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

## Malta - 20201214

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

Publication date 27-Feb-2021 03:10:22

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

**Abstract**

The results presented here are obtained using the methologi proposed in the paper https://arxiv.org/abs/2004.14838 for the country Malta. The data comes from European Centre for Disease Prevention and Control available at https://opendata.ecdc.europa.eu/covid19/casedistribution/csv.

# Table of Contents

# List of Figures

# Chapter 1. Observed Infection data

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

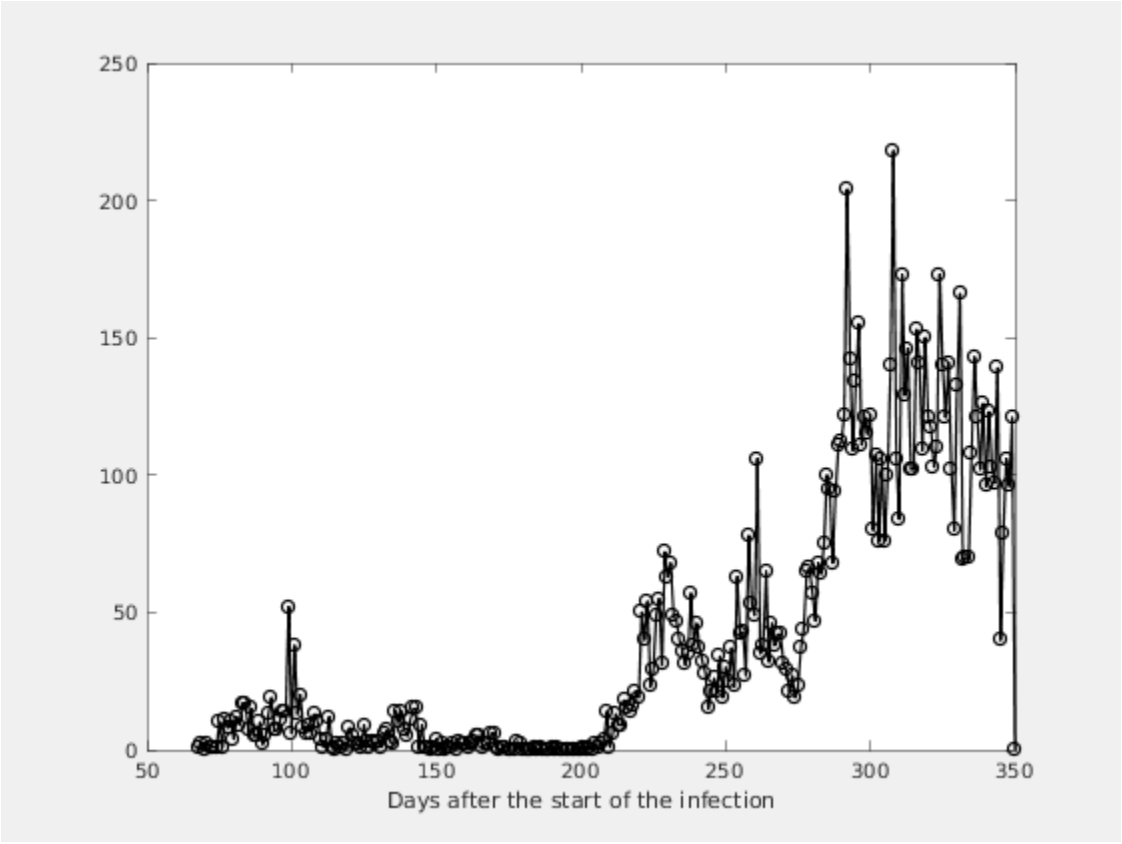
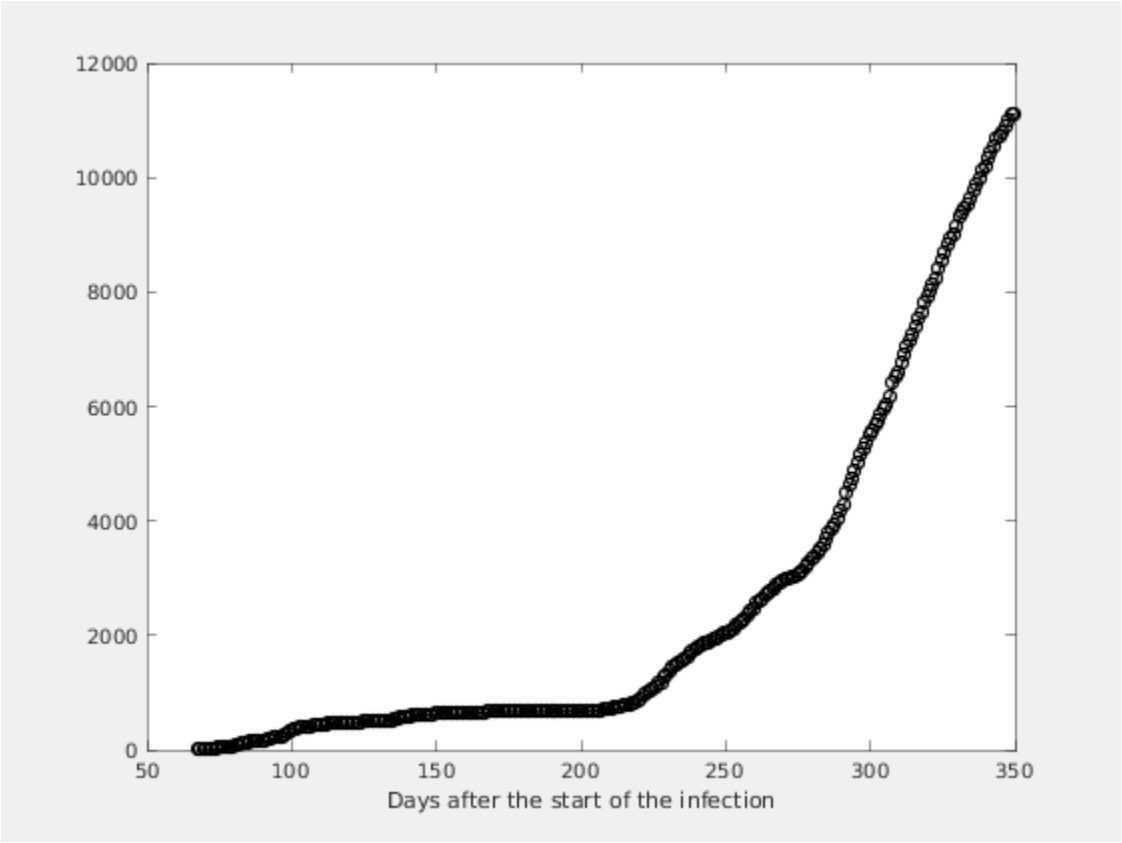


