

30 March 2020

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# COVID-19 Projections

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Didier Darcet

# COVID-19 Cases' and Deaths' Projection Method

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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.

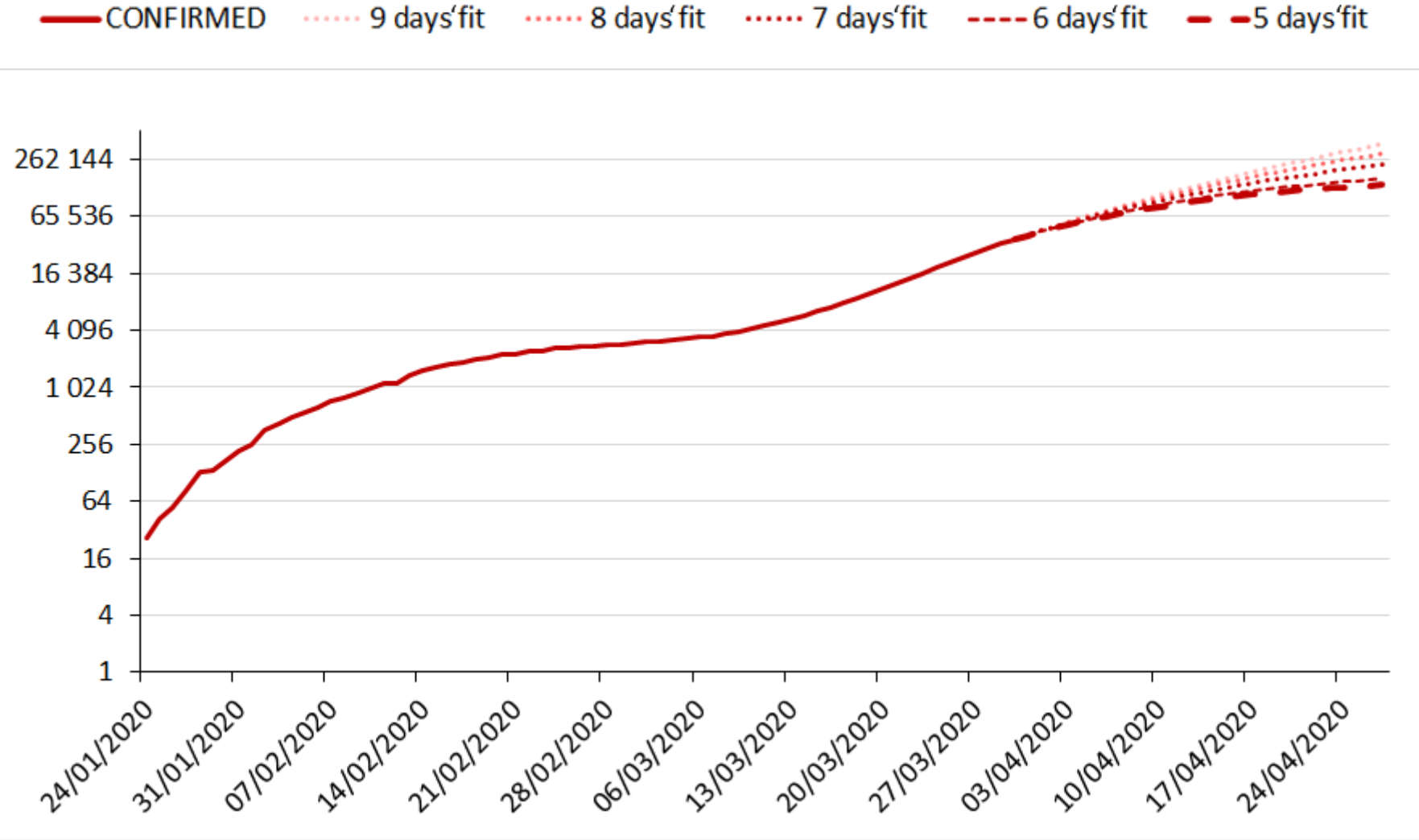
Fitting over various windows provides an information on the most recent dynamics of the COVID-19 diffusion. The thicker dotted red line is the shortest trend, i.e. calculated over the previous five days.

