

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

**Var130 - week 53**

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

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## **Branching stochastic processes as models of Covid-19 epidemic development : Var130 - week 53**

### **Abstract**

The results presented here are obtained using the methodology proposed in the paper <https://arxiv.org/abs/2004.14838> for the country Var130. 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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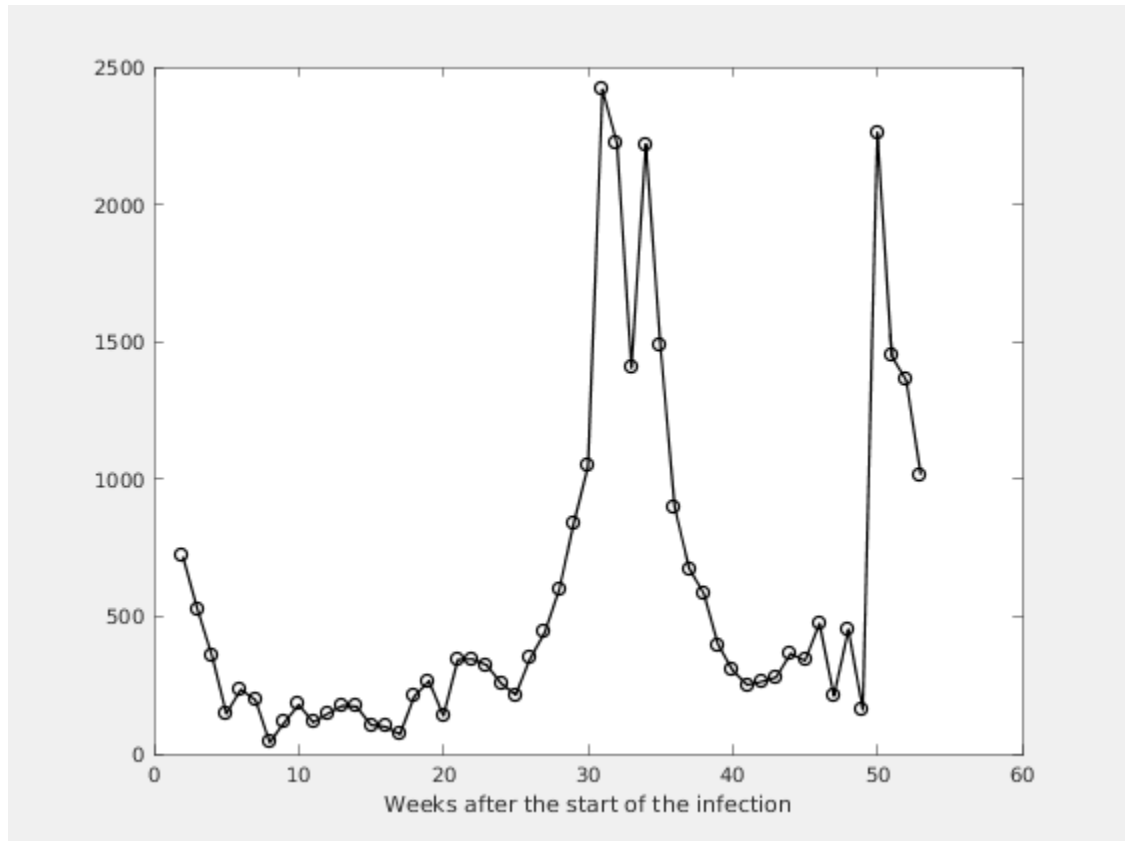
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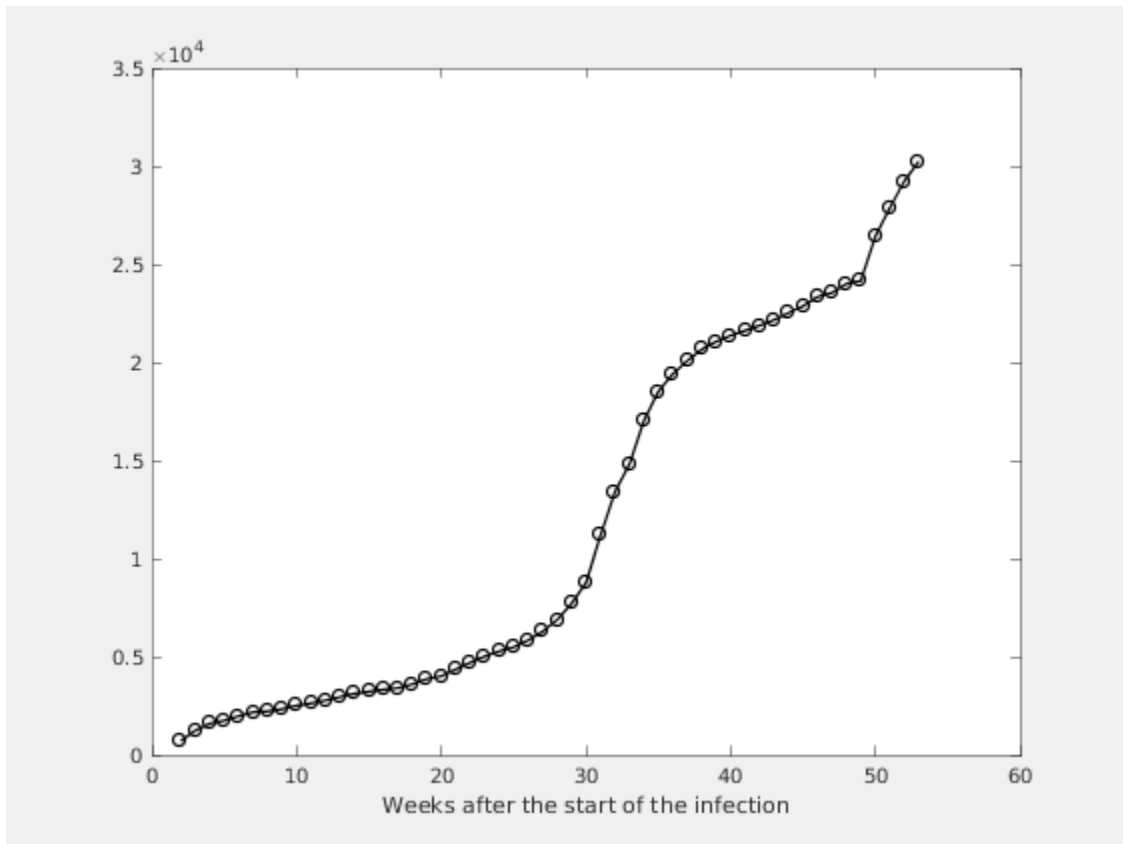
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# Chapter 1. Observed Infection data

