

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

**Rwanda - 20201214**

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

### **Abstract**

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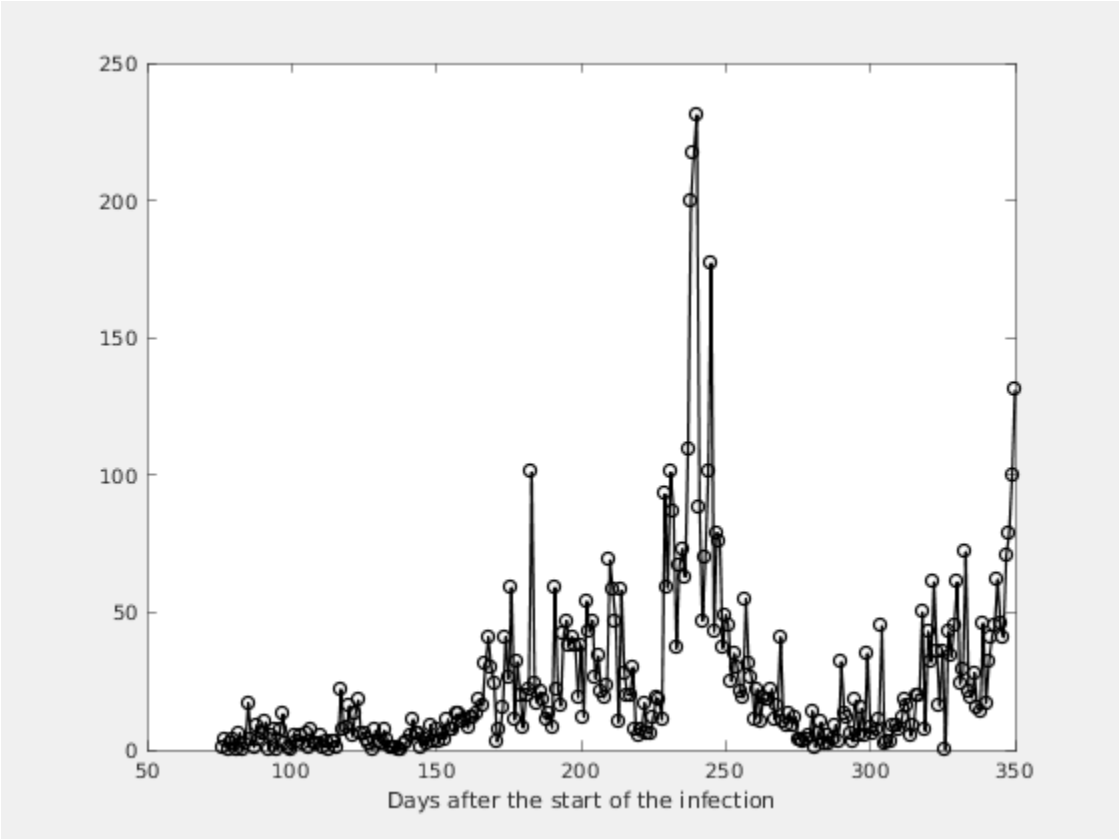
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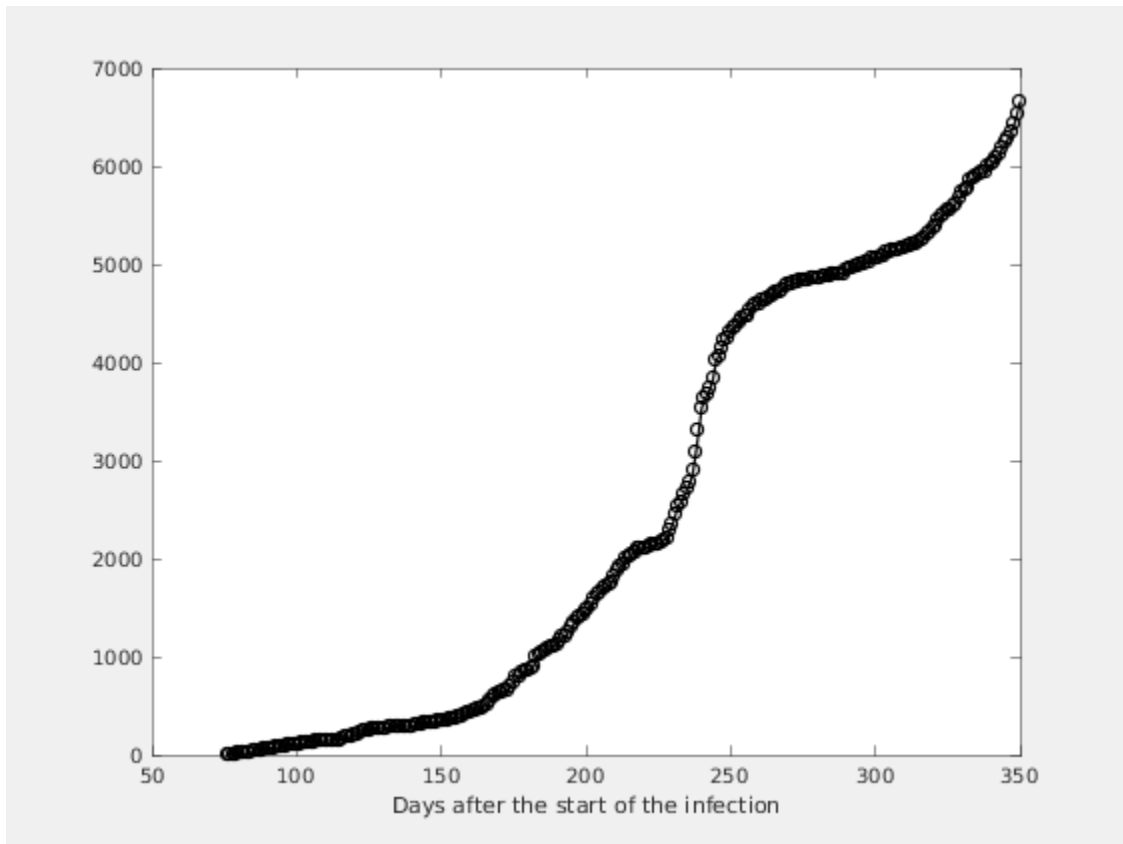
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# Chapter 1. Observed Infection data

