

Covid19 Report

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1 The *CRISTINA* project

This report is part of a research project “**CoRona vIrus SpaTial aNAlysis**” (*CRISTINA*) which examines the time series progress of COVID-19 events in 177 countries of the world.

2 Greece

A series of visualizations for the progress of COVID-19 for **Greece**. We use absolute numbering scale and logarithmic scale to visualize the progress of “*confirmed cases*”, “*deaths*” and “*recovered cases*”. We also indicate the goverment interventions as dots on top of each line.

2.1 Confirmed Cases

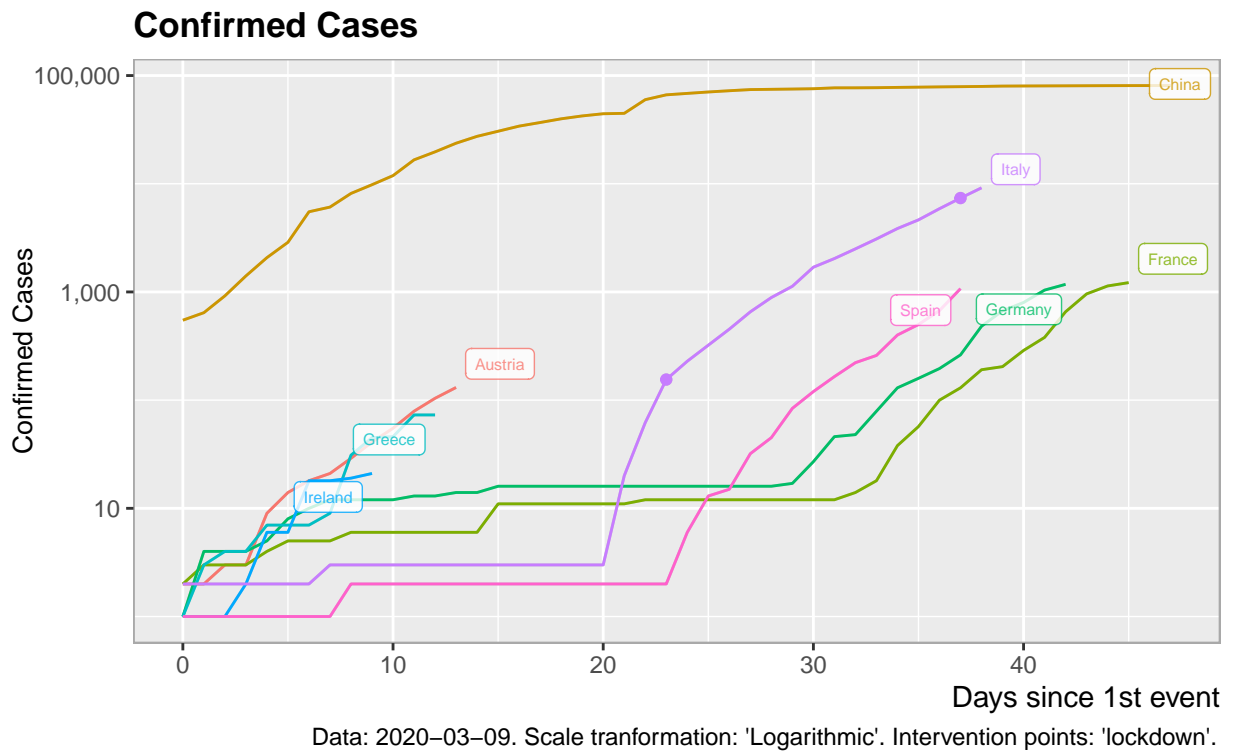


Figure 1: Confirmed Cases

