

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

**Tunisia - 20201214**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Tunisia - 20201214**

### **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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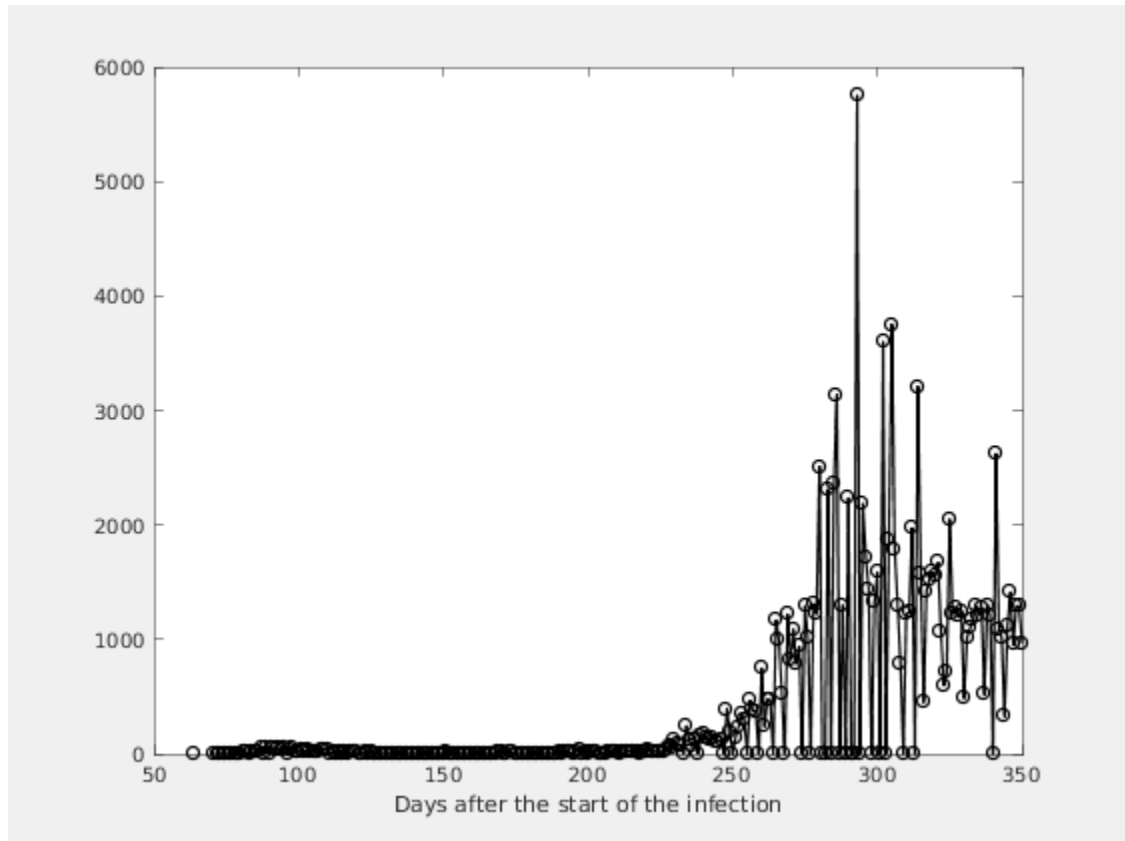
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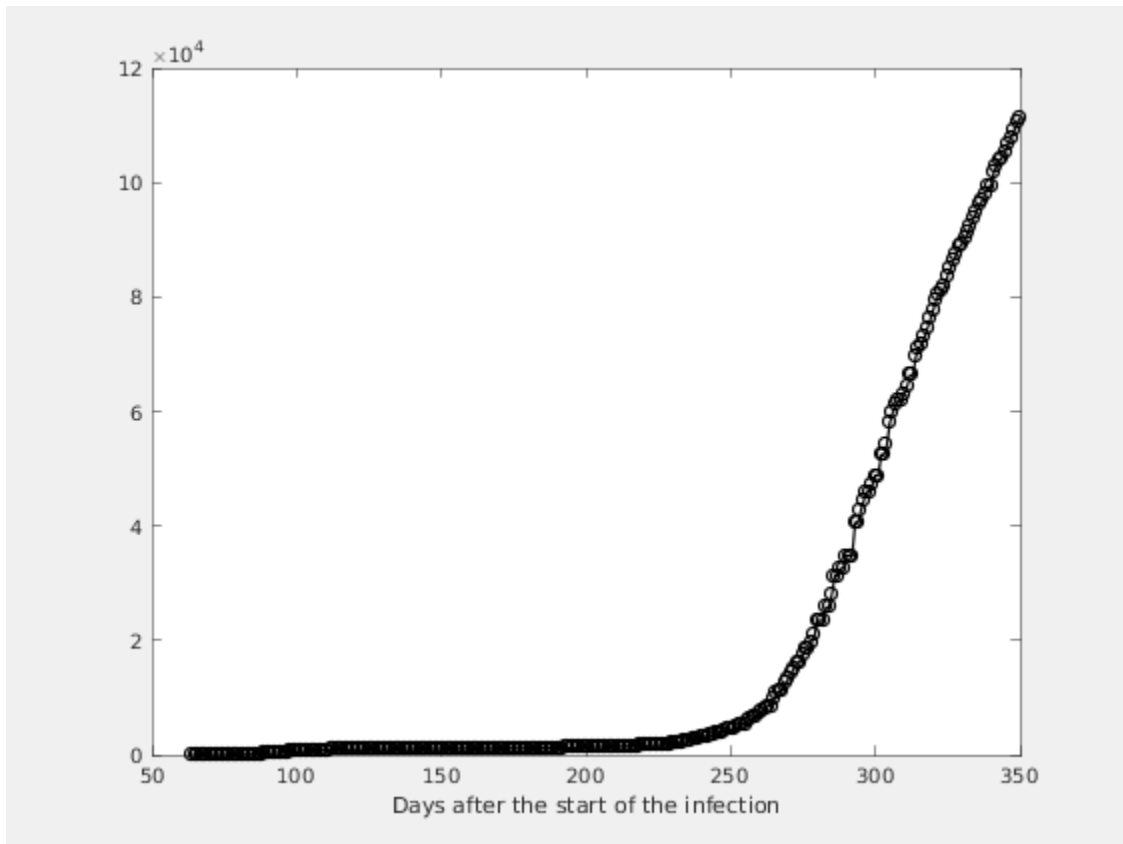
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# Chapter 1. Observed Infection data

