

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

**Poland - 20201214**

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

### **Abstract**

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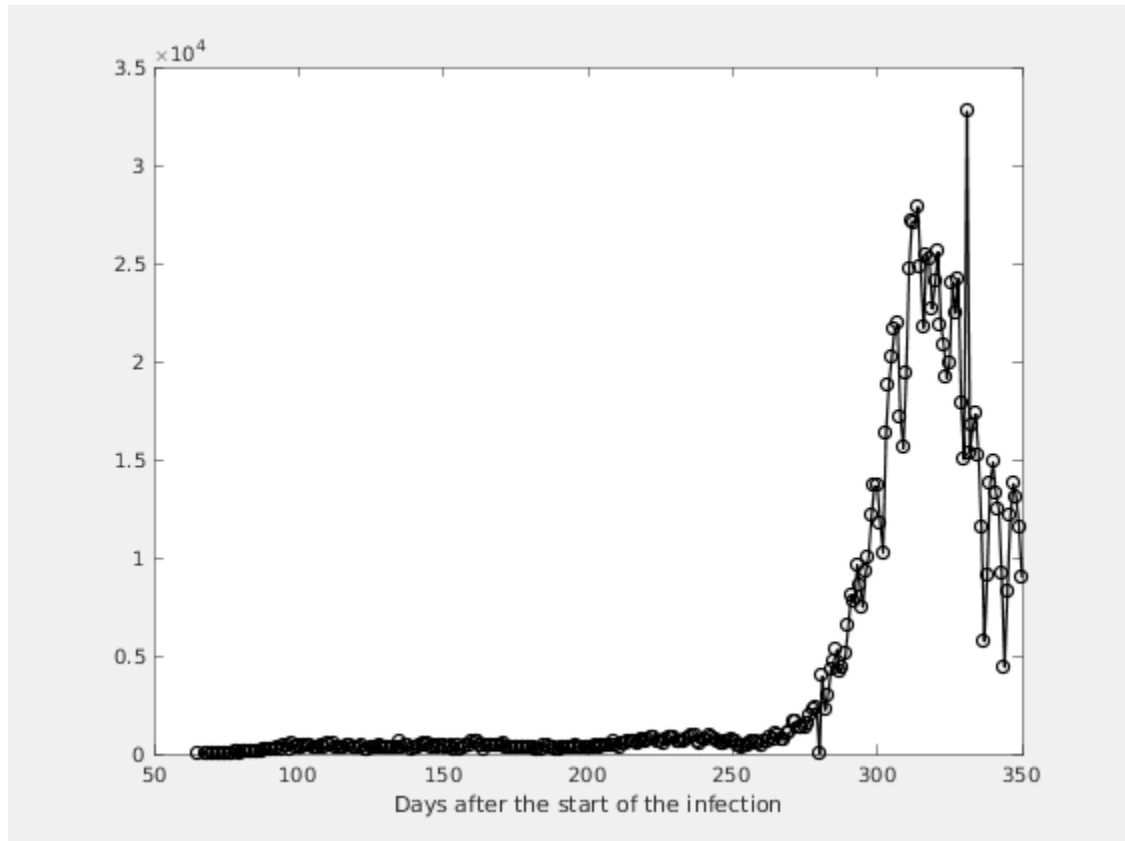
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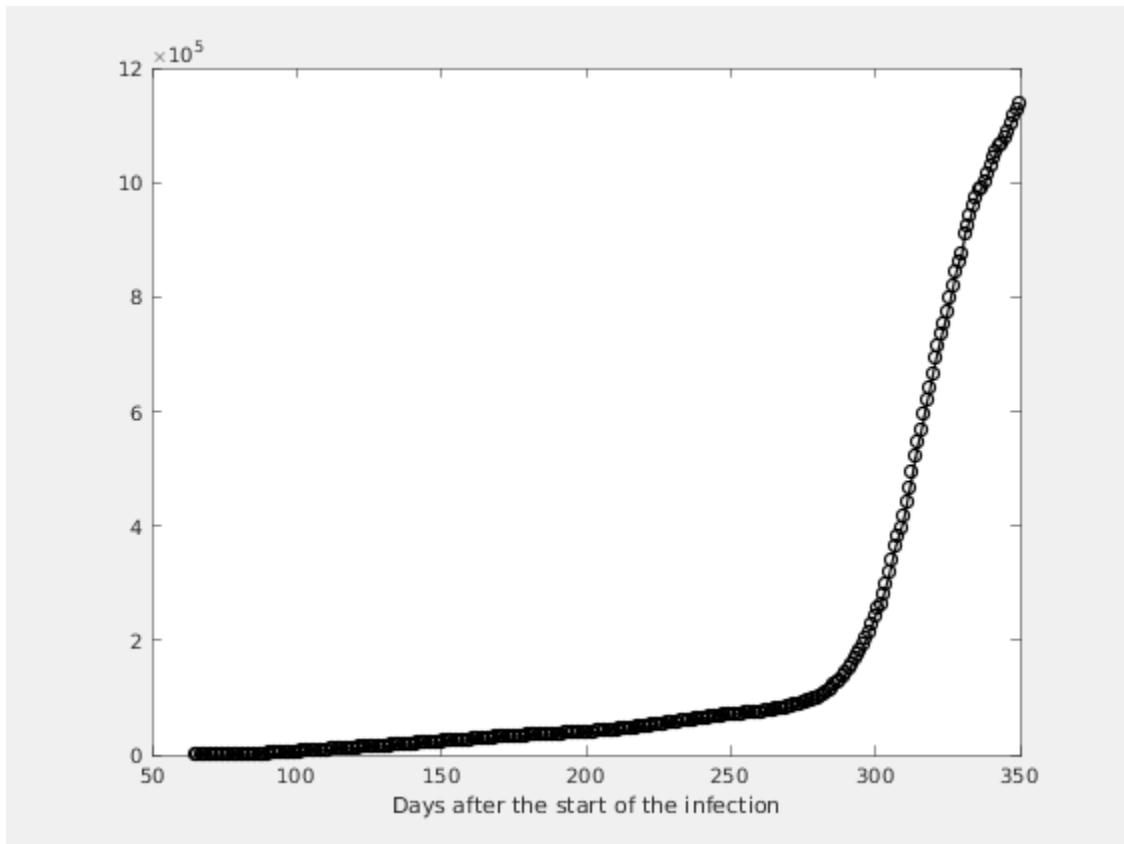
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# Chapter 1. Observed Infection data

