

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

**Nigeria - 20201214**

**N. Yanev, V. Stoimenova, D. Atanasov**

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

### **Abstract**

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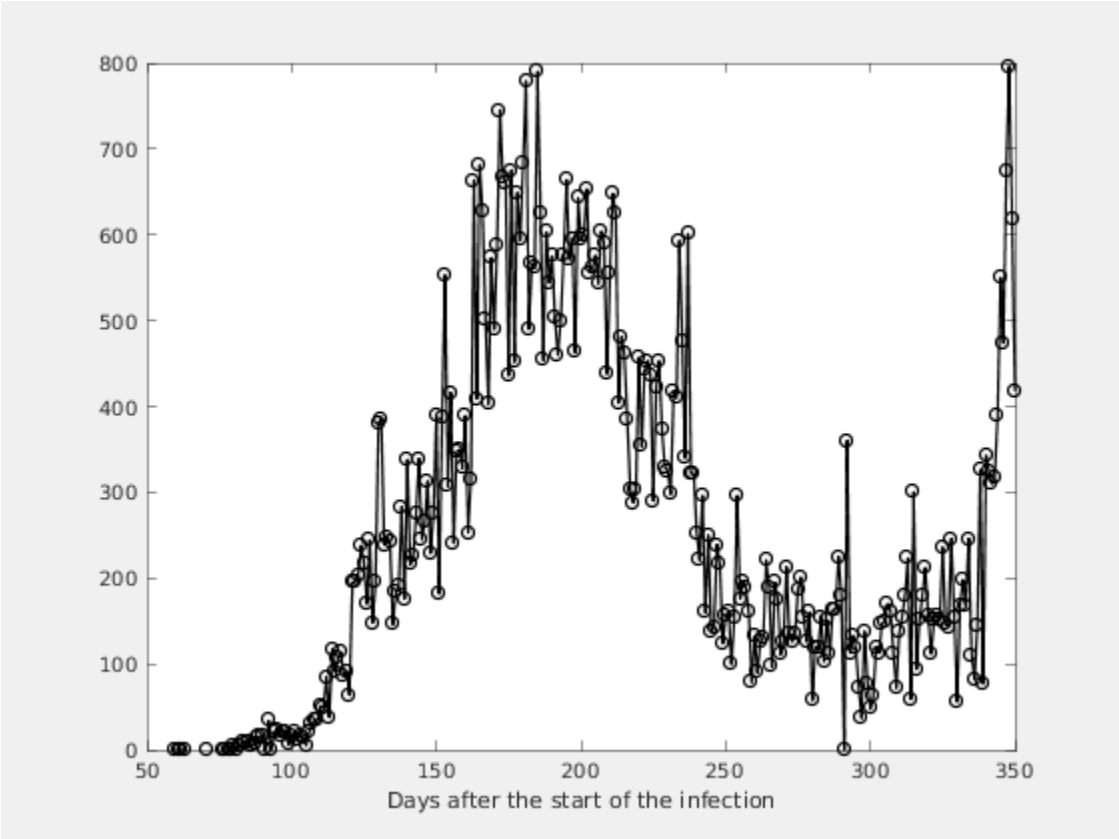
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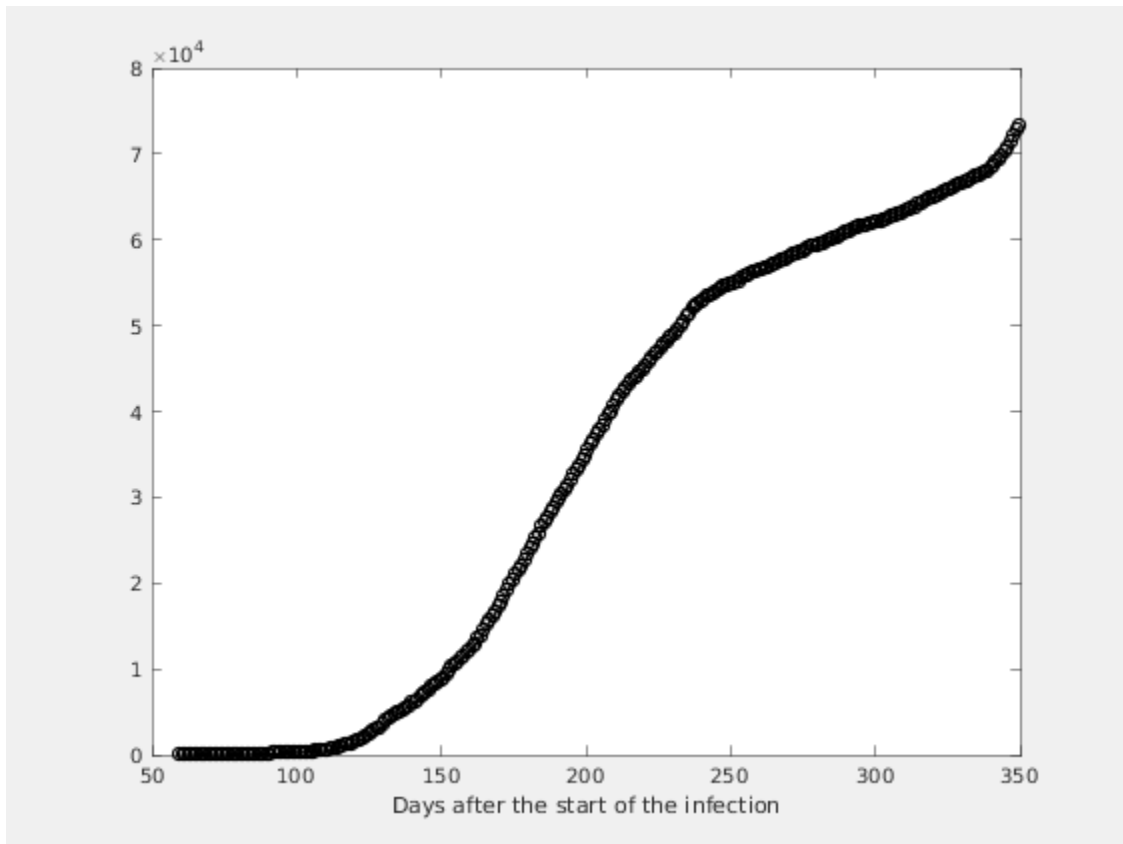
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# Chapter 1. Observed Infection data

