

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

**PapuaNewGuinea - week 53**

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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 PapuaNewGuinea. 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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## Table of Contents

1. Observed Infection data .....	1
2. Estimating of the main parameter and some predictions .....	3

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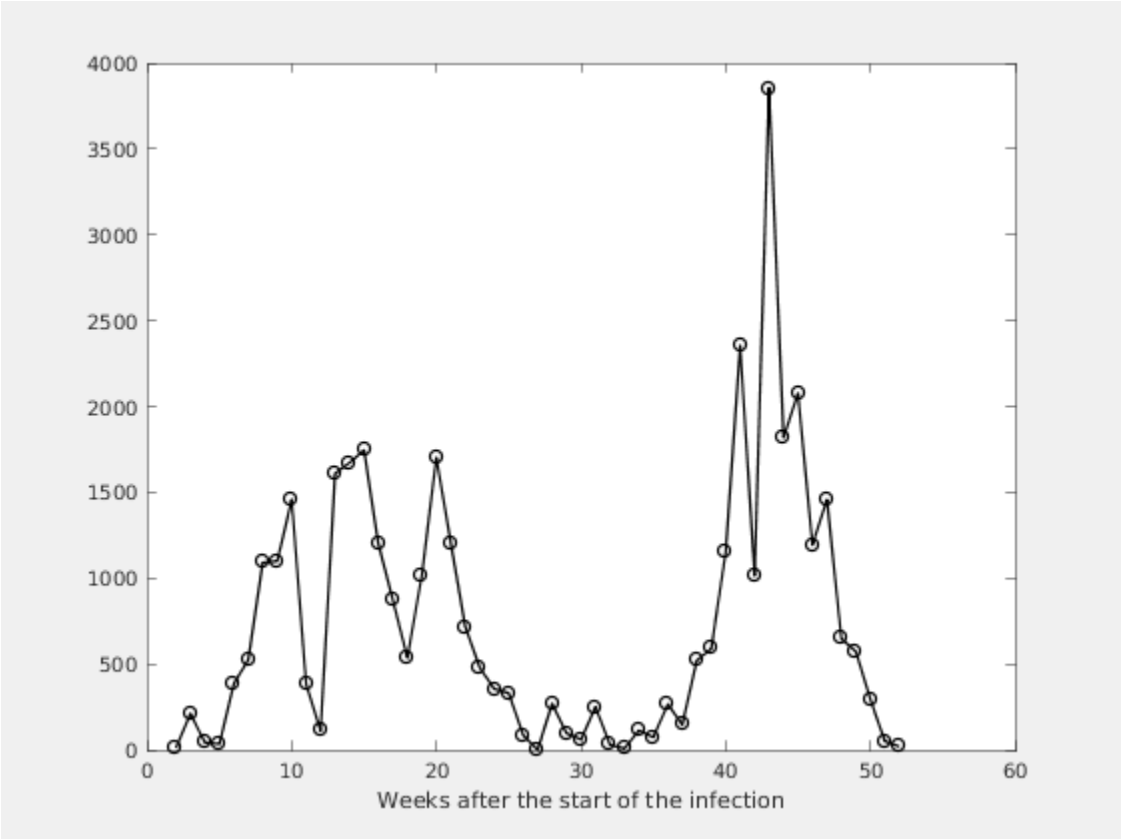
## List of Figures

1.1. Number of the weekly reported laboratory-confirmed cases .....	1
1.2. Number of the total registered cases .....	2
2.1. The Lotka-Nagaev and the Harris type estimator of the growth rate .....	3
2.2. Figure .....	4
2.3. Expected number of the nonregistered infected individuals without immigra- tion .....	5
2.4. Expected number of the nonregistered infected individuals with immigration .....	6

