

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

**Tunisia - week 53**

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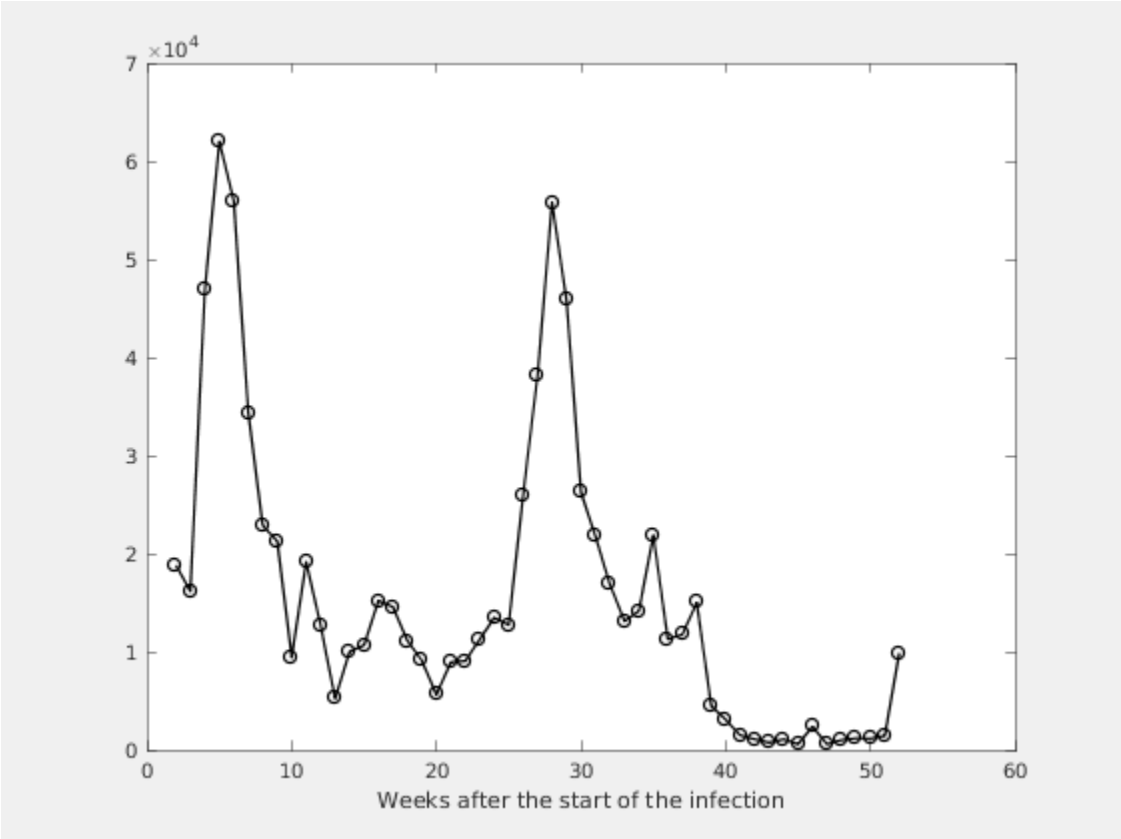
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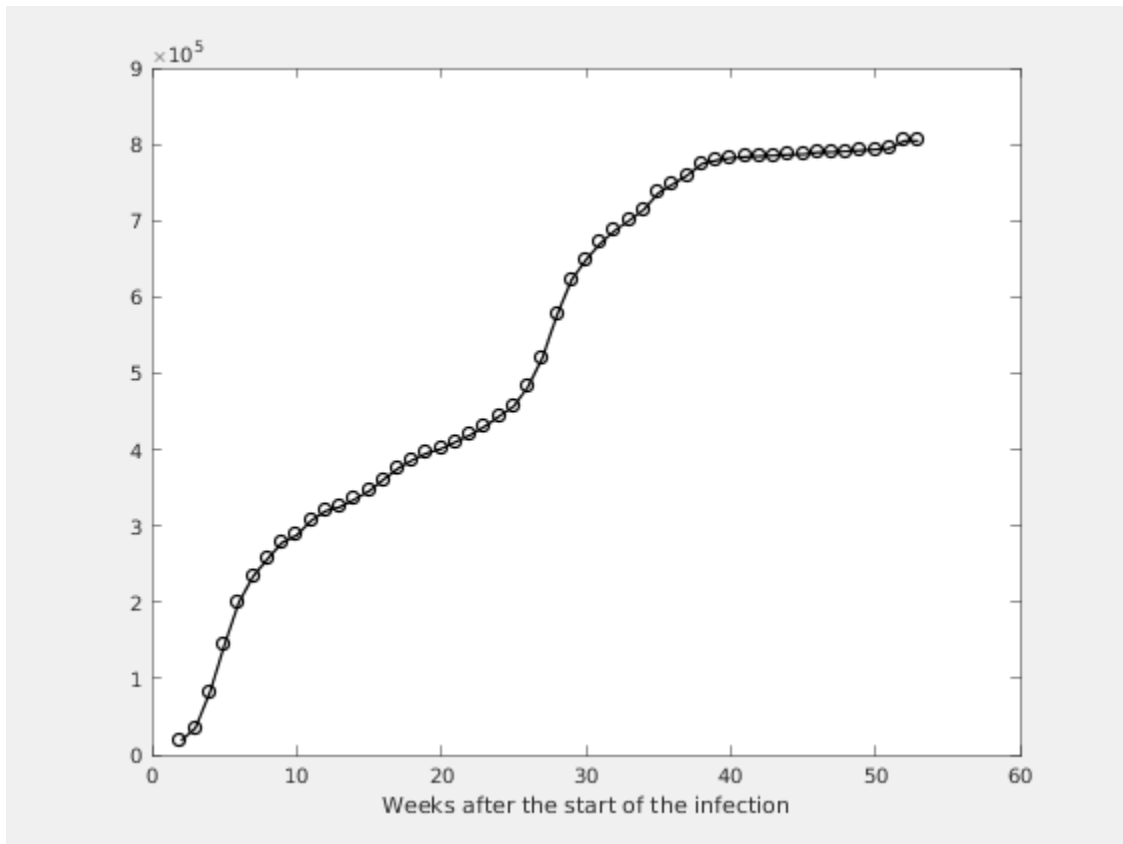
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# Chapter 1. Observed Infection data