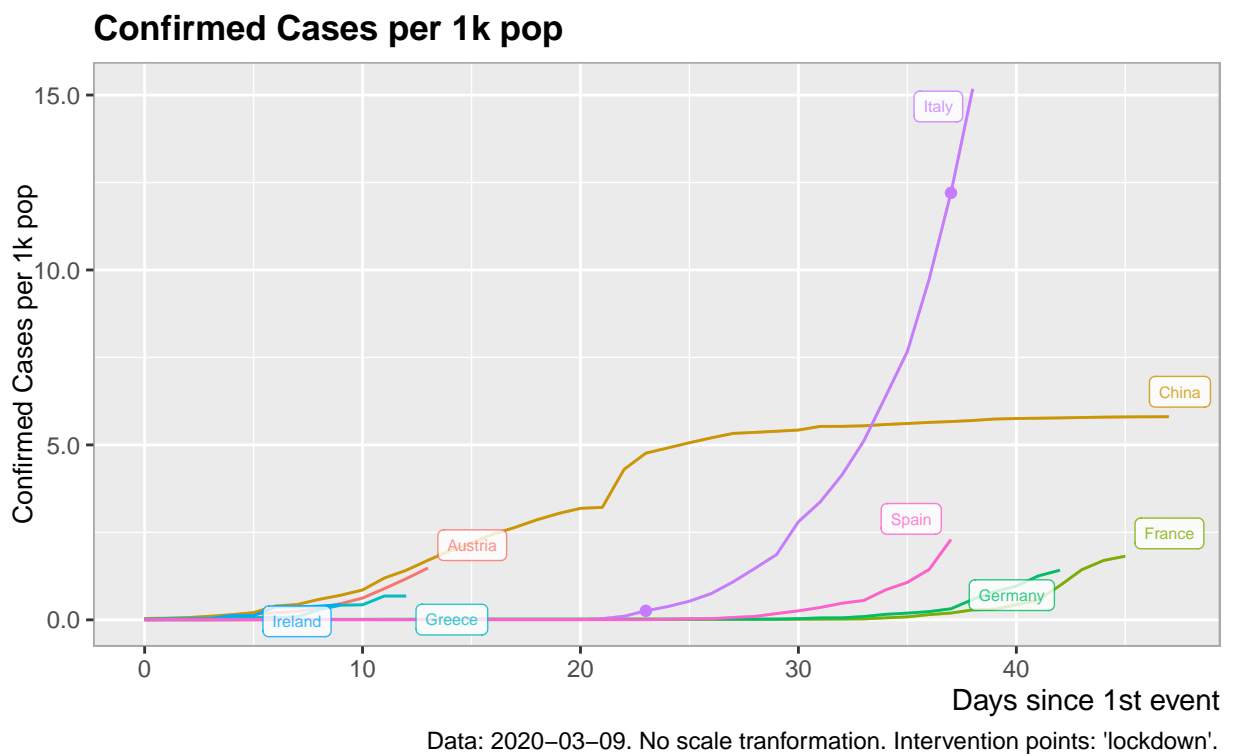


Figure 2: Confirmed Cases by 1000 population

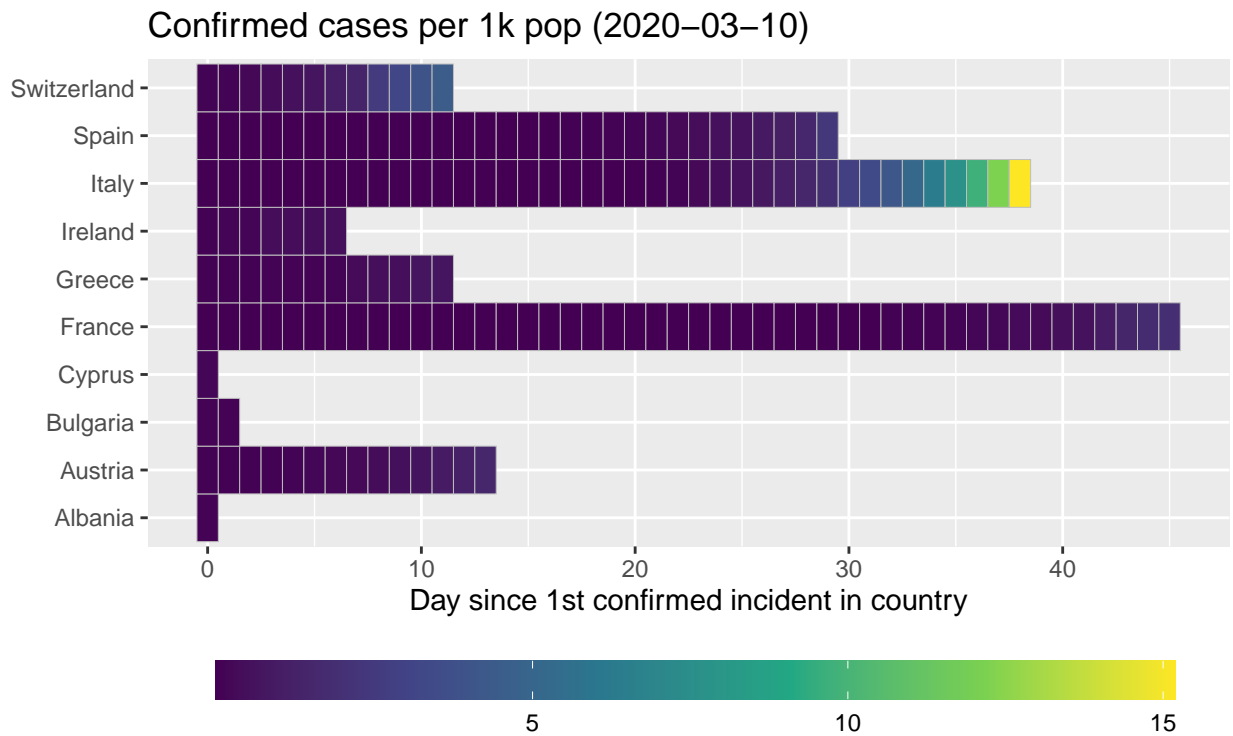


Figure 3: Confirmed Cases by 1000 population

2.2 Deaths

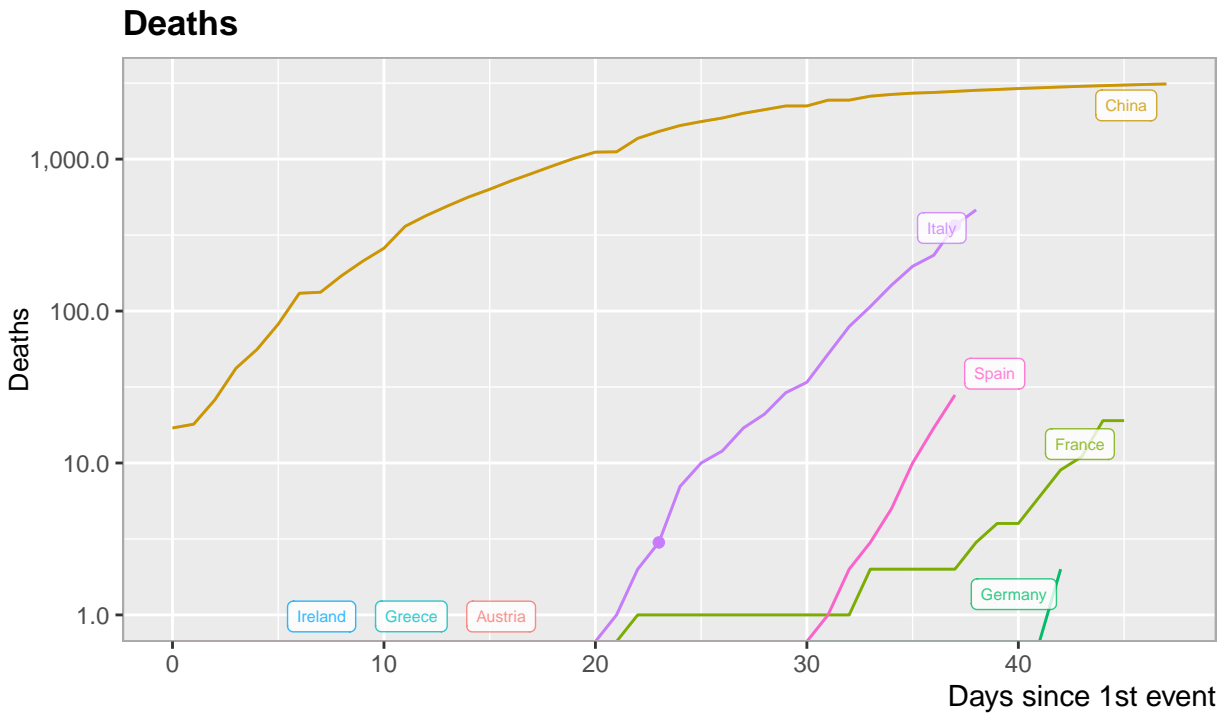


Figure 4: Number of deaths by country

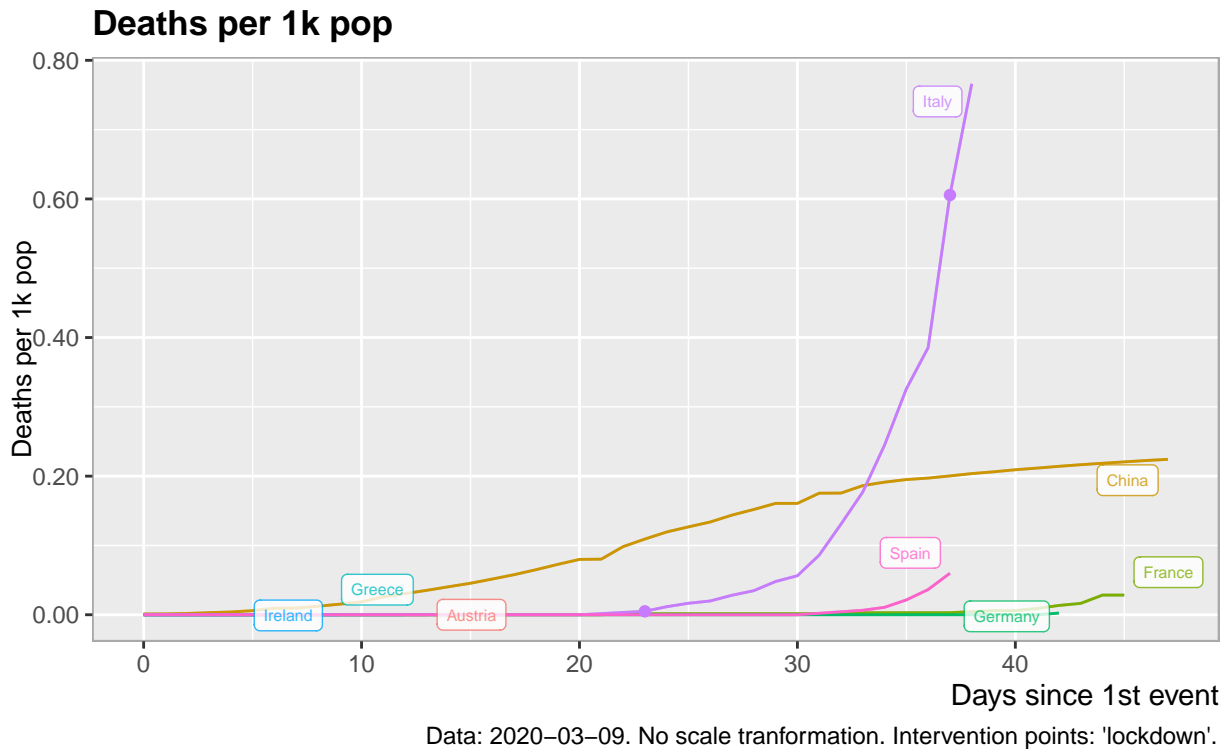


Figure 5: Deaths by 1000 population

