

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

**SriLanka - week 53**

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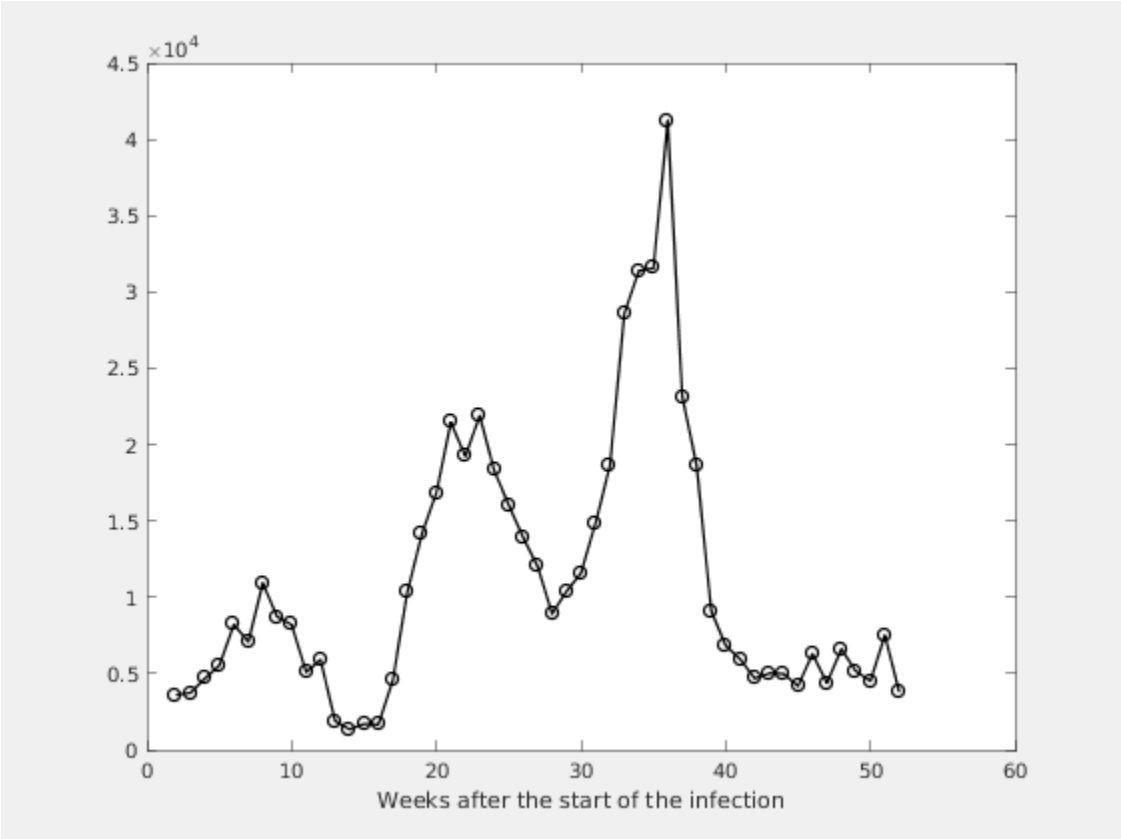
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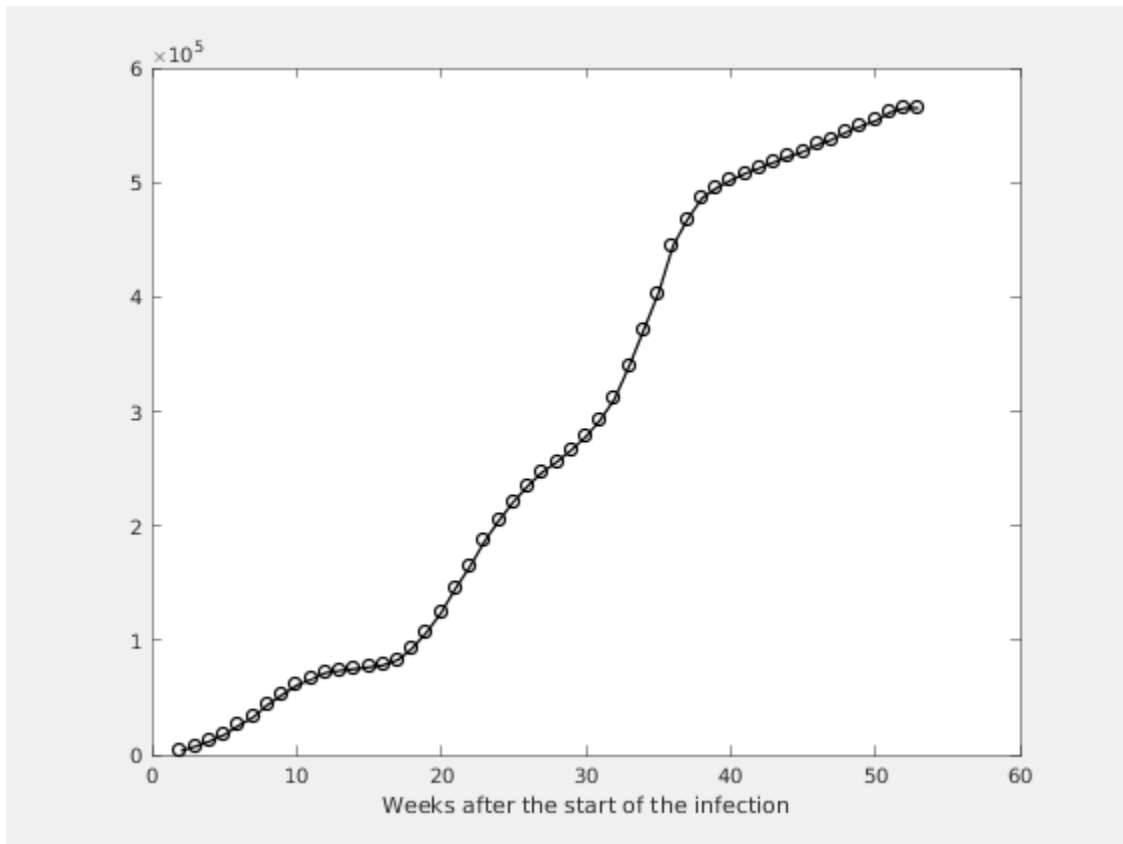
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# Chapter 1. Observed Infection data

