Covid19 Report

Dimitris Kavroudakis
Assistant Professor of *Geographical Analysis*,
Department of Geography, University of the Aegean
dimitrisk@aegean.gr
www.dimitrisk.gr

2020-04-05

Contents

1 The *CRISTINA* project

This report is part of a research project "**CoR**ona v**I**rus **S**pa**TI**al a**NA**lysis" (CRISTINA) which examines the time series progress of COVID-19 events in 177 countries of the world.

2 France

A series of visualizations for the progress of COVID-19 for **France**. We use absolute numbering scale and logarithmic scale to visualize the progress of "*confirmed cases*","*deaths*" and "*recovered cases*". We also indicate the gonverment interventions as dots on top of each line.
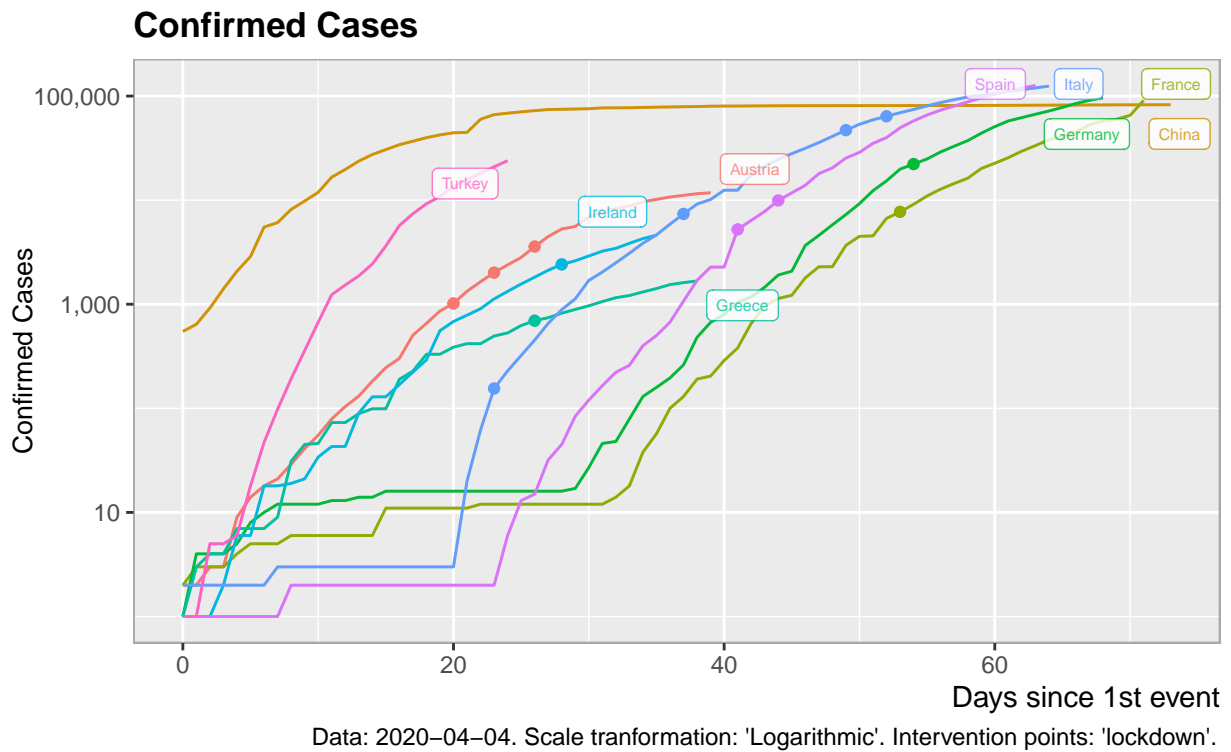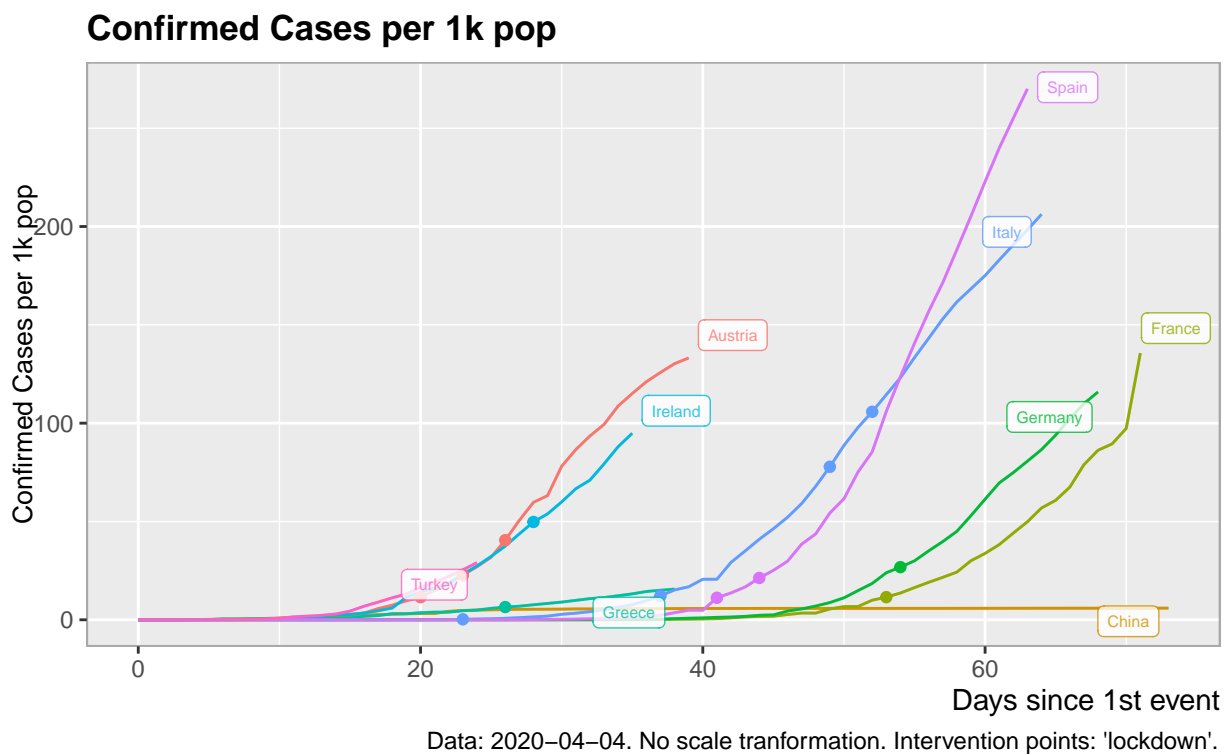
2.1   Confirmed Cases