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.

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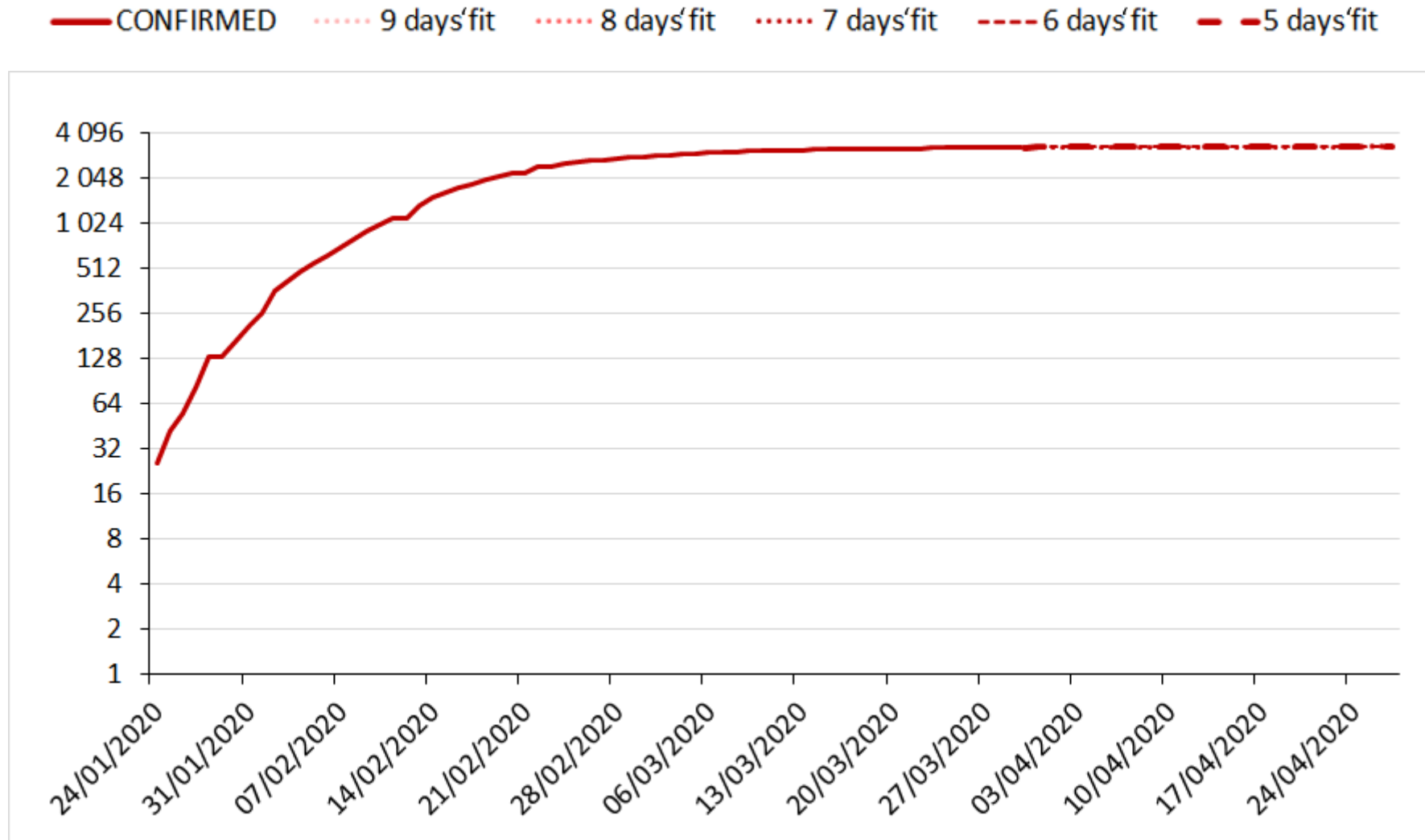
# DEATHS - PROJECTIONS

