

11 May 2020

COVID-19 Projections

Didier Darcet

COVID-19 Deaths' Projection Method

At the beginning, epidemic processes are exponential by nature, in other words, the number of cases of infection or death accelerates.

Making projections therefore requires to capture the derivative of the acceleration, named 'the jolt' by mathematicians. In the following projections, we fit the accelerating or fading nature of the jolt, and project its dynamics over the subsequent four weeks.

The jolt is fitted with an exponential function over, respectively, the previous 5, 6, 7, 8 and 9 days. Large numbers are truncated to facilitate the reading of the charts.

Fitting over various windows provides an information on the most recent dynamics of the COVID-19 diffusion. The thicker dotted red line is the shortest trend, i.e. calculated over the previous five days.

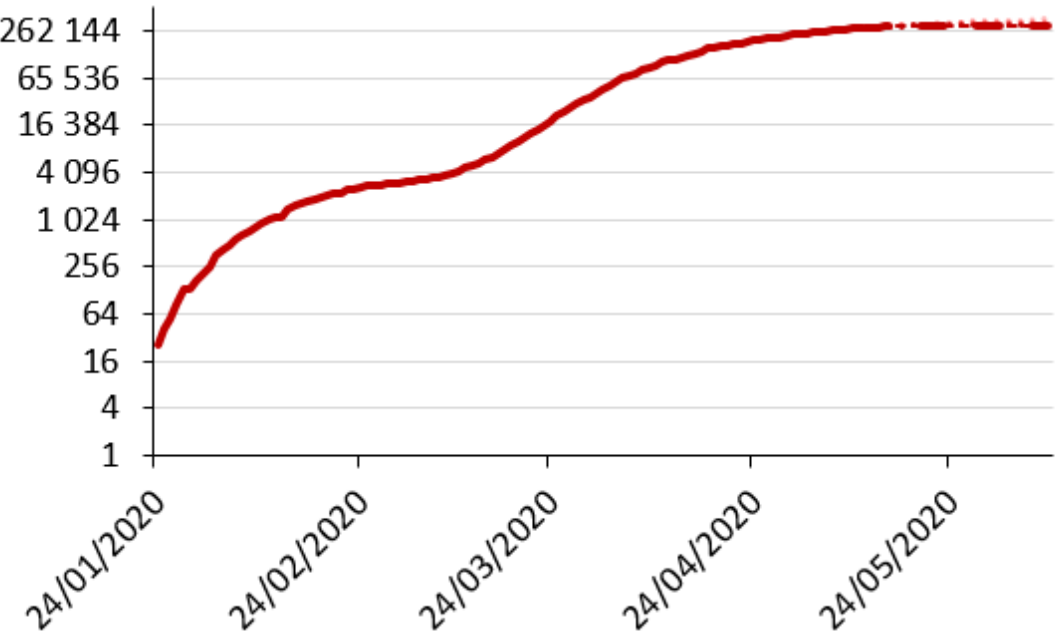
During the early days of an epidemic, projections can be extremely volatile, and it is therefore recommended not to draw black-and-white conclusions from a daily report, but to follow the evolution over many days.

DEATHS - PROJECTIONS

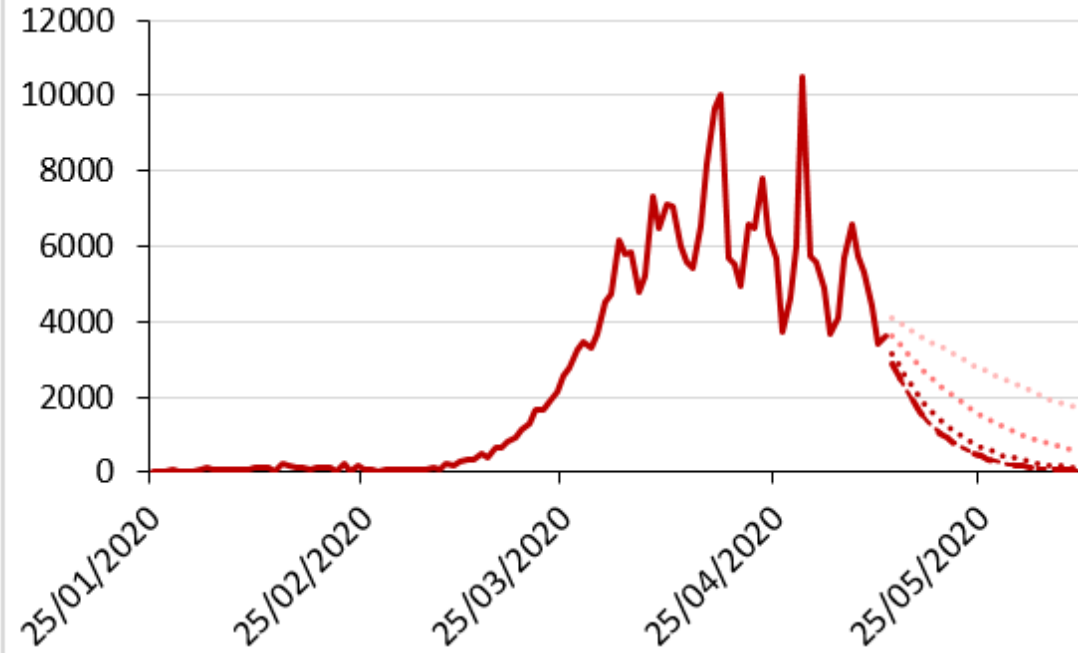
World

CONFIRMED 9 days'fit 8 days'fit 7 days'fit 6 days'fit

Cumulated



Daily



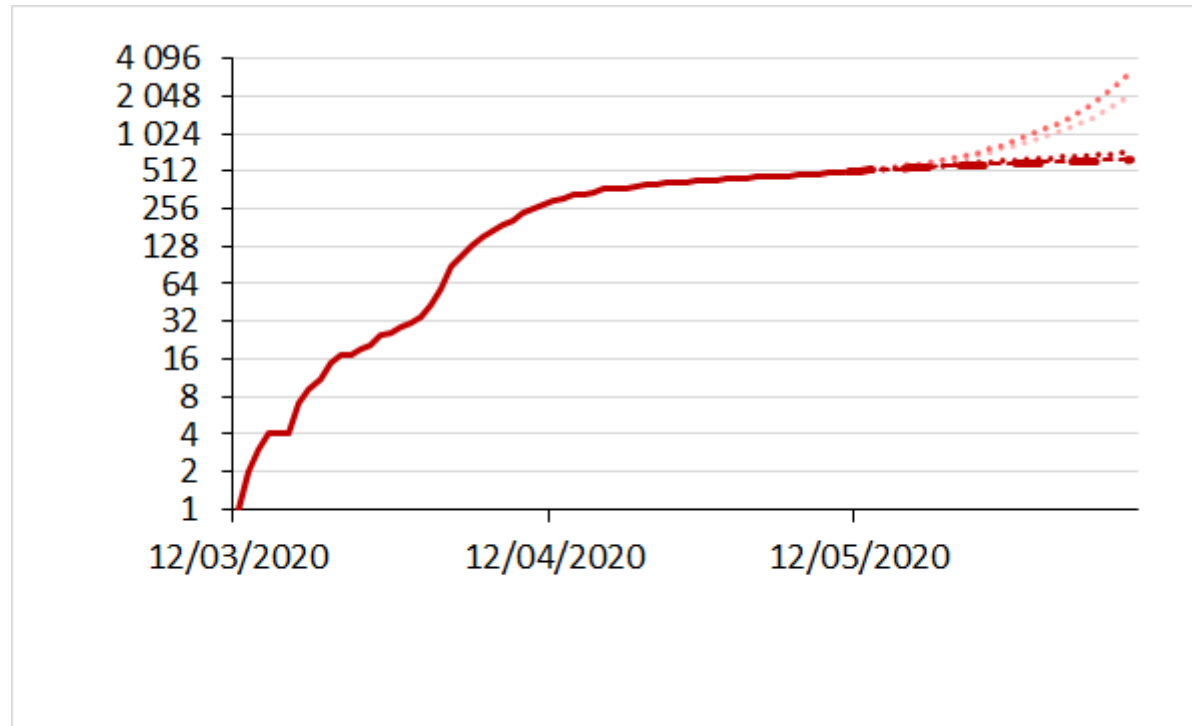
The apparent second peak is due to a statistical bias on the 29/04 when the UK changed its reporting method

Data: The Johns Hopkins University, Politolog.com

Algeria

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated

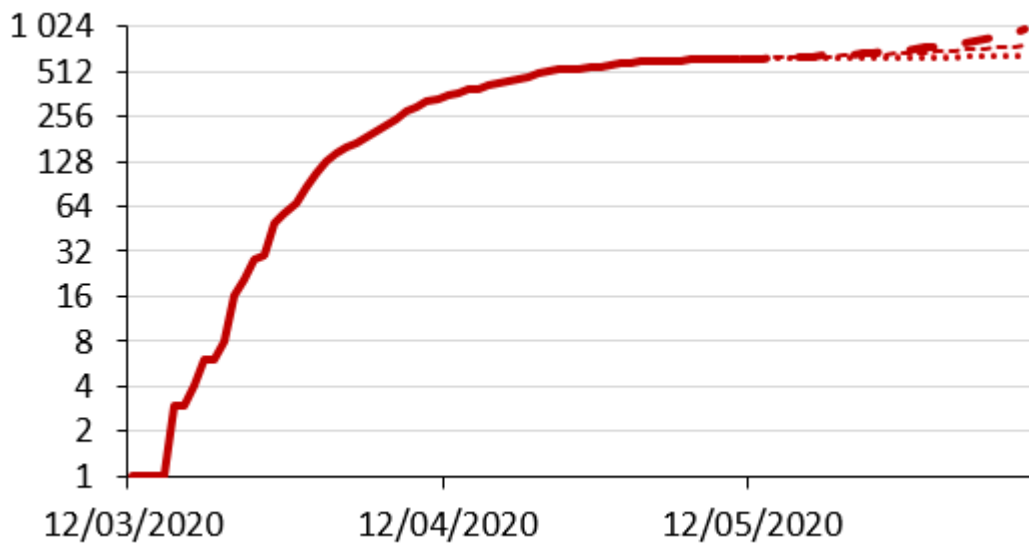


Data: The Johns Hopkins University, Politolog.com

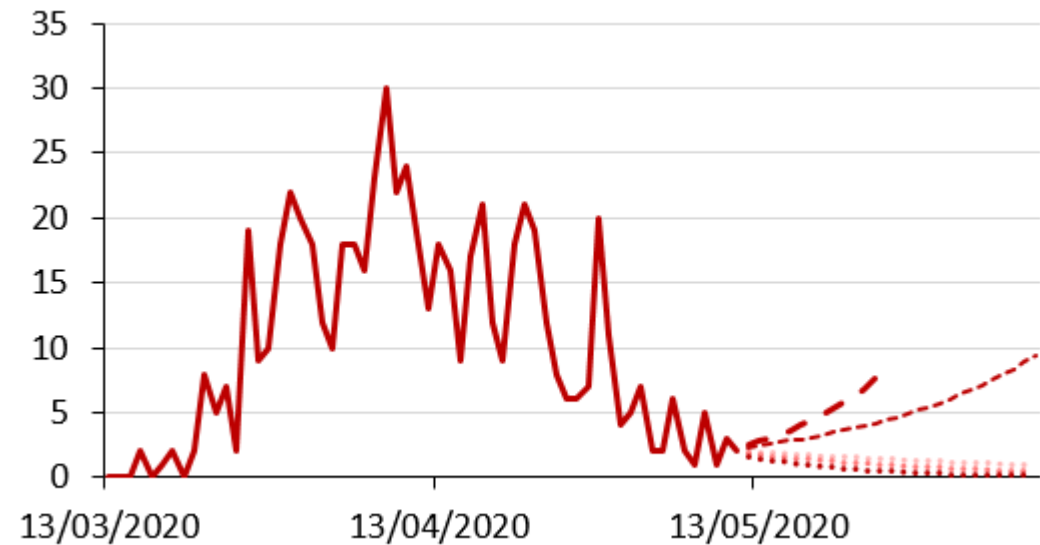
Austria

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - - 6 days'fit - - - - 5 days'fit