3 Rate of change over time

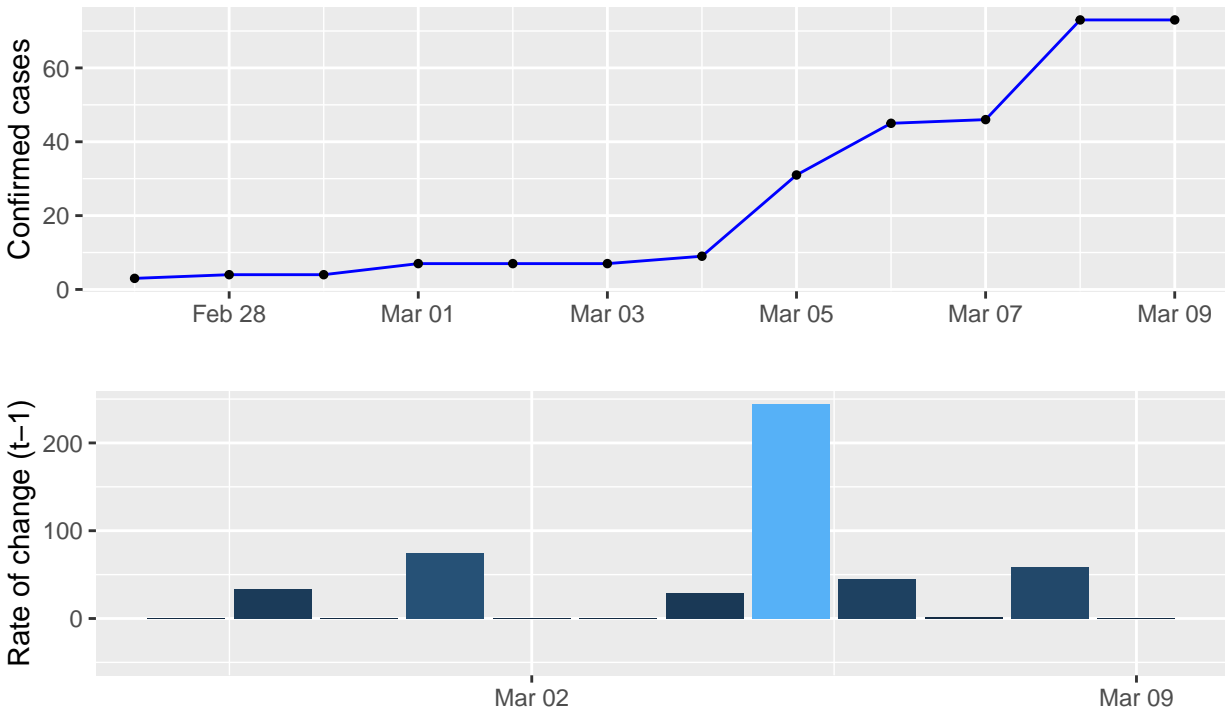


Figure 6: Rate of change of confirmed cases

4 Estimations

We estimate the future projection of *confirmed cases* for the next 5 days in Greece with two methods.

4.1 ARIMA projection

Projection of 'confirmed' cases for 5 ahead