# World



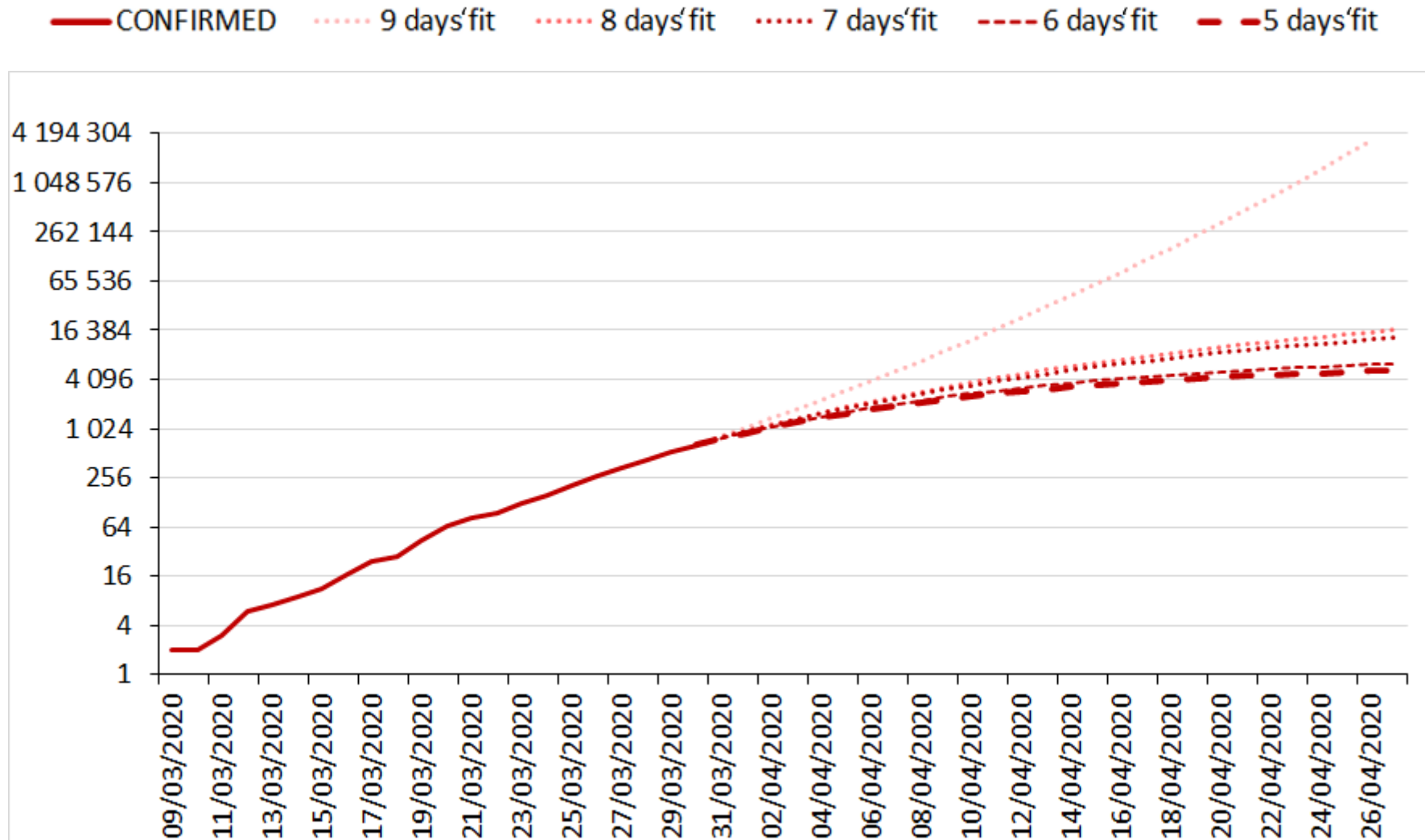
Data: The Johns Hopkins University, Politolog.com