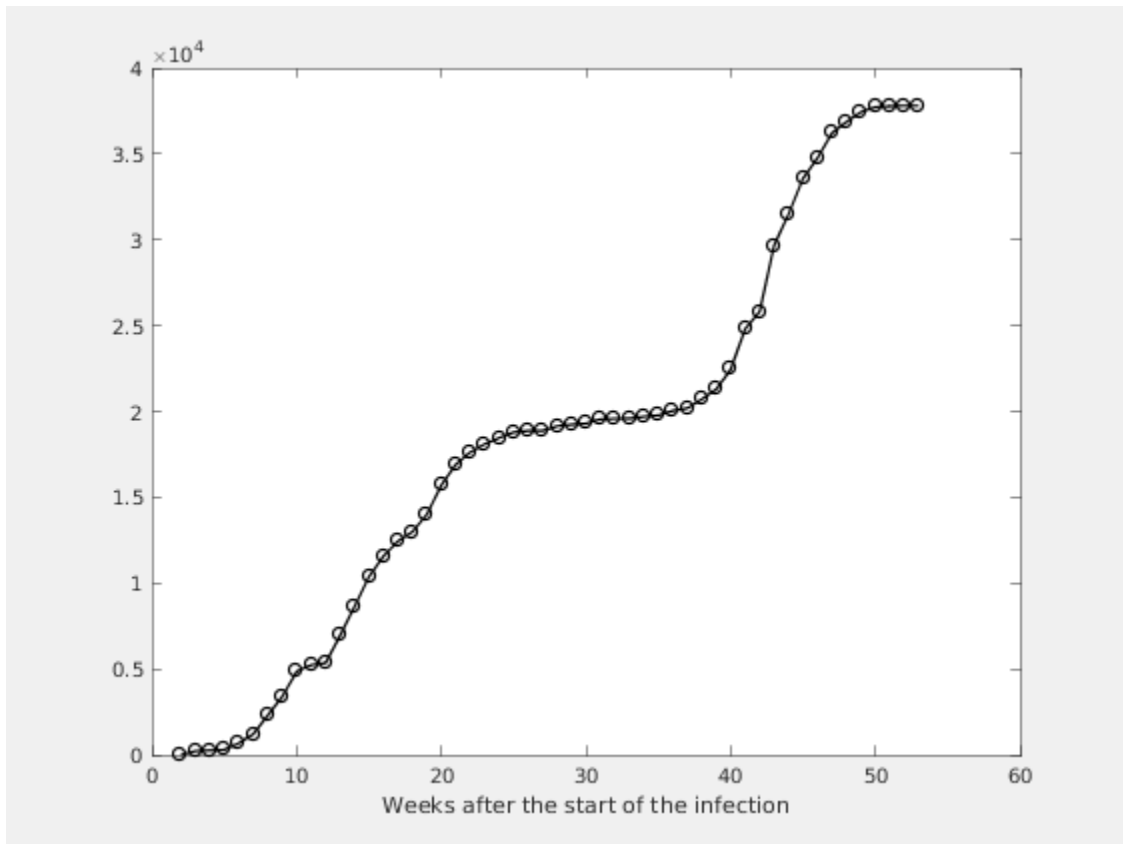
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# Chapter 1. Observed Infection data