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



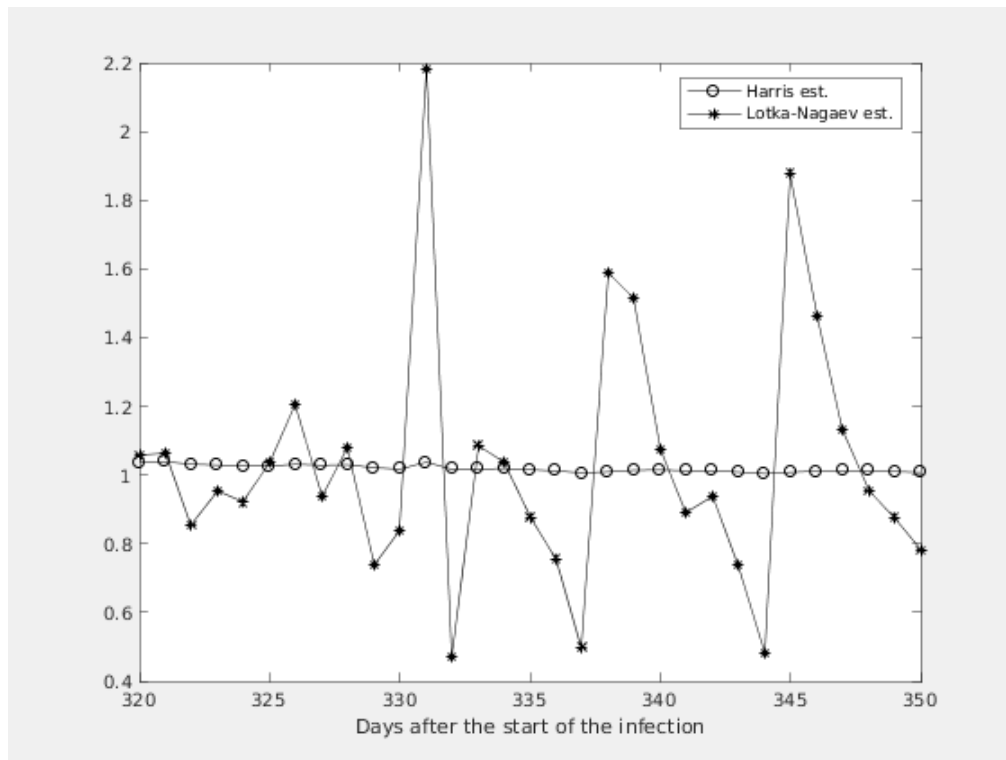
**Figure 1.2. Number of the total registered cases**