Confirmed Cases

Data: 2020−04−04. Scale tranformation: 'Logarithmic'. Intervention points: 'lockdown'.

Figure 1: Confirmed Cases

Confirmed Cases per 1k pop

Data: 2020−04−04. No scale tranformation. Intervention points: 'lockdown'.

Figure 2: Confirmed Cases by 1000 population

Confirmed cases per 1k pop (2020−04−05)
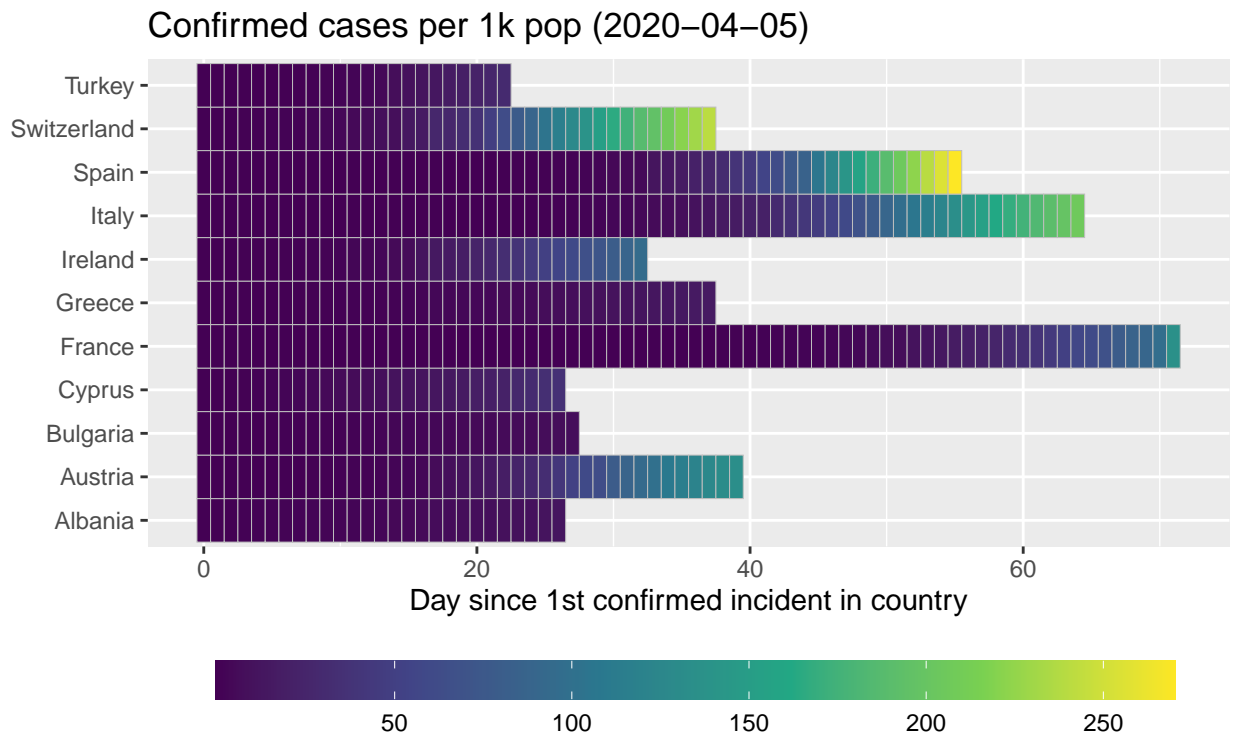
Figure 3: Confirmed Cases by 1000 population

