

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

**UnitedKingdom - week 53**

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### **Abstract**

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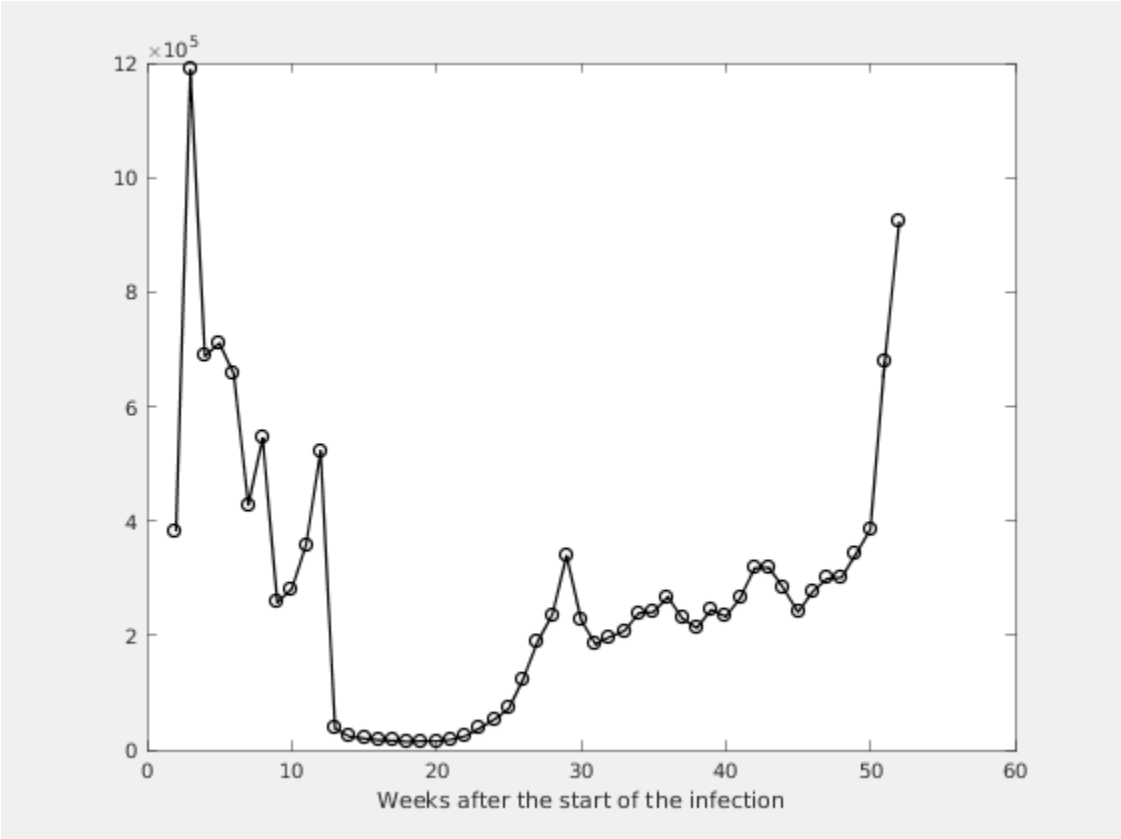
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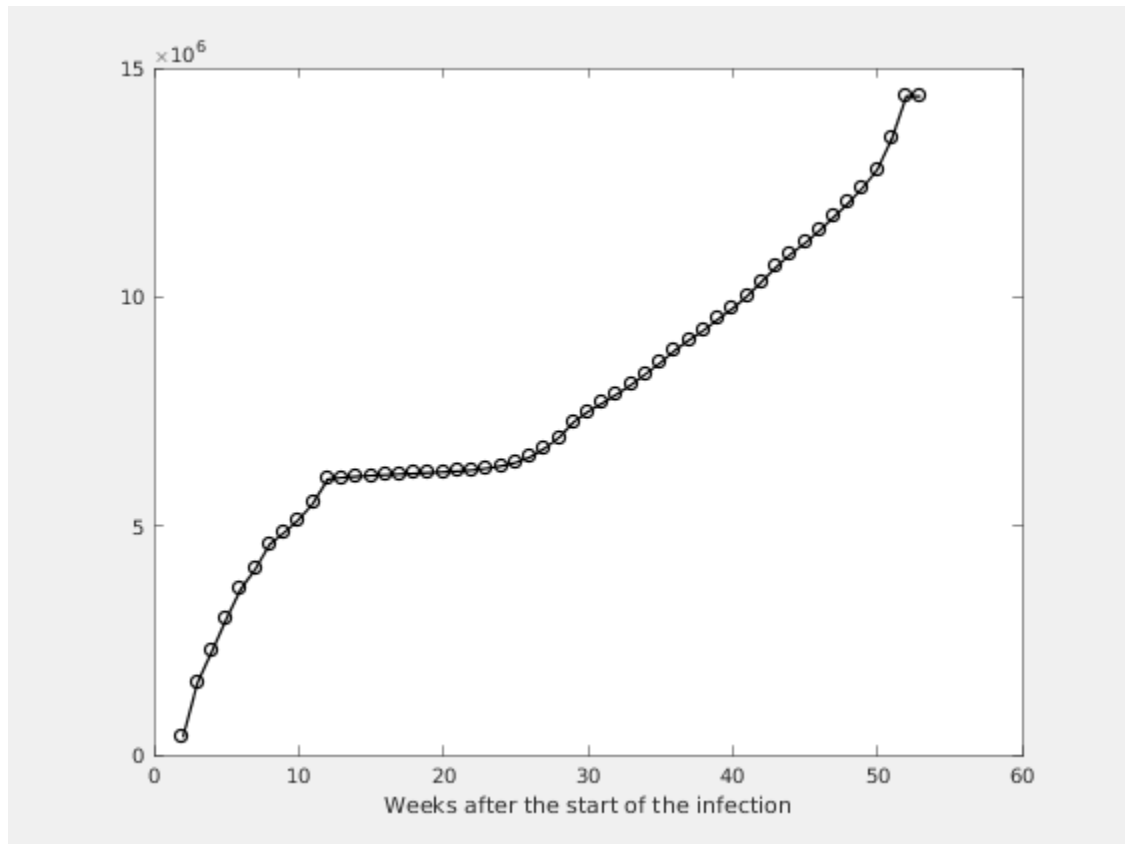
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# Chapter 1. Observed Infection data

