

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

**Ukraine - 20201214**

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### **Abstract**

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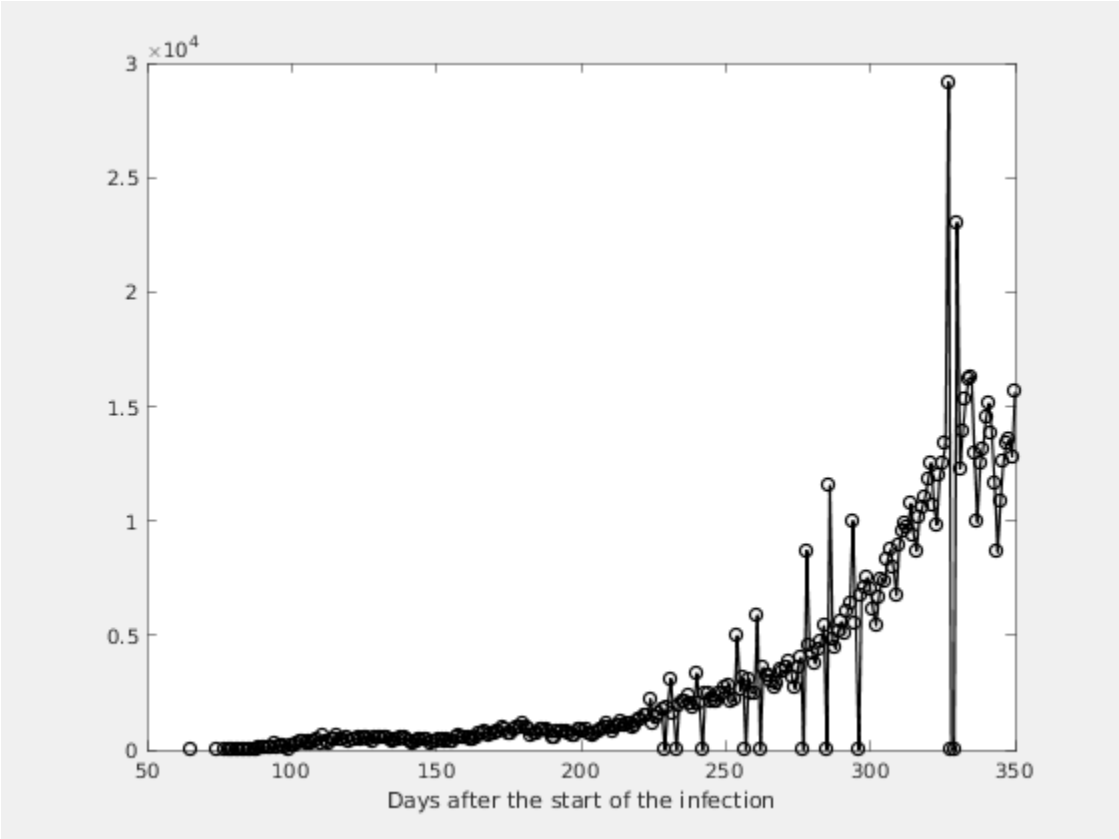
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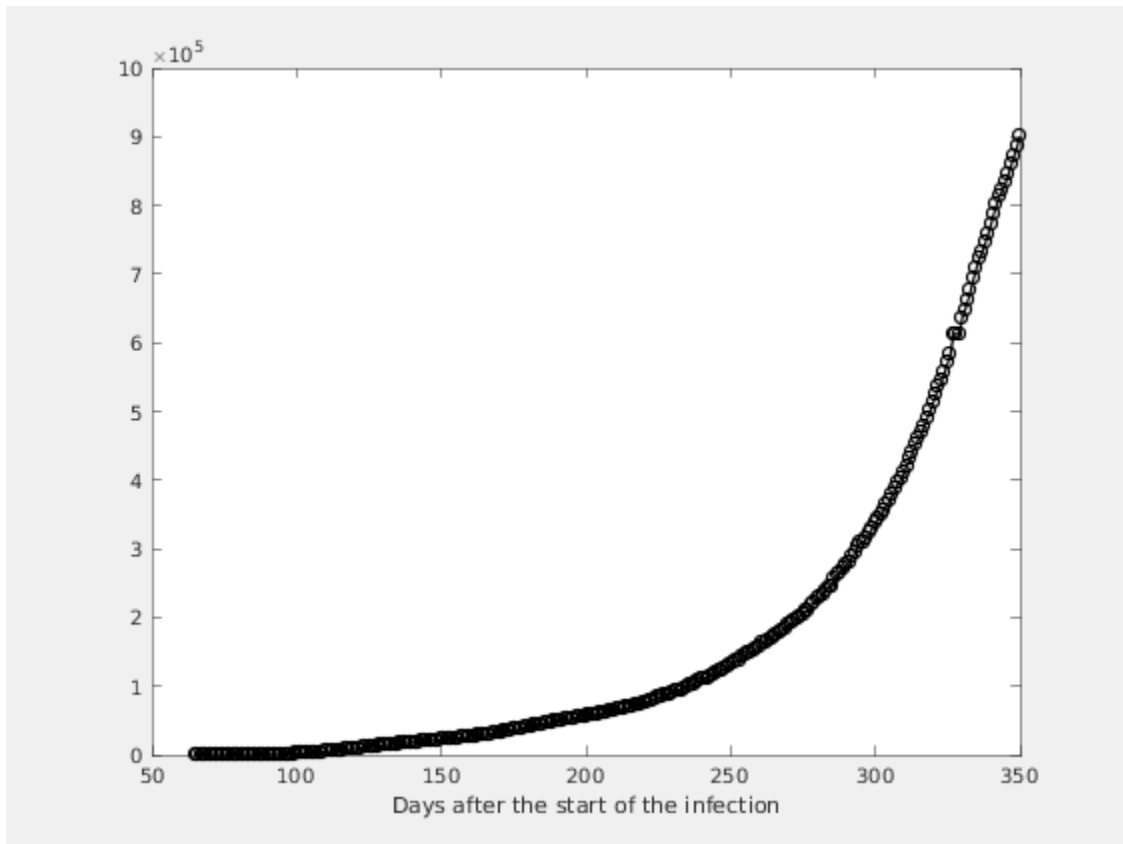
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# Chapter 1. Observed Infection data