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

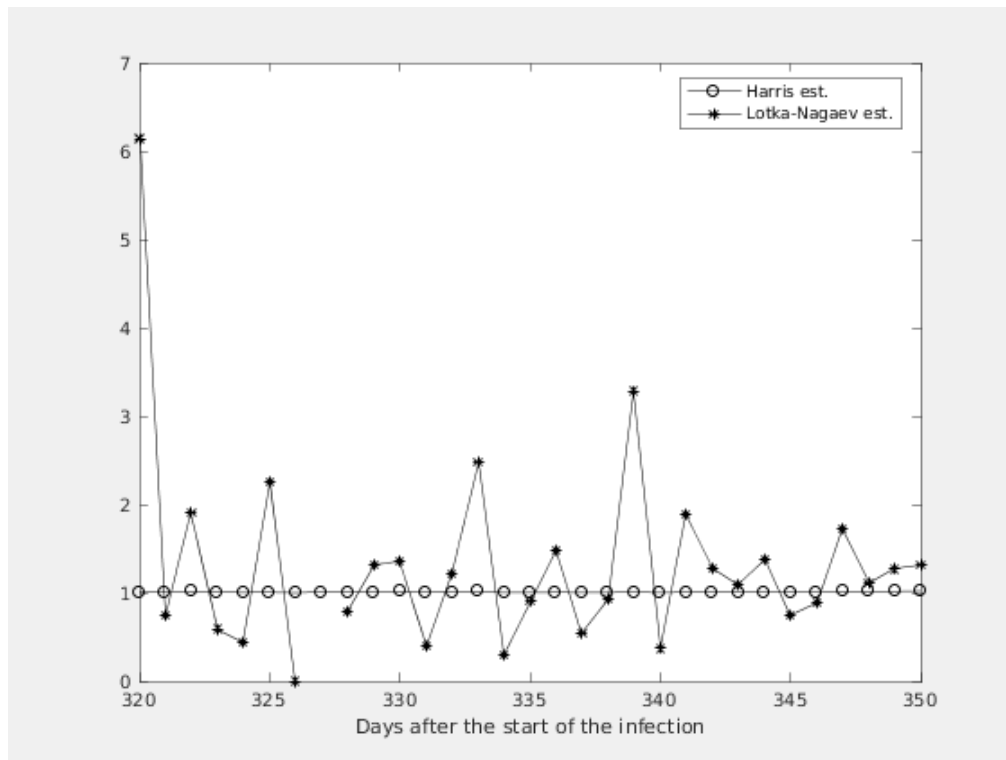