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

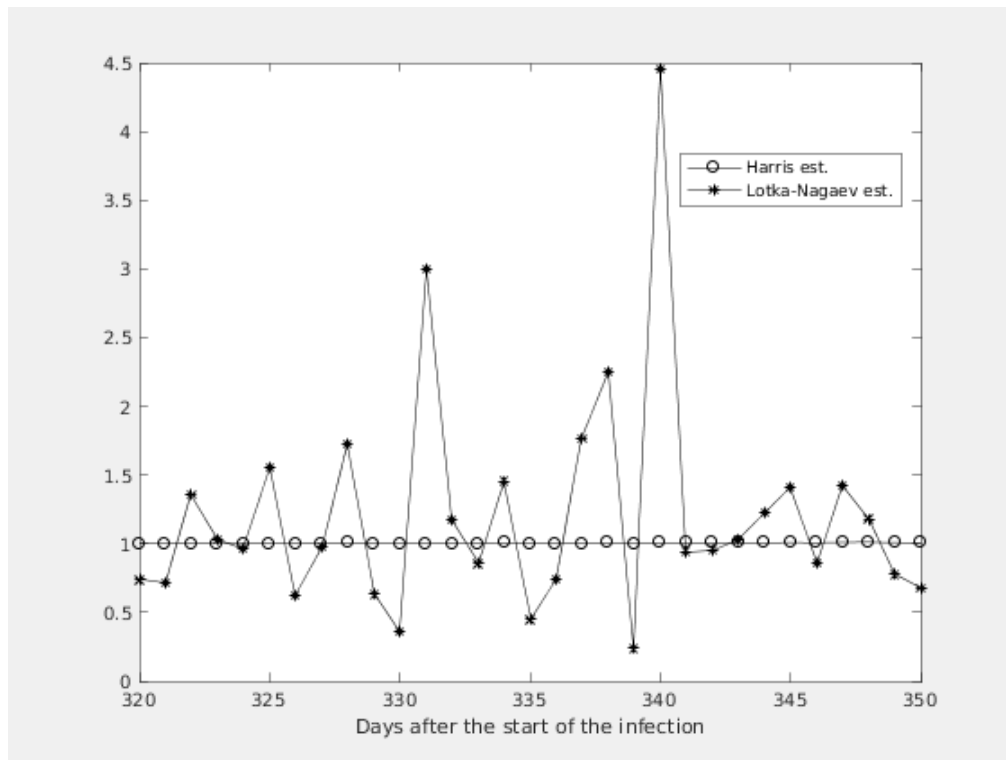
