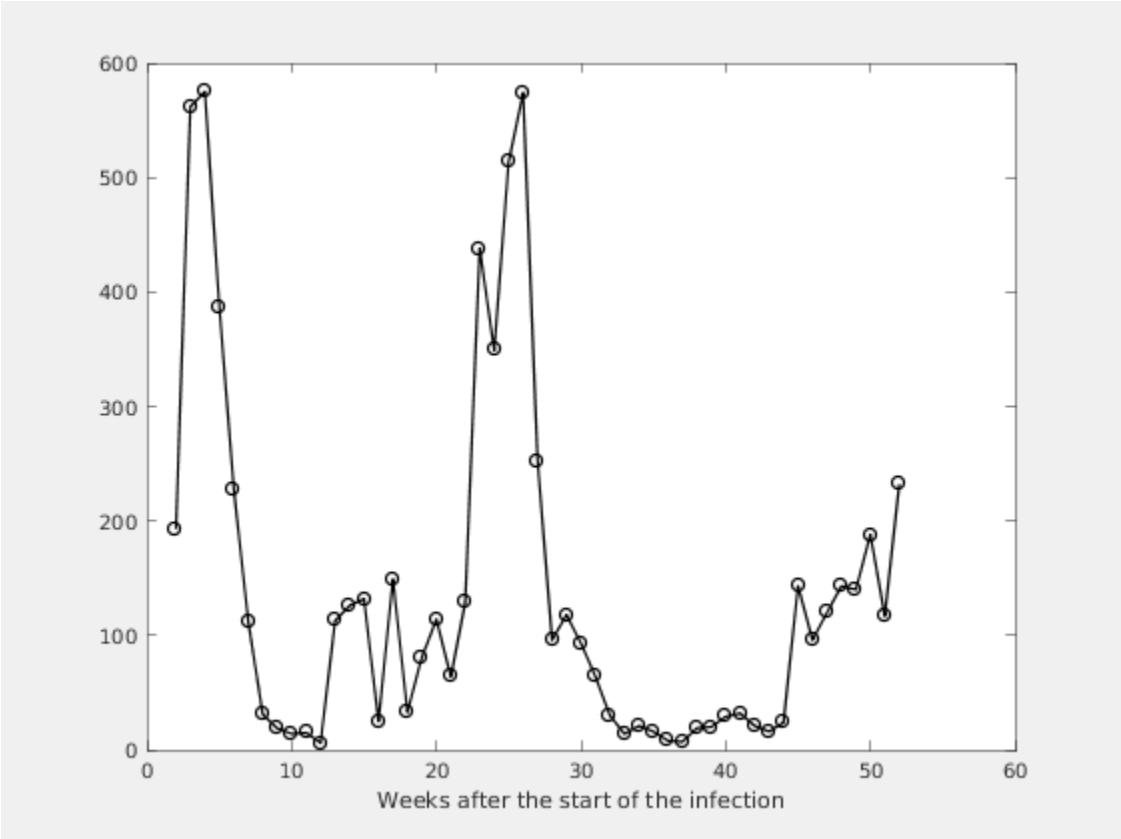
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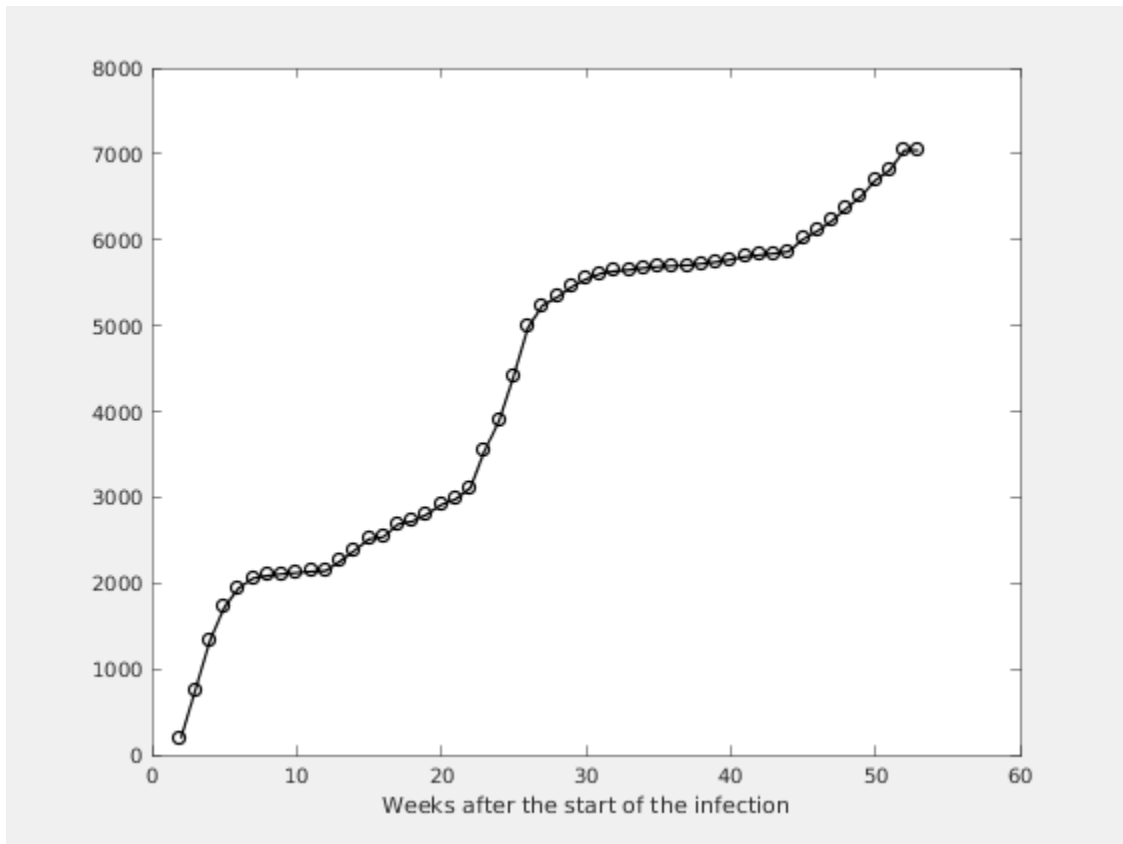
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# Chapter 