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

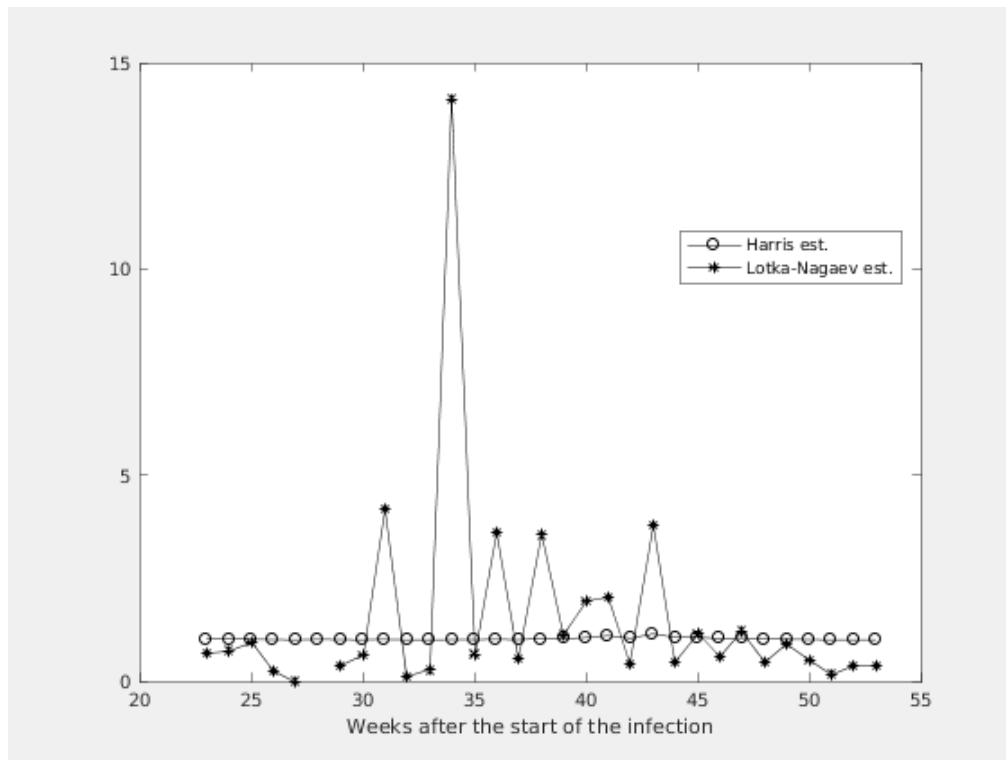