Figure 1.1. Number of the weekly 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

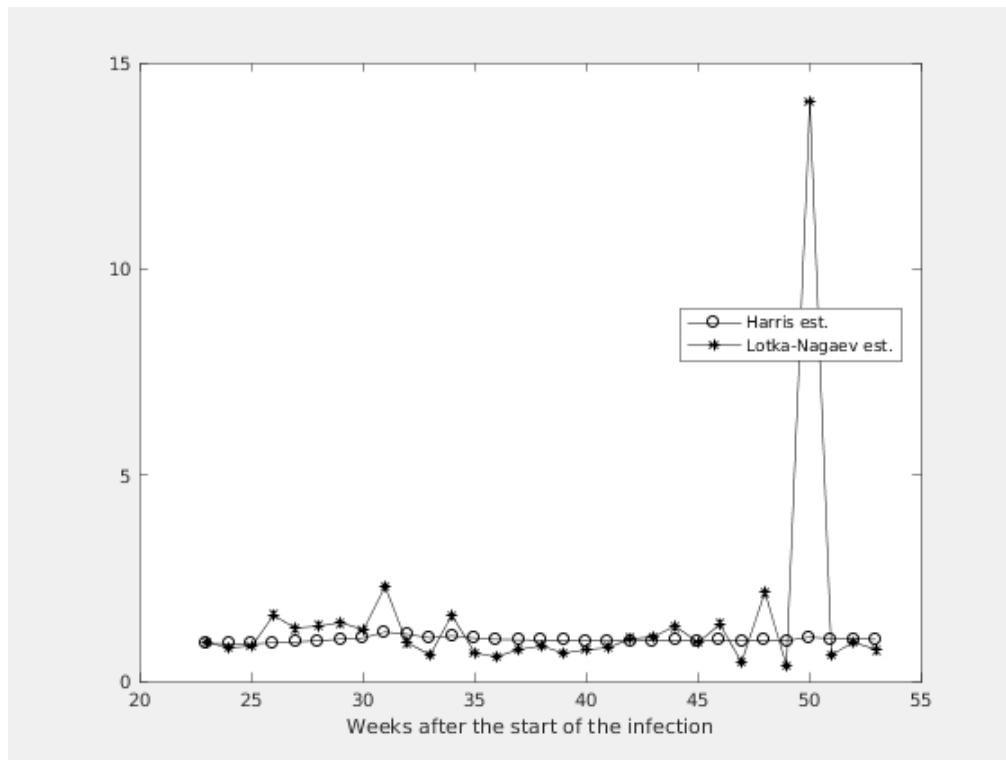
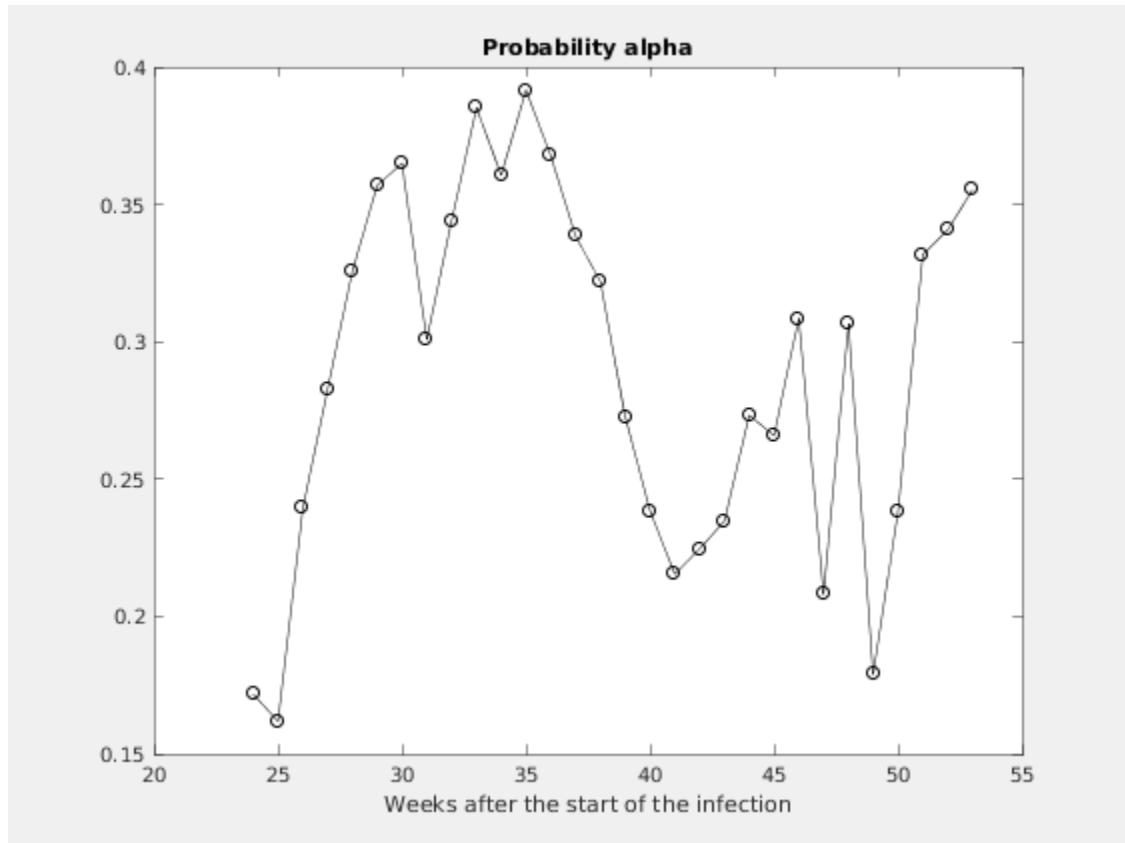
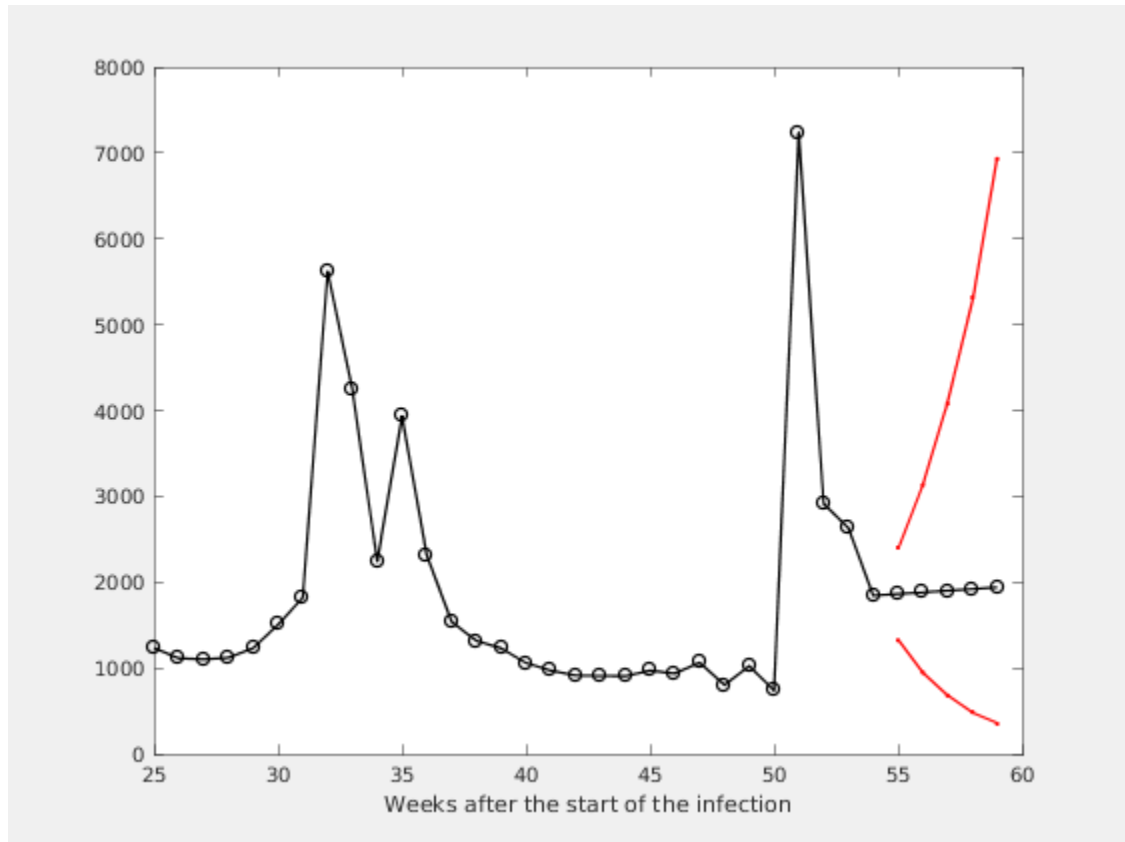