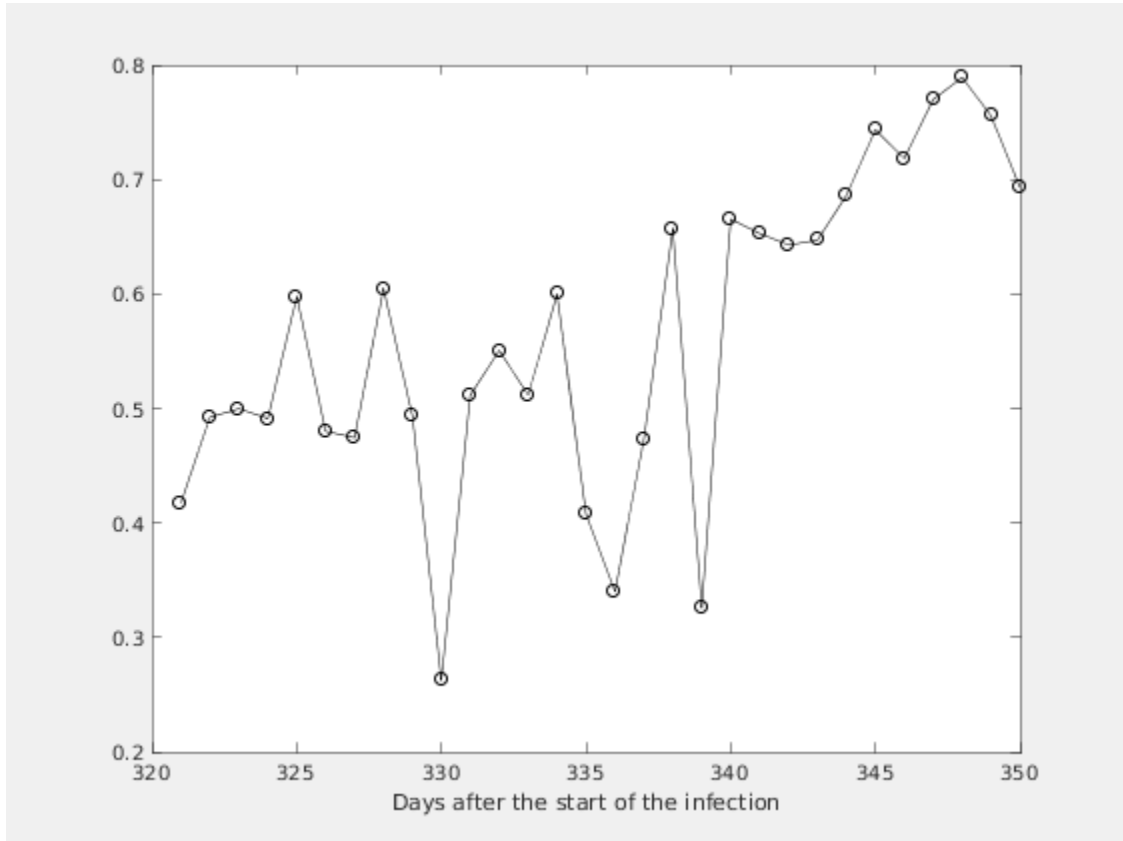
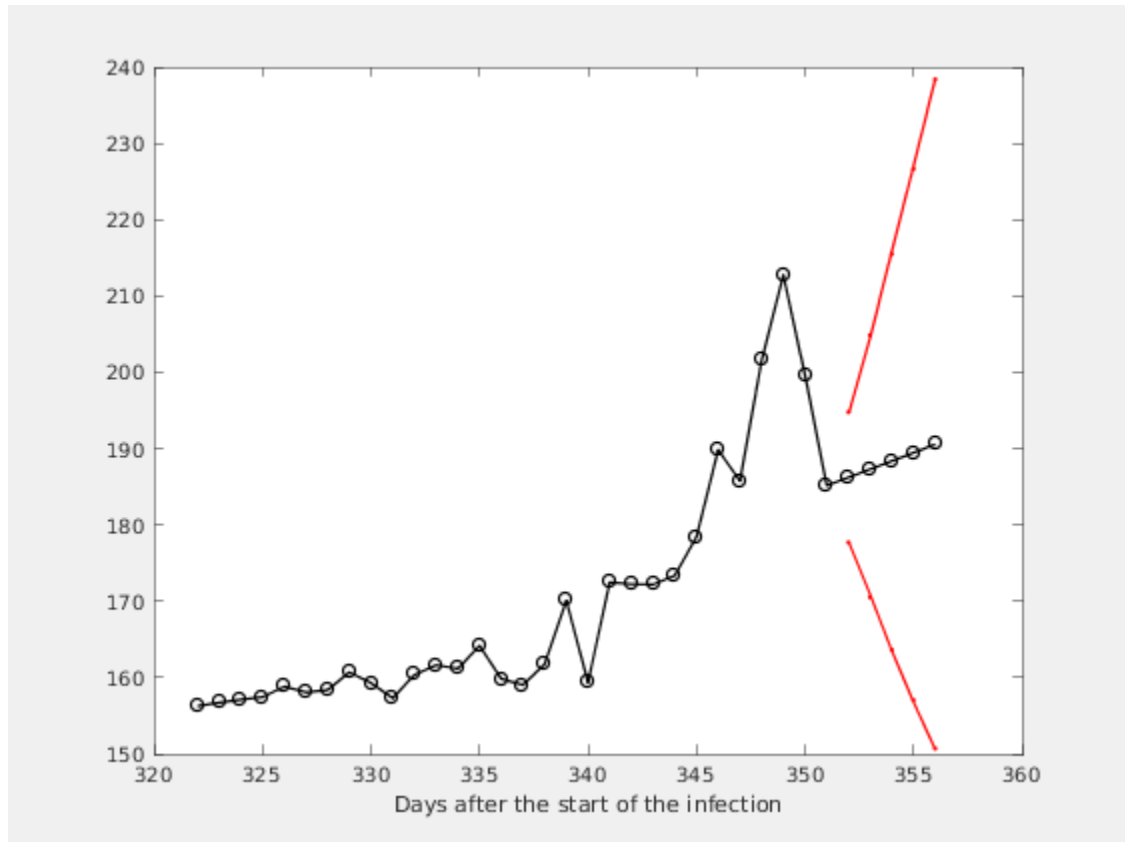