# China



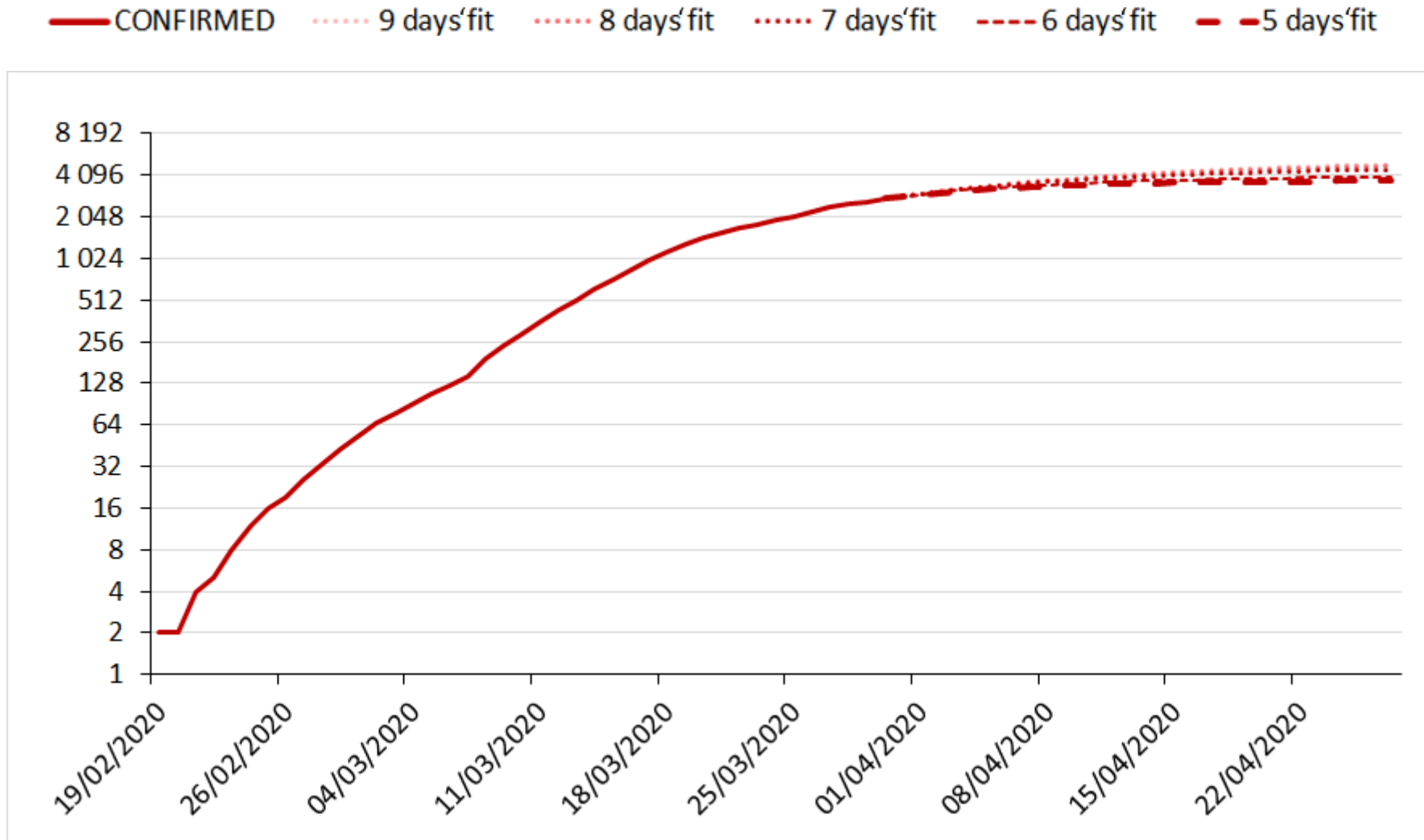
Data: The Johns Hopkins University, Politolog.com