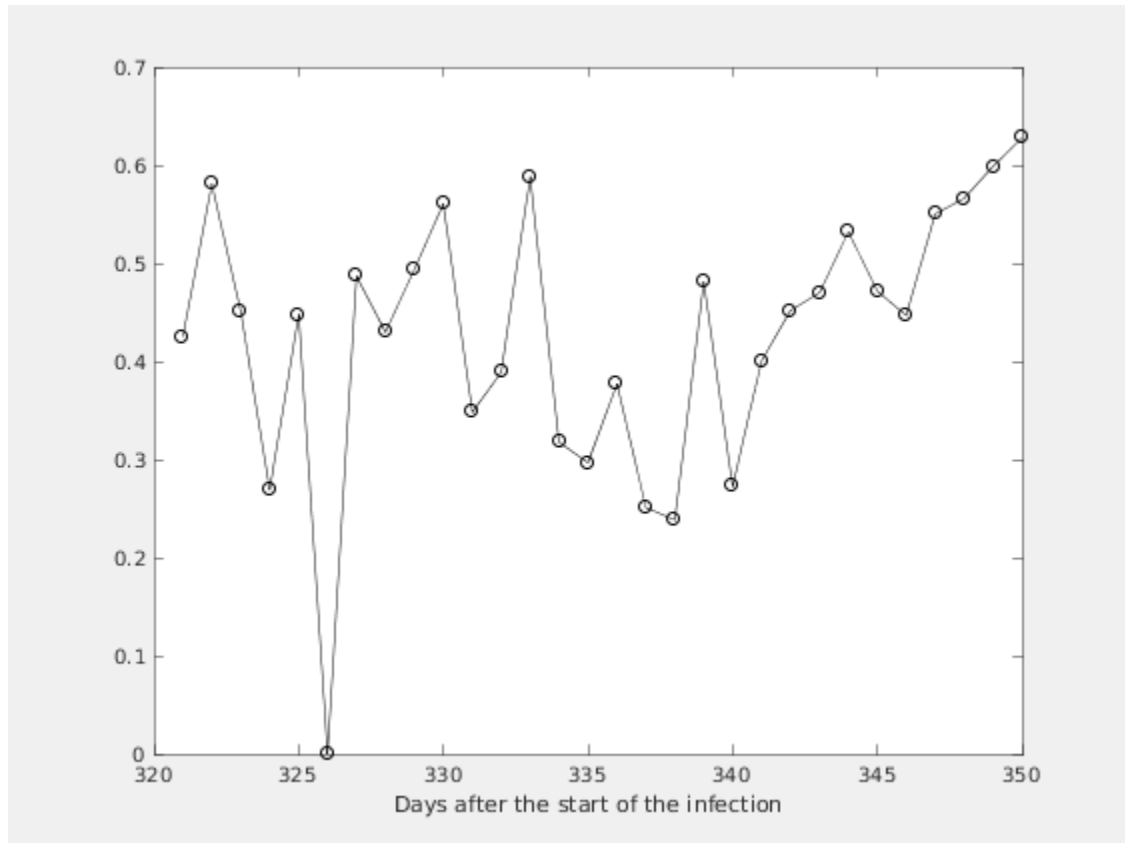
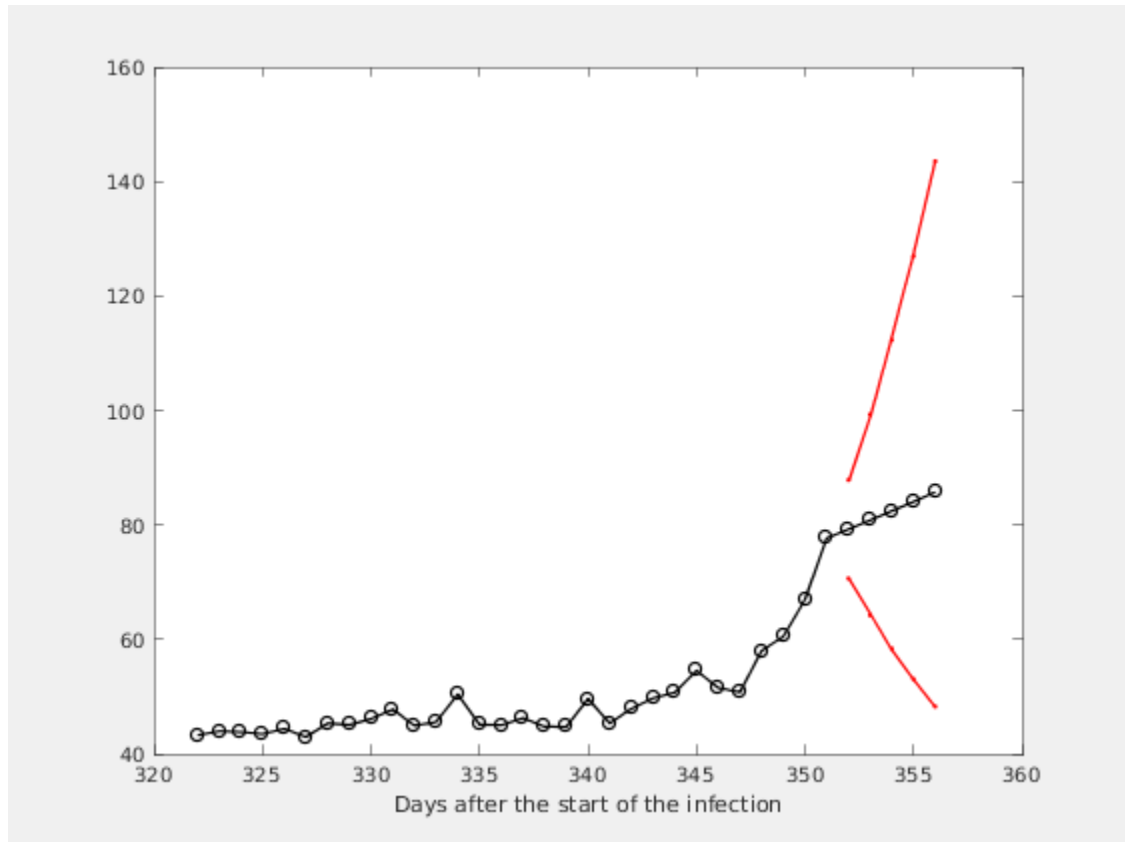