Cumulated



Daily

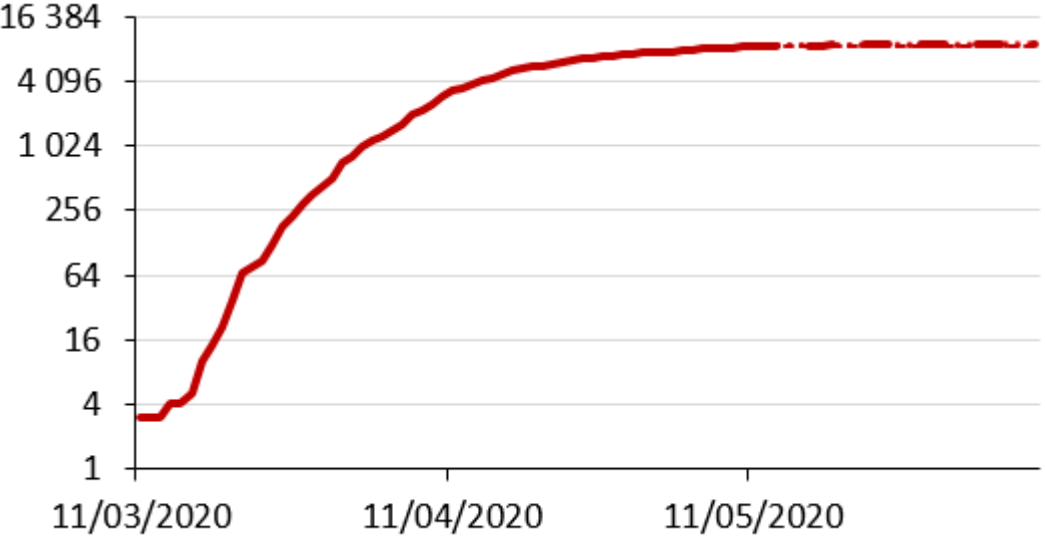


Data: The Johns Hopkins University, Politolog.com

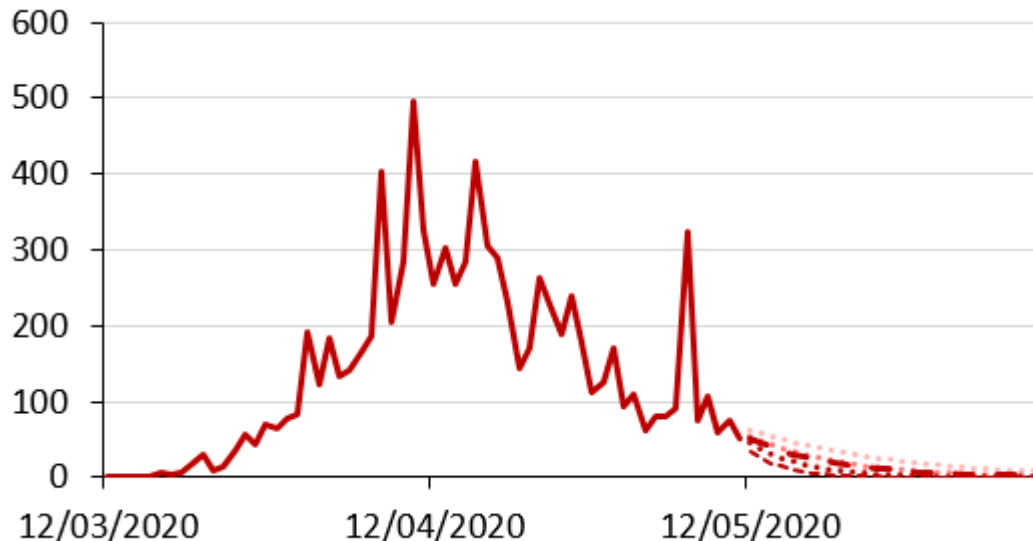
Belgium

CONFIRMED 9 days'fit 8 days'fit 7 days'fit 6 days'fit 5 days'fit

Cumulated



Daily

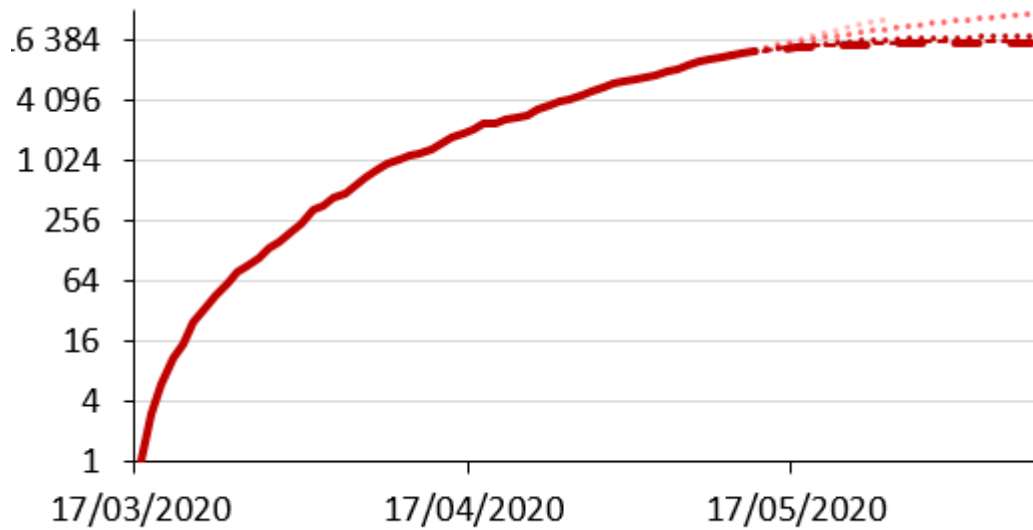


Data: The Johns Hopkins University, Politolog.com

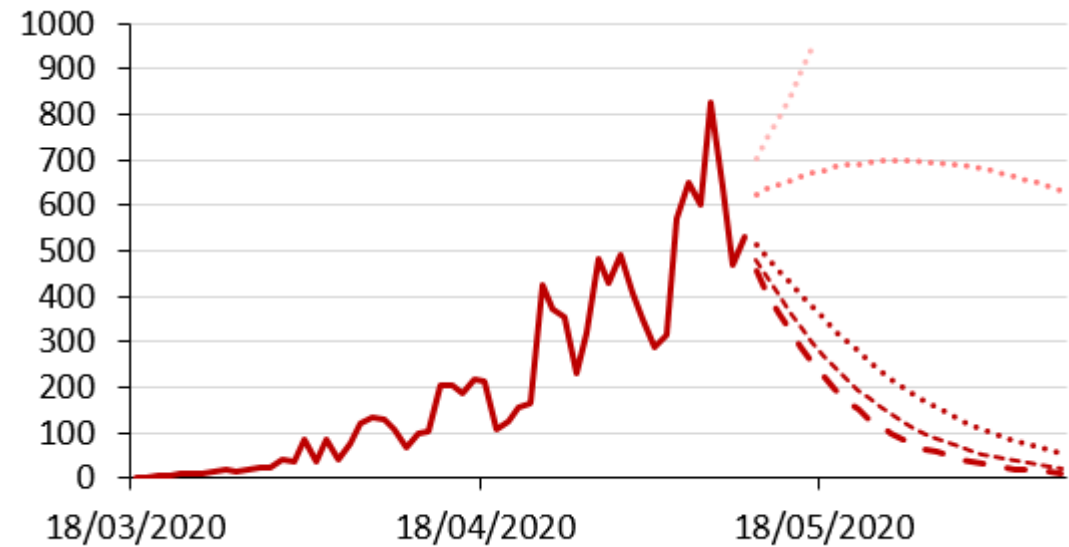
Brazil

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - - 6 days'fit - - - - 5 days'fit

Cumulated



Daily

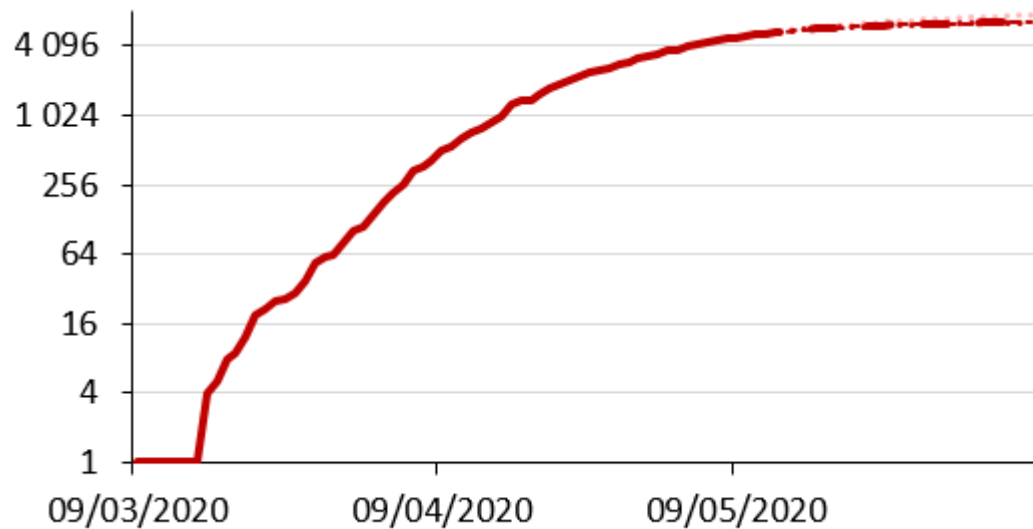


Data: The Johns Hopkins University, Politolog.com

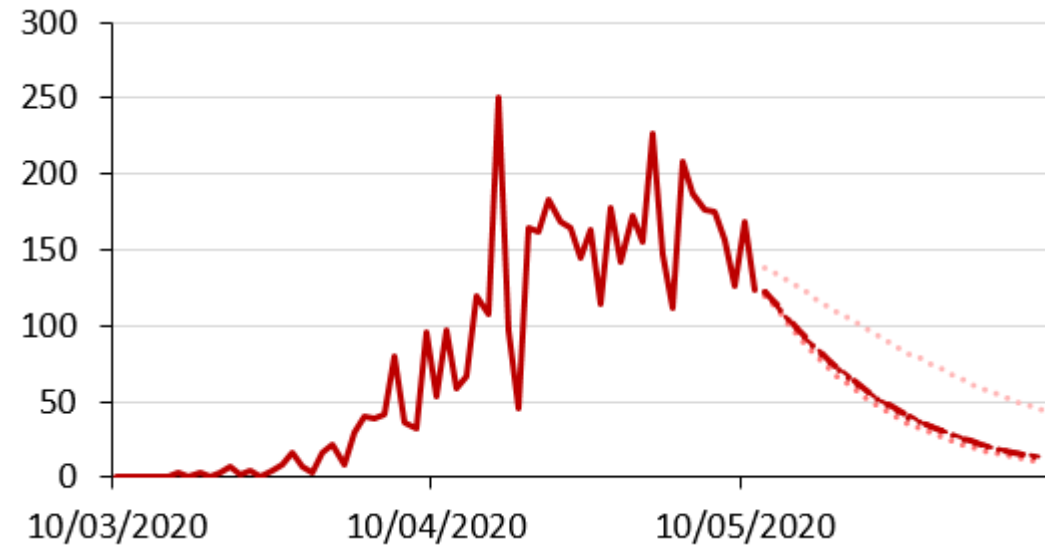
Canada

CONFIRMED 9 days'fit 8 days'fit 7 days'fit 6 days'fit 5 days'fit

Cumulated



Daily

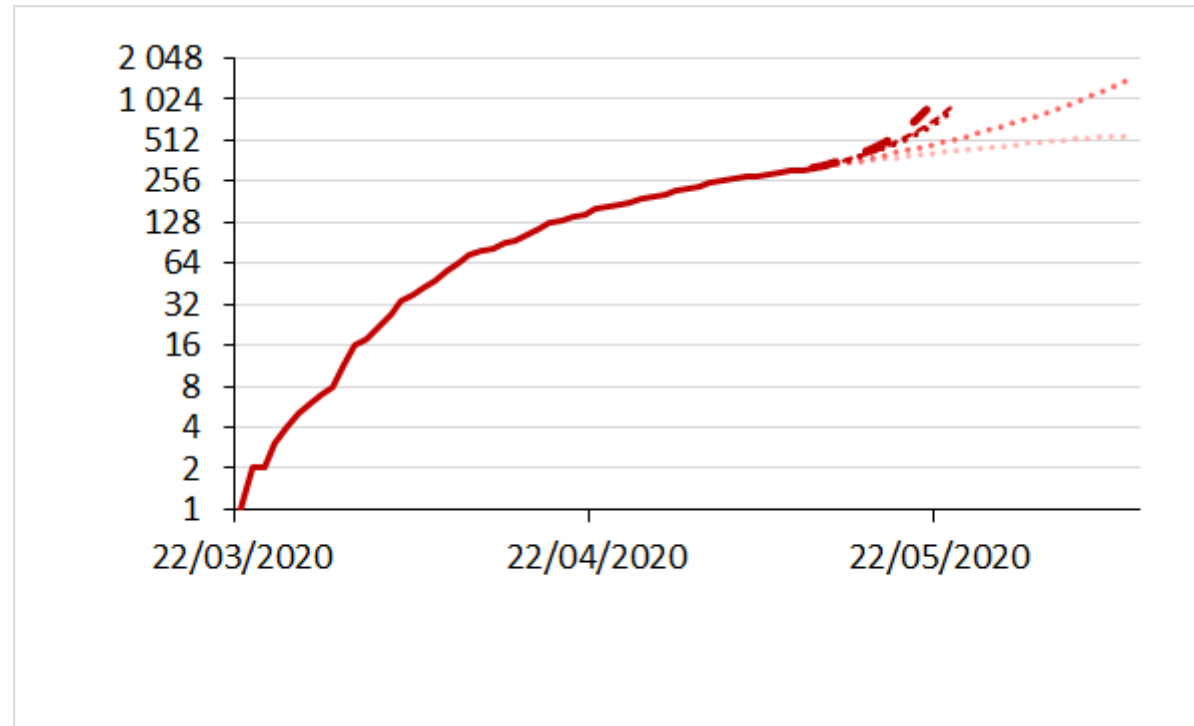


Data: The Johns Hopkins University, Politolog.com

Chile

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - - 6 days'fit - - - - 5 days'fit