# Germany



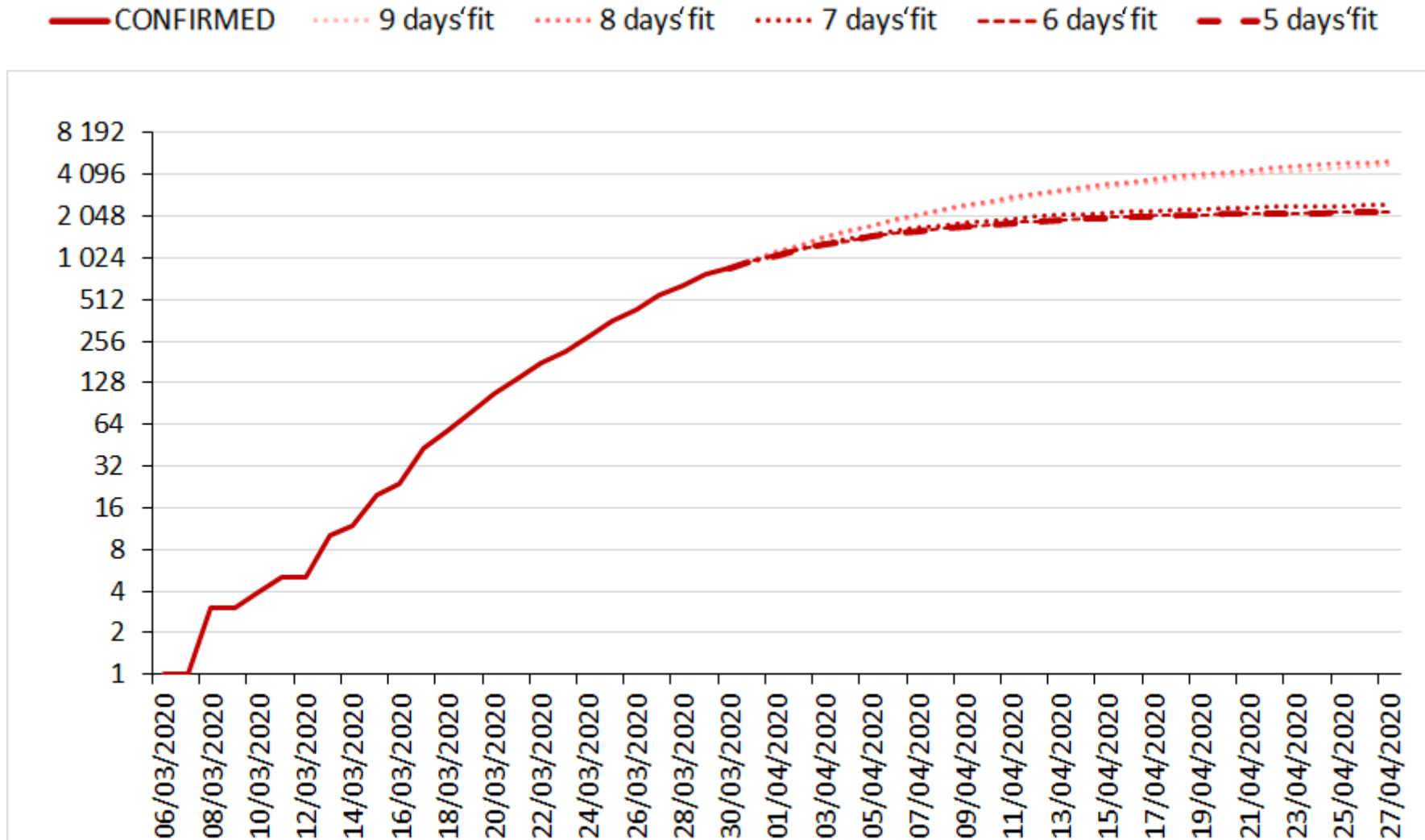
Data: The Johns Hopkins University, Politolog.com