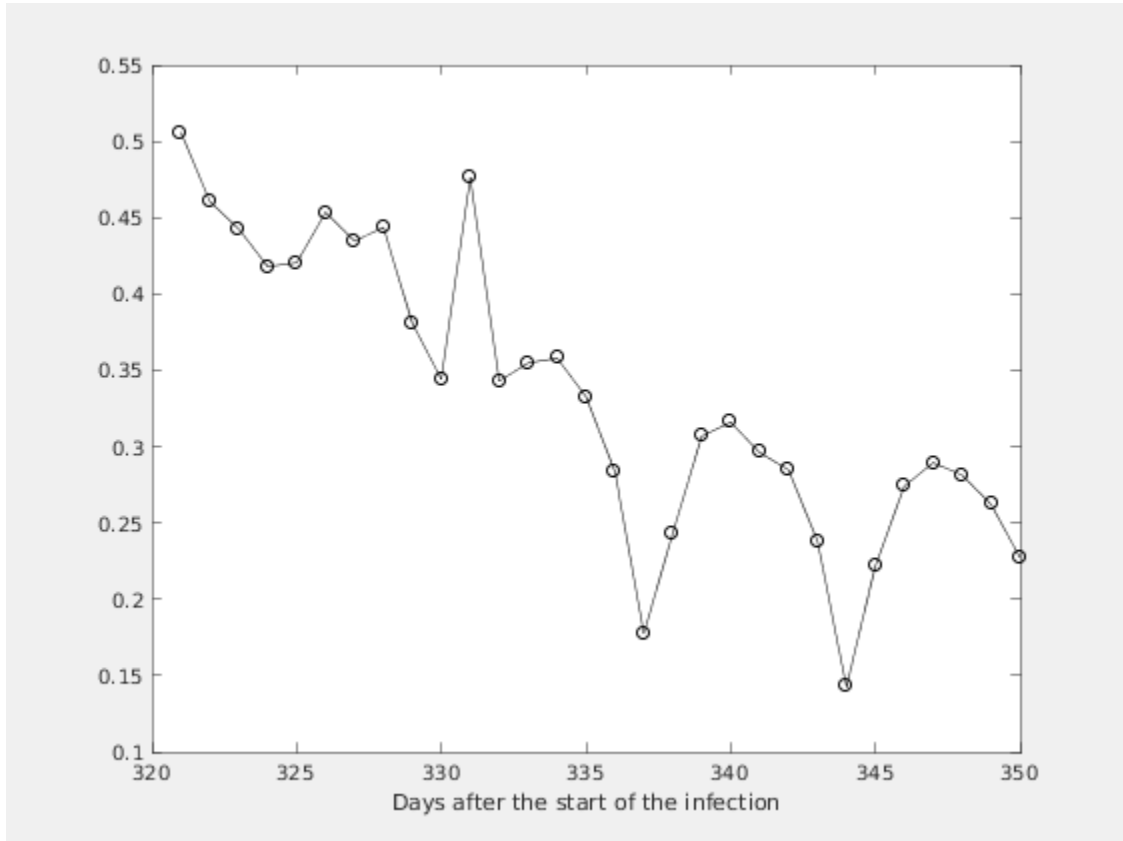
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# Chapter 2. Estimating of the main parameter and some predictions