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

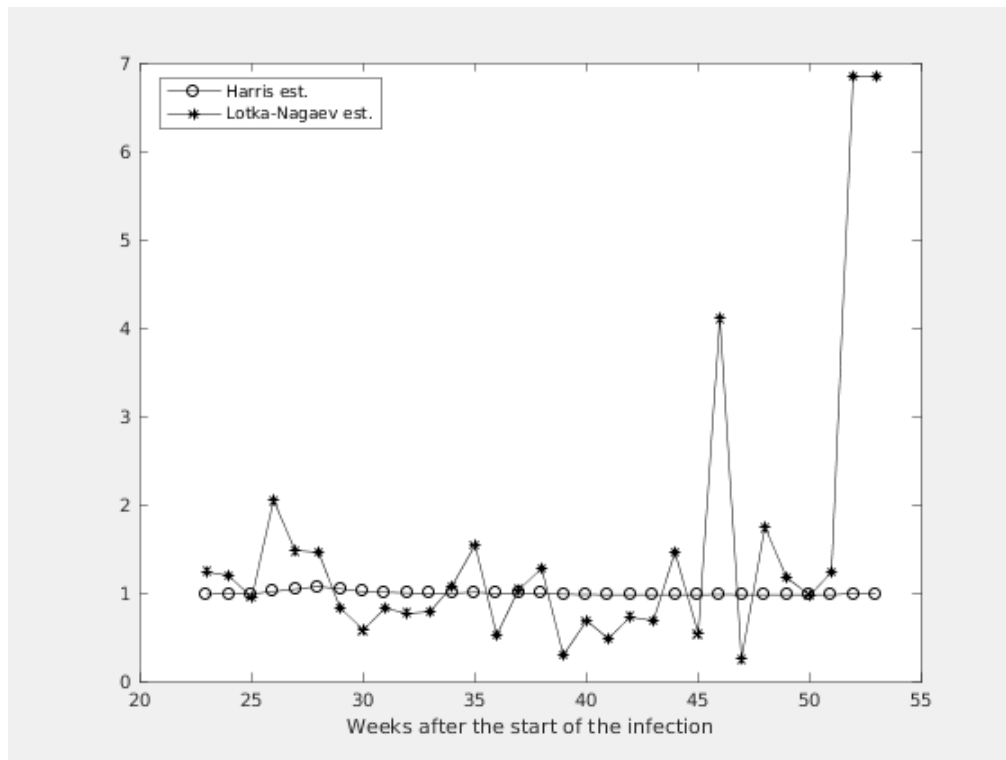