# Iran



Data: The Johns Hopkins University, Politolog.com

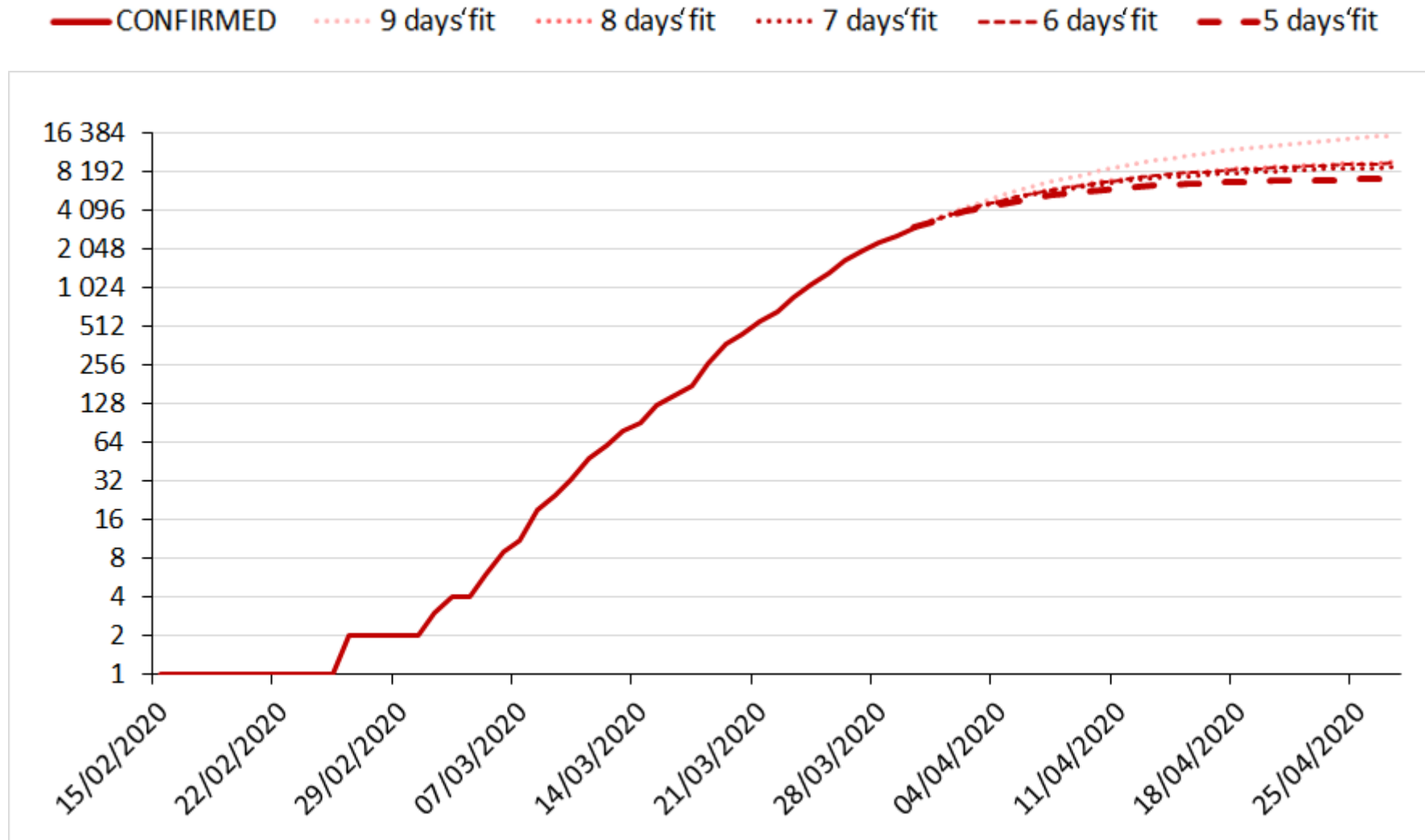