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



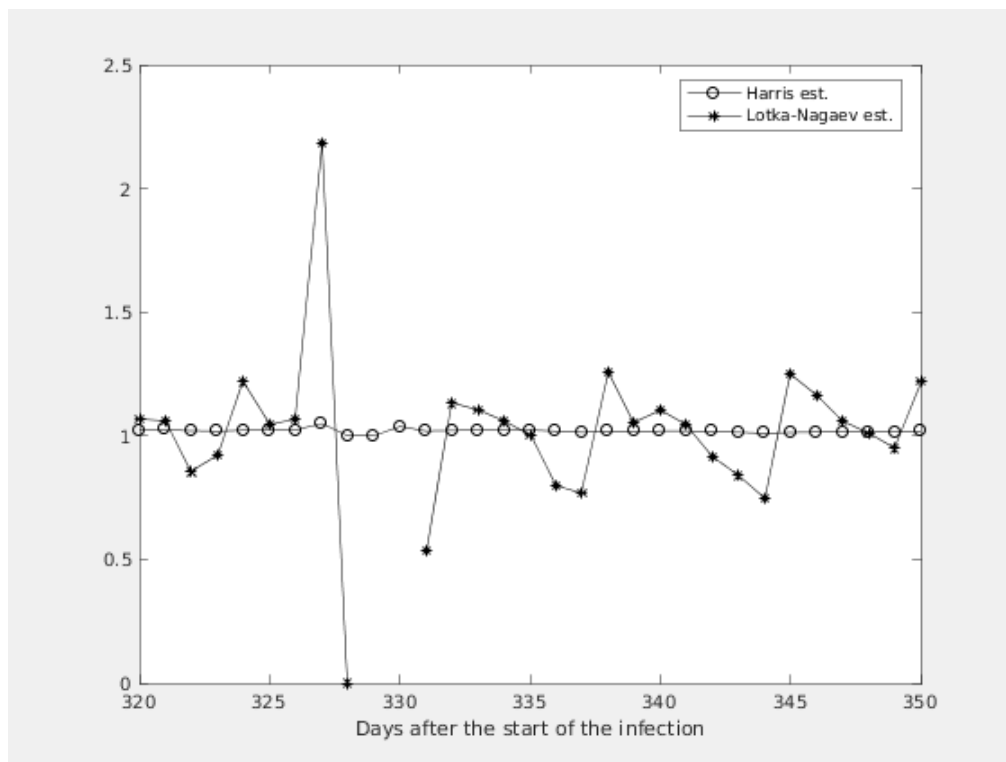
**Figure 1.2. Number of the total registered cases**