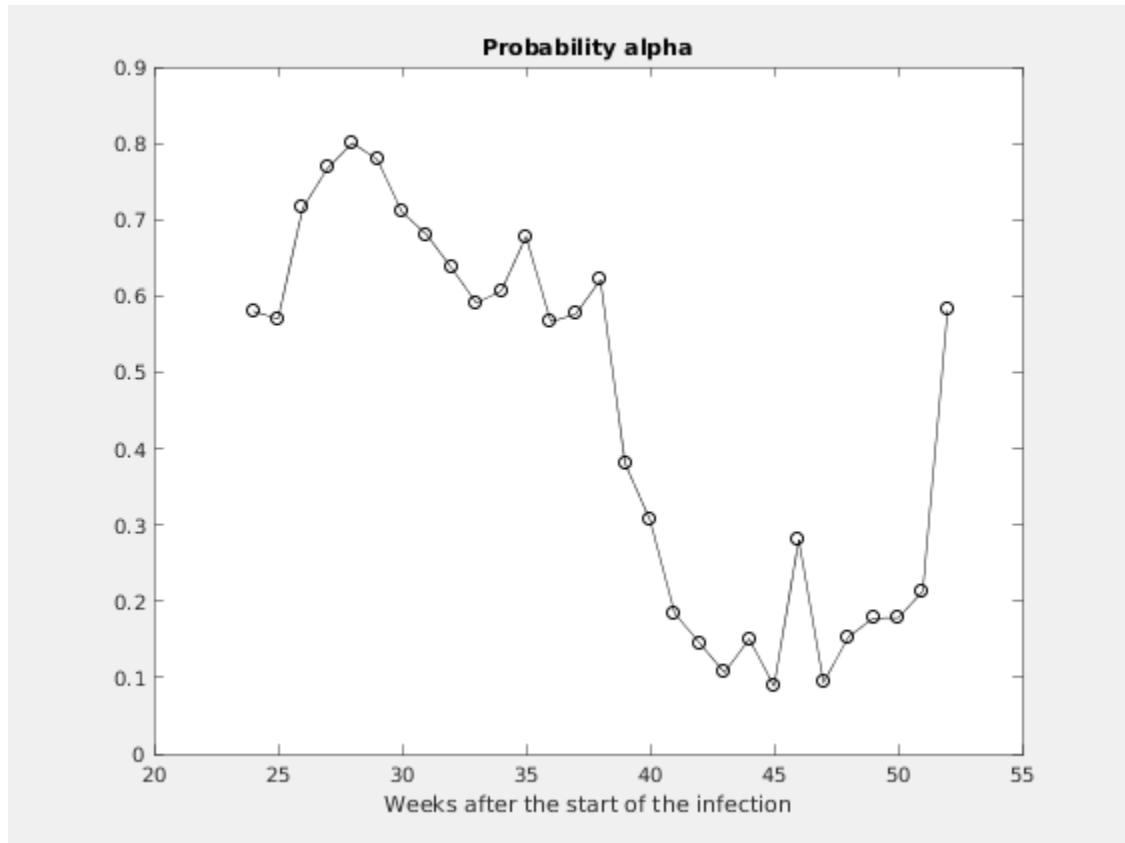
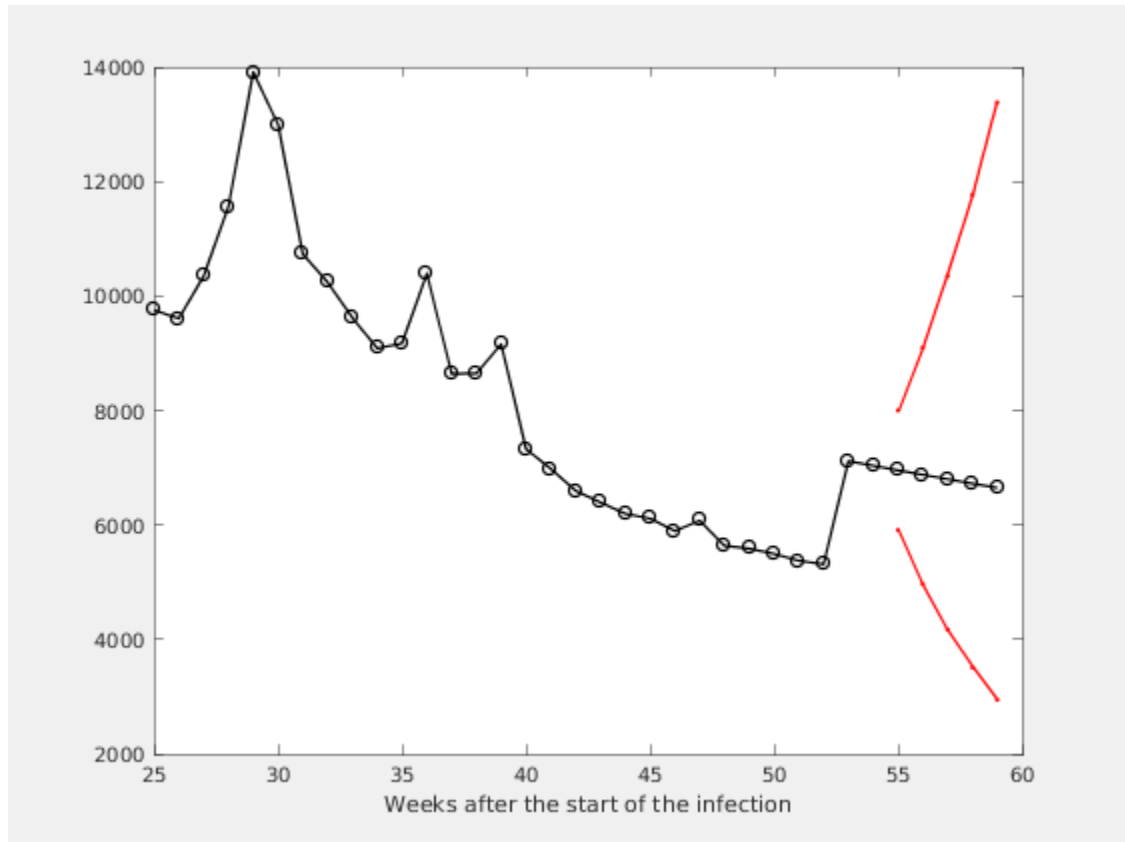