2.2 Deaths

Deaths

Data: 2020−04−04. Scale tranformation: 'Logarithmic'. Intervention points: 'lockdown'.
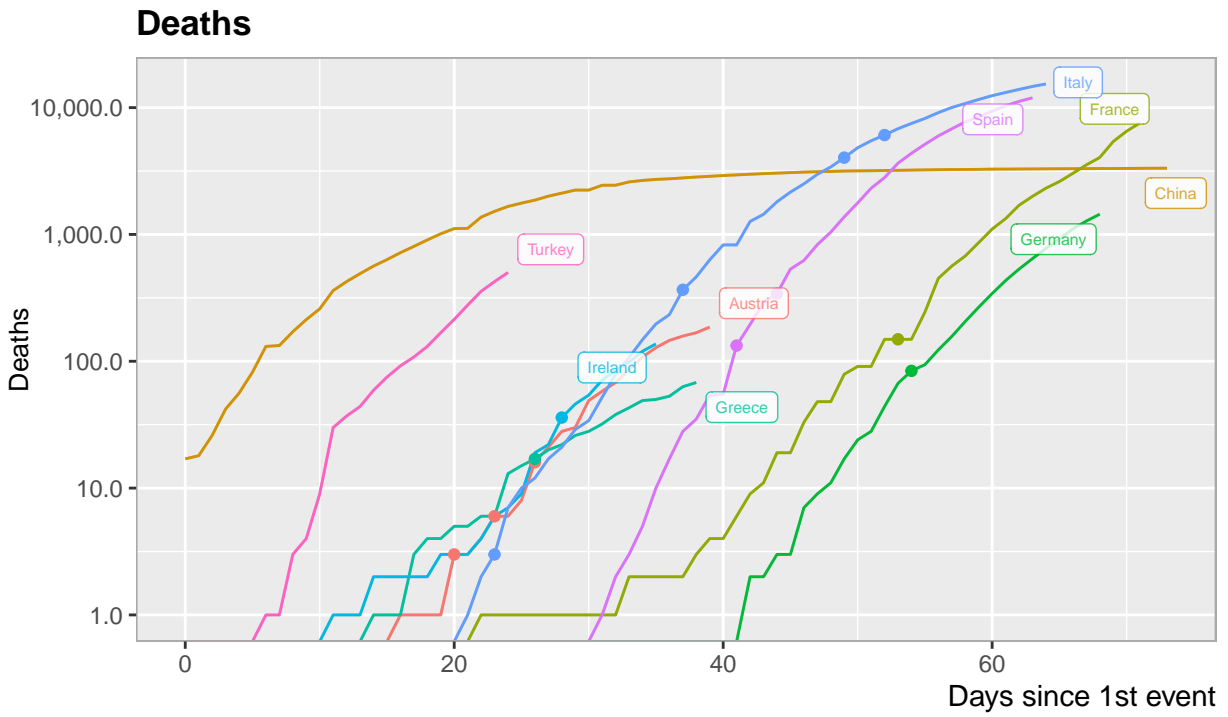
Figure 4: Number of deaths by country
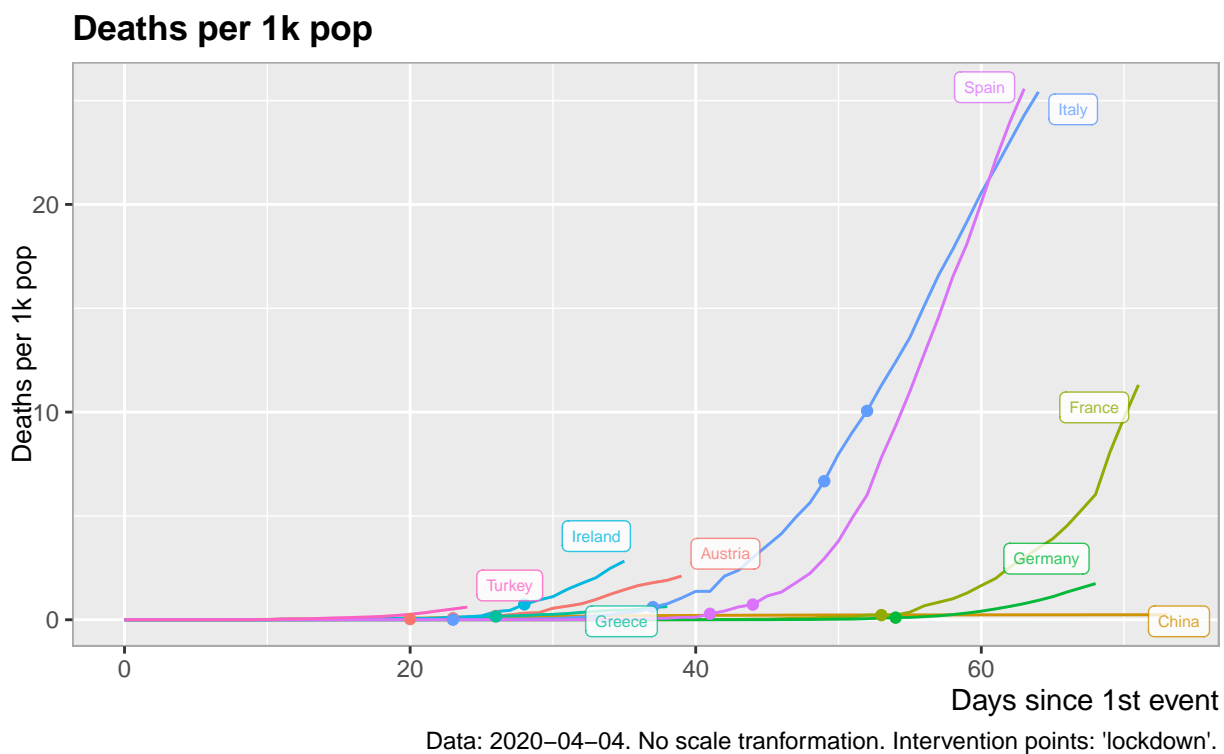
Deaths per 1k pop

