

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

**Ethiopia - week 53**

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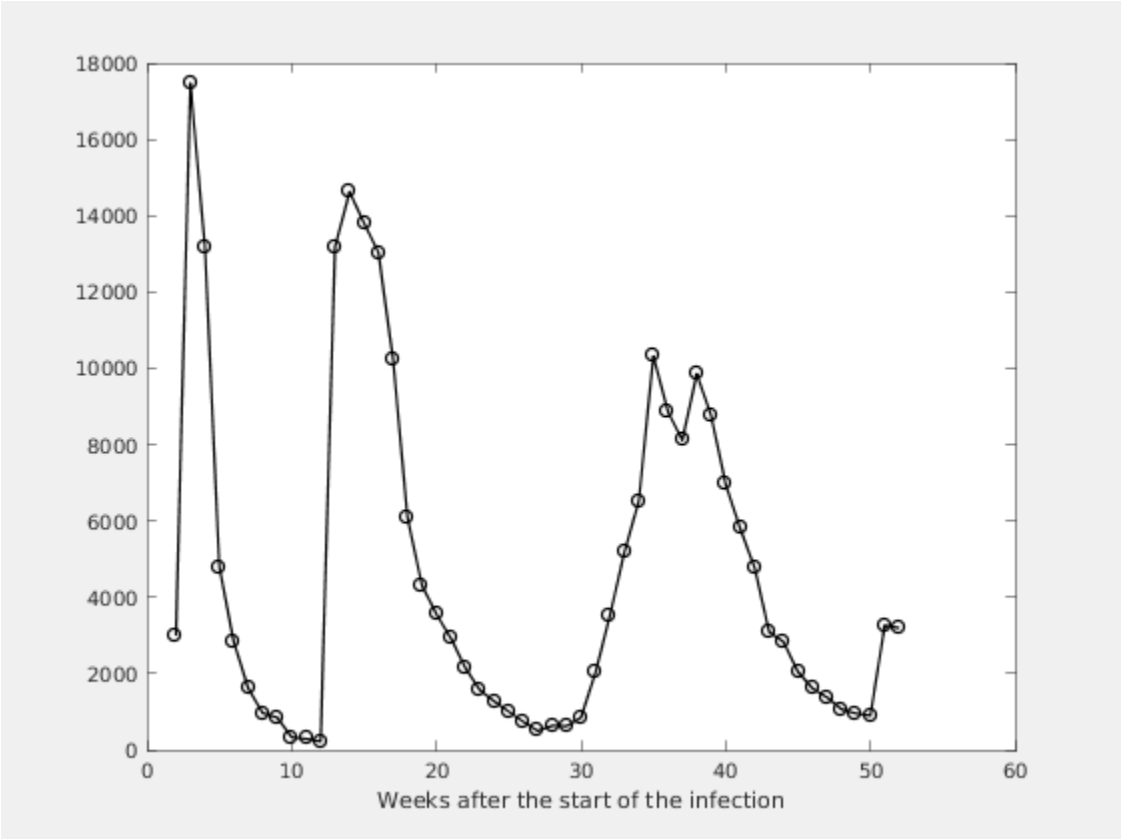
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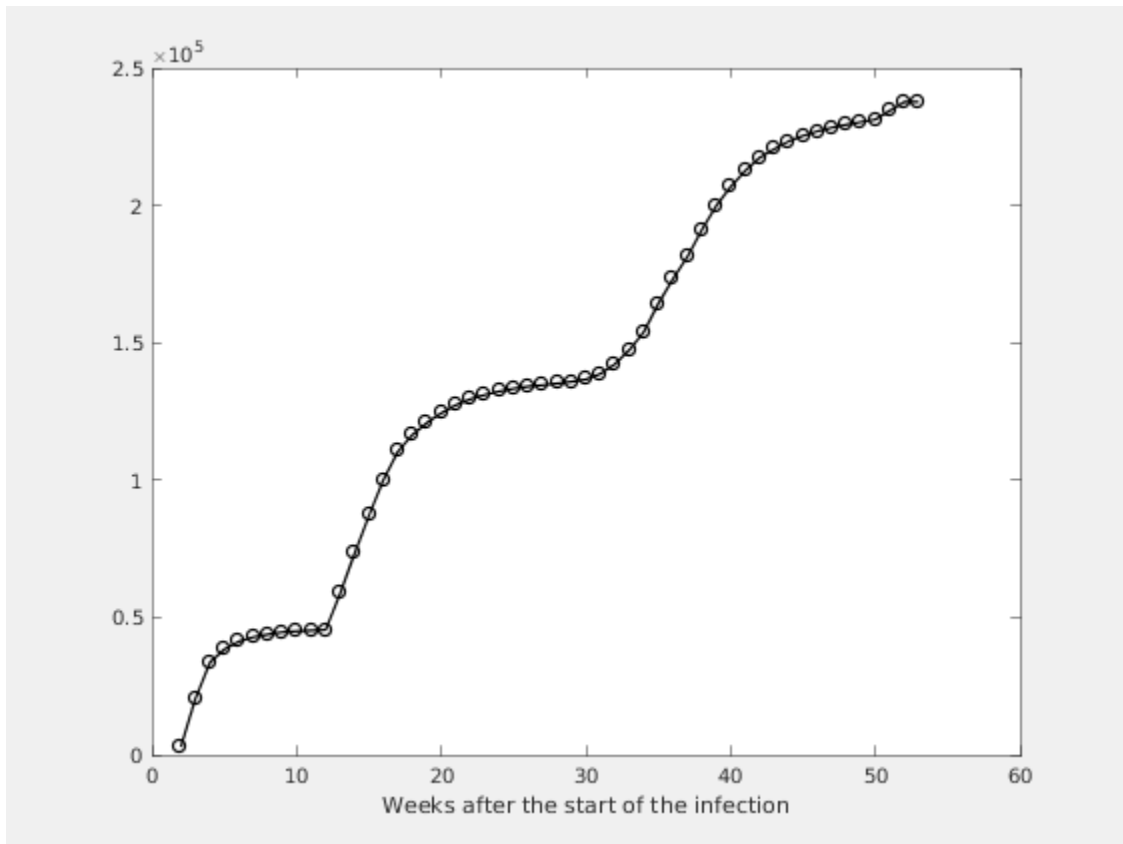
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# Chapter 1. Observed Infection data

