

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

**Chad - 20201214**

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

### **Abstract**

The results presented here are obtained using the methodology proposed in the paper <https://arxiv.org/abs/2004.14838> for the country Chad. 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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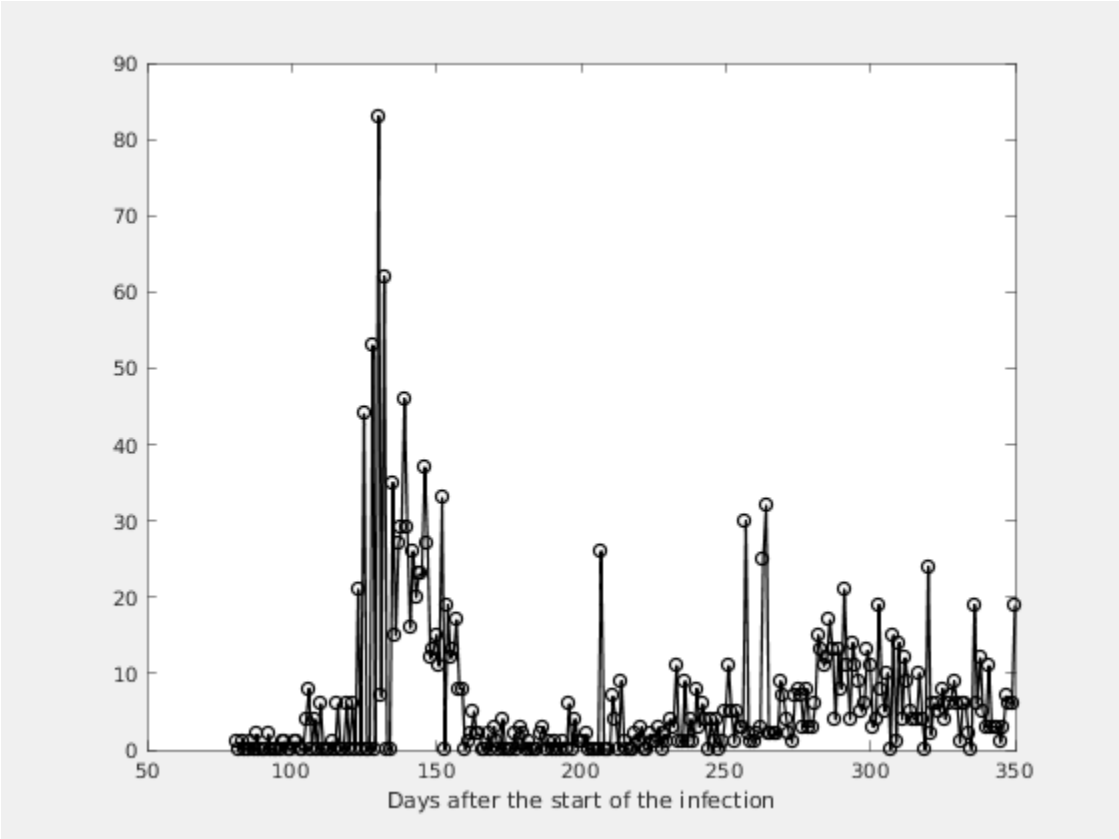
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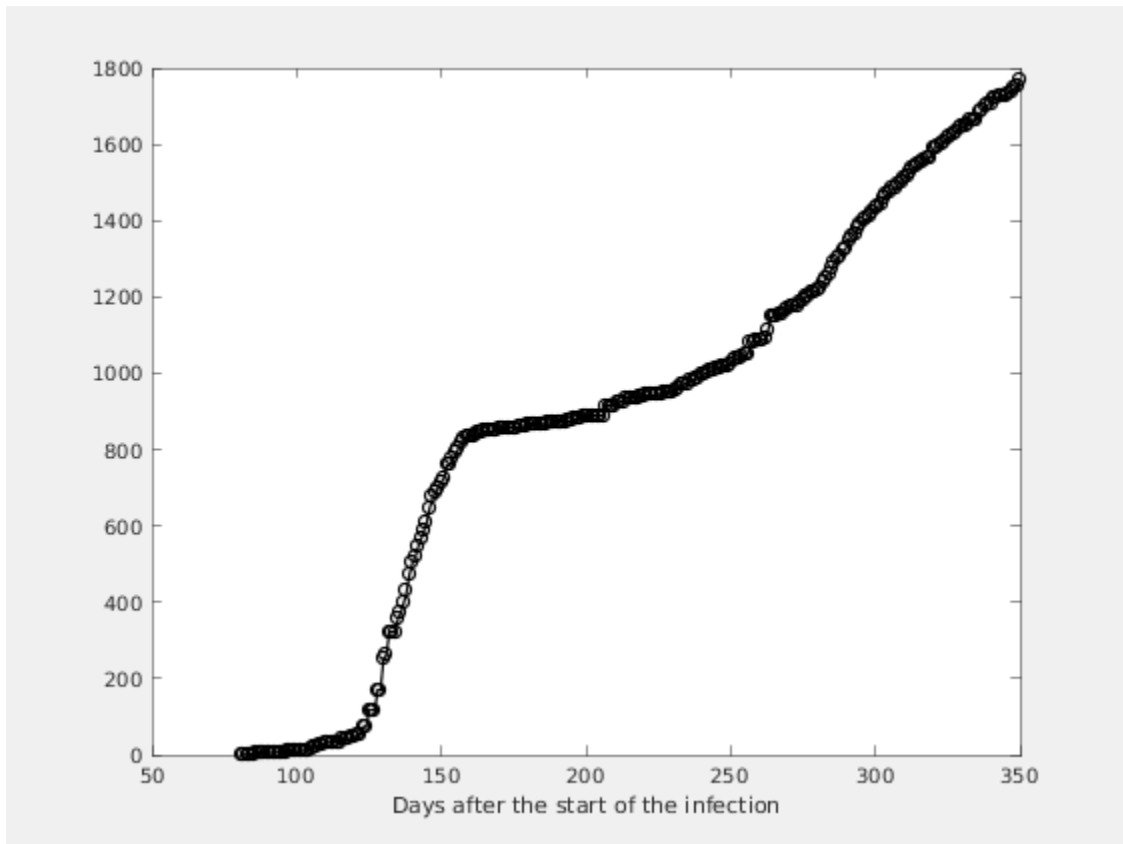
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# Chapter 1. Observed Infection data