Cumulated

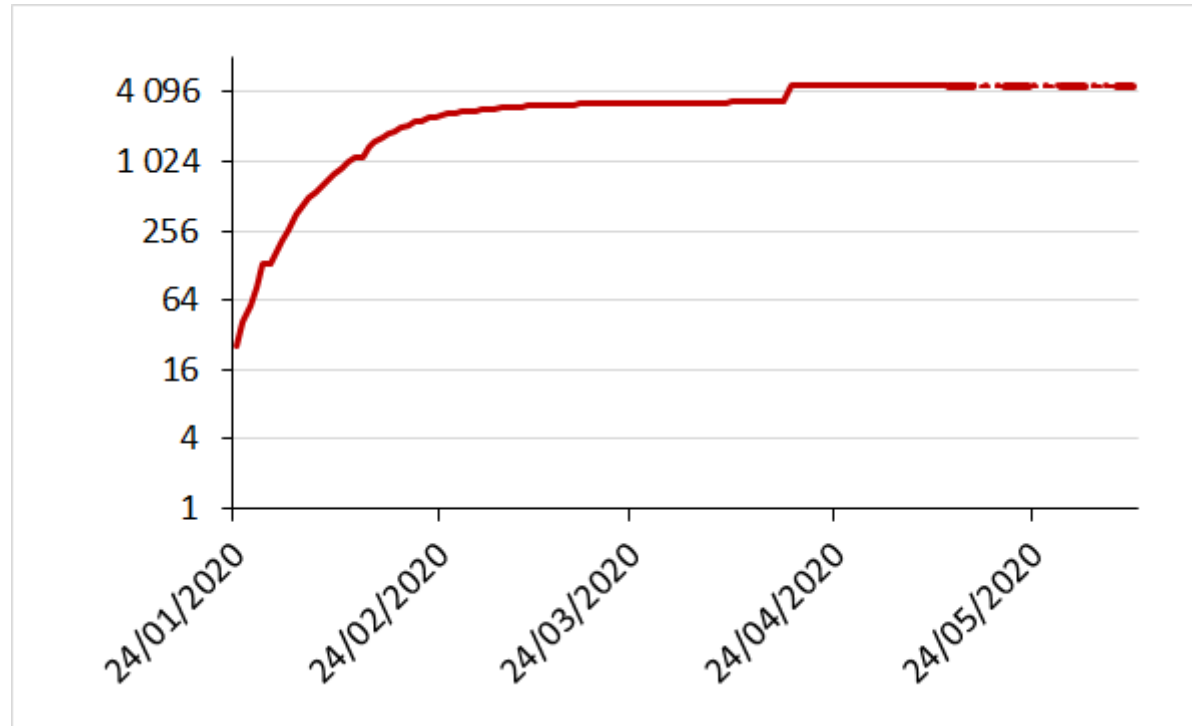


Data: The Johns Hopkins University, Politolog.com

China

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated

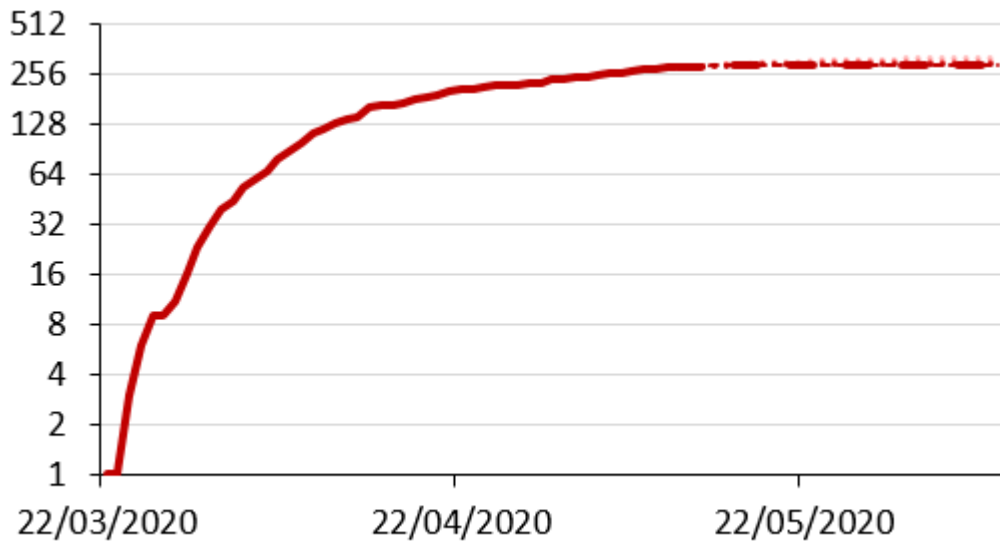


Data: The Johns Hopkins University, Politolog.com

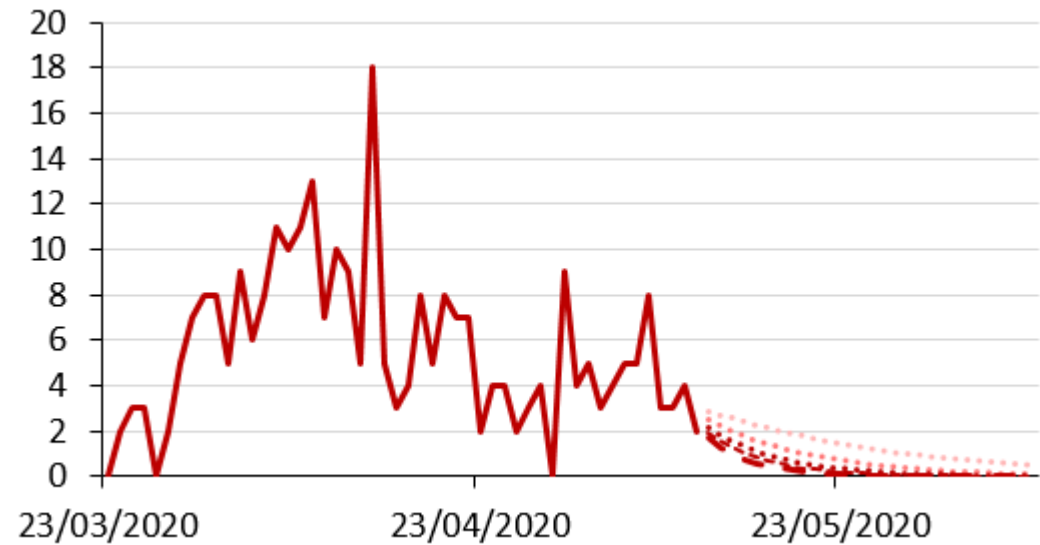
Czech Republic

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

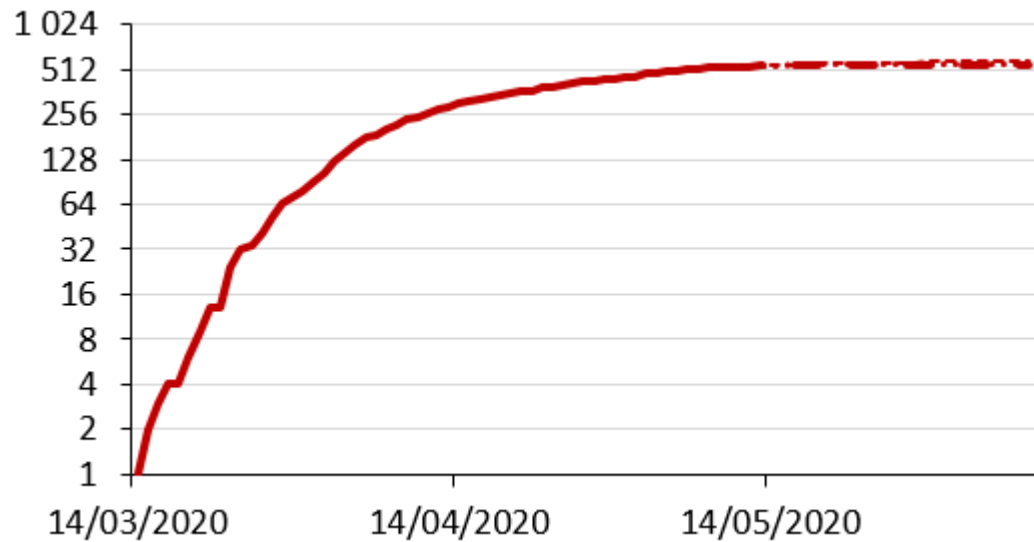


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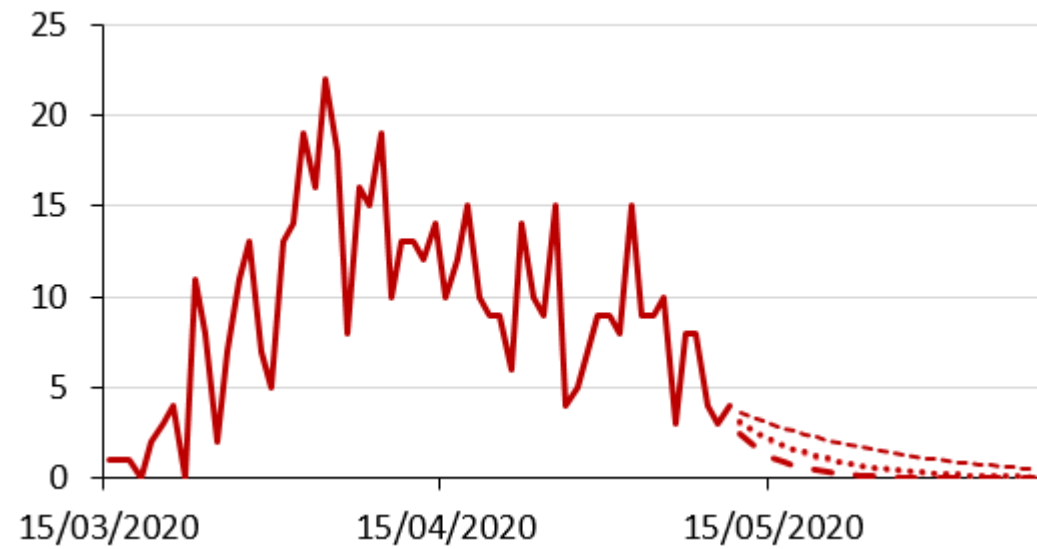
Denmark

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

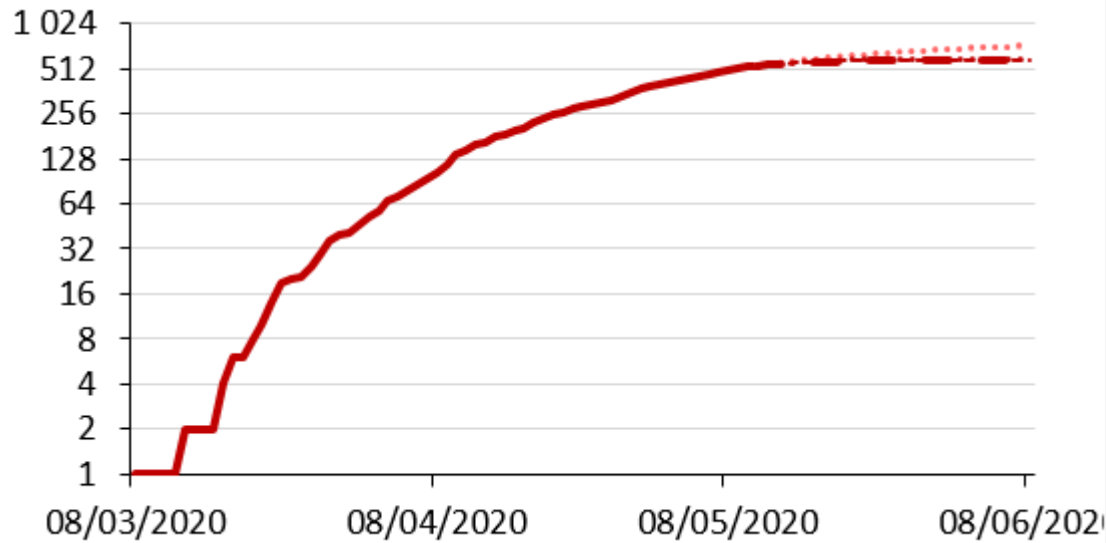


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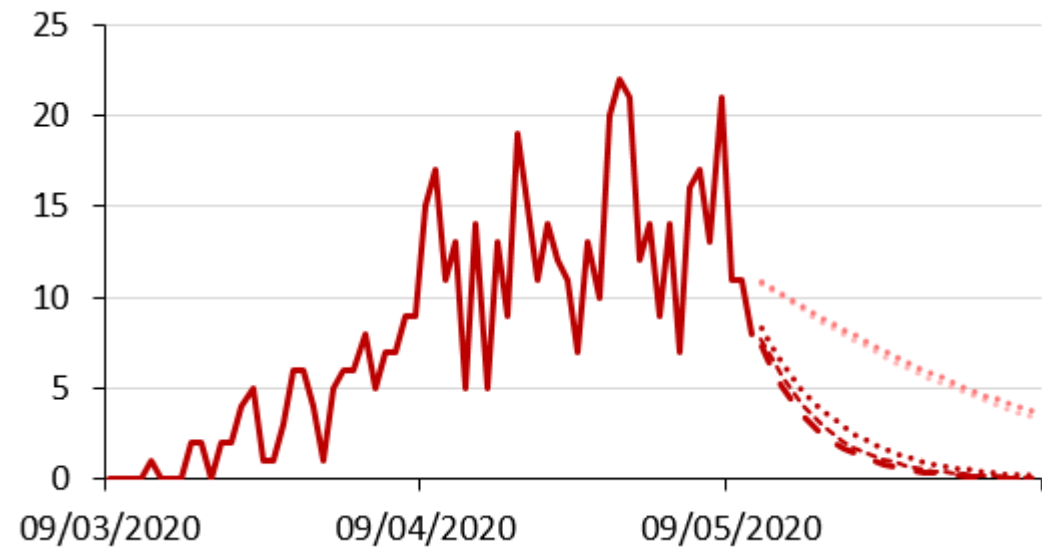
Egypt

CONFIRMED 9 days'fit 8 days'fit 7 days'fit 6 days'fit 5 days'fit

Cumulated



Daily

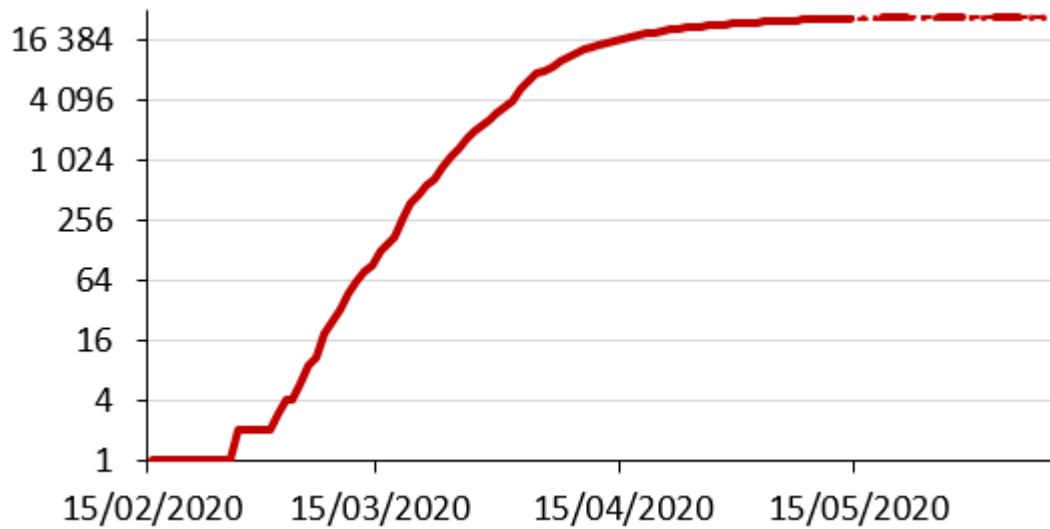


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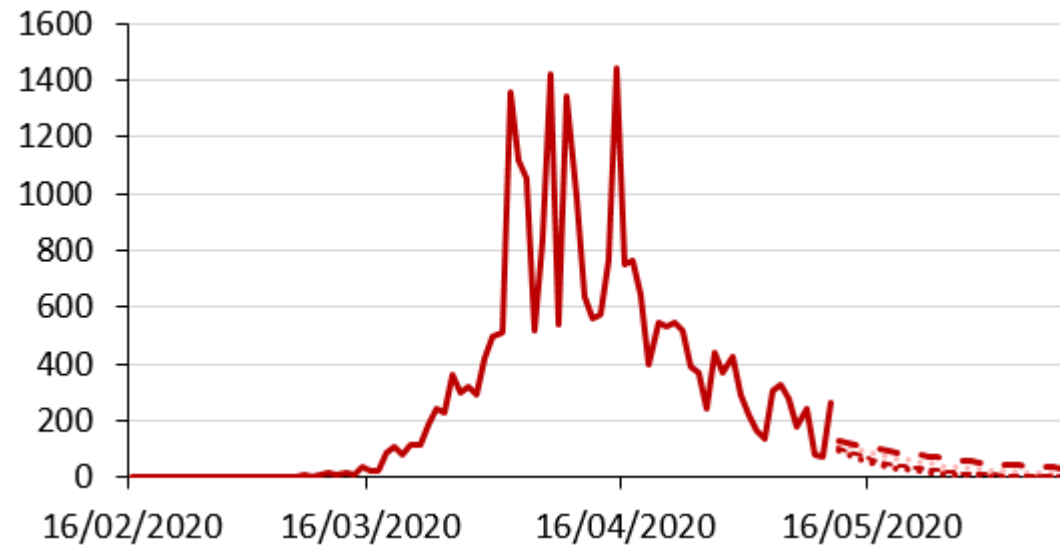
France

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - - 6 days'fit - - - - 5 days'fit