Figure 1.1. Number of the daily 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

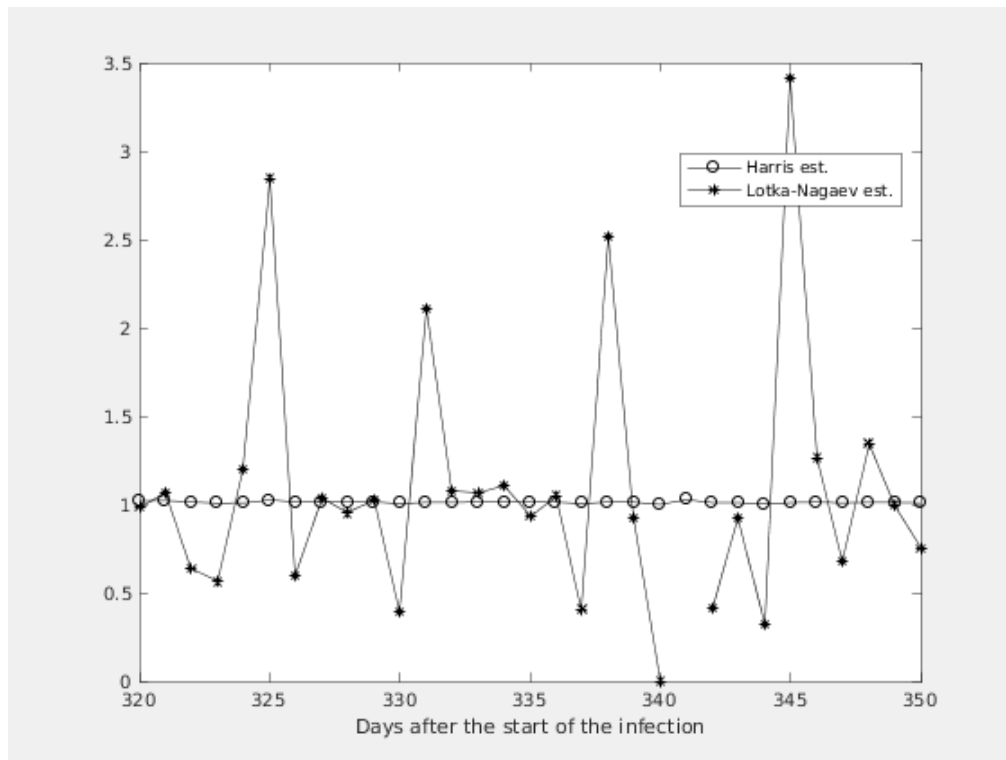
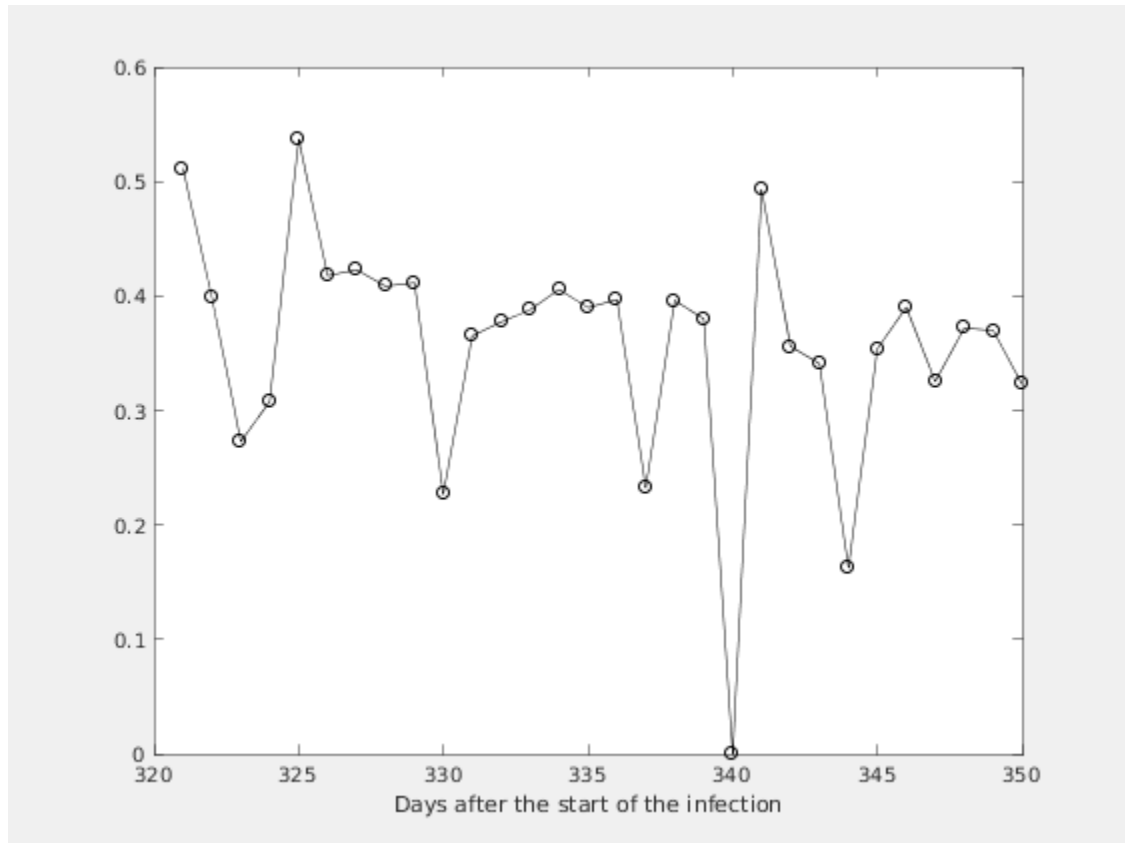
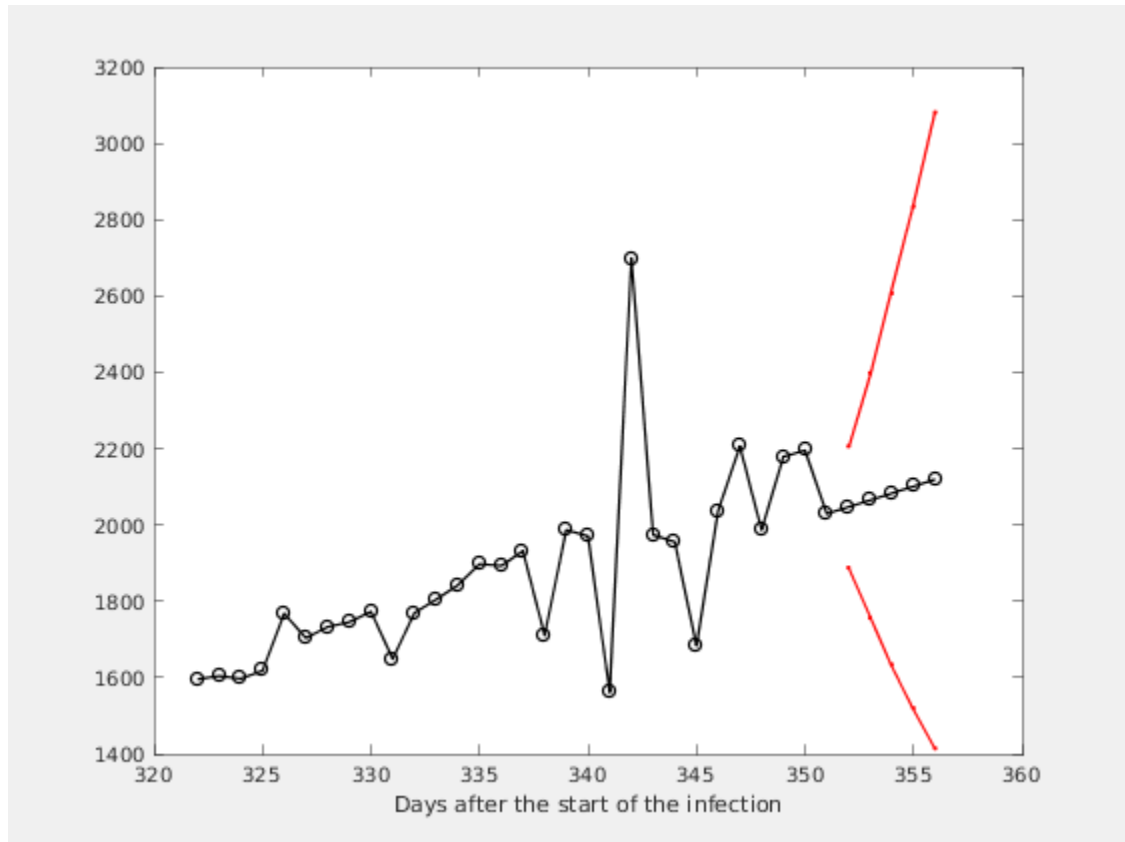