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

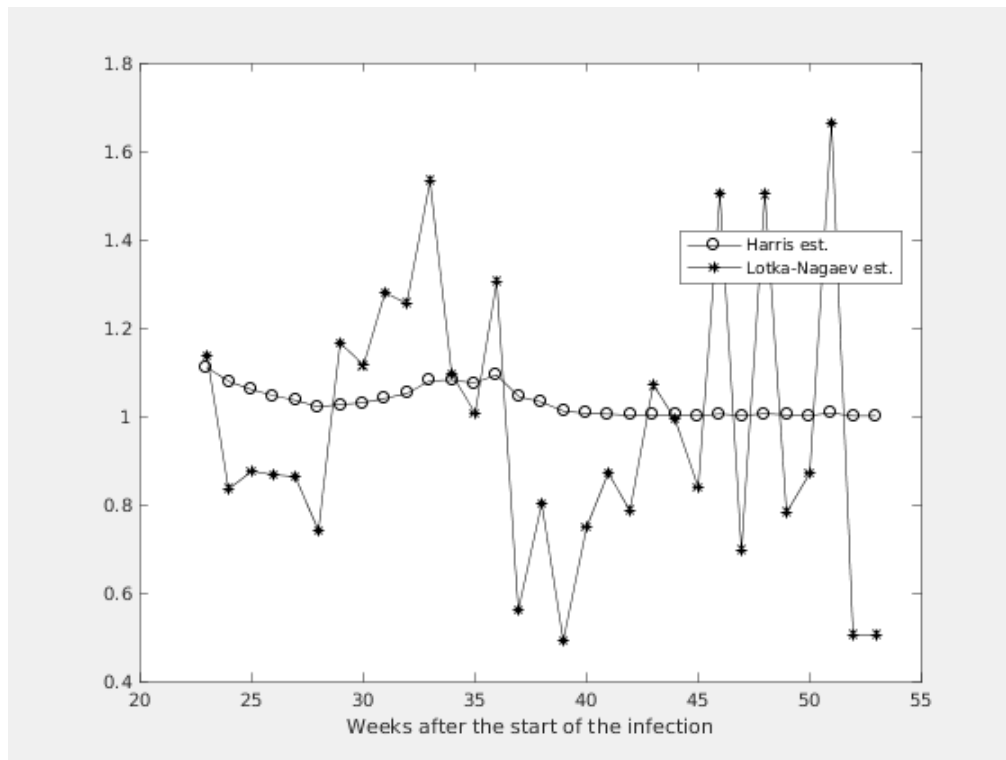