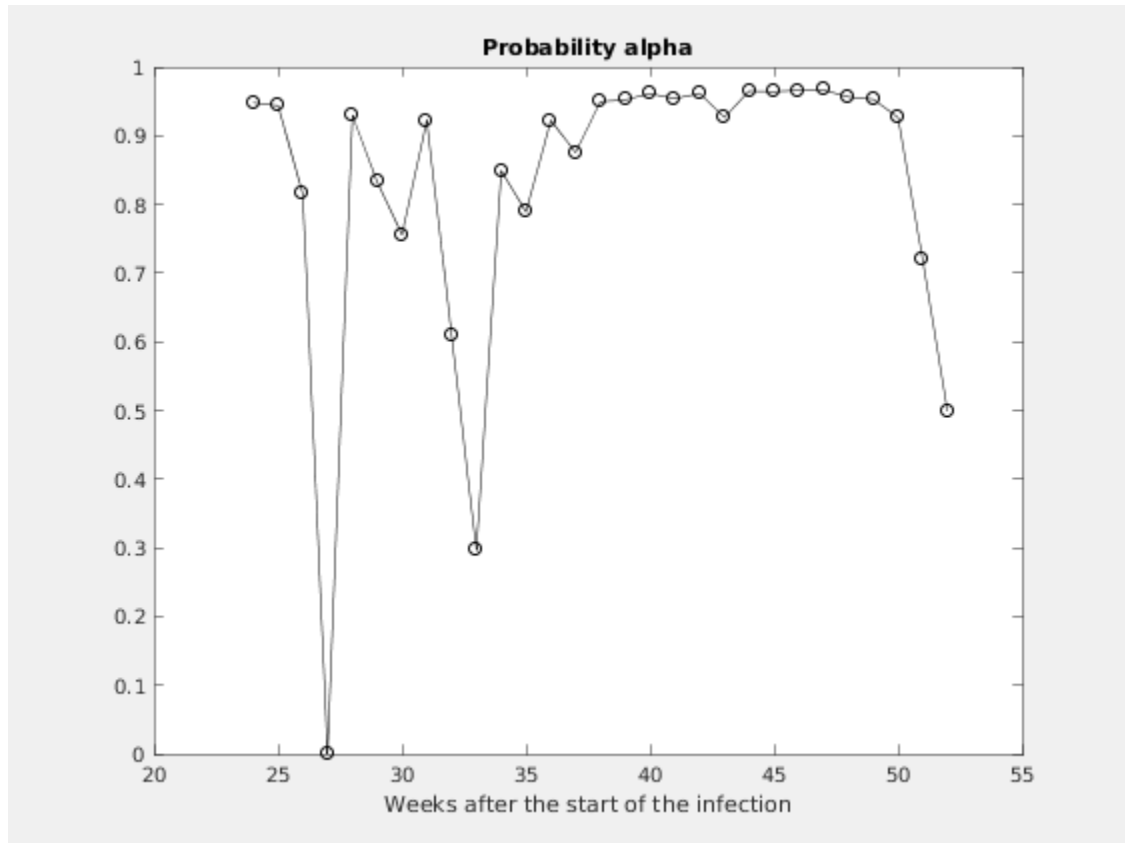
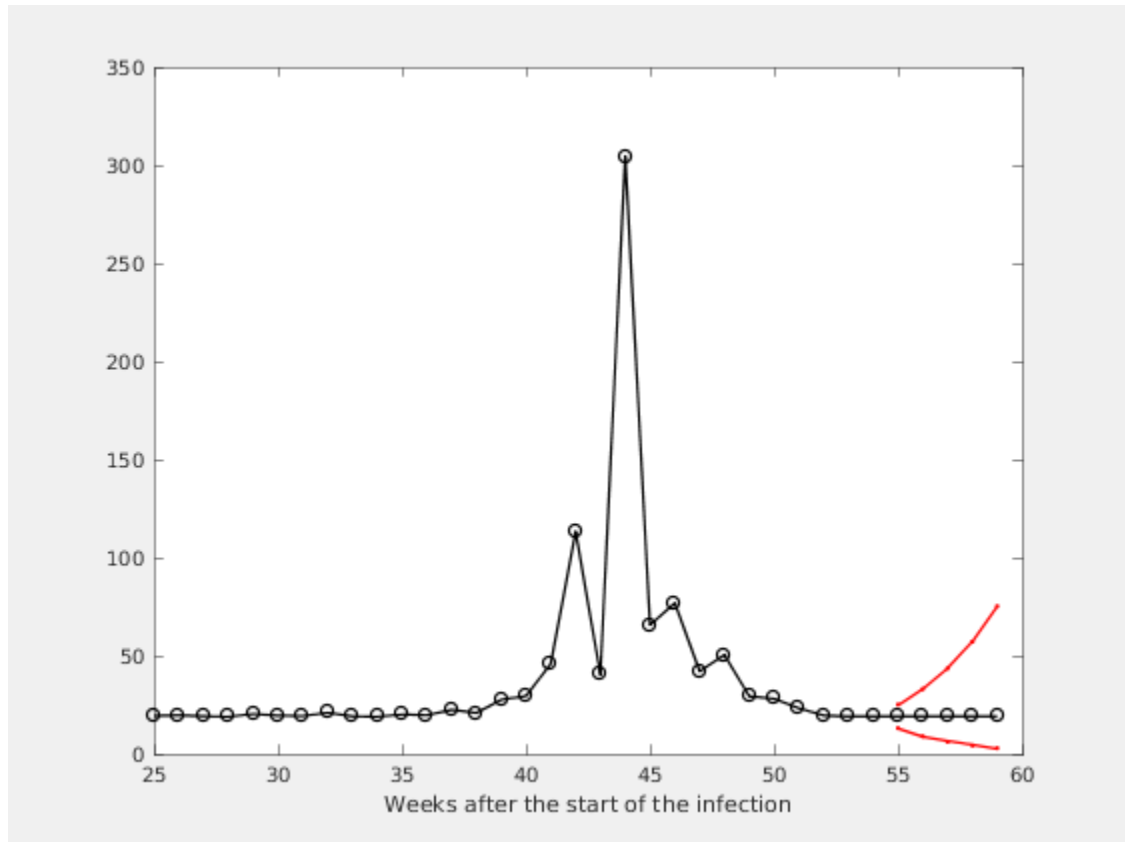