1. Observed Infection data

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

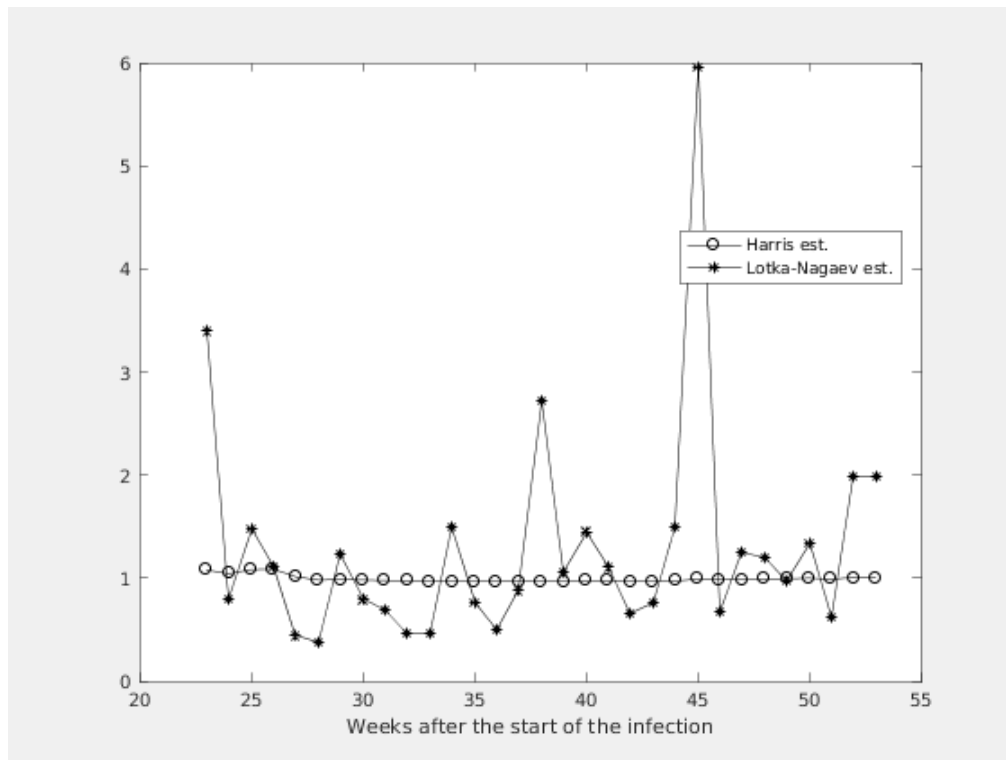
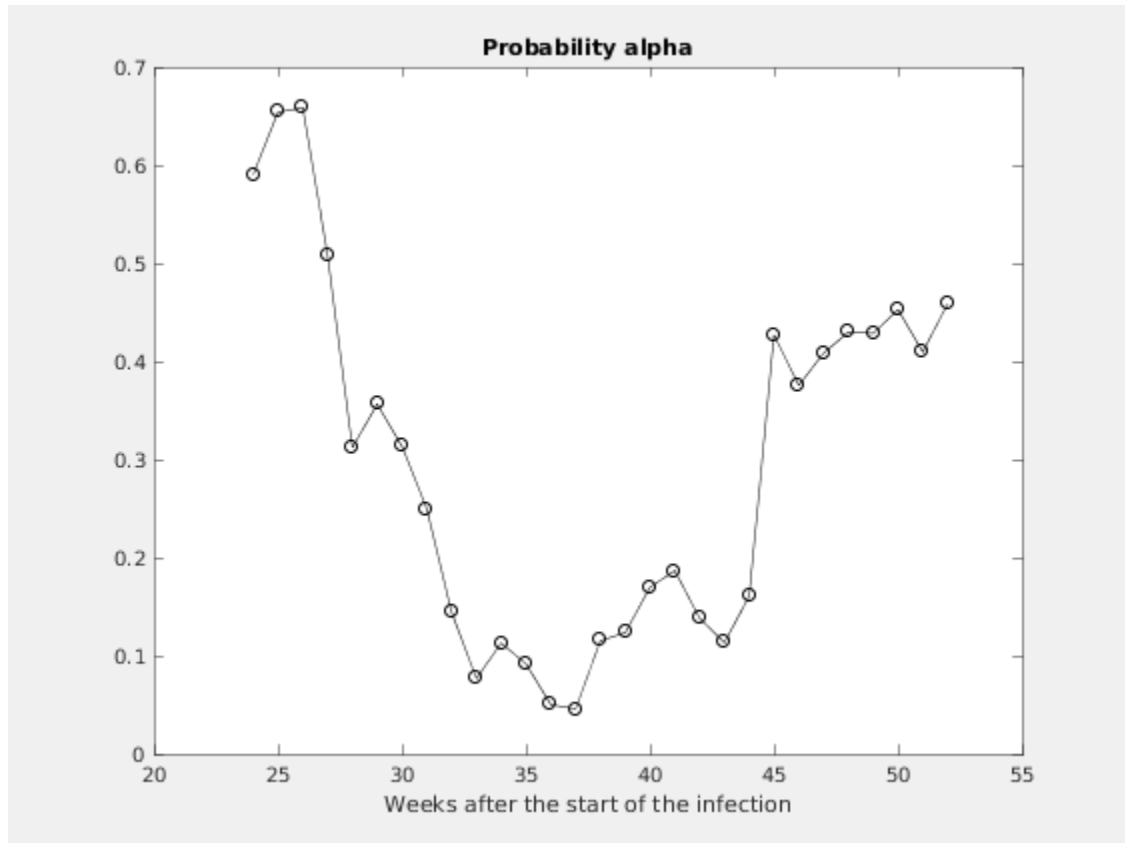