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

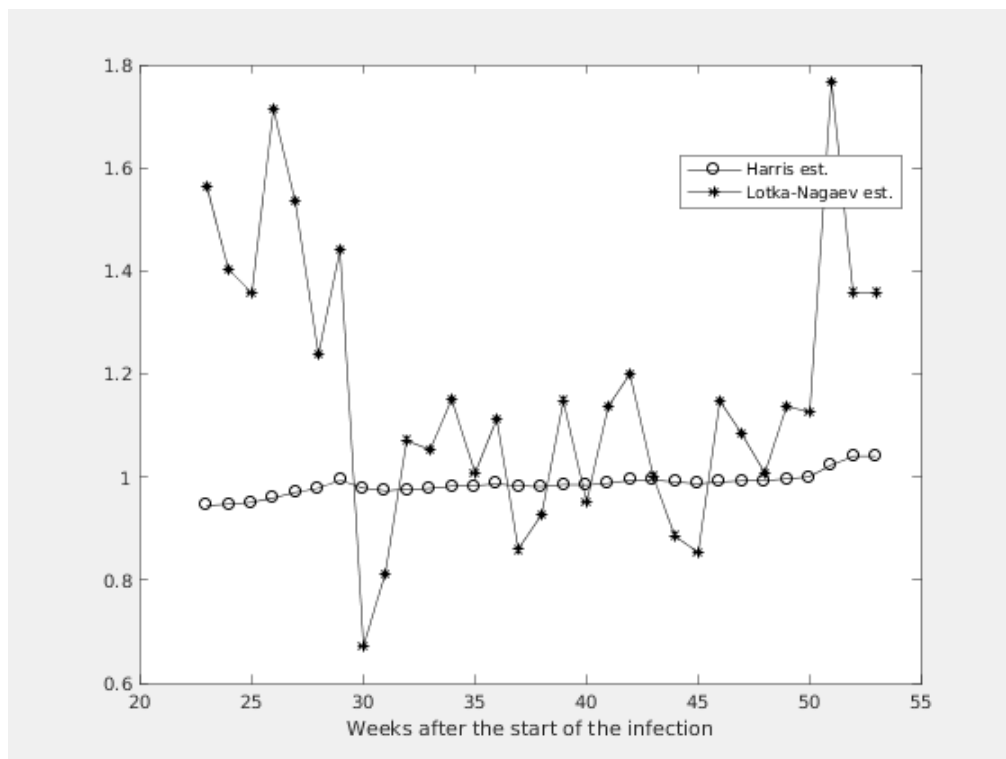
