

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

**Democratic\_Republic\_o-  
f\_the\_Congo - 20201214**

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## **Branching stochastic processes as models of Covid-19 epidemic development : Democratic\_Republic\_of\_the\_Congo - 20201214**

### **Abstract**

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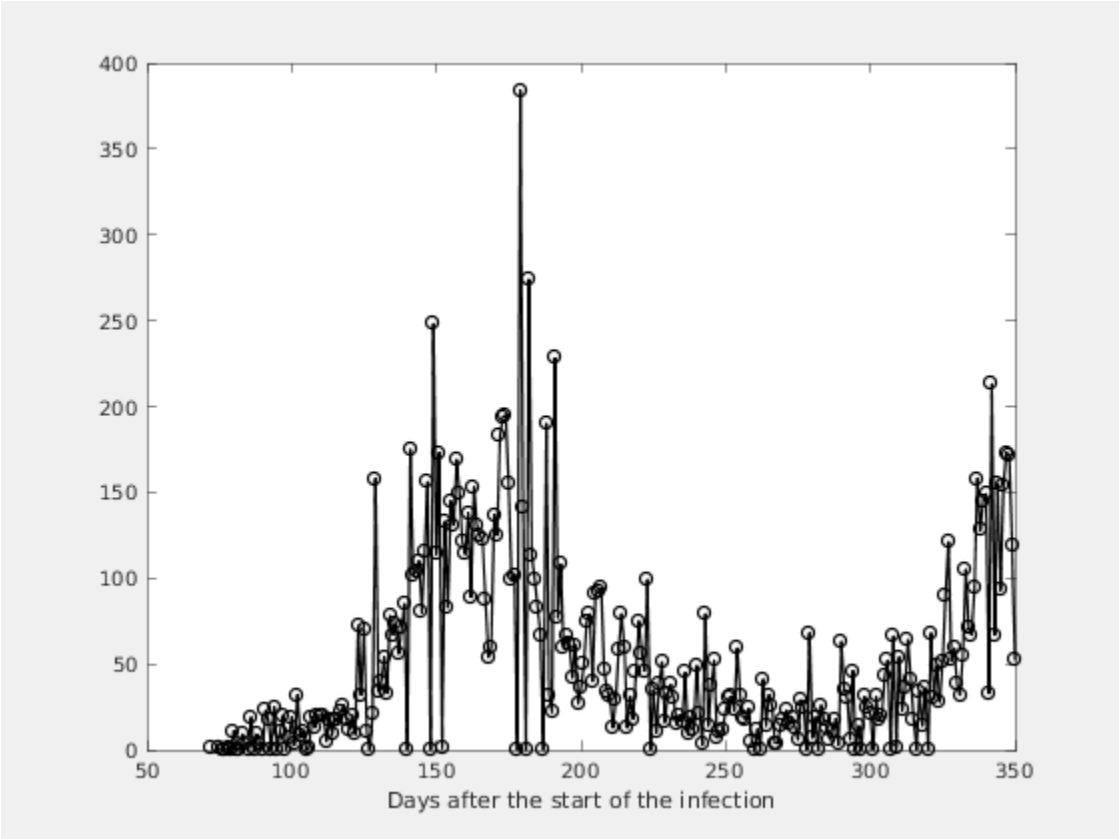
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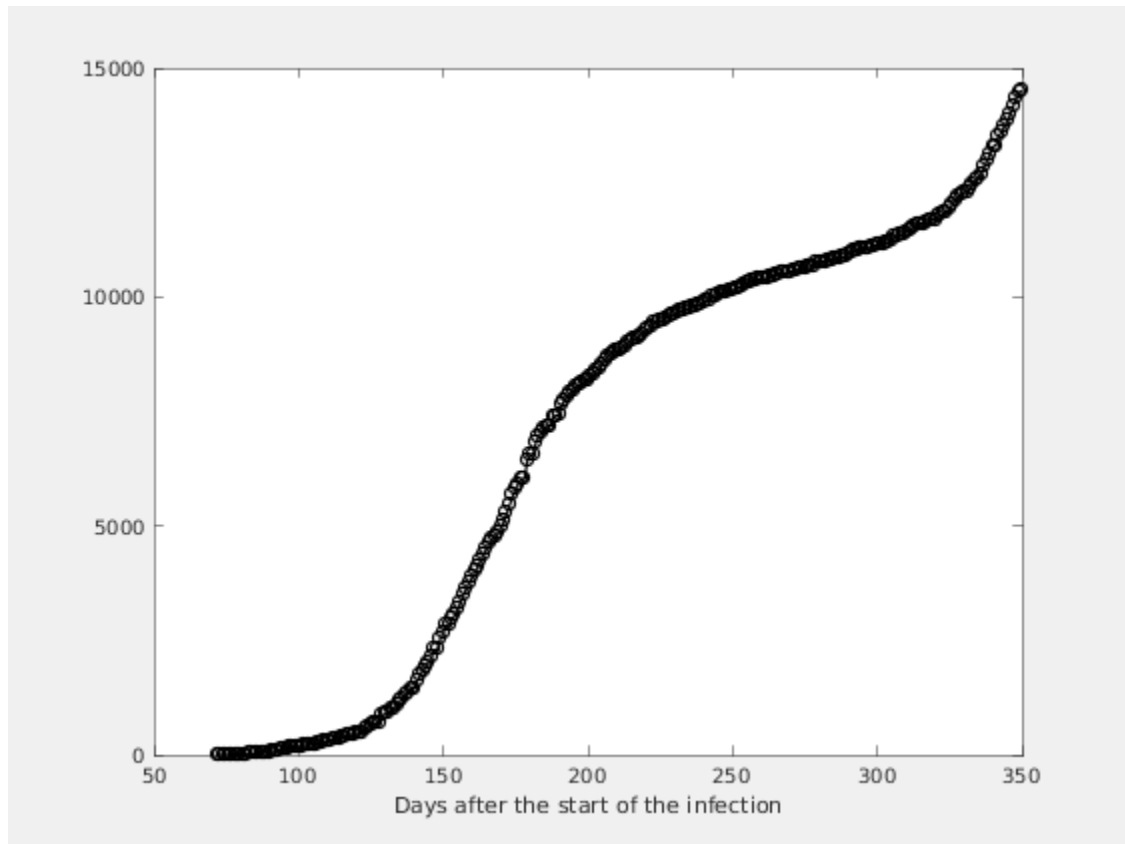
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# Chapter 1. Observed Infection data