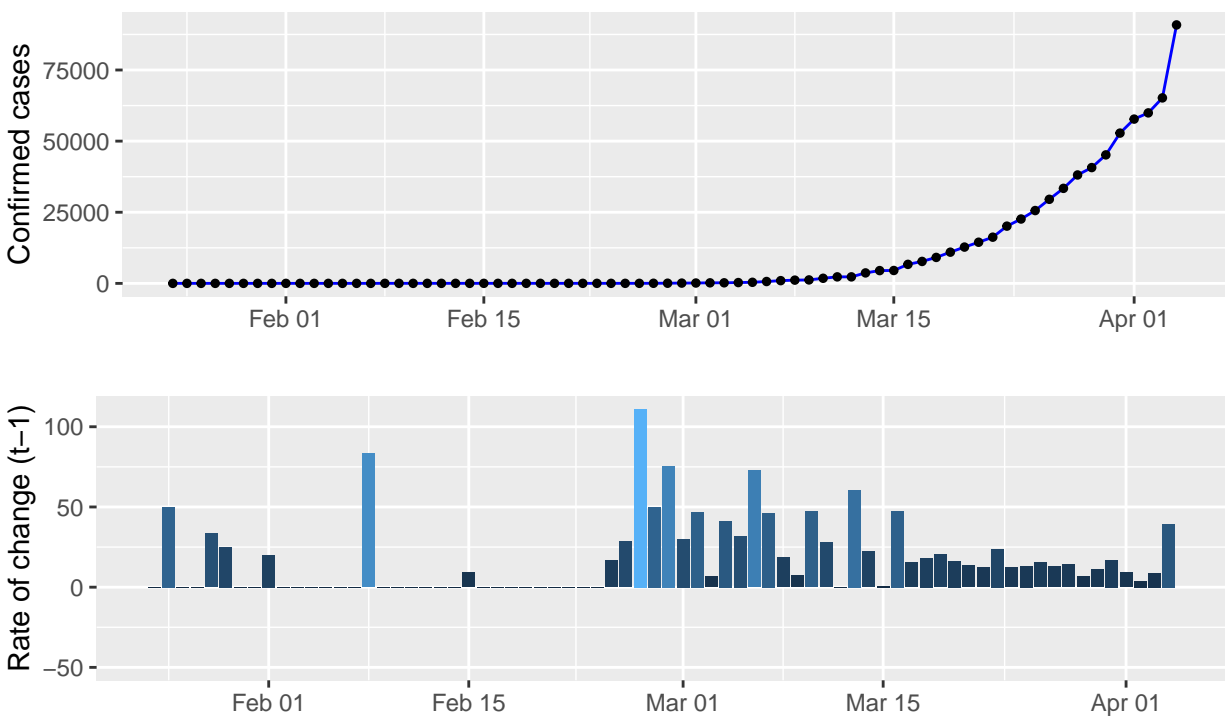Figure 5: Deaths by 1000 population

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 France with two methods.

4.1 ARIMA projection
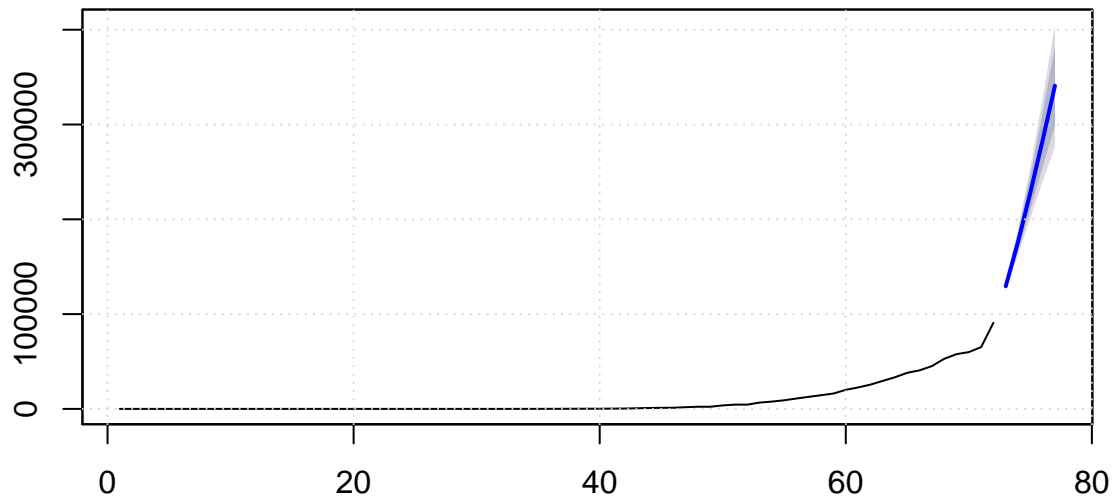
Projection of 'confirmed' cases for 5 ahead

Figure 7: ARIMA projection

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

	Estimation	Confidence 95% (Low)	Confidence 95% (High)
t+1 (2020-04-05)	129427	124463	134391
t+2 (2020-04-06)	176217	162228	190206
t+3 (2020-04-07)	228218	201132	255304
t+4 (2020-04-08)	283529	239604	327453
t+5 (2020-04-09)	340939	276777	405102