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

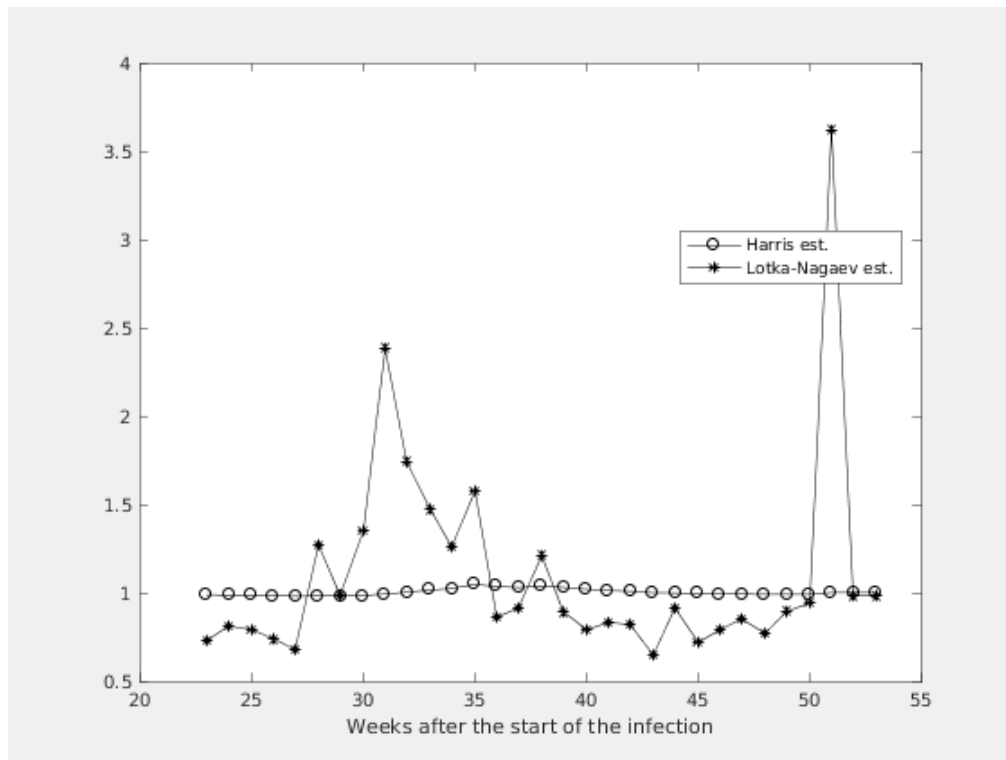