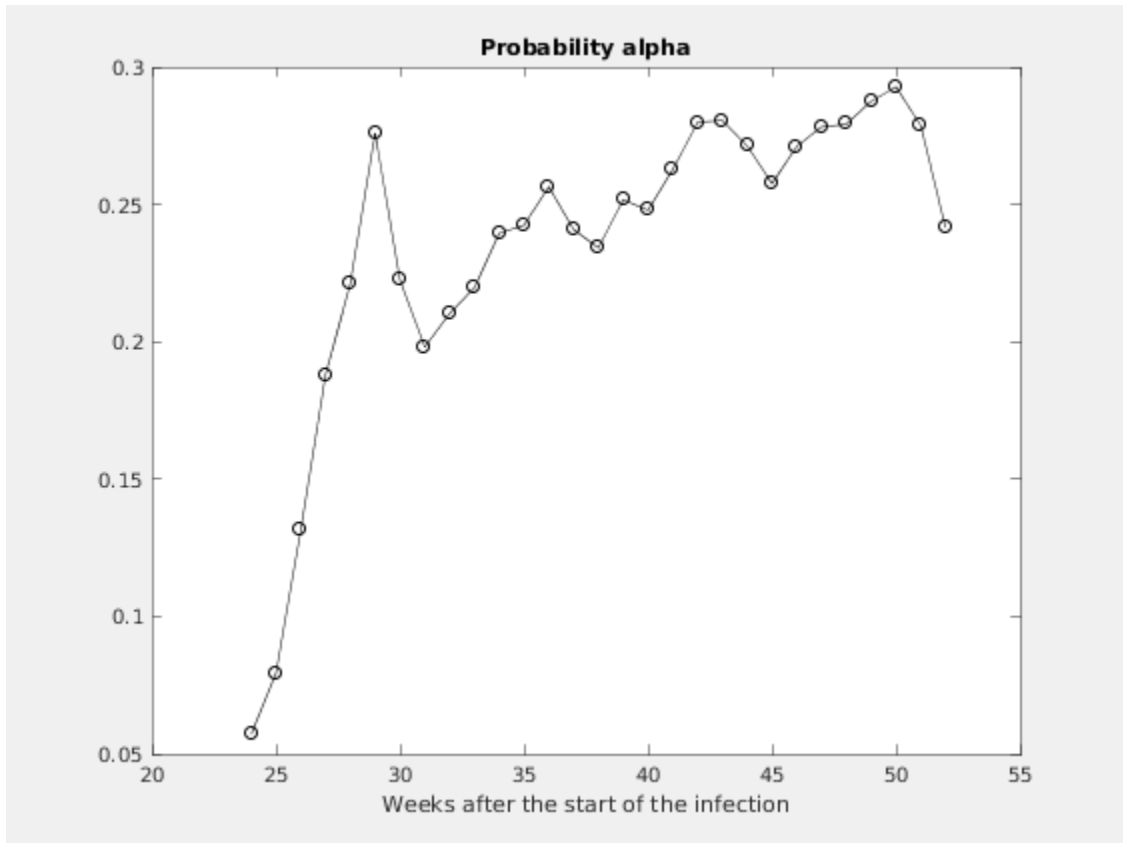
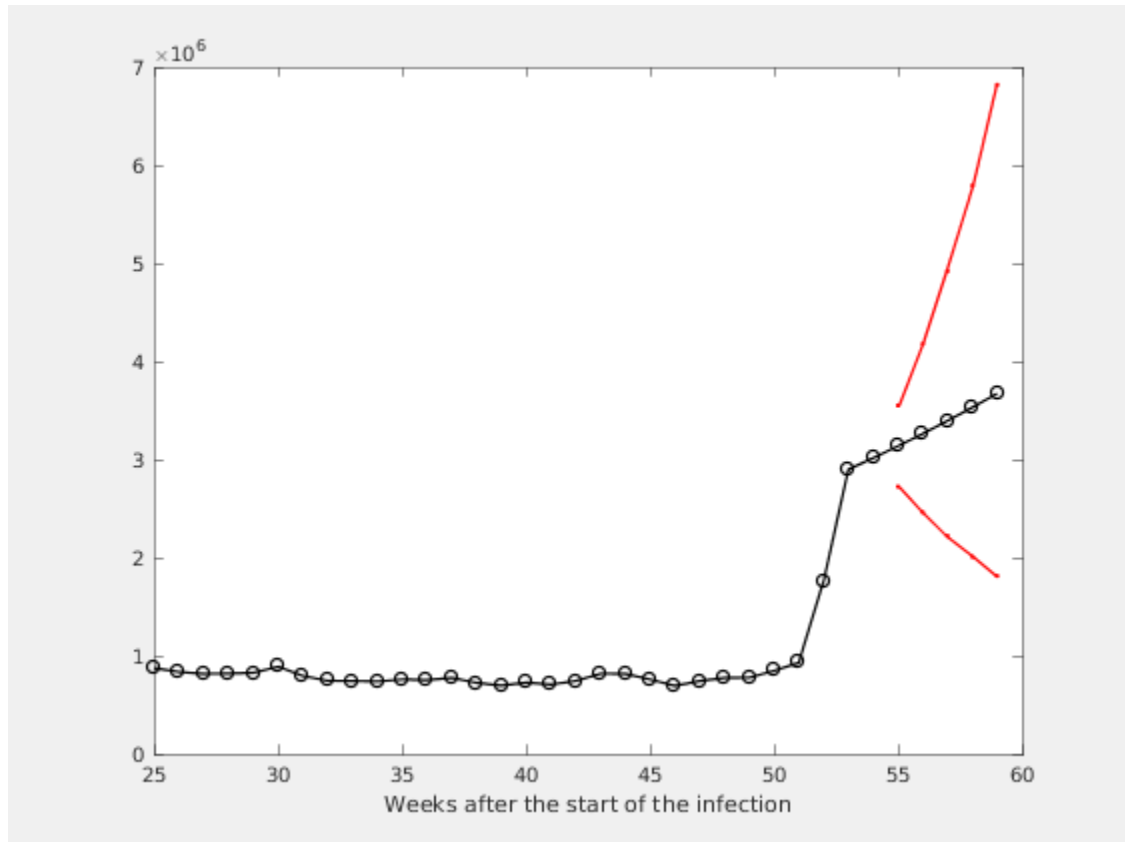