# Netherlands



Data: The Johns Hopkins University, Politolog.com

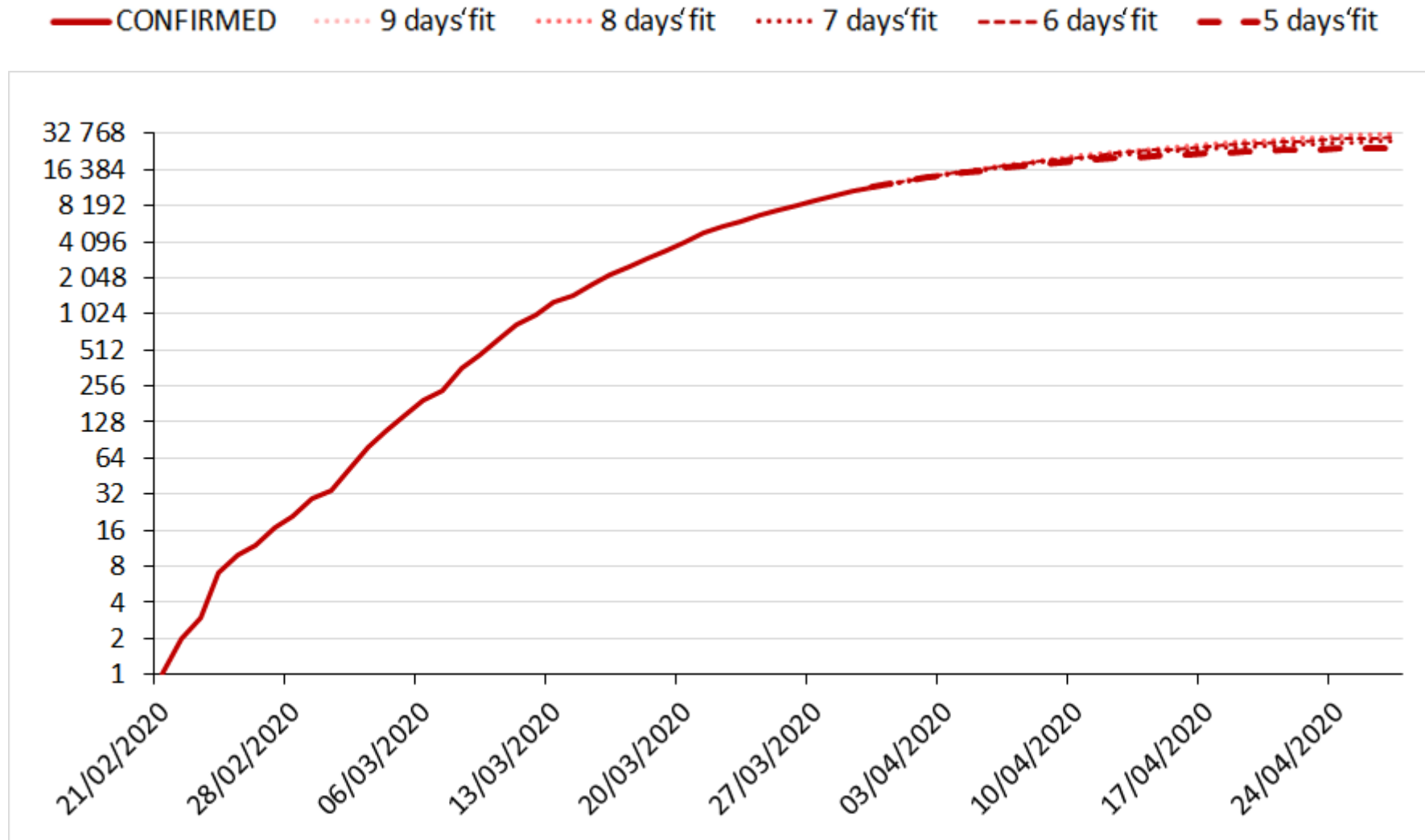