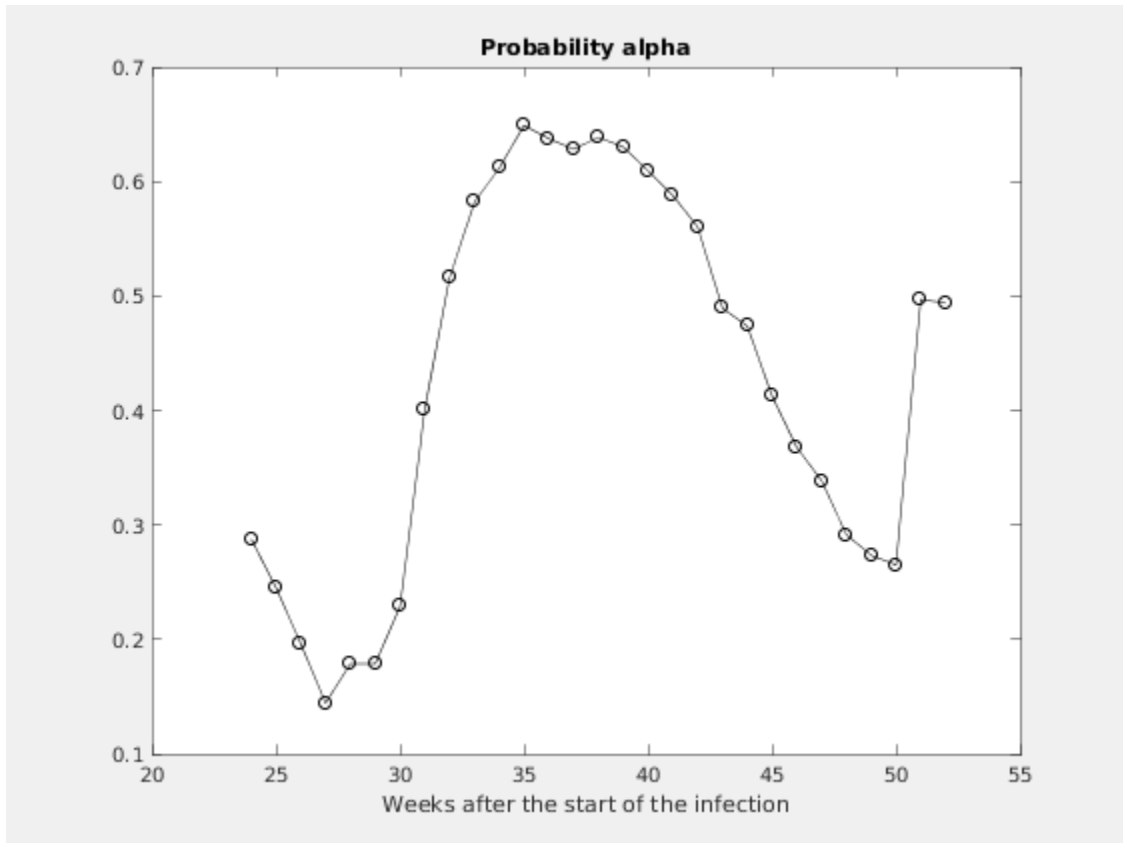
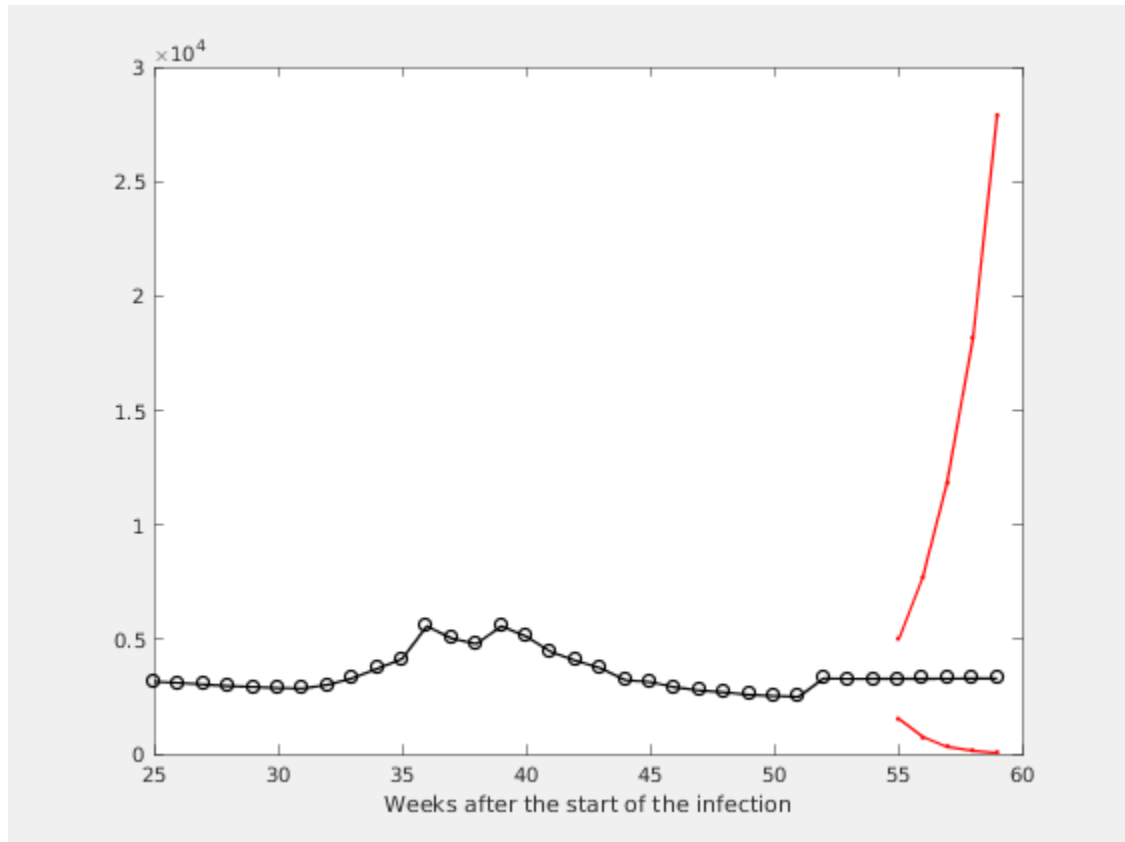