Figure 2.2. Figure

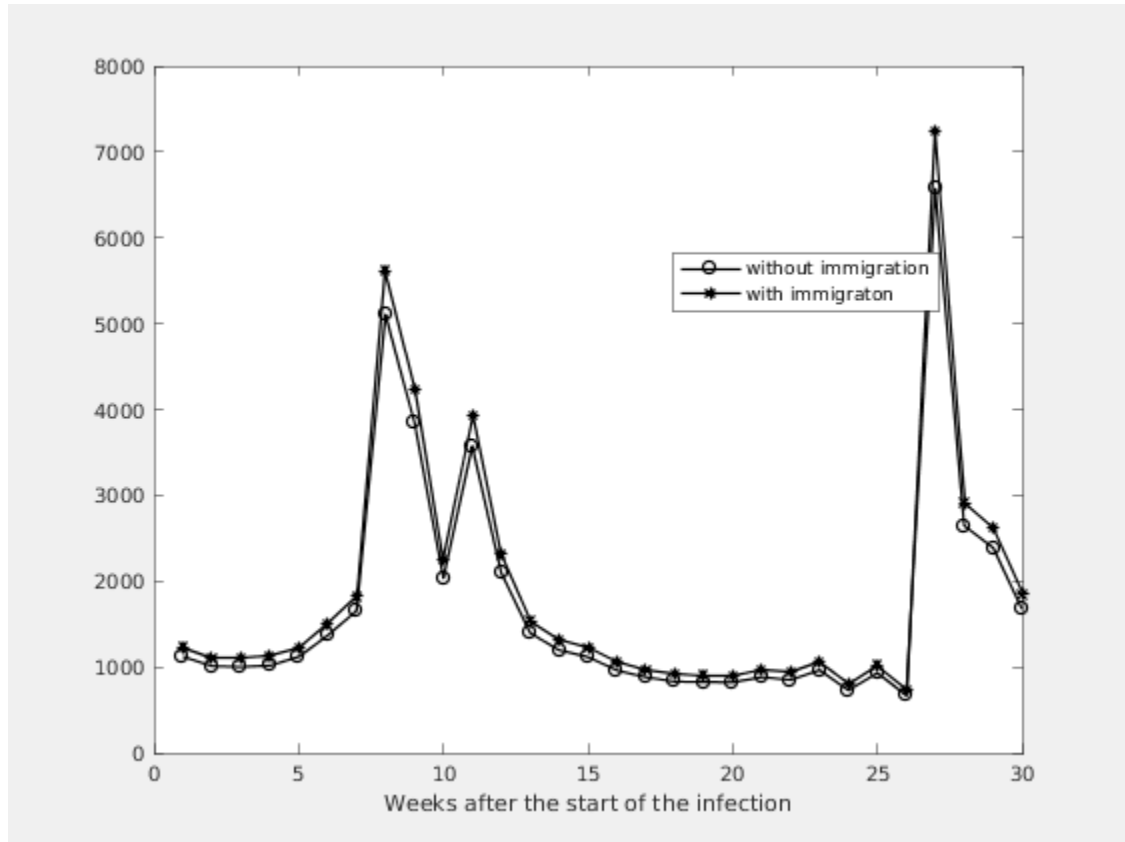




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9768	0.8408 - 1.1128	0.2081	803	729
3	1.0639	0.9245 - 1.2032	0.3065	1025	931
2	1.0276	0.8897 - 1.1655	0.1790	739	671
1	1.0230	0.6931 - 1.3530	0.2381	7234	6568
0	1.0102	0.6963 - 1.3241	0.3318	2914	2646