Figure 2.2. Figure

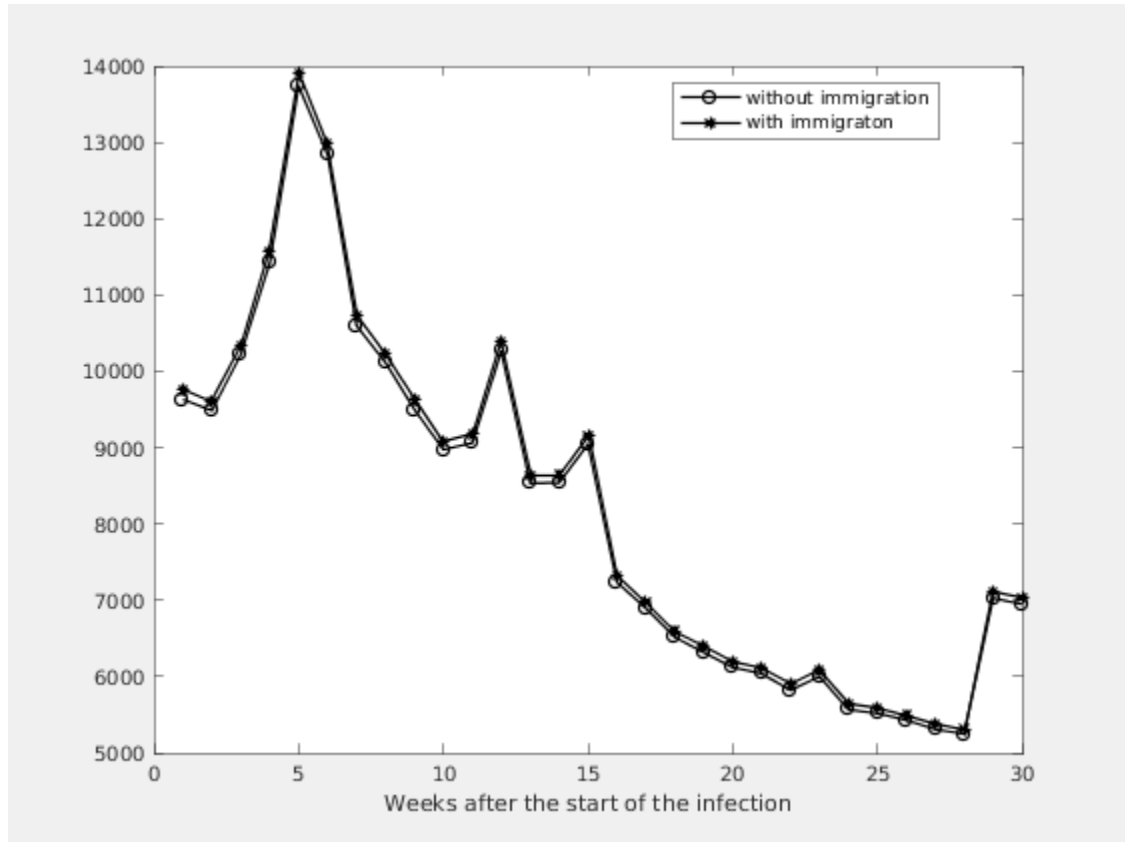




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9777	0.8390 - 1.1165	0.0936	5637	5567
3	0.9777	0.8404 - 1.1151	0.1532	5586	5517
2	0.9781	0.8423 - 1.1139	0.1778	5497	5429
1	0.9888	0.8545 - 1.1231	0.1780	5375	5309
0	0.9888	0.8559 - 1.1216	0.2133	5313	5248