Figure 2.2. Figure

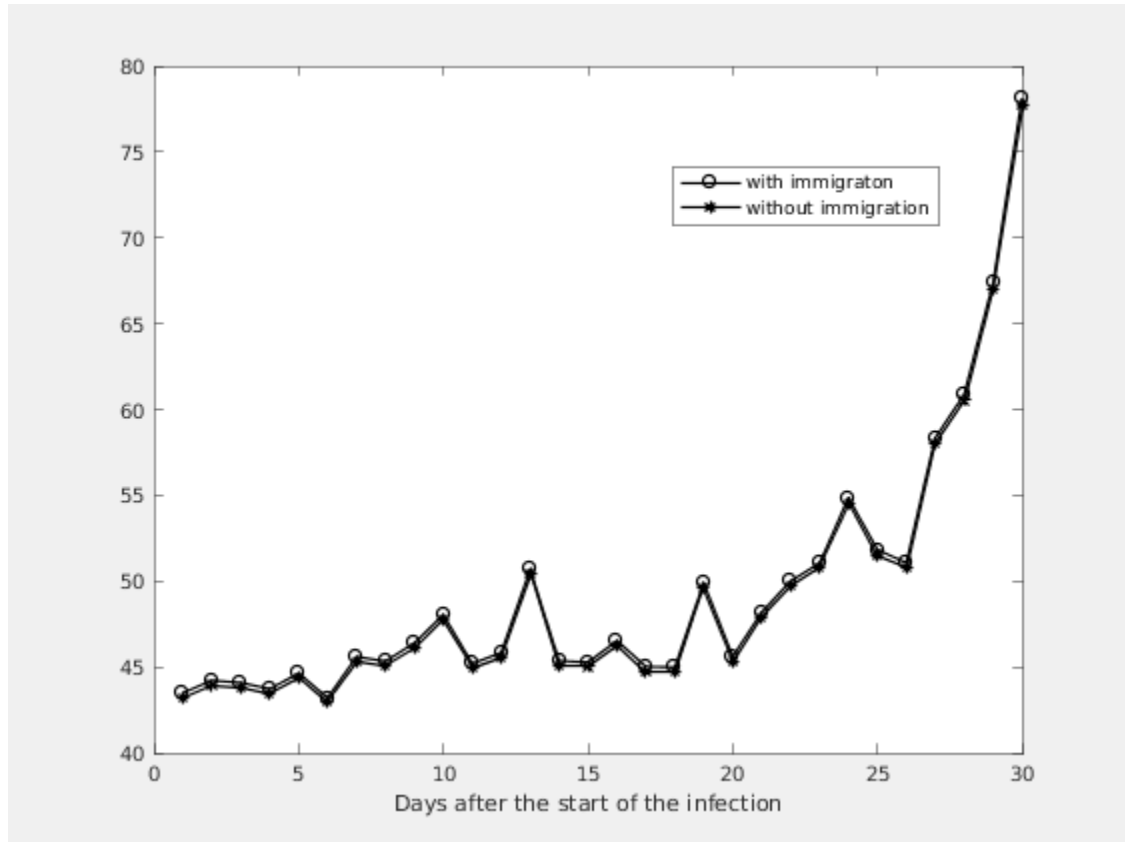




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	M1	A1
4	1.0064	0.8912 - 1.1216	0.5320	55	55
3	1.0112	0.8967 - 1.1256	0.4716	52	52
2	1.0123	0.8985 - 1.1261	0.4467	51	51
1	1.0154	0.9020 - 1.1288	0.5504	58	58
0	1.0199	0.9073 - 1.1325	0.5662	61	61