Cumulated



Daily

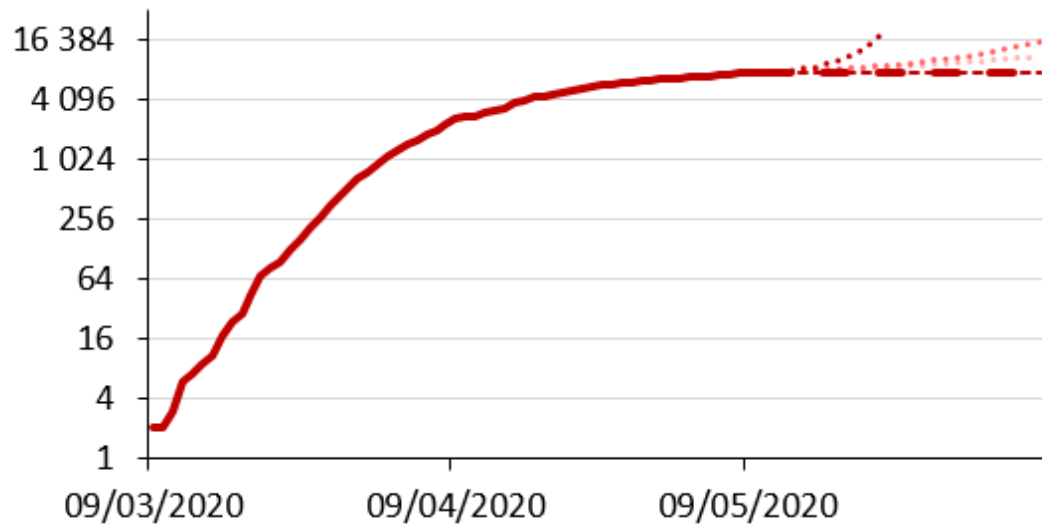


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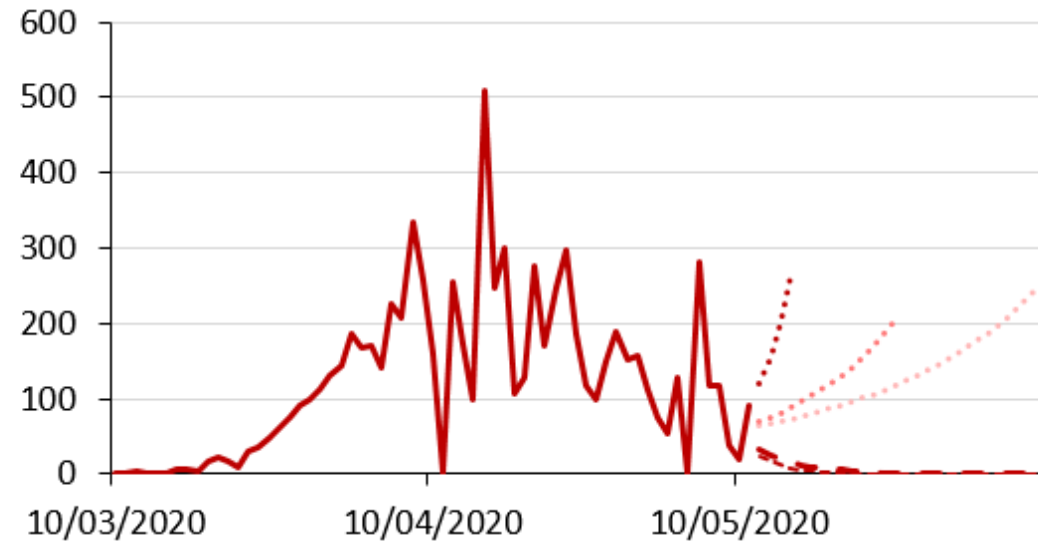
Germany

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

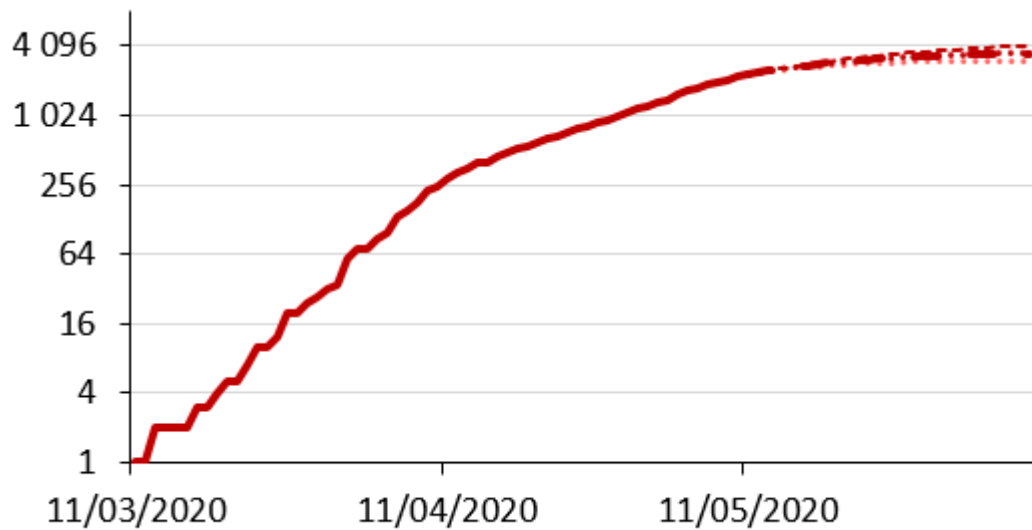


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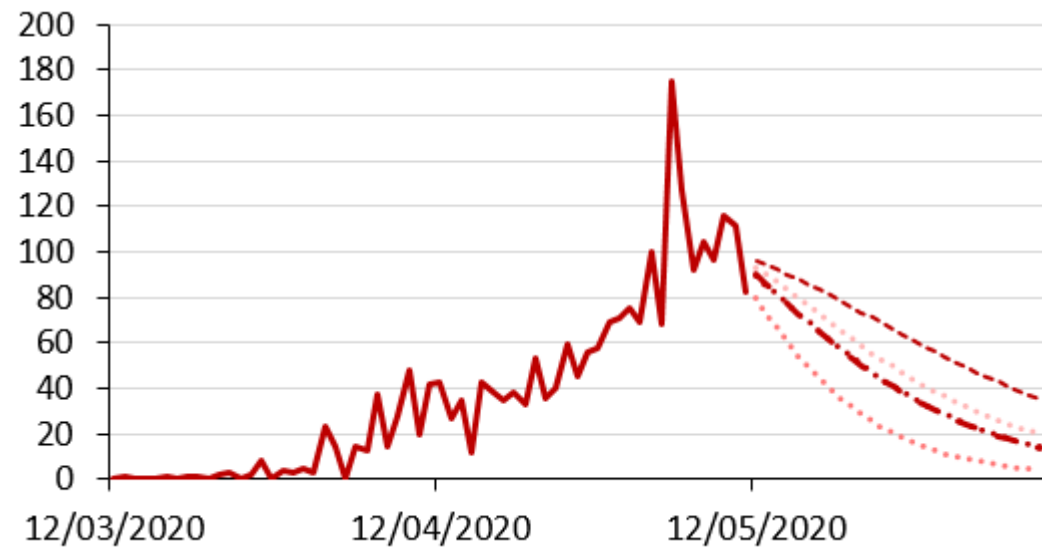
India

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - - 6 days'fit - - - - 5 days'fit

Cumulated



Daily

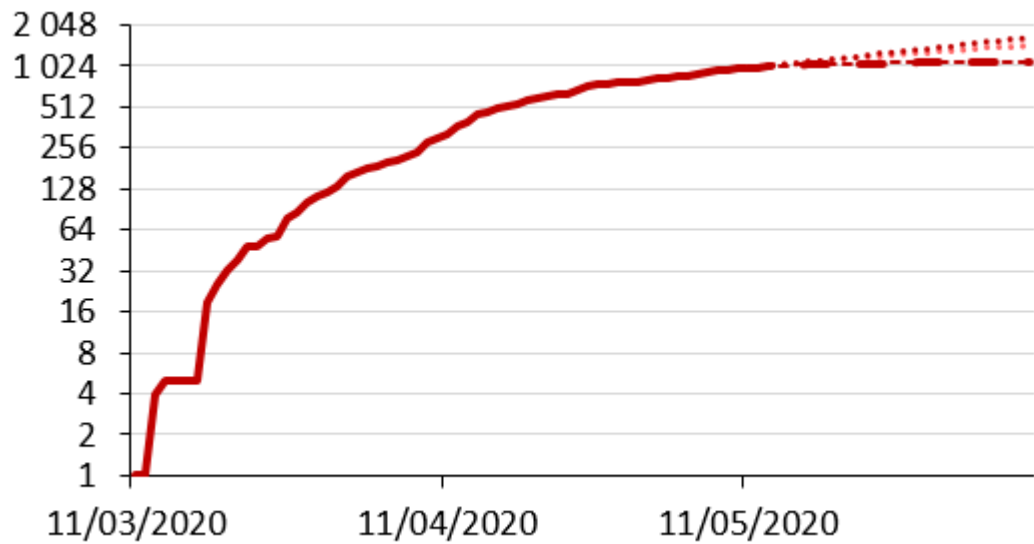


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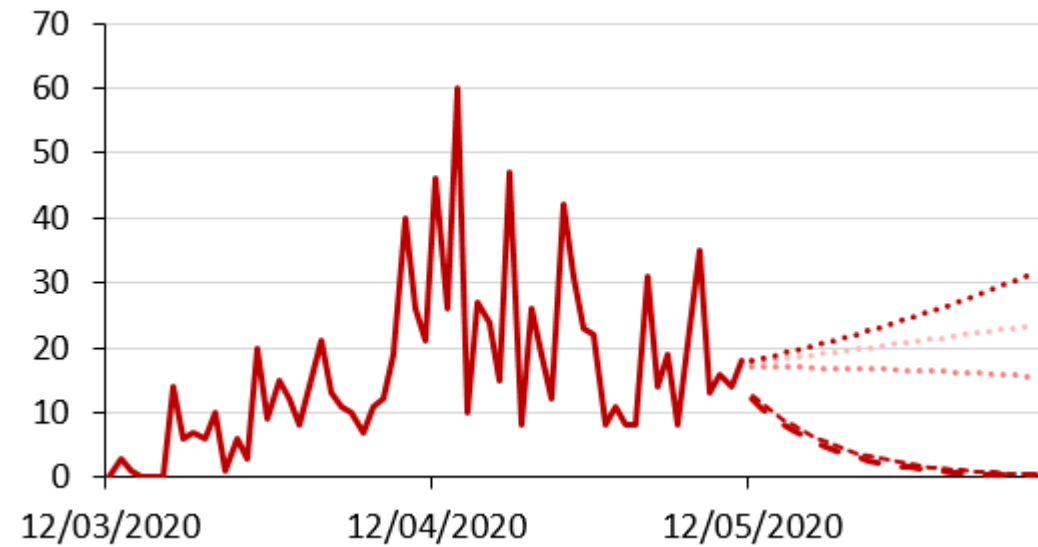
Indonesia