Figure 2.2. Figure

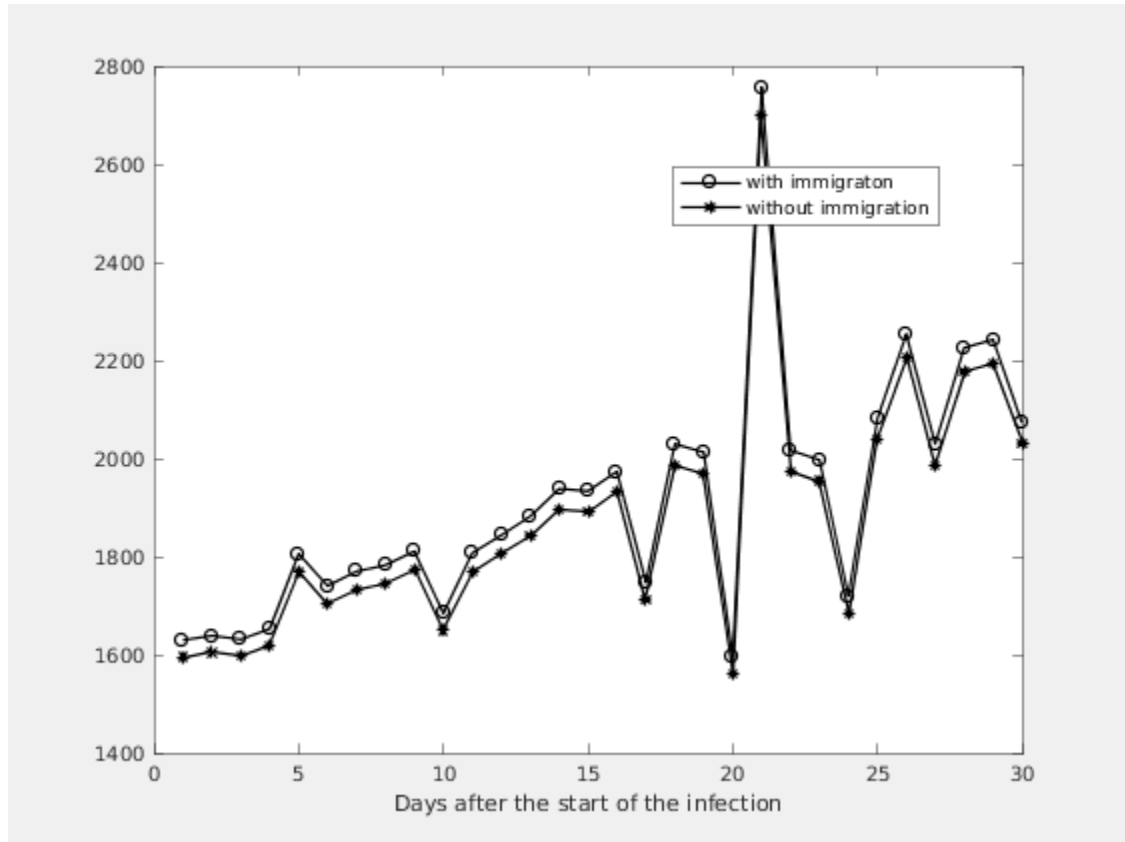




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	M1	A1
4	1.0134	0.9339 - 1.0929	0.1626	1684	1720
3	1.0090	0.9279 - 1.0901	0.3539	2038	2081
2	1.0120	0.9314 - 1.0925	0.3901	2206	2254
1	1.0118	0.9318 - 1.0918	0.3253	1987	2030
0	1.0088	0.9292 - 1.0883	0.3719	2179	2226