Figure 1.1. Number of the daily reported laboratory-confirmed cases



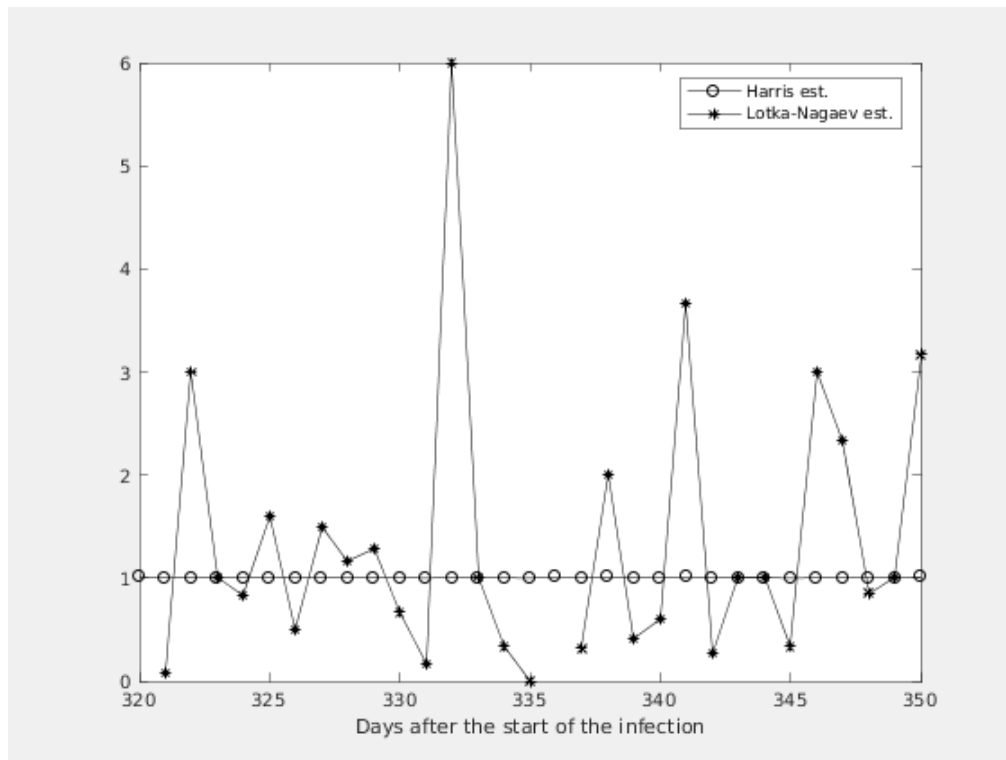
**Figure 1.2. Number of the total registered cases**