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

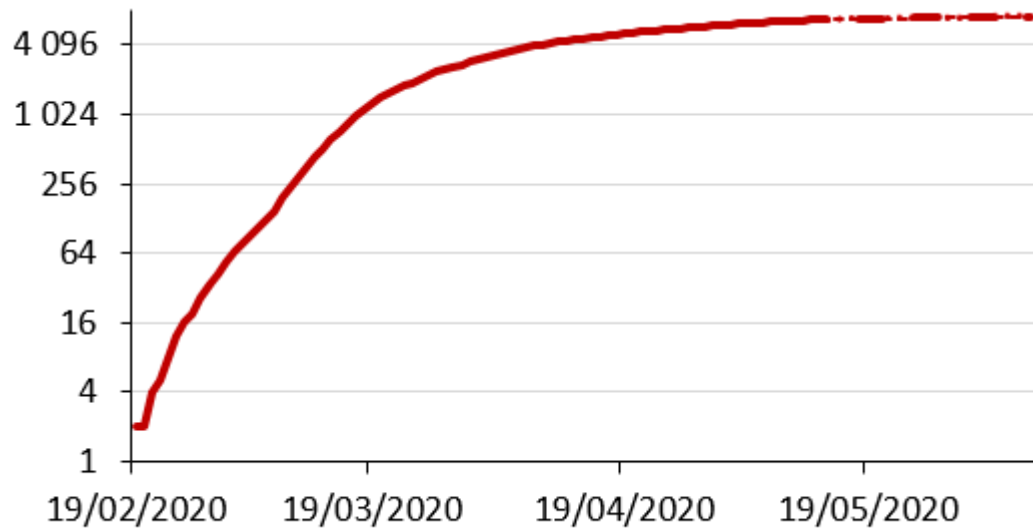


Data: The Johns Hopkins University, Politolog.com

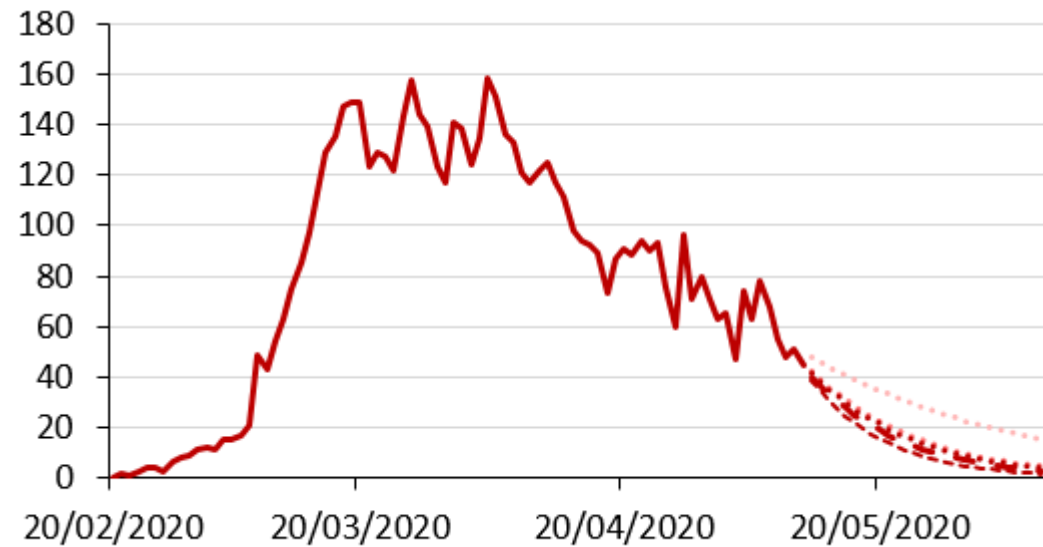
Iran

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

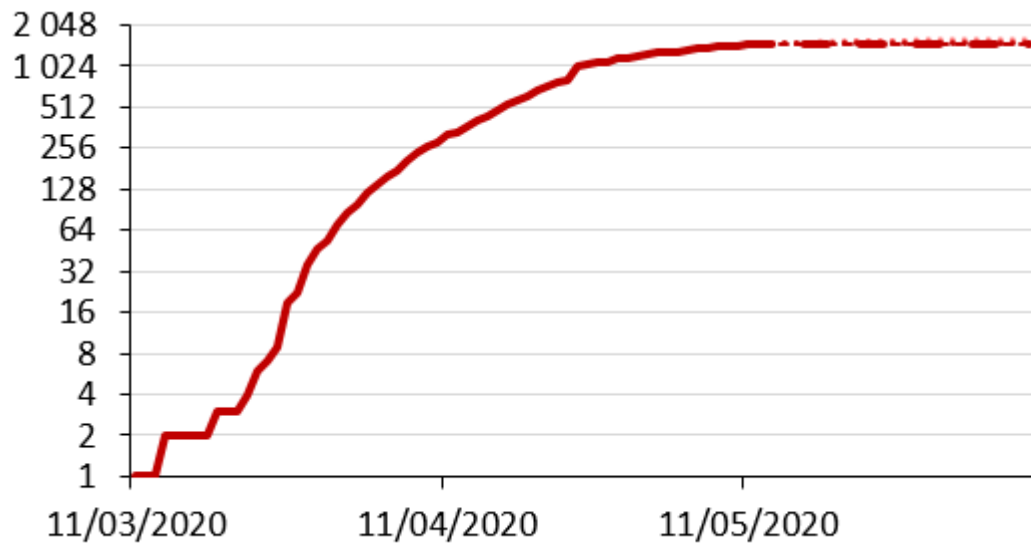


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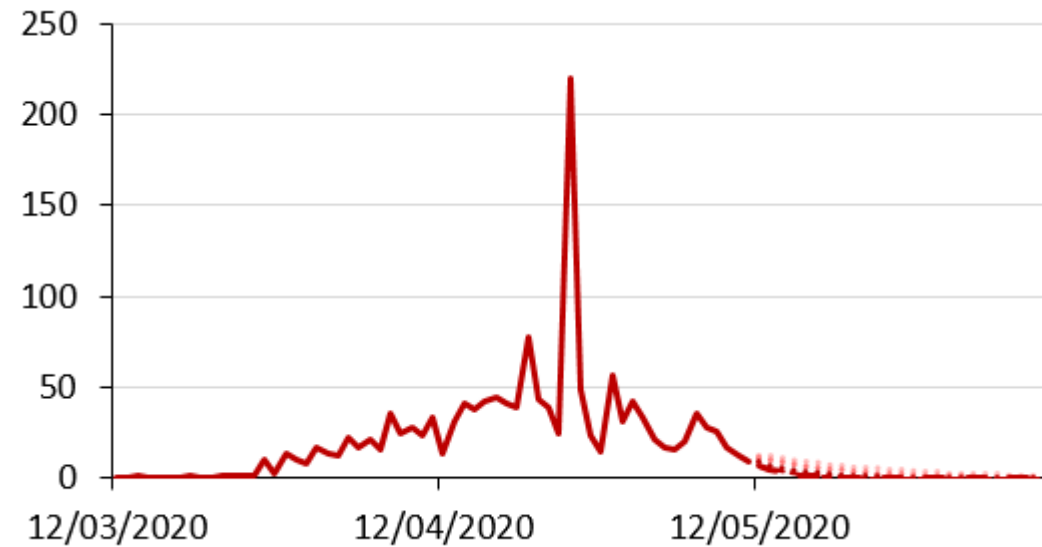
Ireland

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - - 6 days'fit - - - - 5 days'fit

Cumulated



Daily

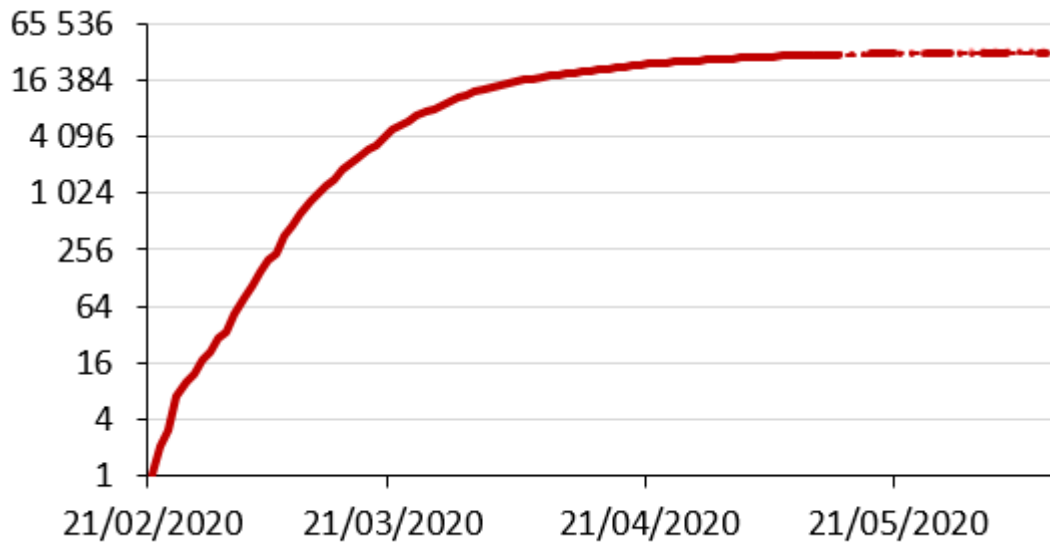


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Italy

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

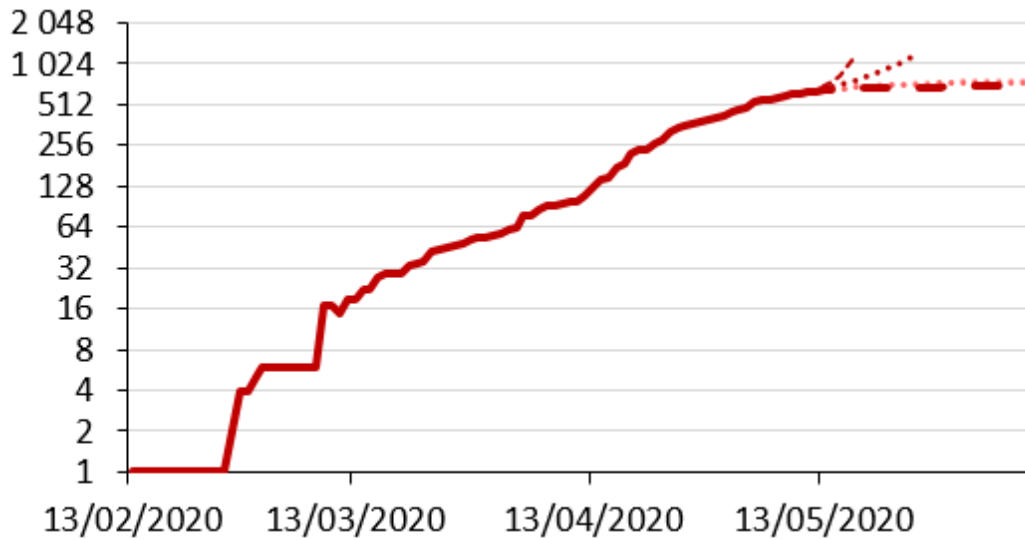


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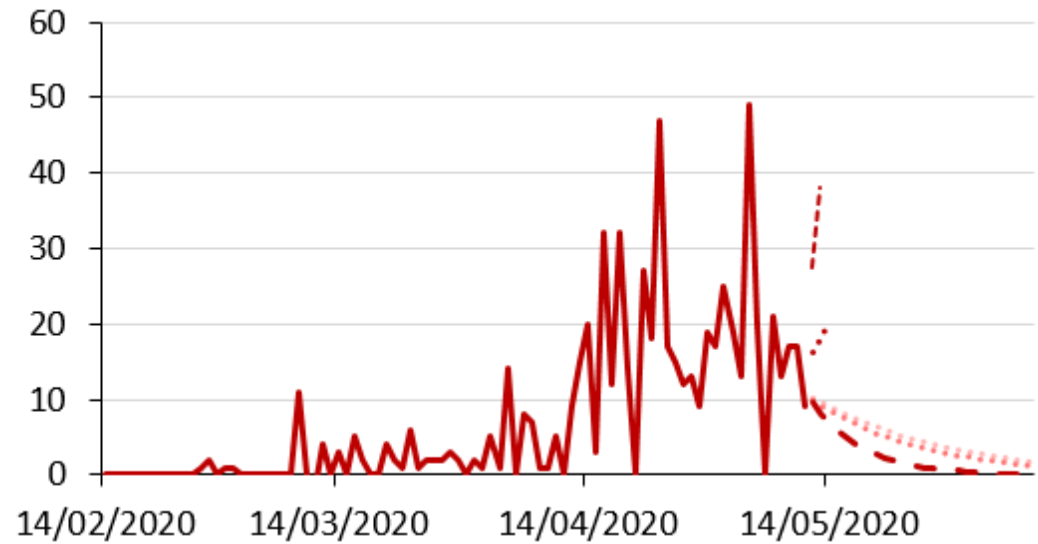
Japan

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - - 6 days'fit - - - - 5 days'fit

Cumulated



Daily

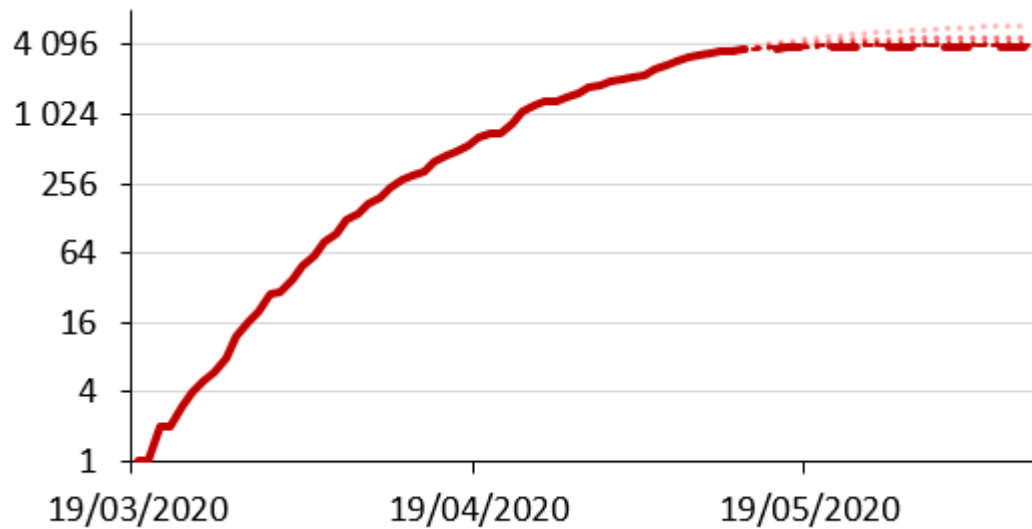


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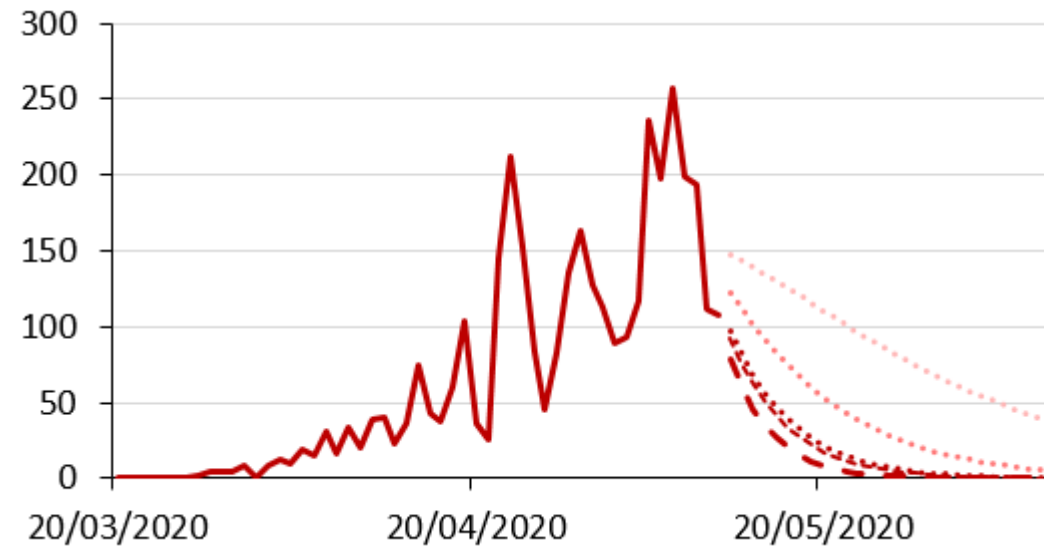
Mexico

— CONFIRMED ····· 9 days'fit ····· 8 days'fit ····· 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