Figure 2.2. Figure

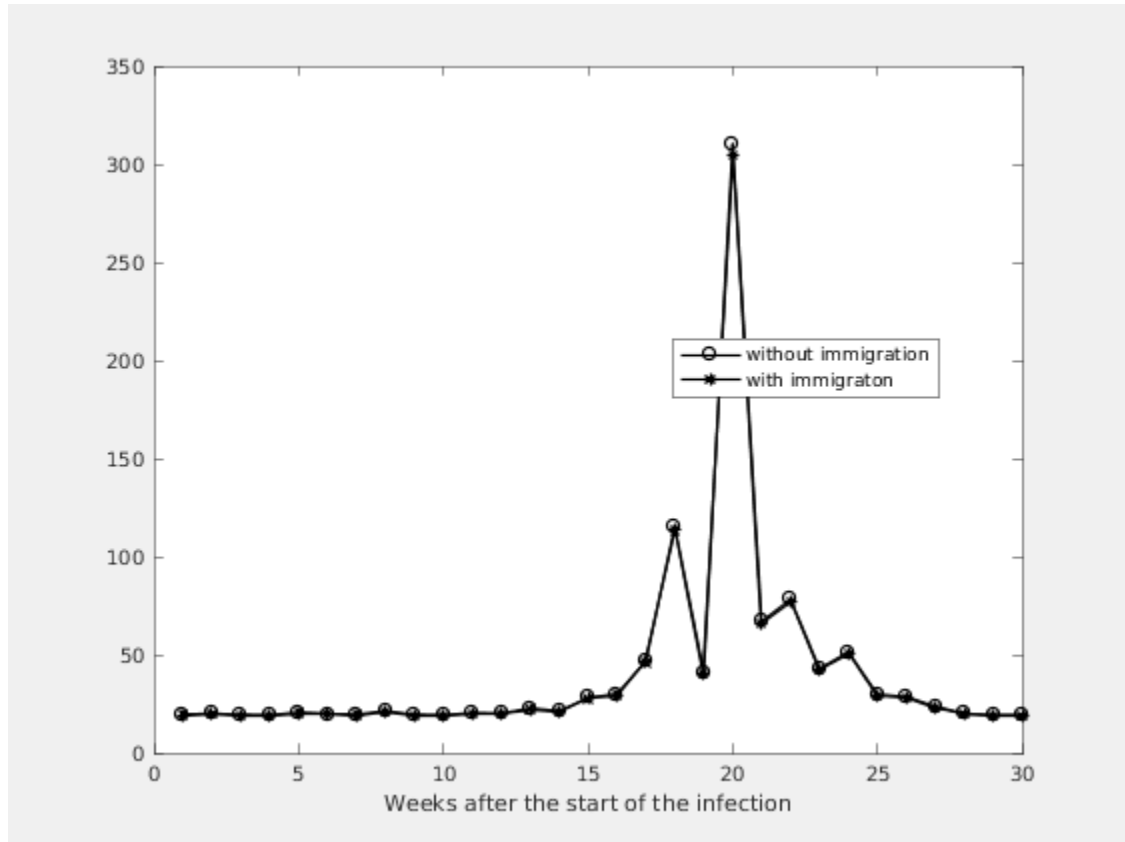




**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**



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



**Estimation of the model parameters.**

k	m	ci	alpha	A1	M1
4	1.0152	0.6715 - 1.3589	0.9665	50	51
3	1.0075	0.6729 - 1.3422	0.9567	29	30
2	1.0010	0.6729 - 1.3292	0.9531	28	29
1	1.0002	0.6776 - 1.3228	0.9267	23	24
0	1.0002	0.6815 - 1.3188	0.7190	20	20