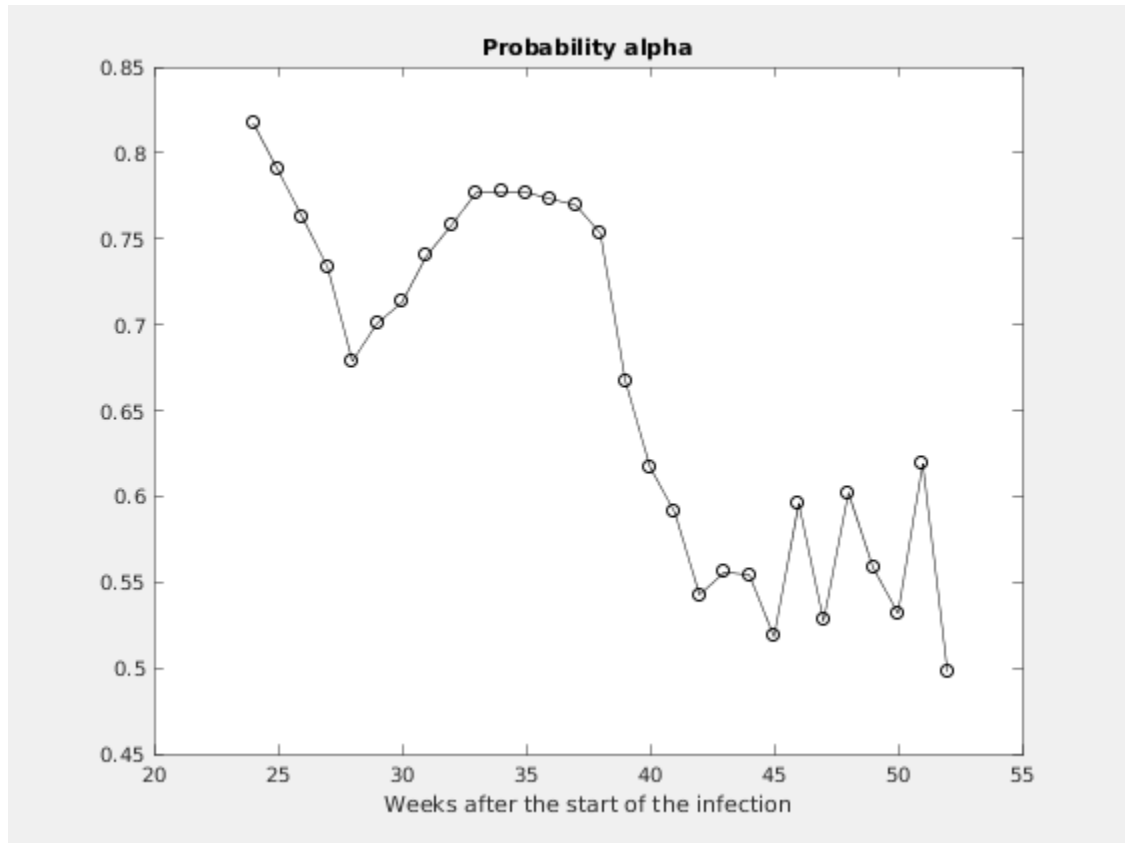
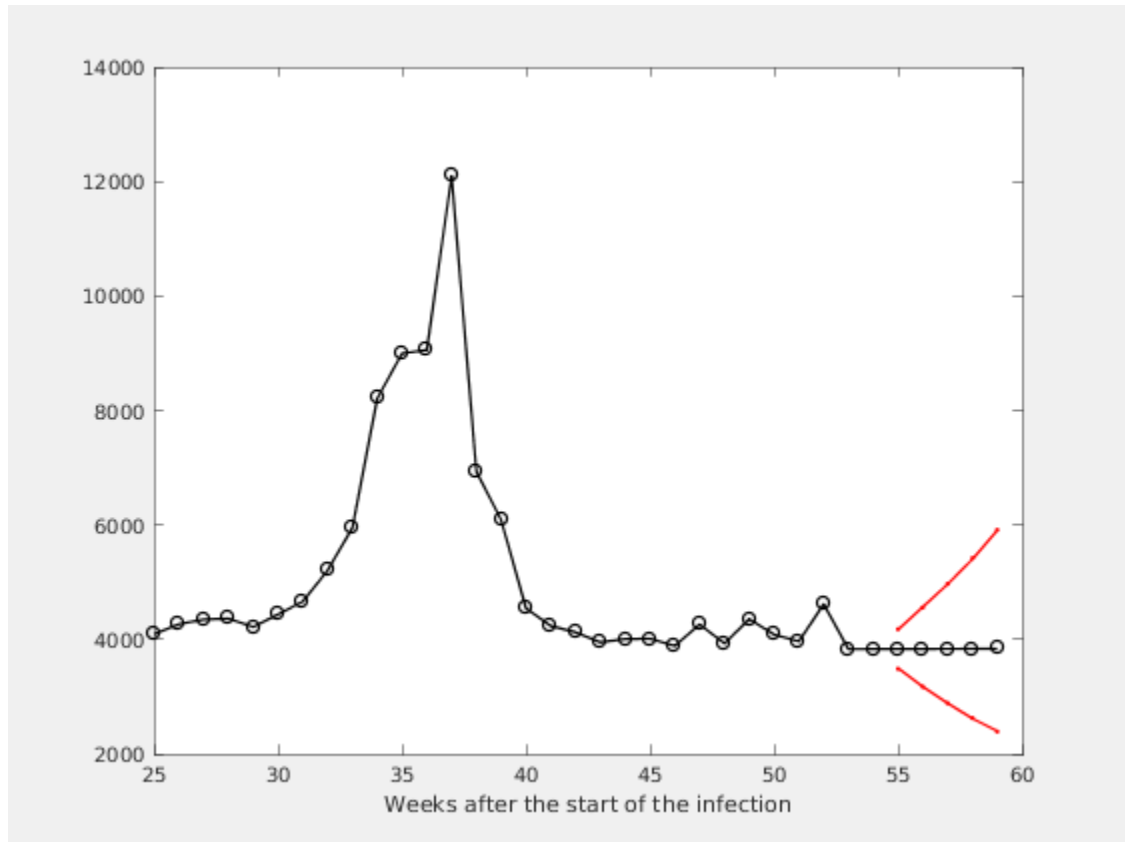