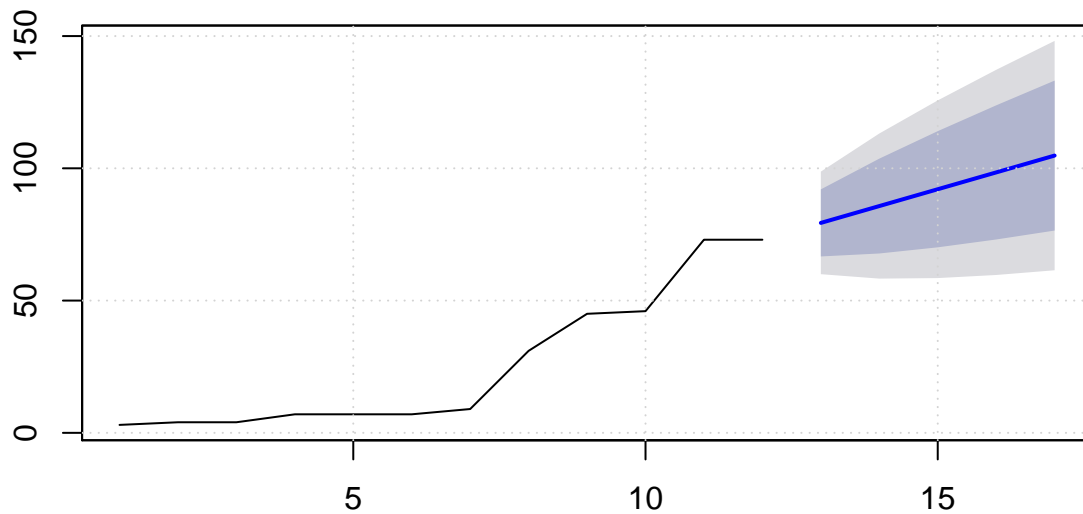


Figure 7: ARIMA projection

Table 1: ARIMA of 'confirmed cases' for 5 days ahead

	Estimation	Confidence 95% (Low)	Confidence 95% (High)
t+1 (2020-03-10)	79.36	59.98	98.75
t+2 (2020-03-11)	85.73	58.31	113.1
t+3 (2020-03-12)	92.09	58.51	125.7
t+4 (2020-03-13)	98.45	59.68	137.2
t+5 (2020-03-14)	104.8	61.46	148.2