- The estimated proportion of cases detected is 4.9%.

- With data up to 2020-04-04 in France we have 90848 confirmed cases and 7574 deaths.

- Estimated doubling time (based on 5 days time window) is aproximatly 5.7 days
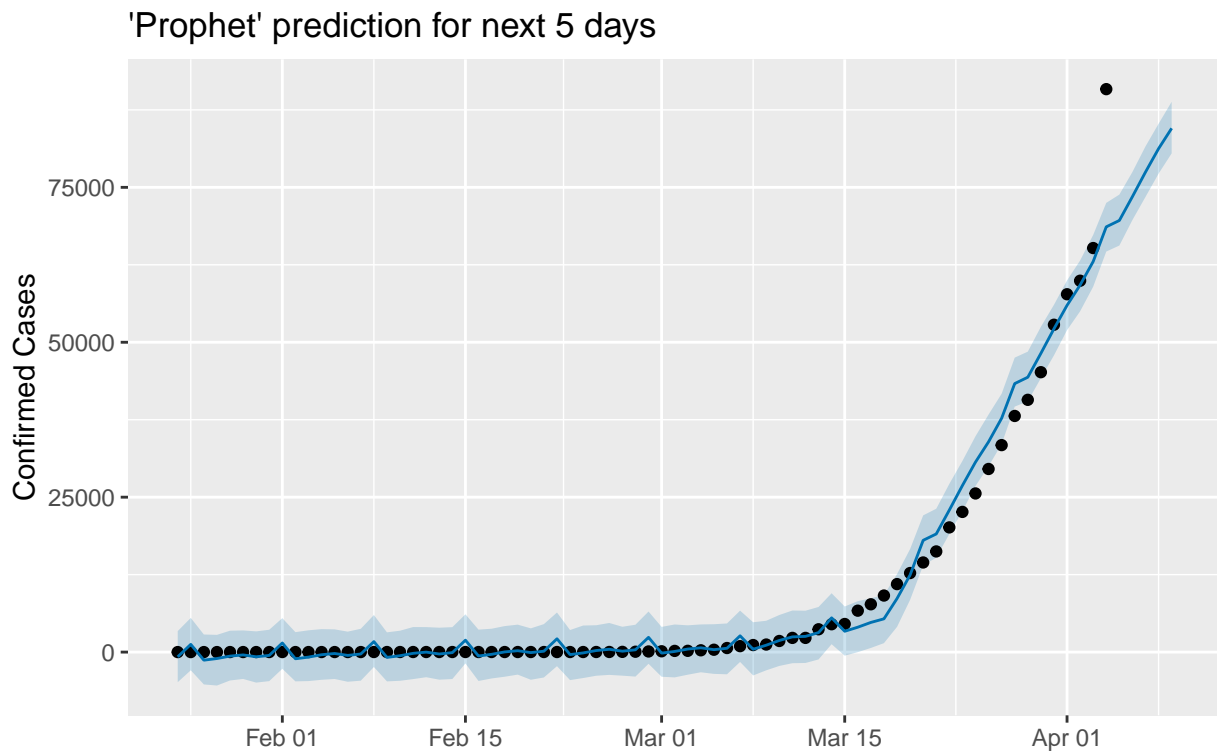
4.2 PROPHET projection

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

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

	Future_Date	Estimation	Confidence 95% (Low)	Confidence 95% (High)
t+1	2020-04-05	69654	65609	73831
t+2	2020-04-06	73506	69733	77484
t+3	2020-04-07	77472	73463	81621
t+4	2020-04-08	81250	77211	85263
t+5	2020-04-09	84527	80478	88805