Figure 2.2. Figure

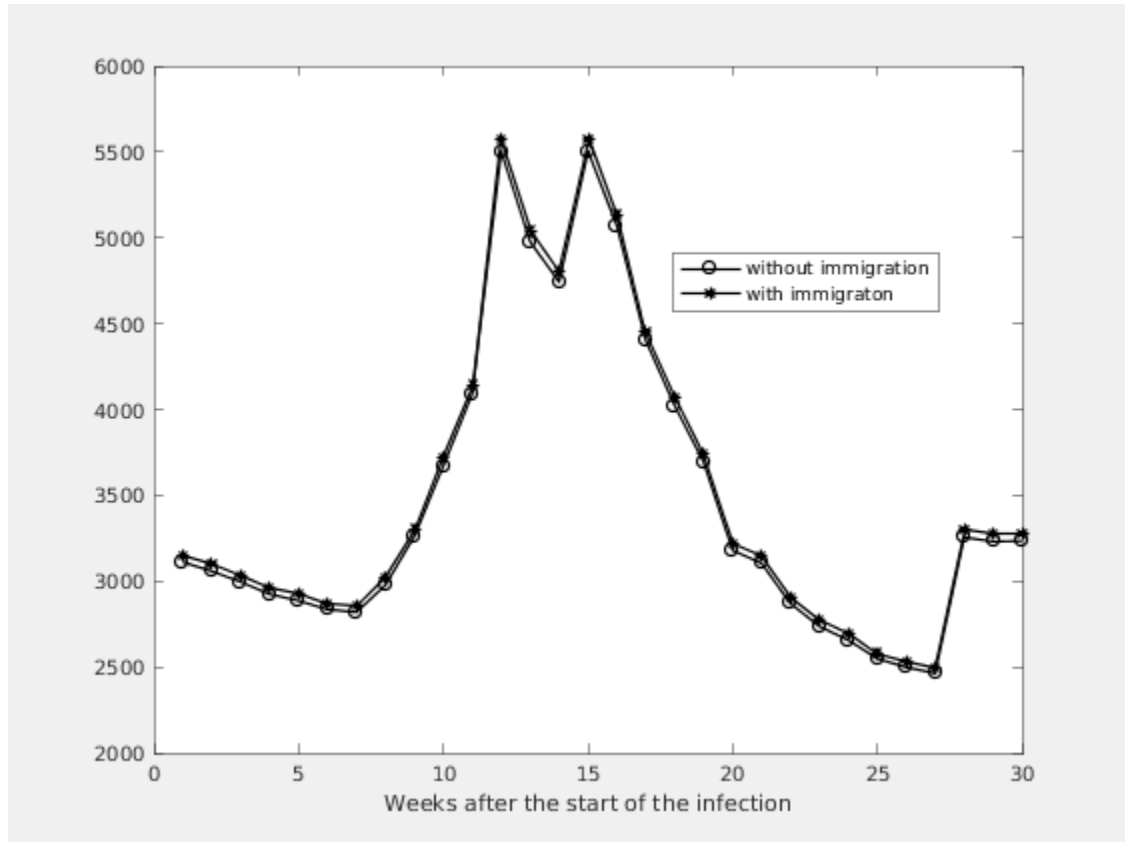




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9911	0.4212 - 1.5610	0.3387	2691	2655
3	0.9909	0.4289 - 1.5529	0.2914	2583	2549
2	1.0012	0.4464 - 1.5559	0.2735	2532	2499
1	1.0009	0.4531 - 1.5487	0.2650	2496	2463
0	1.0009	0.4578 - 1.5439	0.4971	3298	3255