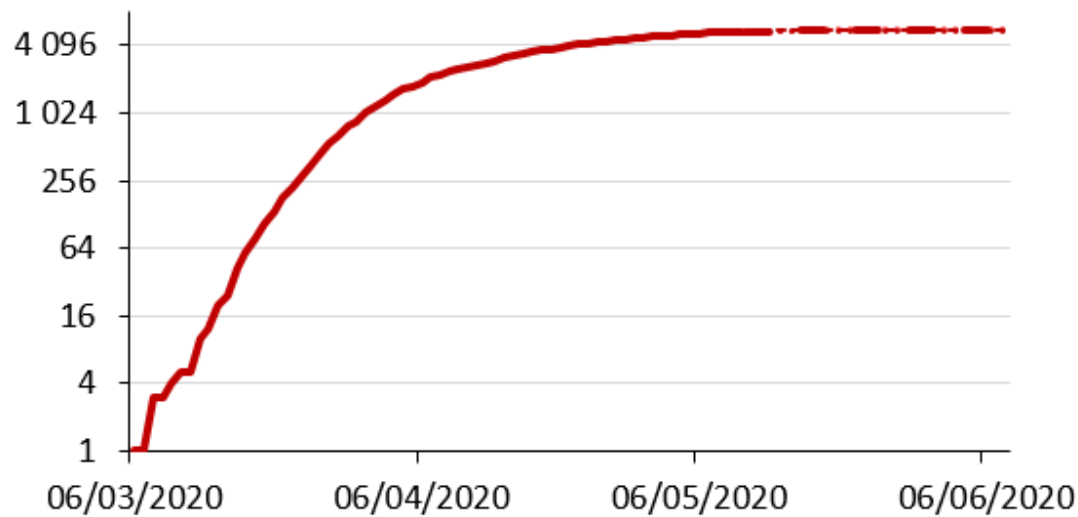


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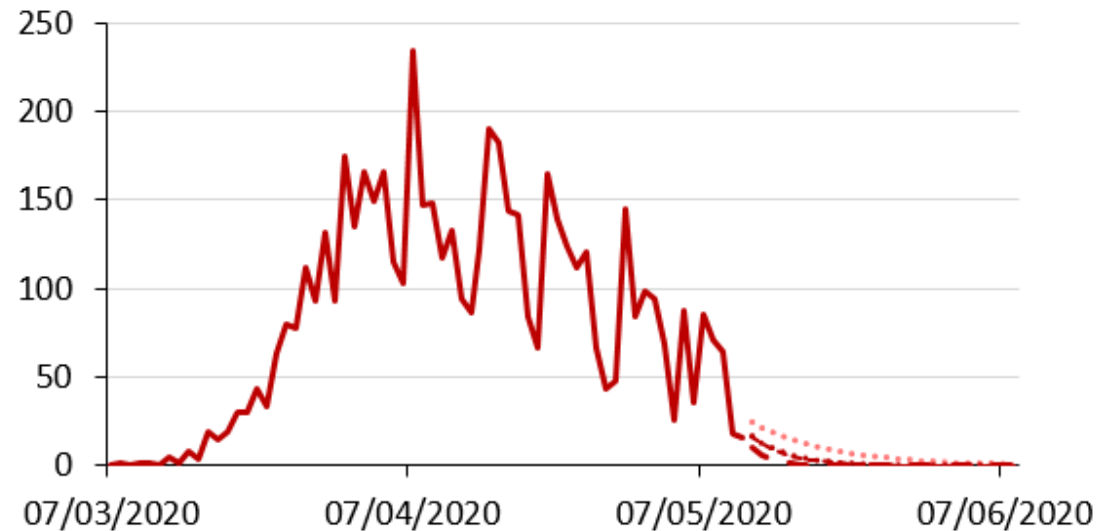
Netherlands

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

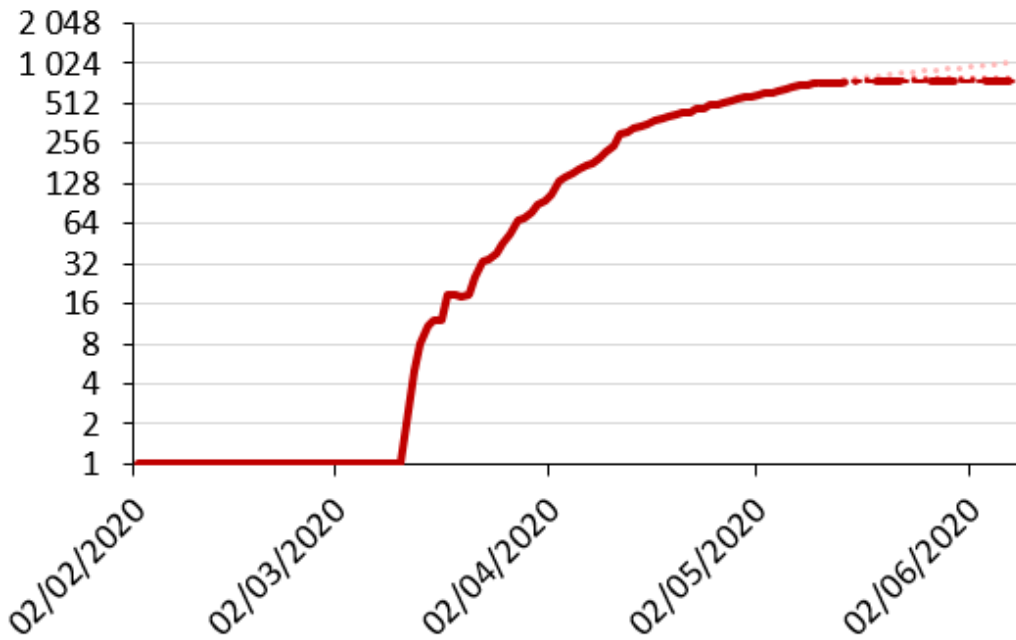


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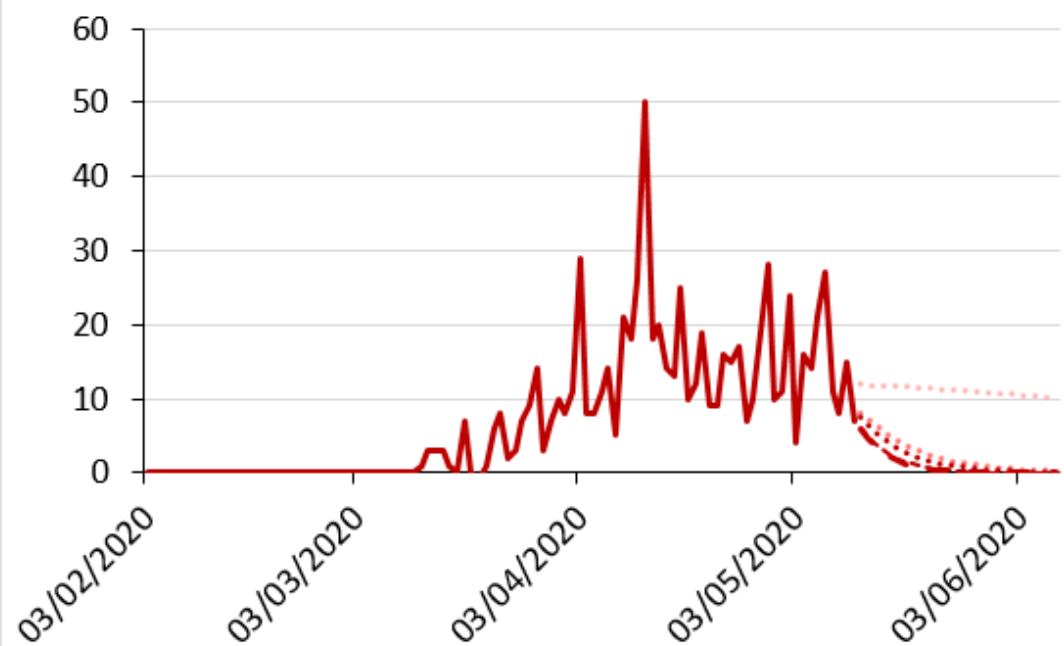
Philippines

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

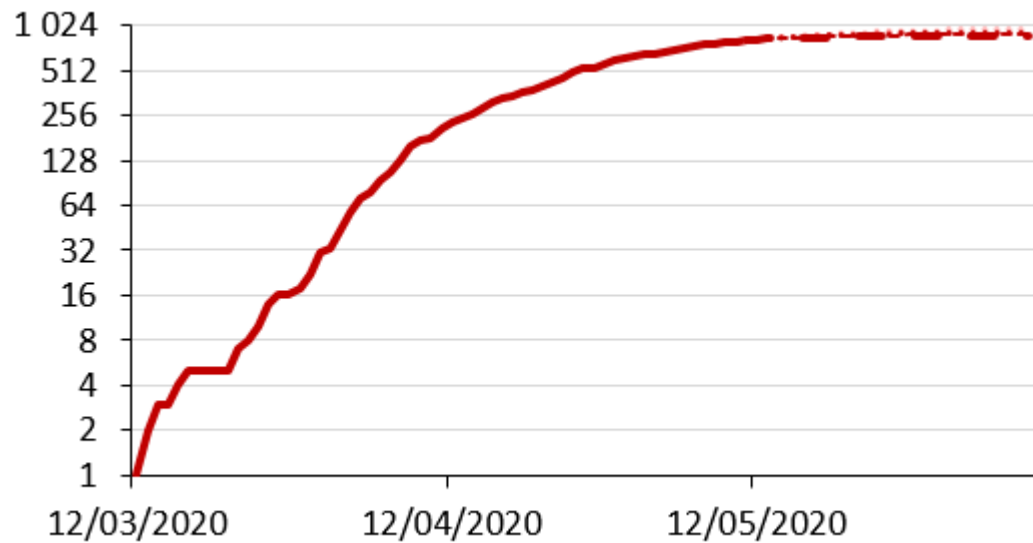


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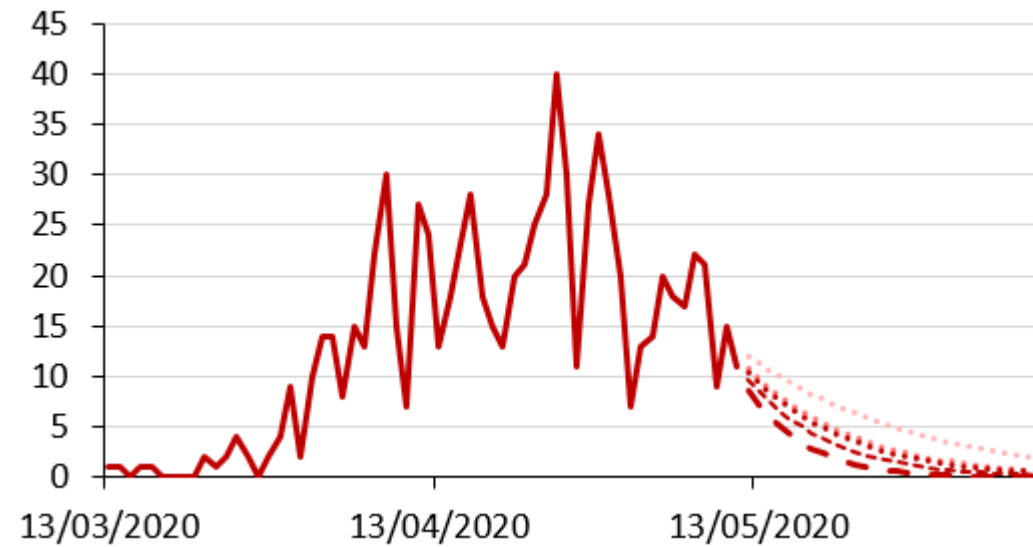
Poland

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

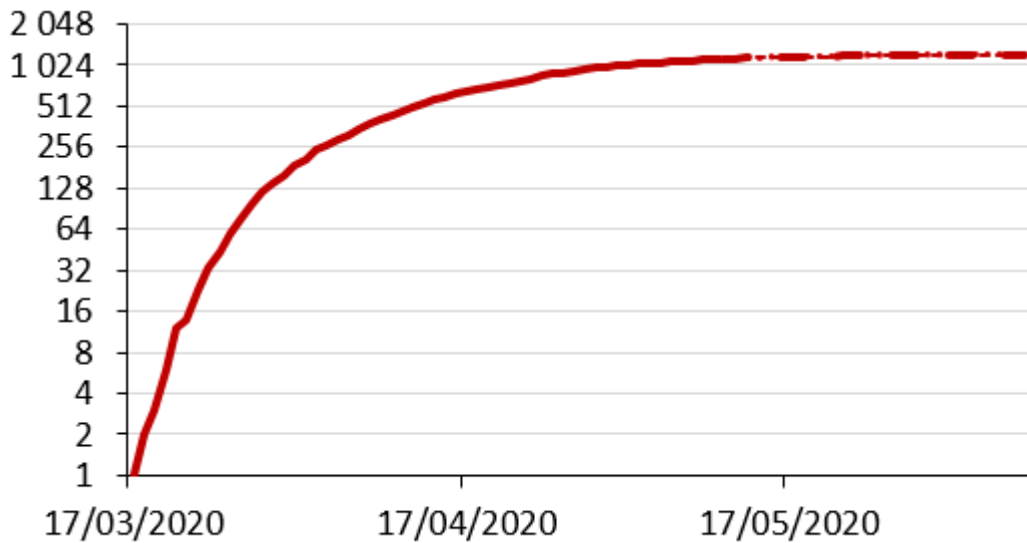


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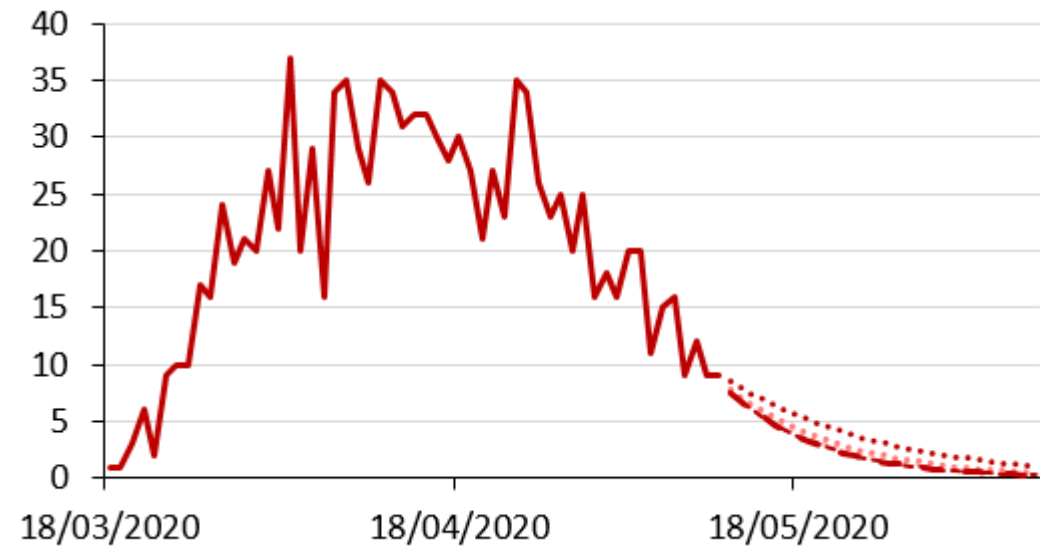
Portugal