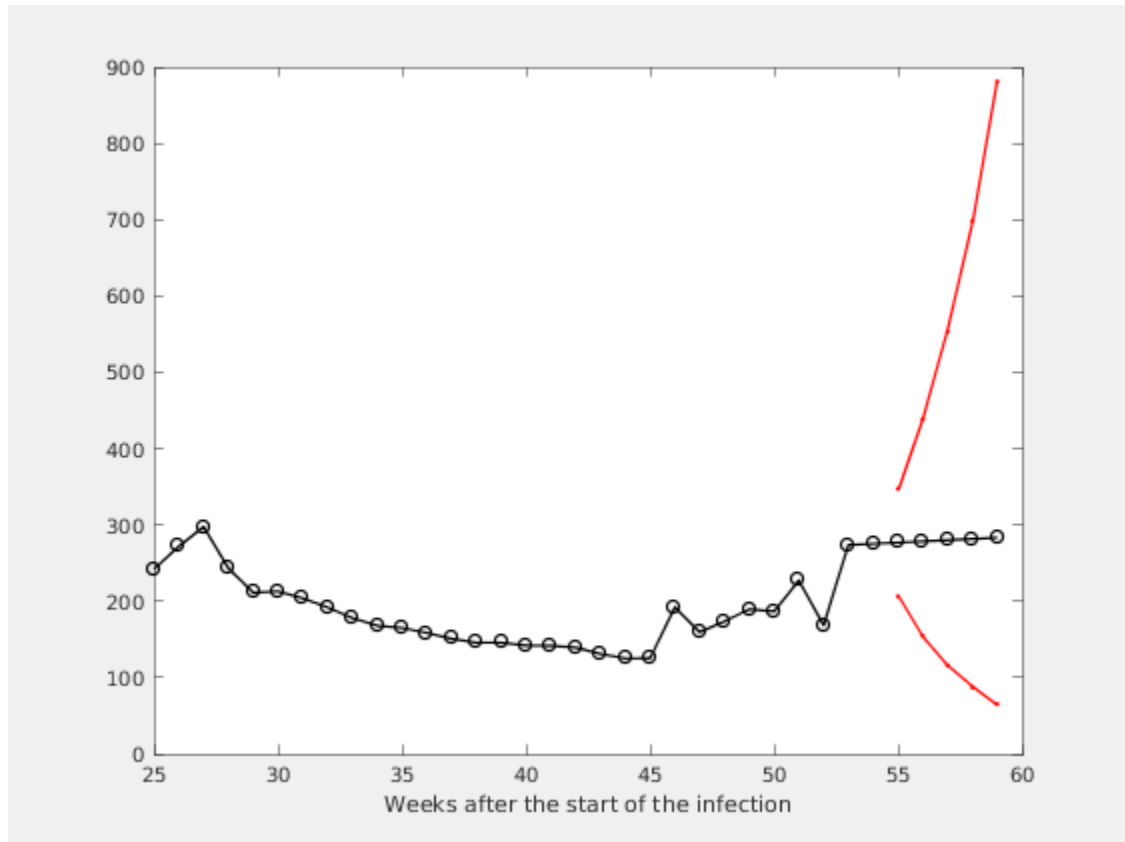


Figure 2.2. Figure

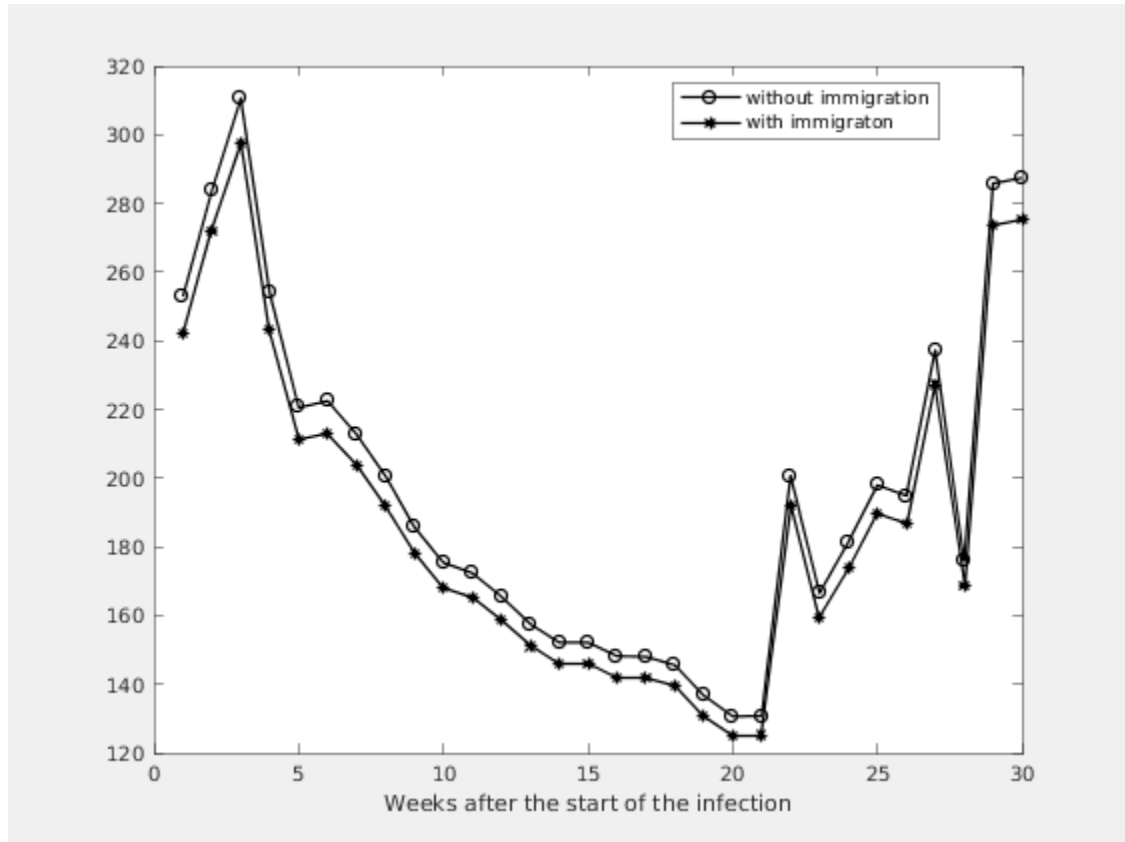




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9917	0.7104 - 1.2729	0.4084	174	181
3	0.9992	0.7236 - 1.2748	0.4299	190	198
2	0.9886	0.7191 - 1.2582	0.4286	187	195
1	1.0057	0.7415 - 1.2700	0.4528	227	237
0	1.0057	0.7472 - 1.2642	0.4098	169	176