- We cannot estimate the detection percentage yet. We need more data.
- With data up to 2020-03-09 in Greece we have 73 confirmed cases and 0 deaths.
- Estimated doubling time (based on 5 days time window) is approximately 3.2 days

4.2 PROPHET projection

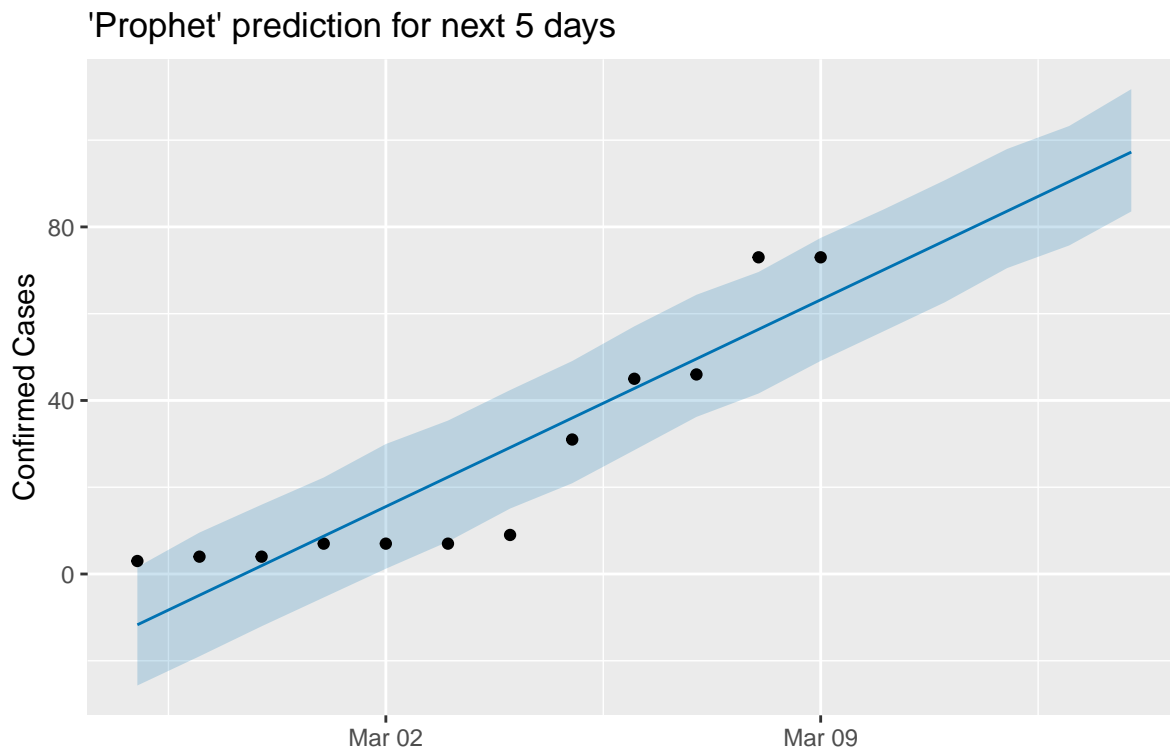


Figure 8: PROPHET Projection of confirmed cases over the next 5 days for Greece

Table 2: PROPHET of 'confirmed cases' for 5 days ahead for Greece

	Future_Date	Estimation	Confidence 95% (Low)	Confidence 95% (High)
t+1	2020-03-10	70.01	55.86	83.94
t+2	2020-03-11	76.82	62.64	90.78
t+3	2020-03-12	83.63	70.5	97.96
t+4	2020-03-13	90.44	75.73	103.3
t+5	2020-03-14	97.25	83.57	111.8