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



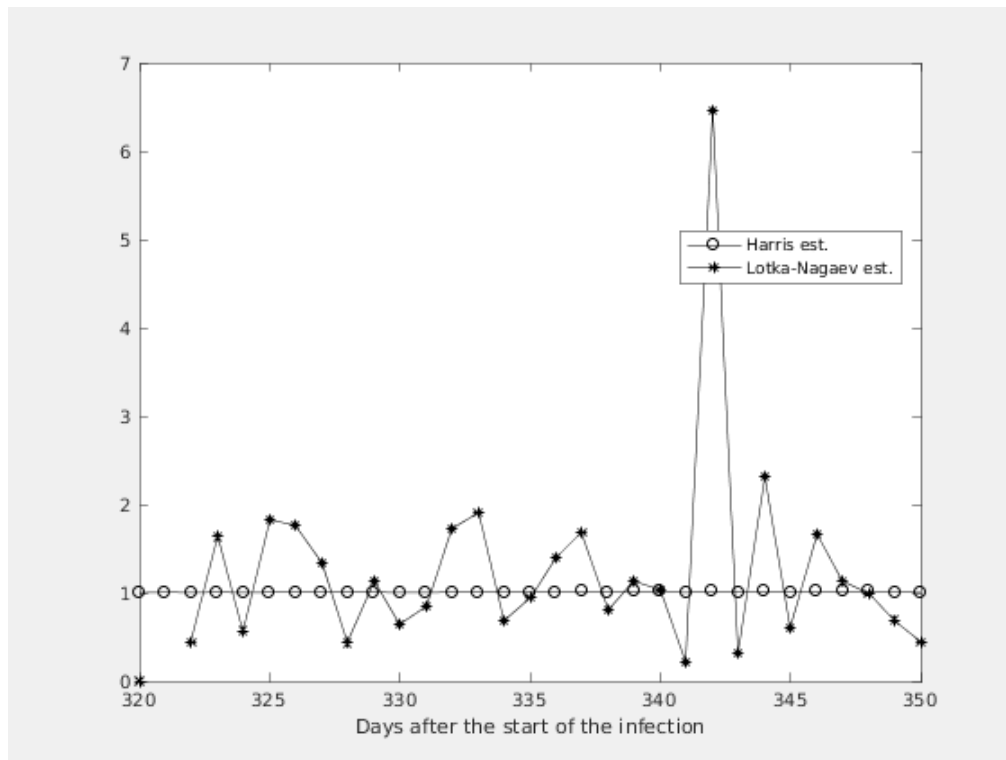
**Figure 1.2. Number of the total registered cases**



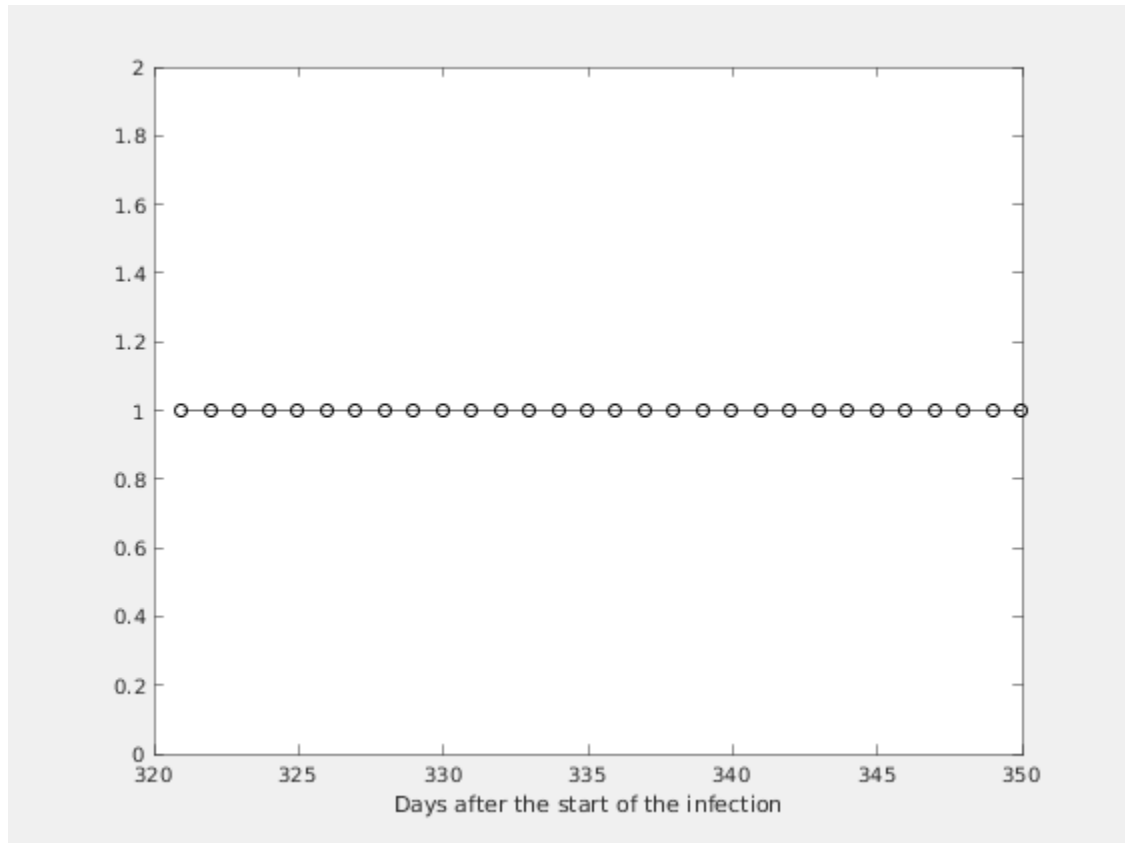
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# Chapter 2. Estimating of the main parameter and some predictions