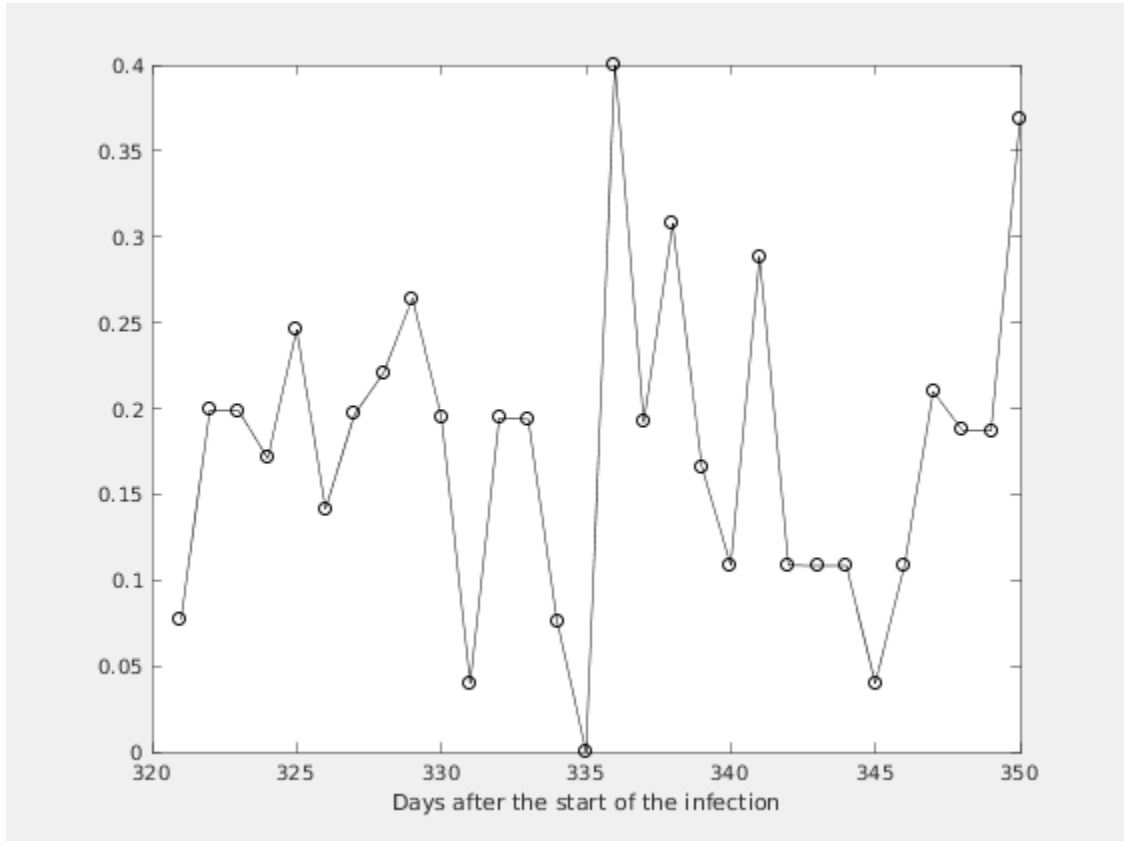
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# Chapter 2. Estimating of the main parameter and some predictions