**Figure 1.2. Number of the total registered cases**



# 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**

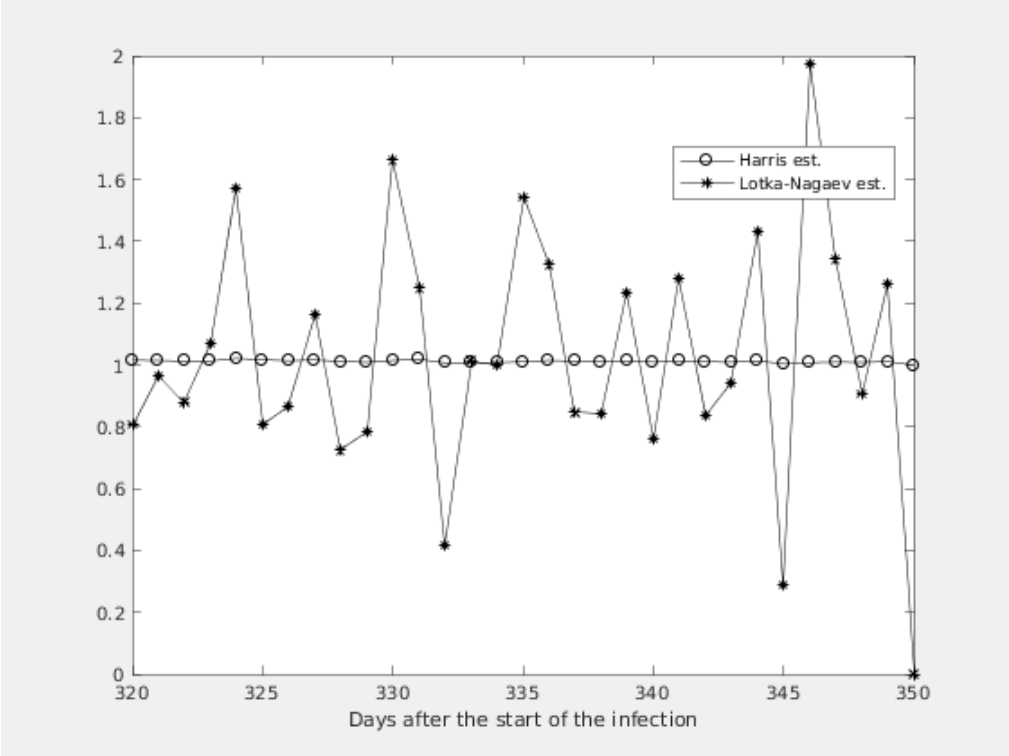


**Figure 2.2. Figure**

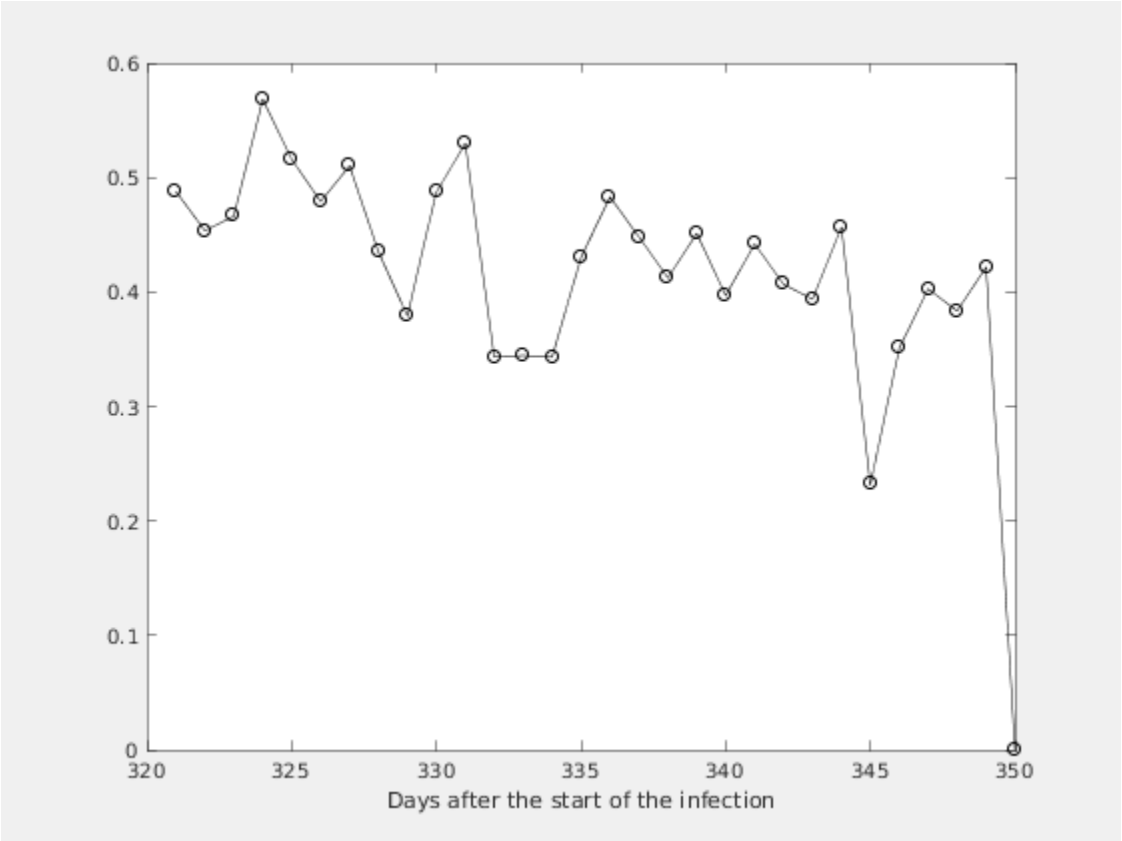


**Figure 2.3. Expected number of the nonregistered infected