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

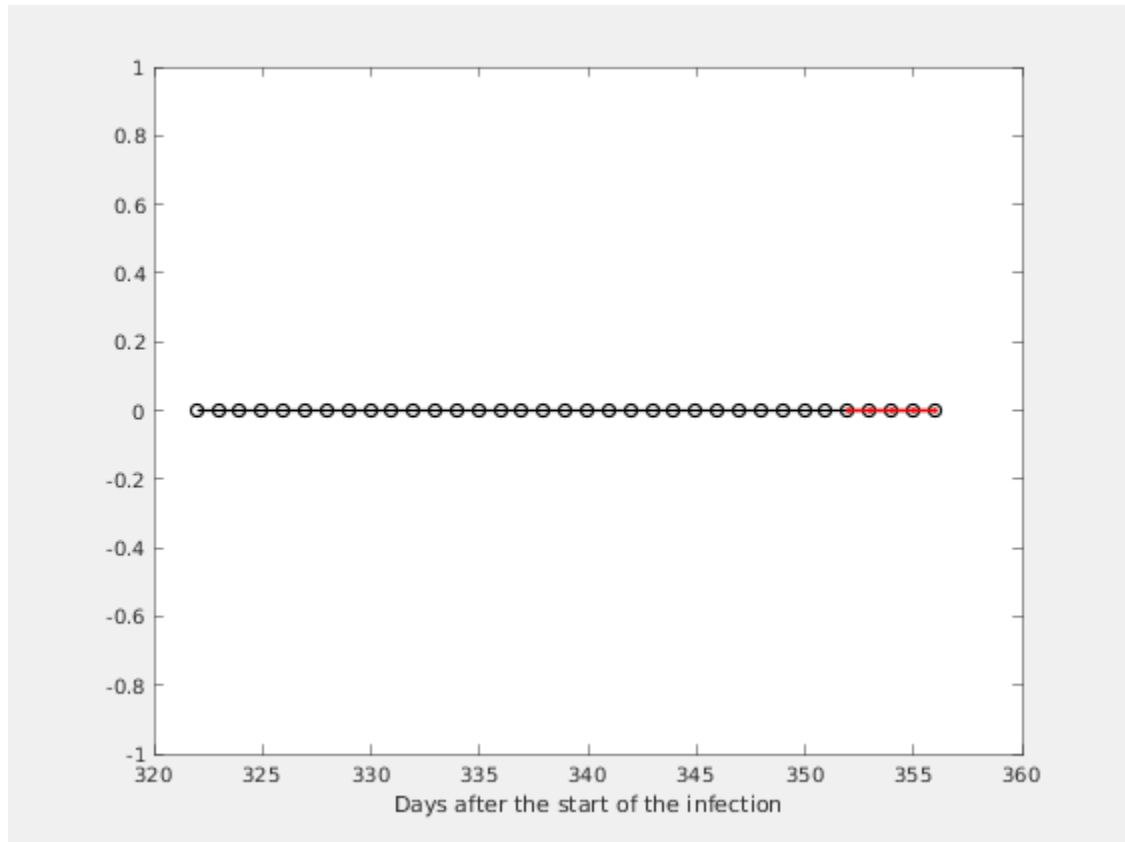


**Figure 2.2. Figure**

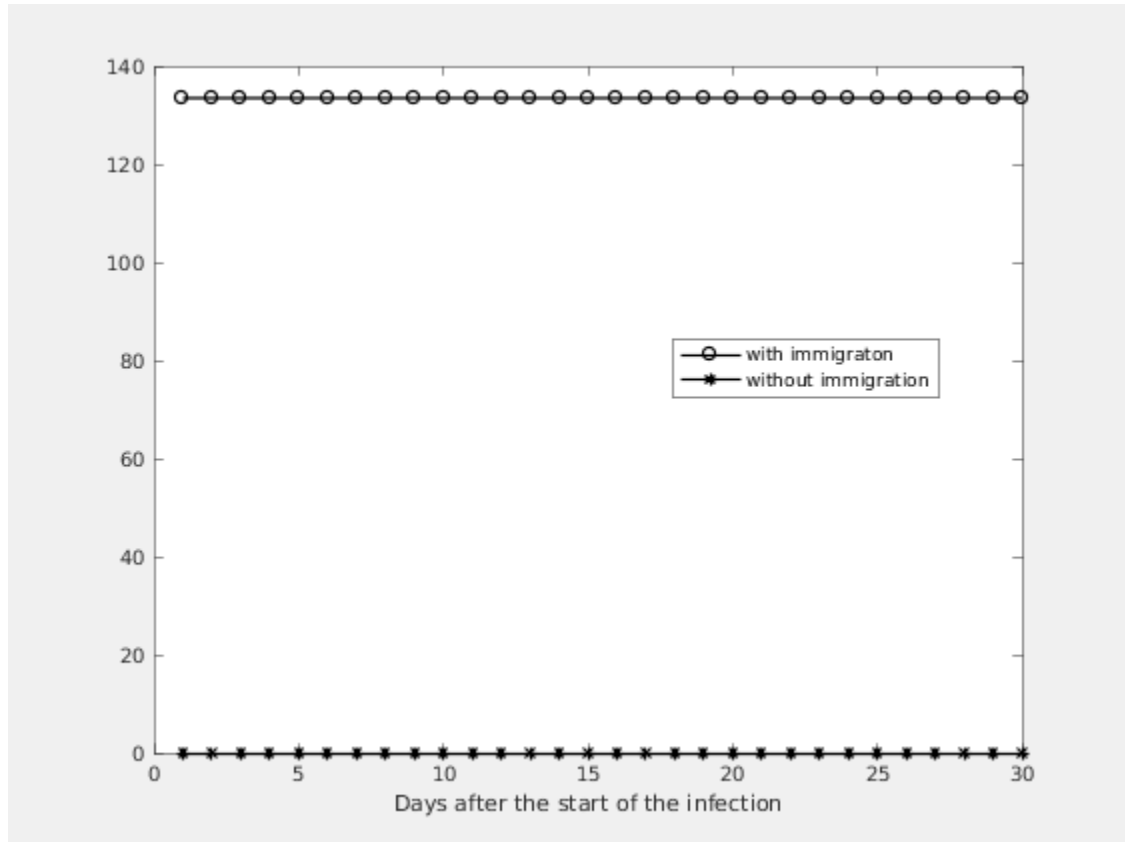




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

| k | m      | ci              | alpha  | M1 | A1  |
|---|--------|-----------------|--------|----|-----|
| 4 | 1.0111 | 0.8107 - 1.2114 | 1.0000 | 0  | 133 |
| 3 | 1.0123 | 0.8134 - 1.2112 | 1.0000 | 0  | 133 |
| 2 | 1.0121 | 0.8141 - 1.2100 | 1.0000 | 0  | 133 |
| 1 | 1.0082 | 0.8118 - 1.2047 | 1.0000 | 0  | 133 |
| 0 | 1.0035 | 0.8087 - 1.1984 | 1.0000 | 0  | 133 |