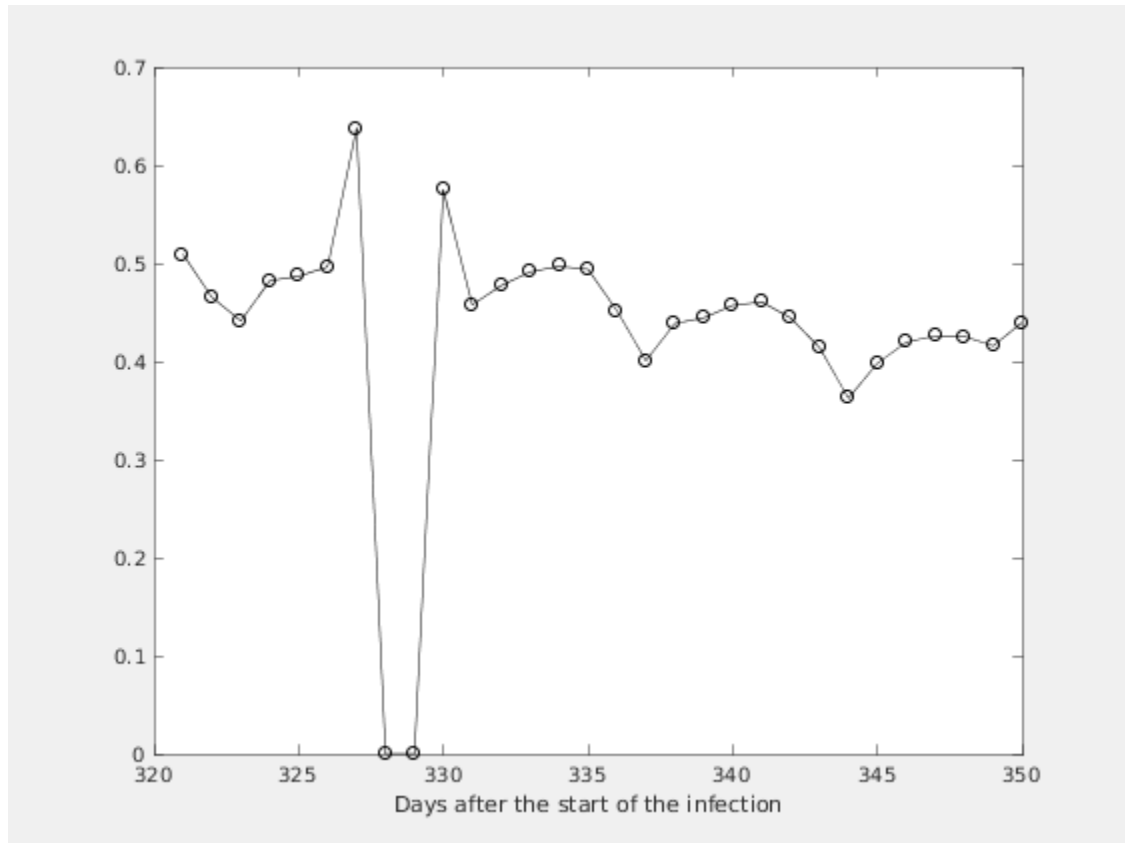
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# Chapter 2. Estimating of the main parameter and some predictions