Figure 2.1. The Lotka-Nagaev and the Harris type estimator of the growth rate

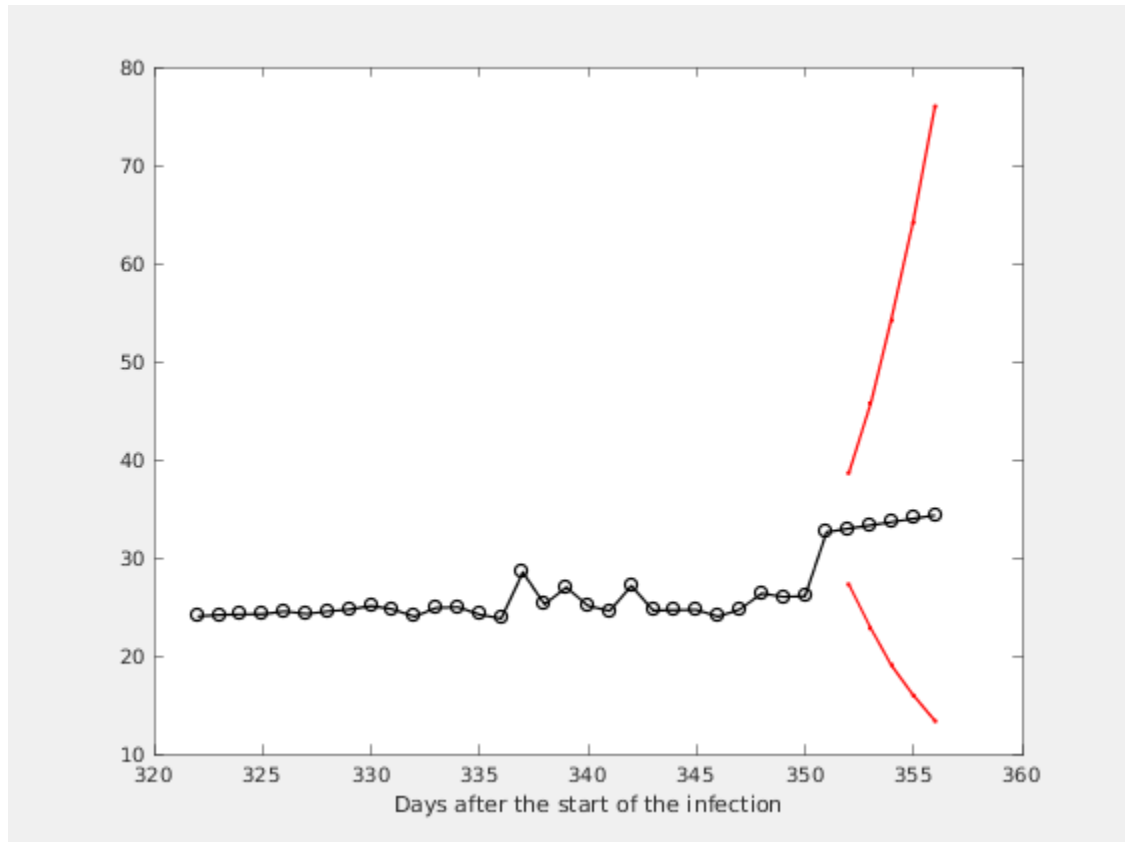


**Figure 2.2. Figure**

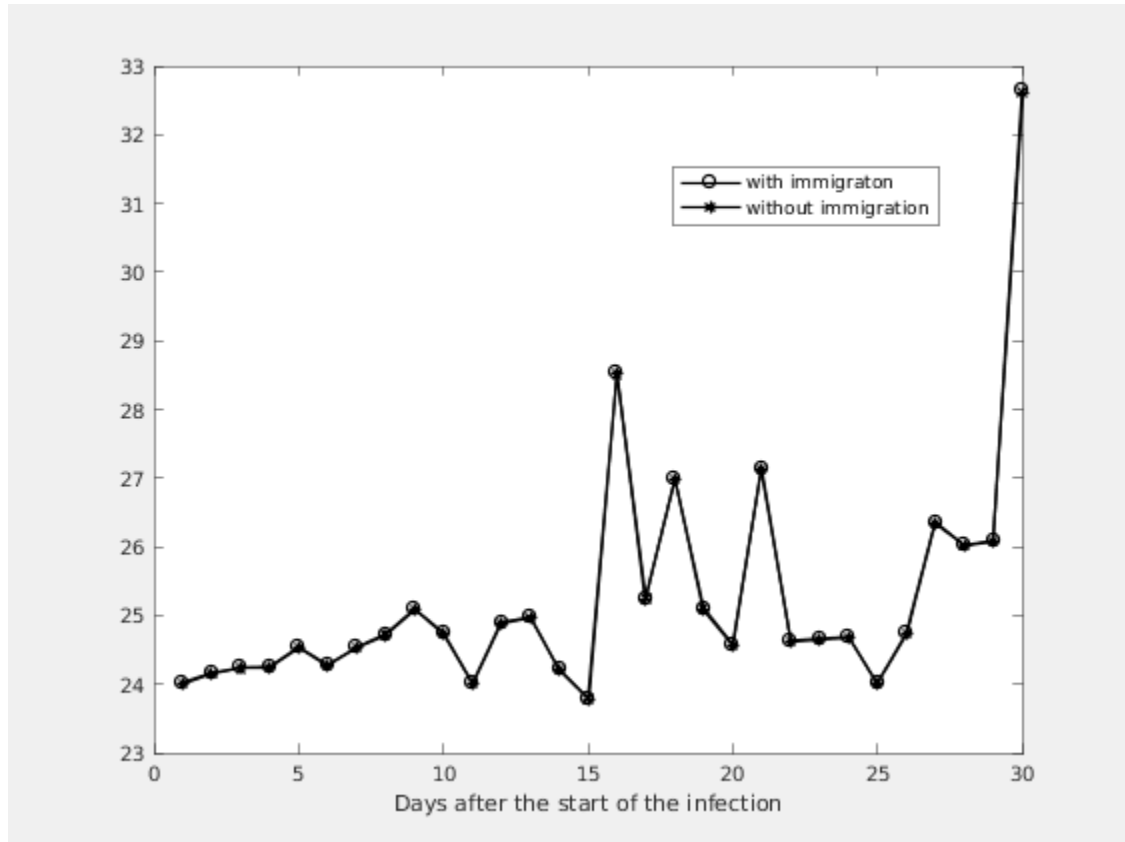




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	M1	A1
4	1.0012	0.8244 - 1.1779	0.1084	25	25
3	1.0035	0.8273 - 1.1797	0.0400	24	24
2	1.0029	0.8270 - 1.1787	0.1082	25	25
1	1.0029	0.8275 - 1.1783	0.2099	26	26
0	1.0103	0.8357 - 1.1849	0.1874	26	26