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

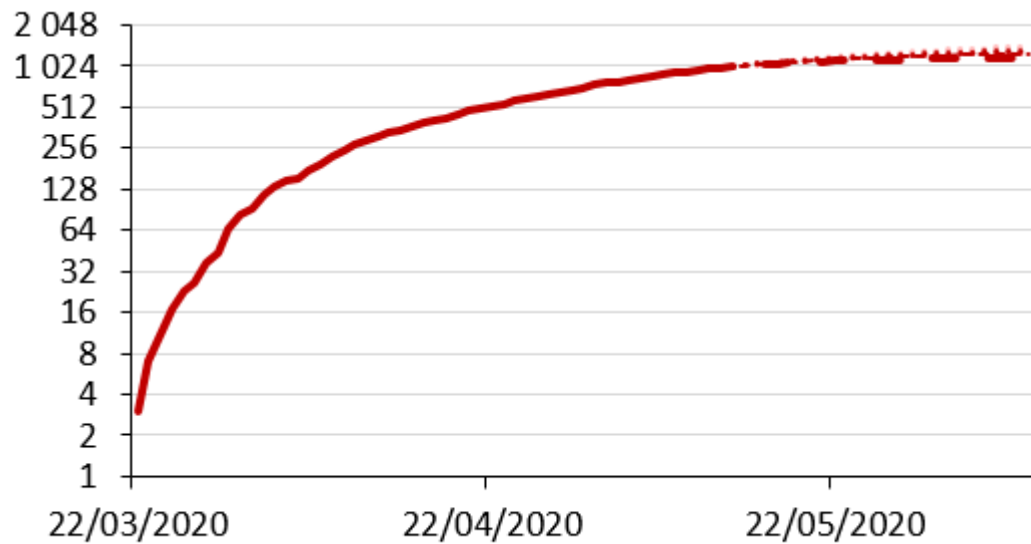


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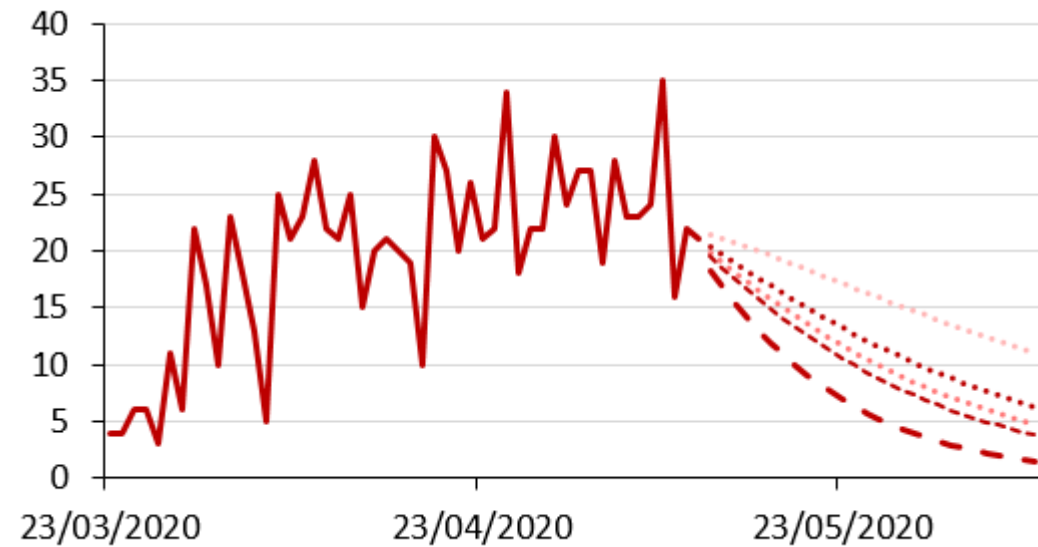
Romania

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

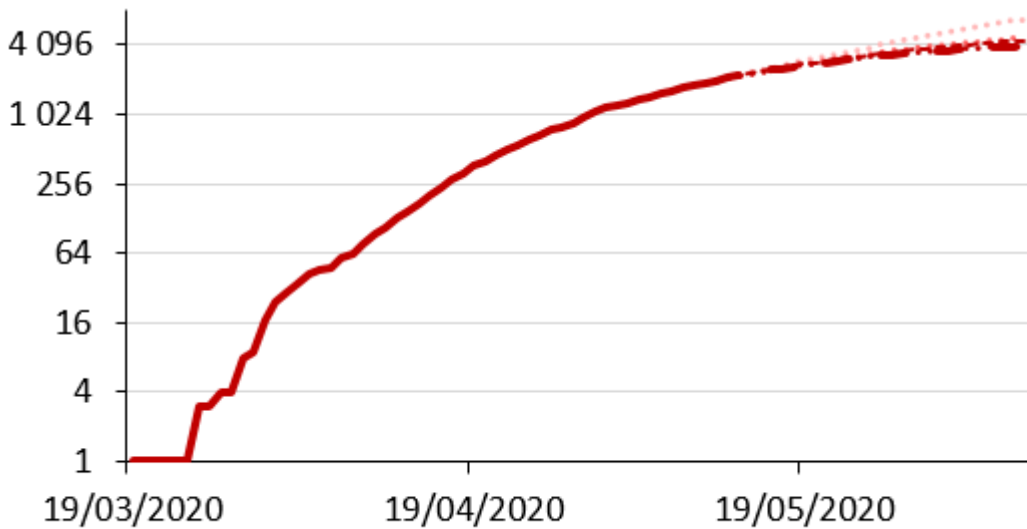


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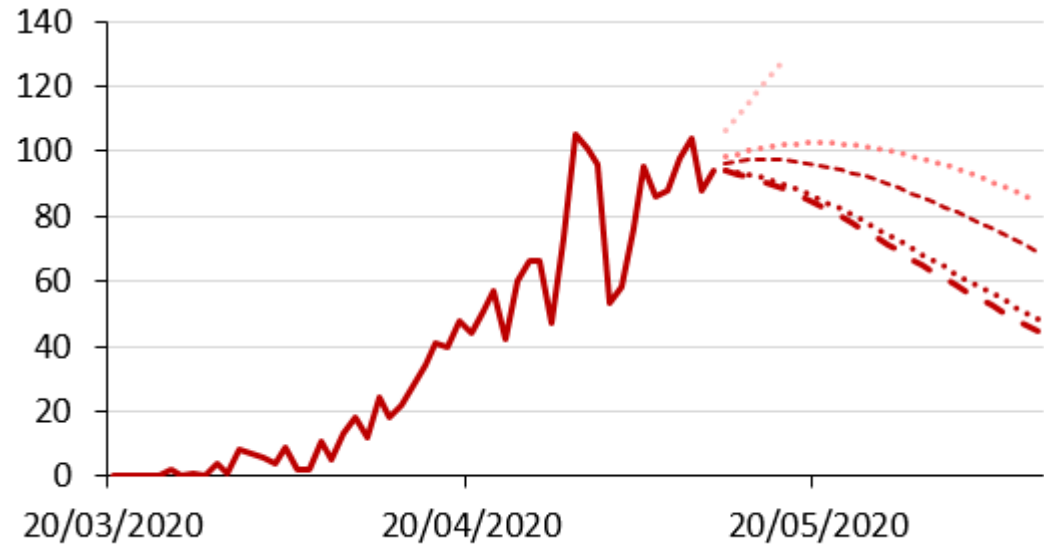
Russia

— CONFIRMED ····· 9 days'fit ····· 8 days'fit ····· 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

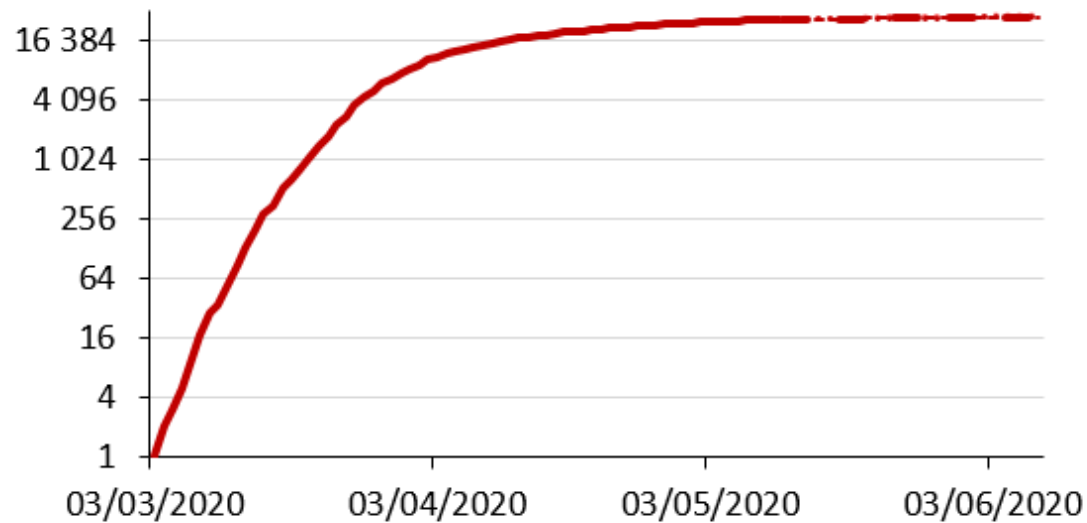


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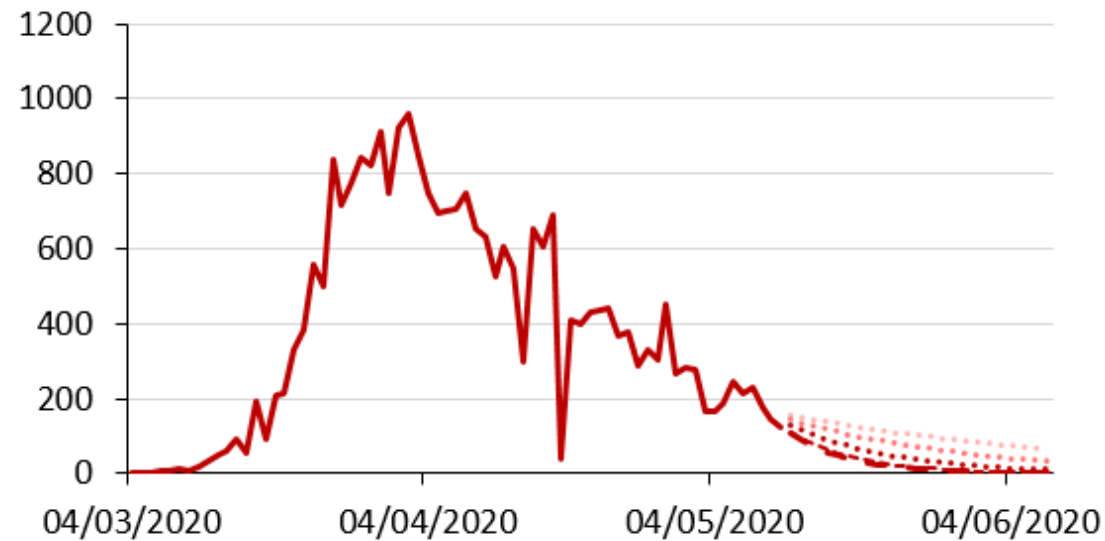
Spain

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

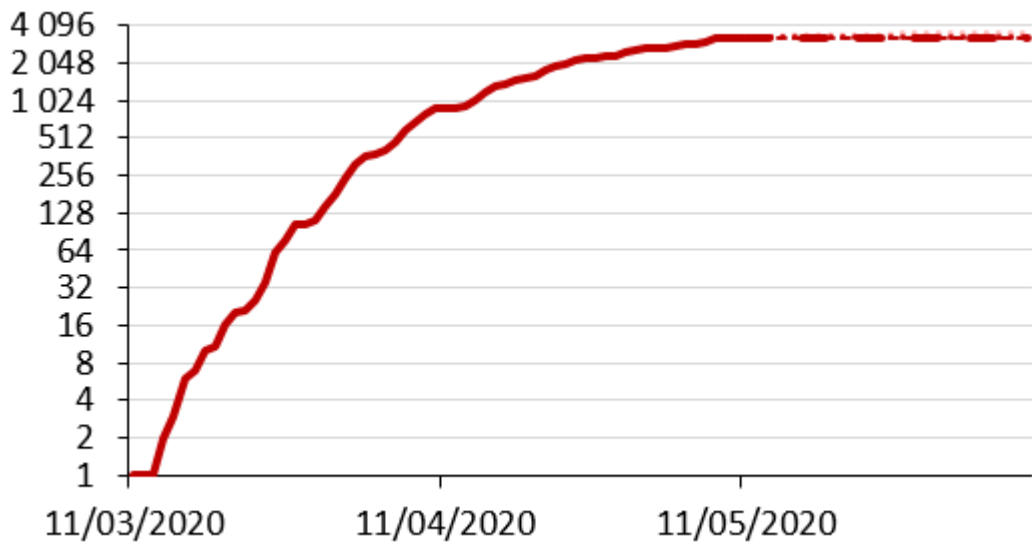


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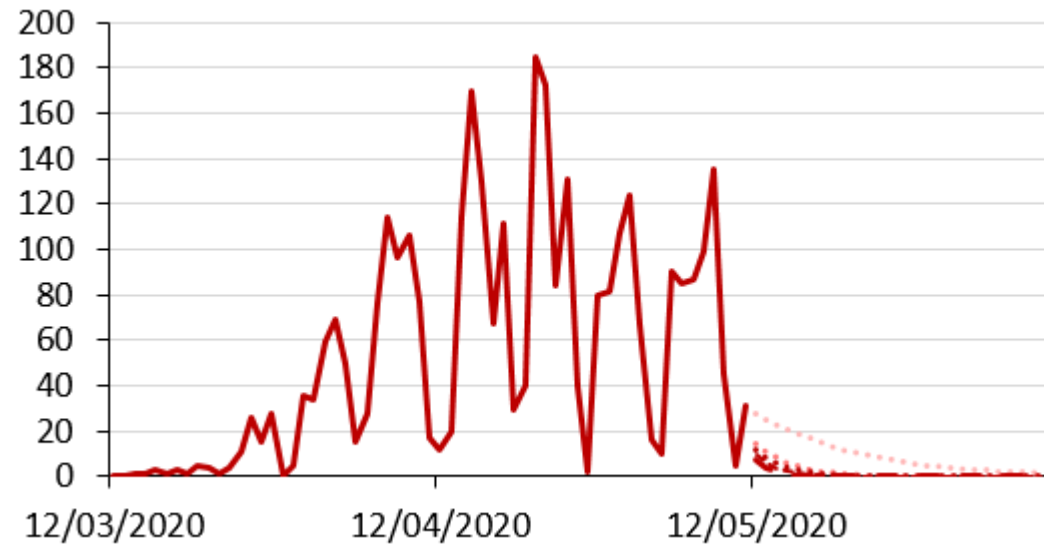
Sweden