Figure 2.2. Figure

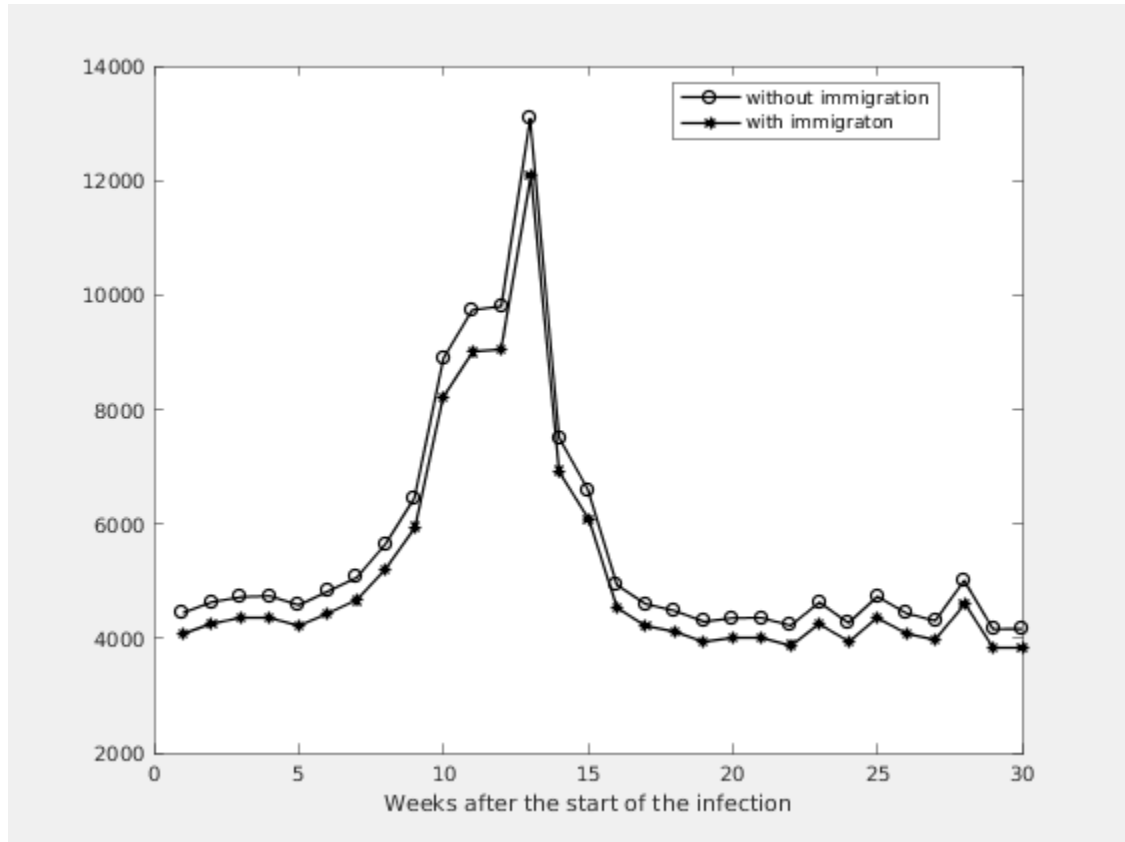




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

| k | m      | ci              | alpha  | A1   | M1   |
|---|--------|-----------------|--------|------|------|
| 4 | 1.0029 | 0.9096 - 1.0961 | 0.5276 | 3929 | 4270 |
| 3 | 1.0016 | 0.9089 - 1.0944 | 0.6021 | 4356 | 4731 |
| 2 | 1.0070 | 0.9156 - 1.0985 | 0.5582 | 4085 | 4439 |
| 1 | 1.0003 | 0.9102 - 1.0905 | 0.5320 | 3964 | 4308 |
| 0 | 1.0003 | 0.9099 - 1.0907 | 0.6190 | 4615 | 5010 |