Figure 2.2. Figure

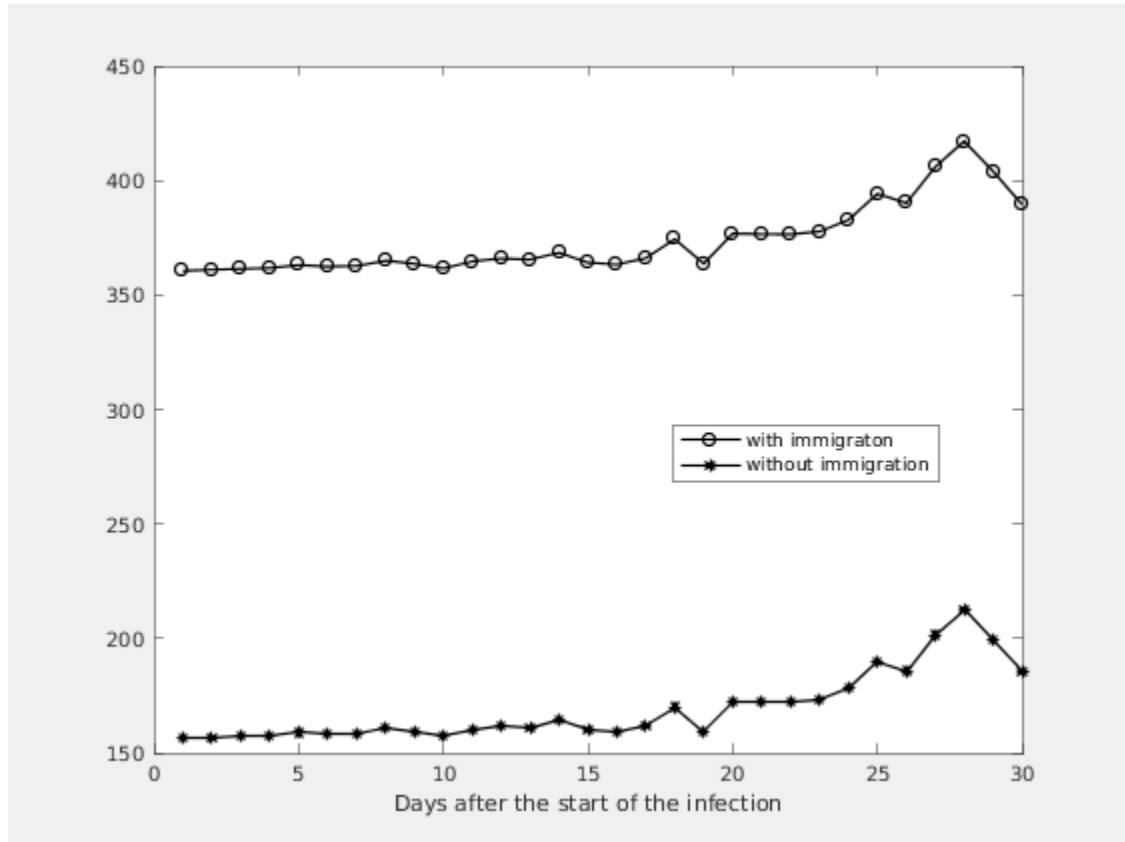




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	M1	A1
4	1.0067	0.9596 - 1.0539	0.6861	178	383
3	1.0095	0.9625 - 1.0566	0.7434	190	394
2	1.0111	0.9643 - 1.0580	0.7184	186	390
1	1.0085	0.9618 - 1.0553	0.7700	202	406
0	1.0057	0.9592 - 1.0522	0.7891	213	417