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

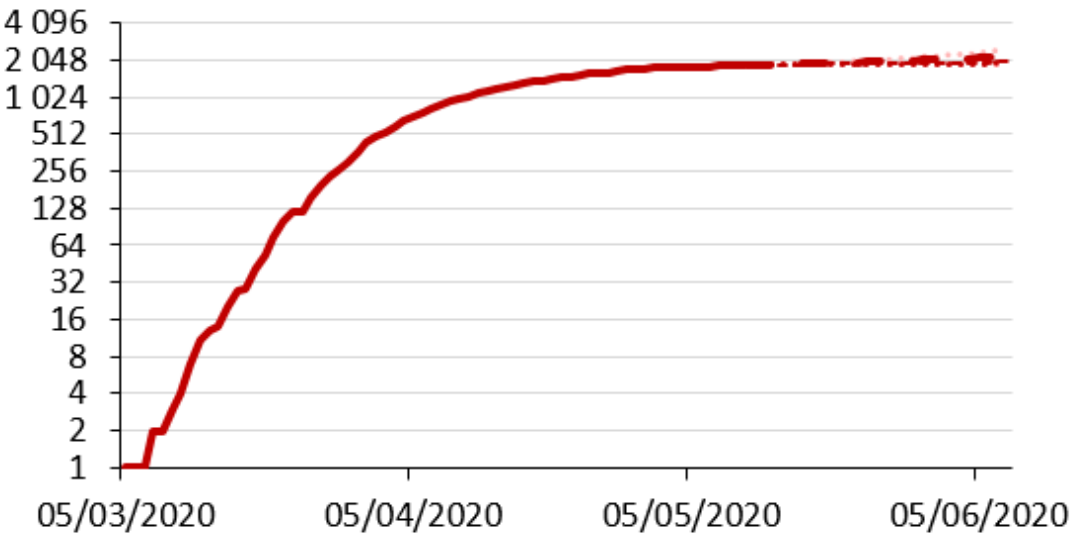


Data: The Johns Hopkins University, Politolog.com

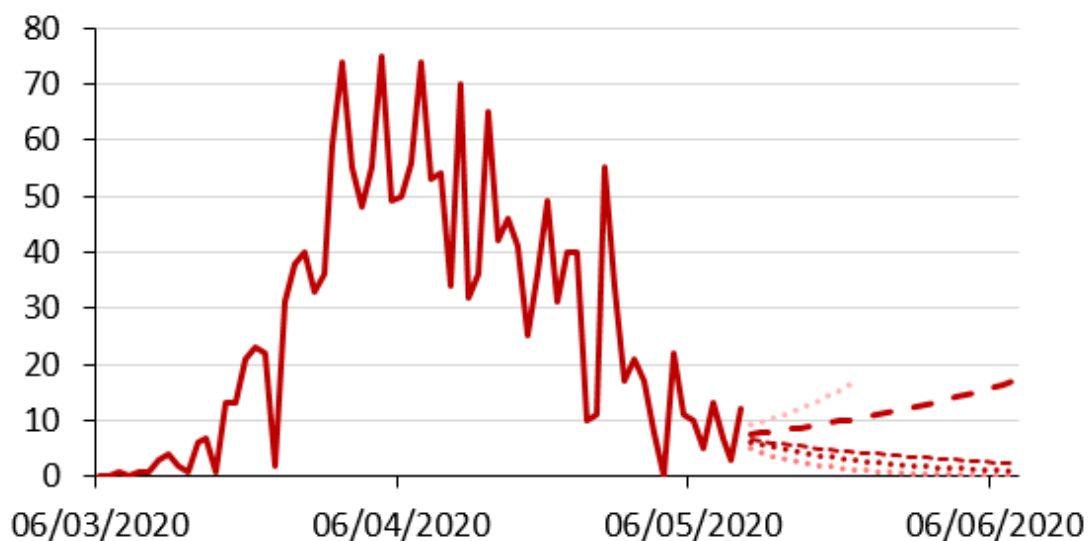
Switzerland

CONFIRMED 9 days'fit 8 days'fit 7 days'fit 6 days'fit 5 days'fit

Cumulated



Daily

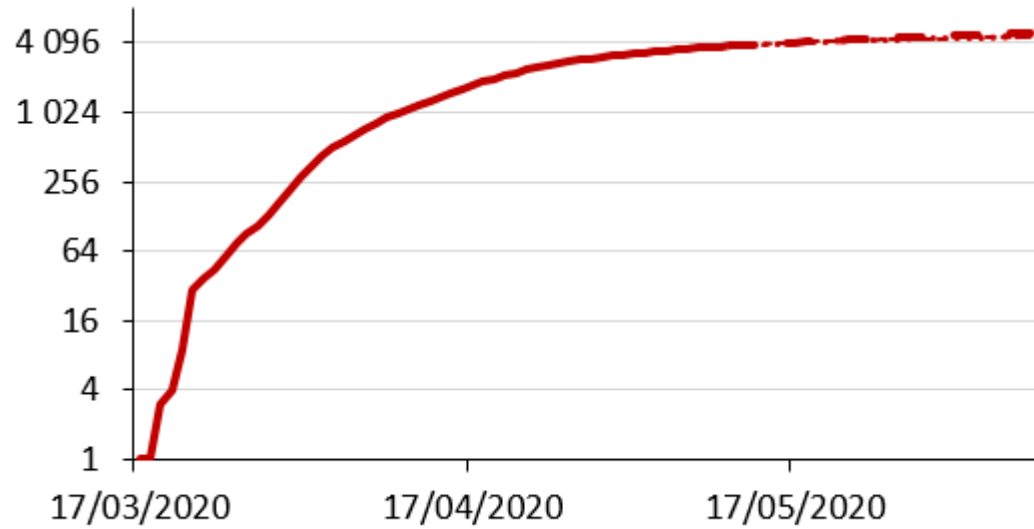


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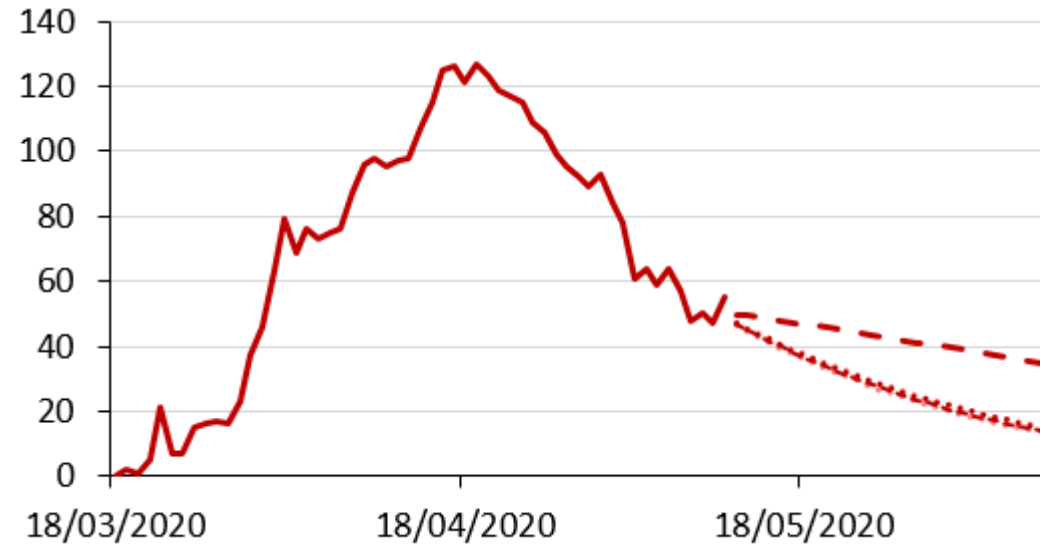
Turkey

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit - - - 5 days'fit

Cumulated



Daily

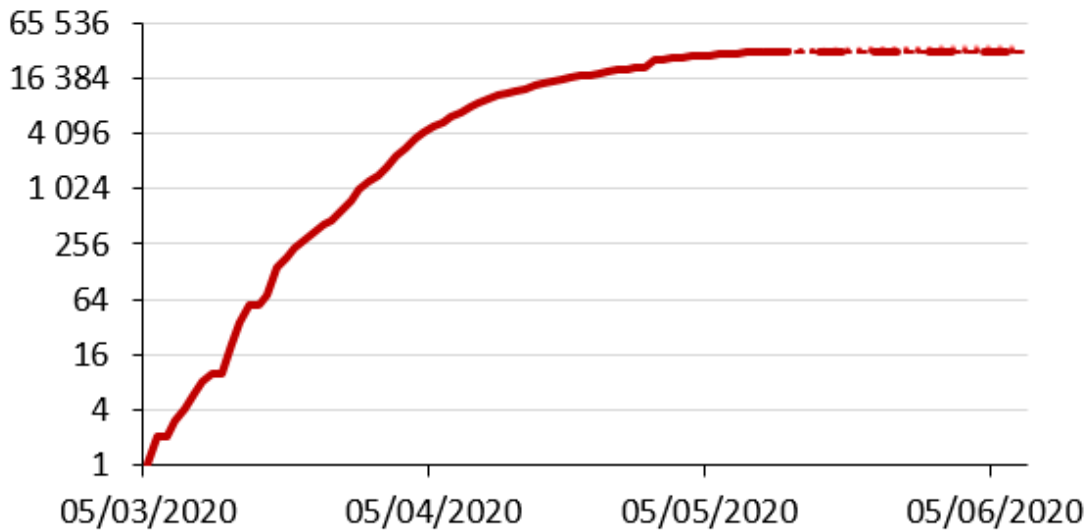


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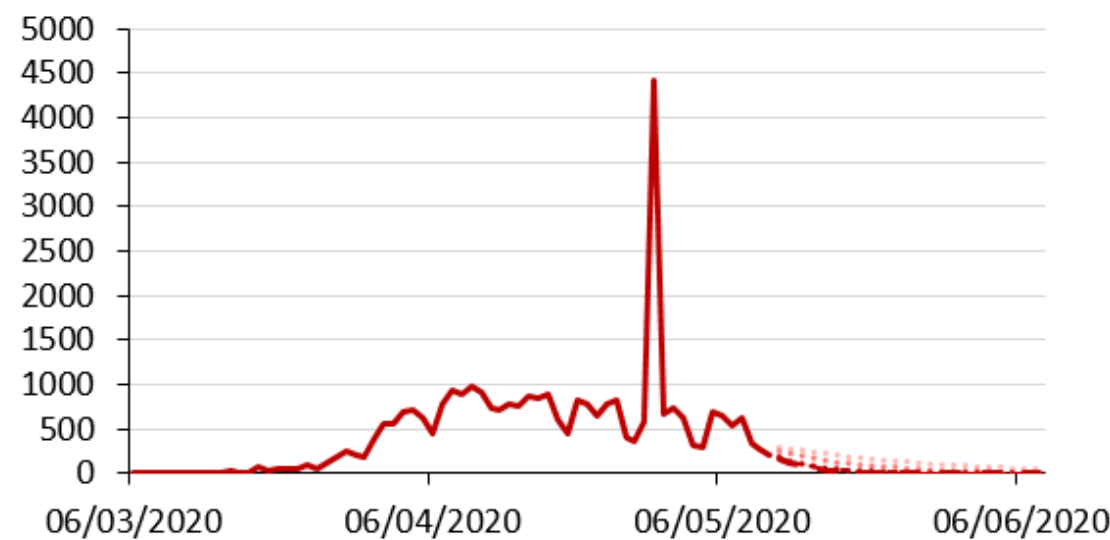
United Kingdom

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - - 6 days'fit - - - - 5 days'fit

Cumulated



Daily



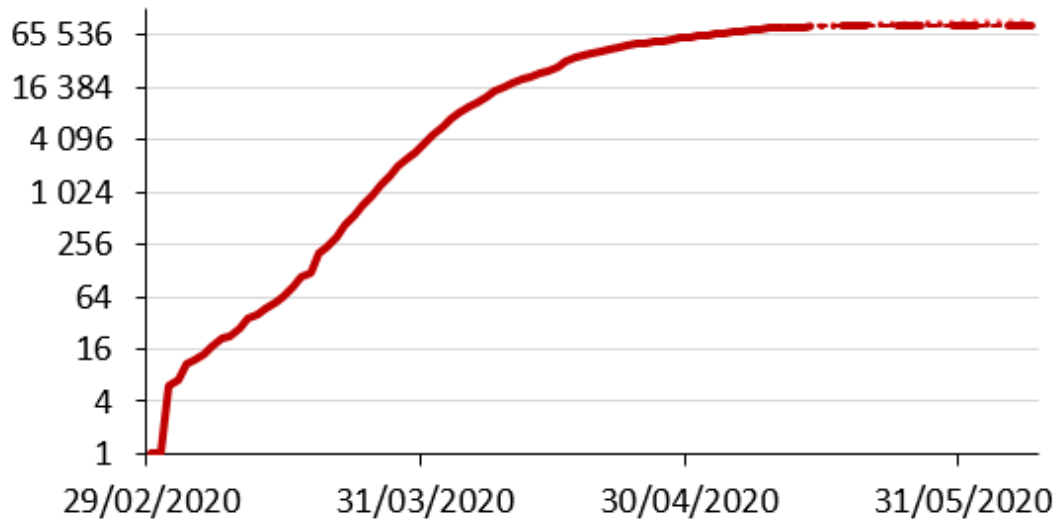
The UK changed its reporting method on the 29th of May (second peak)

Data: The Johns Hopkins University, Politolog.com

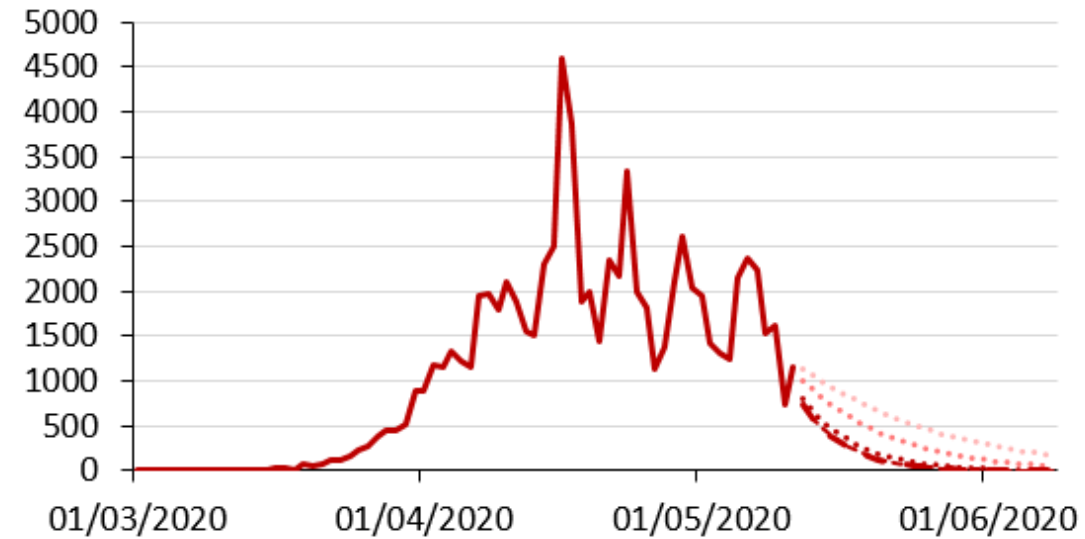
USA

— CONFIRMED 9 days'fit 8 days'fit 7 days'fit - - - 6 days'fit

Cumulated



Daily



Data: The Johns Hopkins University, Politolog.com



Gavekal Intelligence Software

Contact

Tel: +33 7 85 82 18 03

Email: ddarcet@gavekal.com

Paris Office

27bis rue Copernic
75116 Paris
France

Nice Office

Le Consul - 37 Boulevard Dubouchage
06000 Nice
France

www.gavekal-intelligence-software.com