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

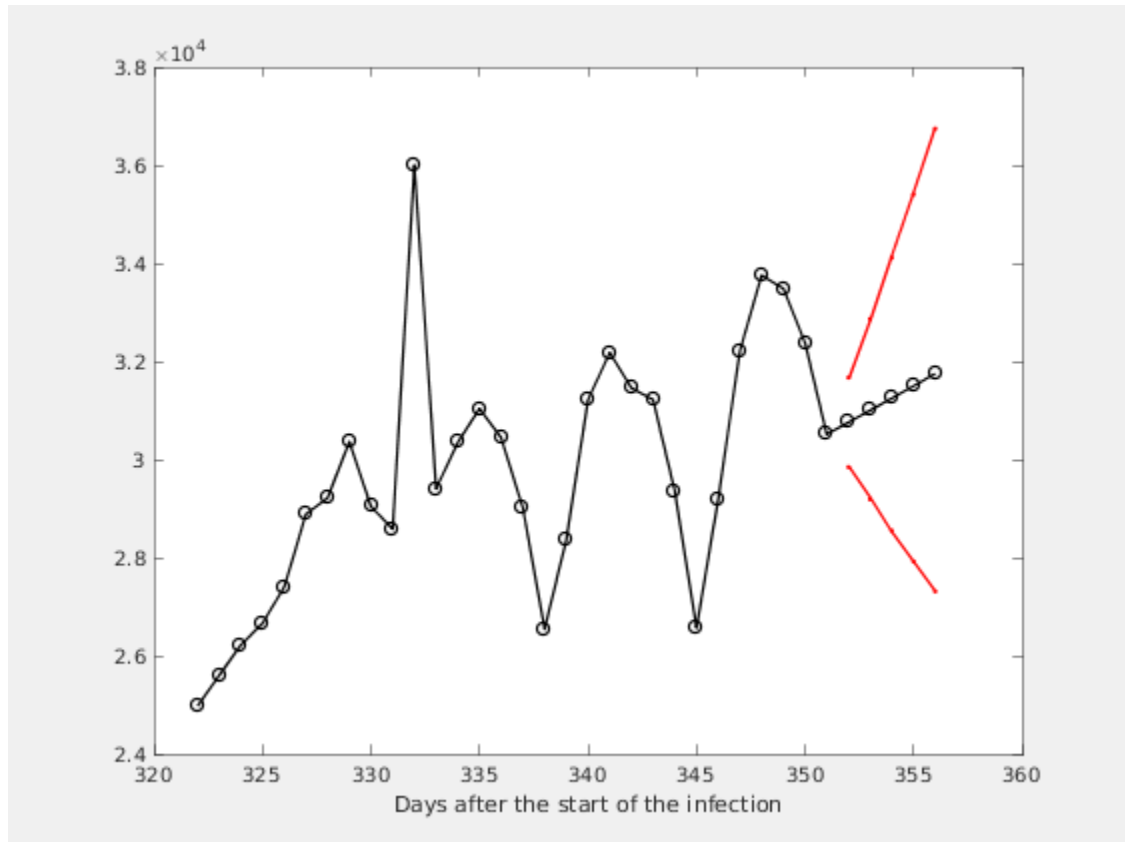


**Figure 2.2. Figure**

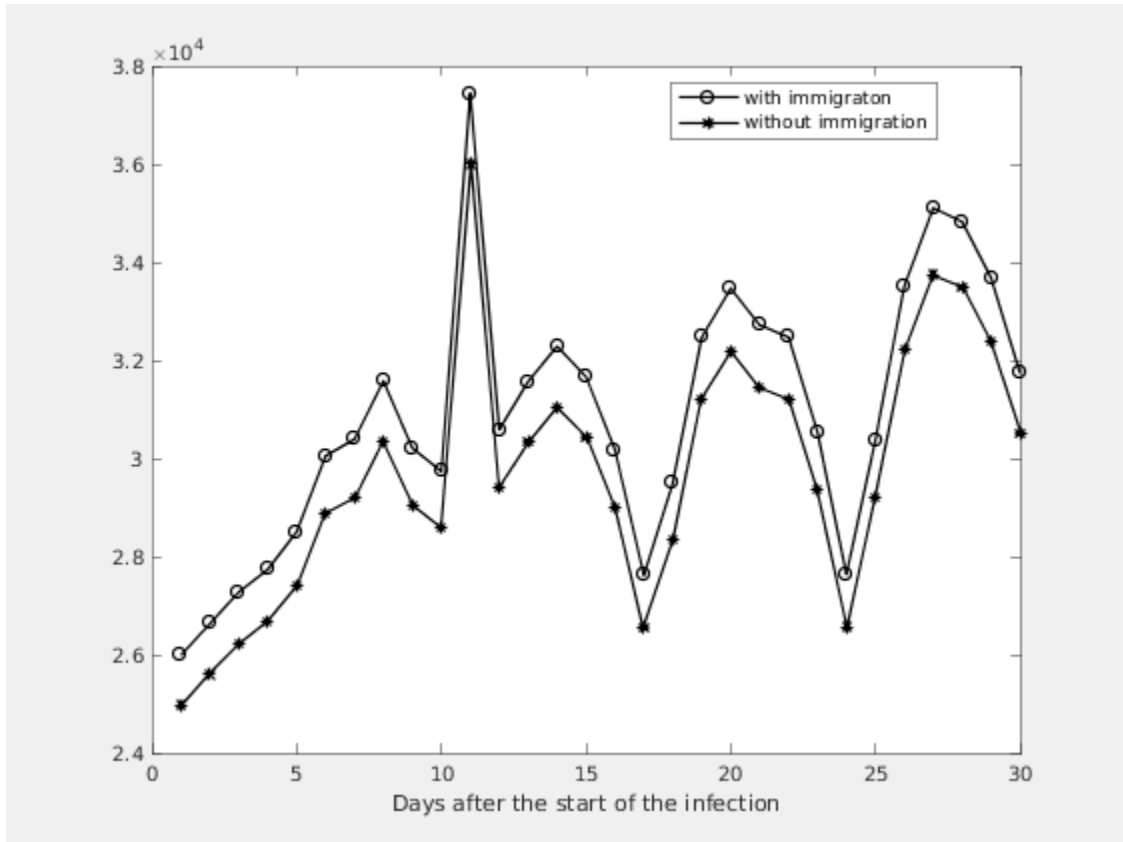




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	M1	A1
4	1.0113	0.9815 - 1.0411	0.1427	26568	27644
3	1.0126	0.9822 - 1.0430	0.2216	29194	30370
2	1.0119	0.9813 - 1.0425	0.2741	32215	33507
1	1.0103	0.9799 - 1.0407	0.2894	33755	35106
0	1.0080	0.9778 - 1.0381	0.2813	33486	34827