individuals without immigration**

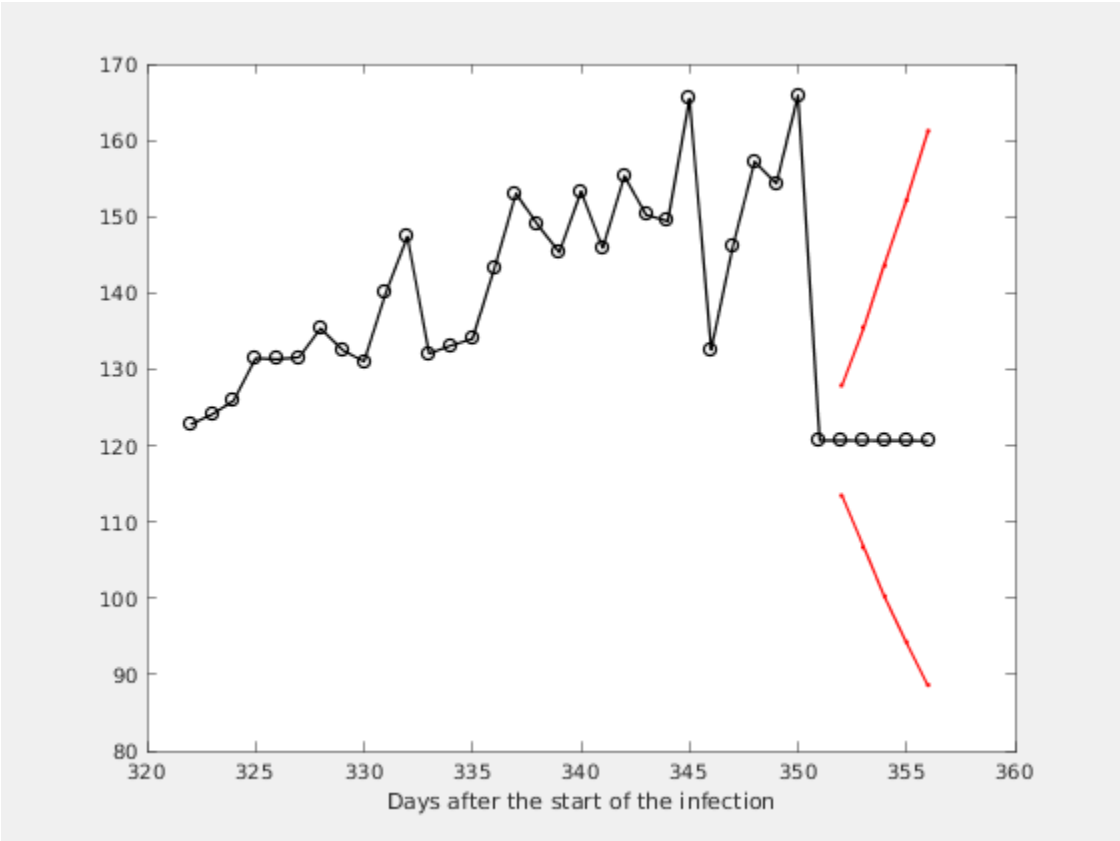
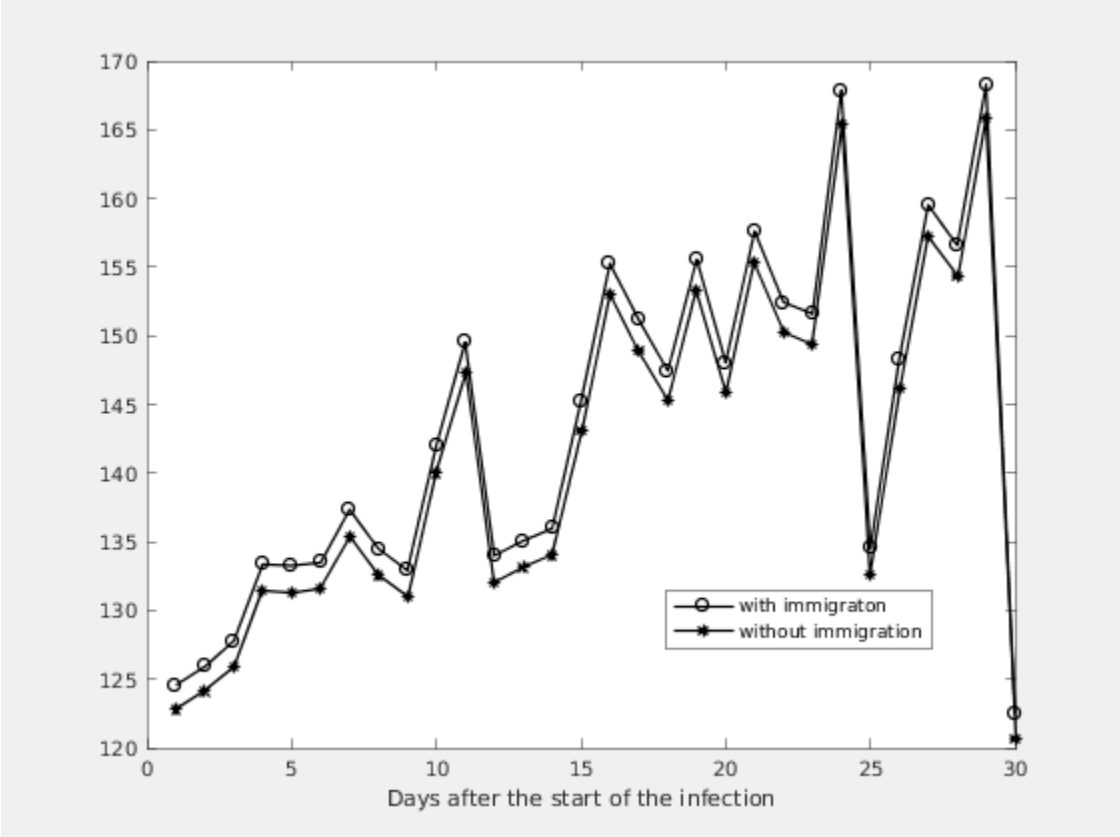


**Figure 2.4. Expected number of the nonregistered infected individuals with immigration**




**Estimation of the model parameters.**

| k | m | ci | alpha | M1 | A1 |
|---|---|---|---|---|---|
| 4 | 1.0073 | 0.9468 - 1.0678 | 0.4566 | 165 | 168 |
| 3 | 1.0097 | 0.9489 - 1.0706 | 0.2318 | 133 | 135 |
| 2 | 1.0087 | 0.9477 - 1.0698 | 0.3509 | 146 | 148 |
| 1 | 1.0109 | 0.9501 - 1.0717 | 0.4027 | 157 | 160 |
| 0 | 0.9999 | 0.9395 - 1.0603 | 0.3835 | 154 | 157 |