Figure 2.2. Figure

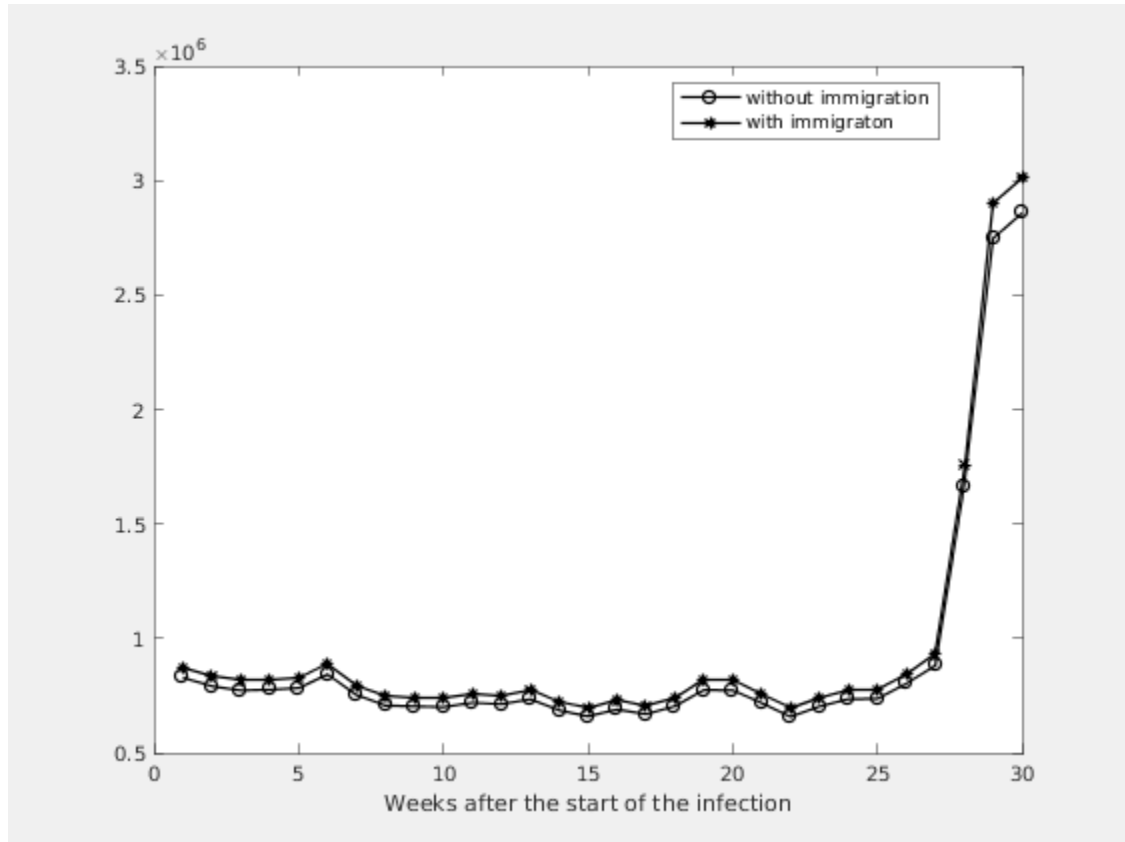




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	0.9967	0.8475 - 1.1459	0.2783	776093	735296
3	1.0002	0.8546 - 1.1459	0.2792	777240	736383
2	1.0233	0.8807 - 1.1659	0.2876	847264	802726
1	1.0402	0.9007 - 1.1798	0.2928	929455	880597
0	1.0402	0.8997 - 1.1808	0.2786	1759314	1666833