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

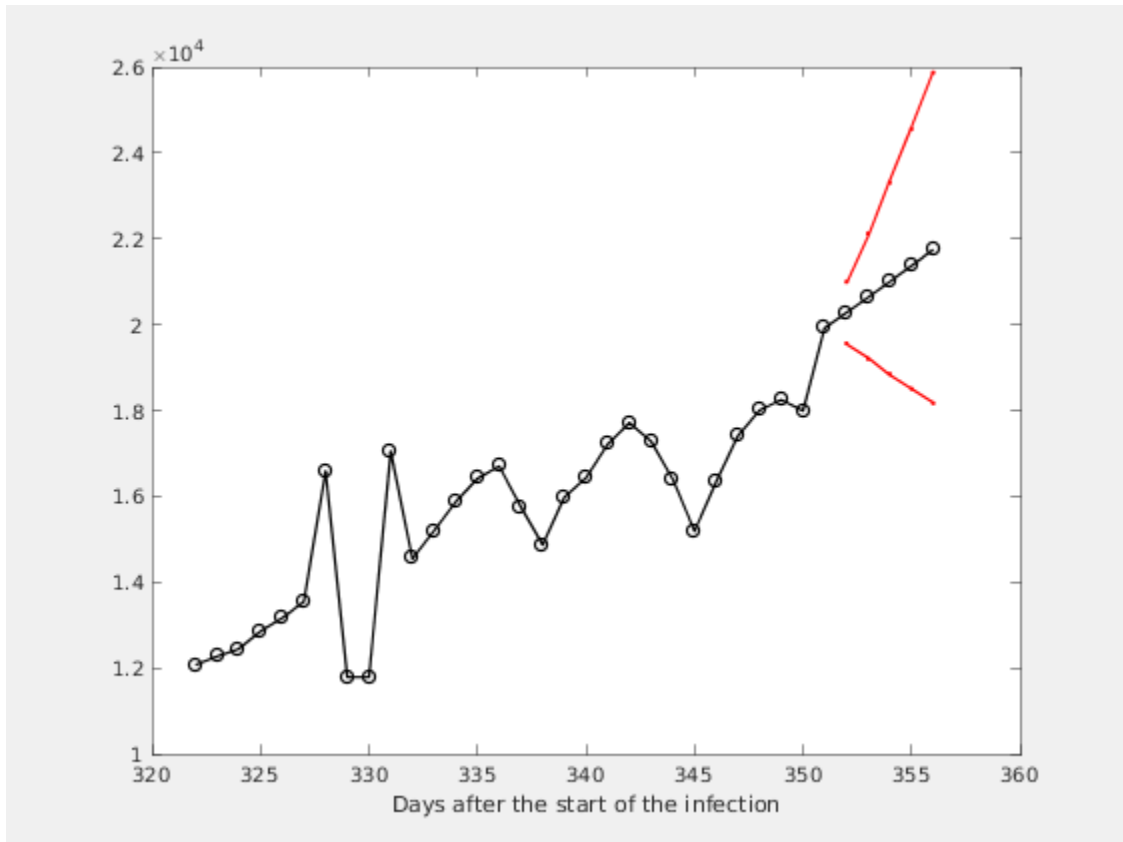


**Figure 2.2. Figure**

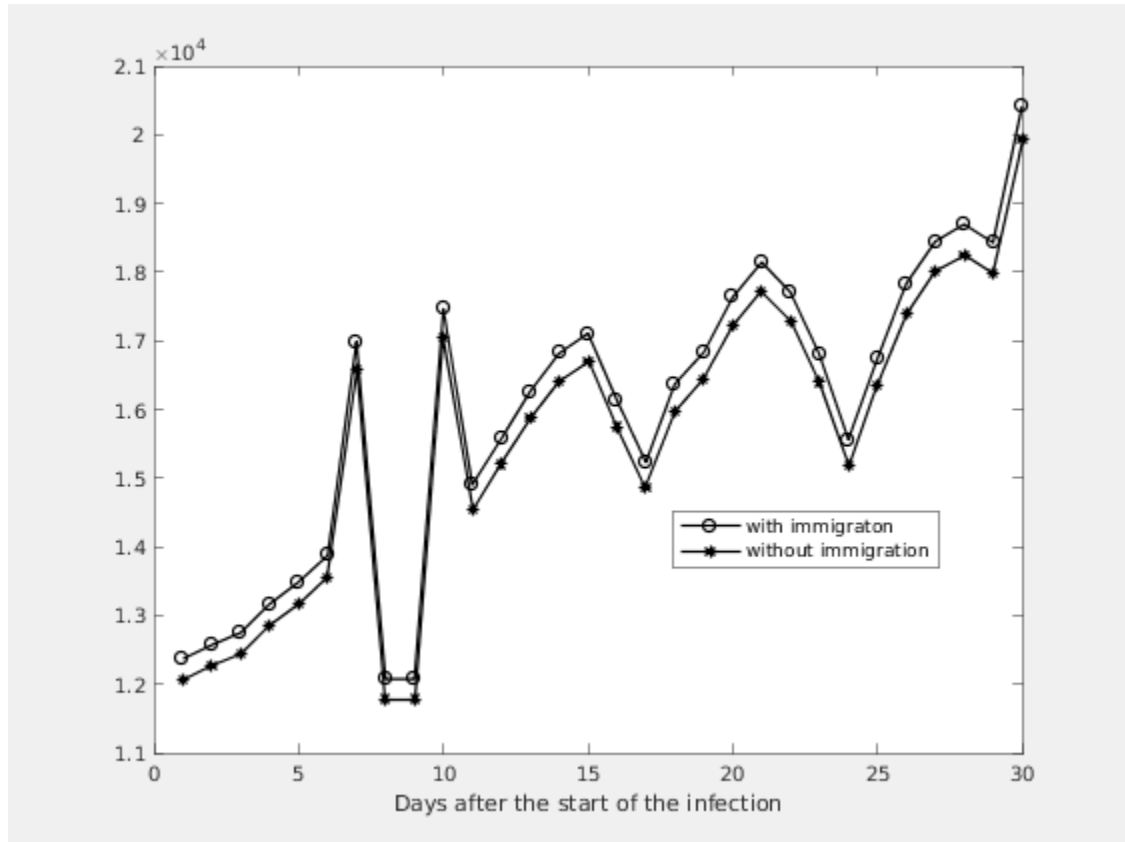




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	M1	A1
4	1.0151	0.9775 - 1.0527	0.3626	15190	15561
3	1.0158	0.9783 - 1.0533	0.3982	16340	16740
2	1.0157	0.9785 - 1.0529	0.4196	17408	17834
1	1.0147	0.9778 - 1.0516	0.4261	18006	18446
0	1.0177	0.9811 - 1.0542	0.4254	18250	18696