# France



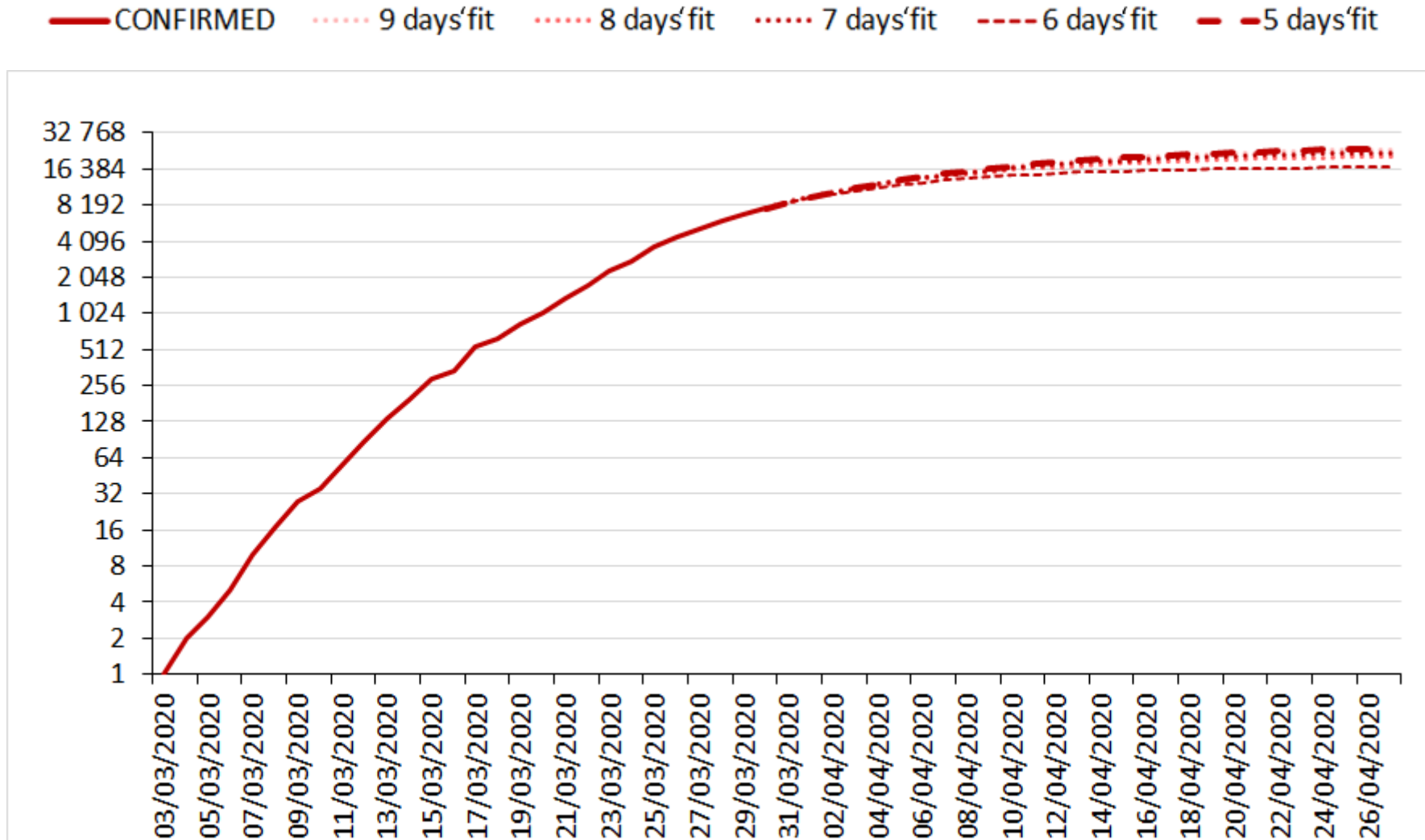
Data: The Johns Hopkins University, Politolog.com

# Italy



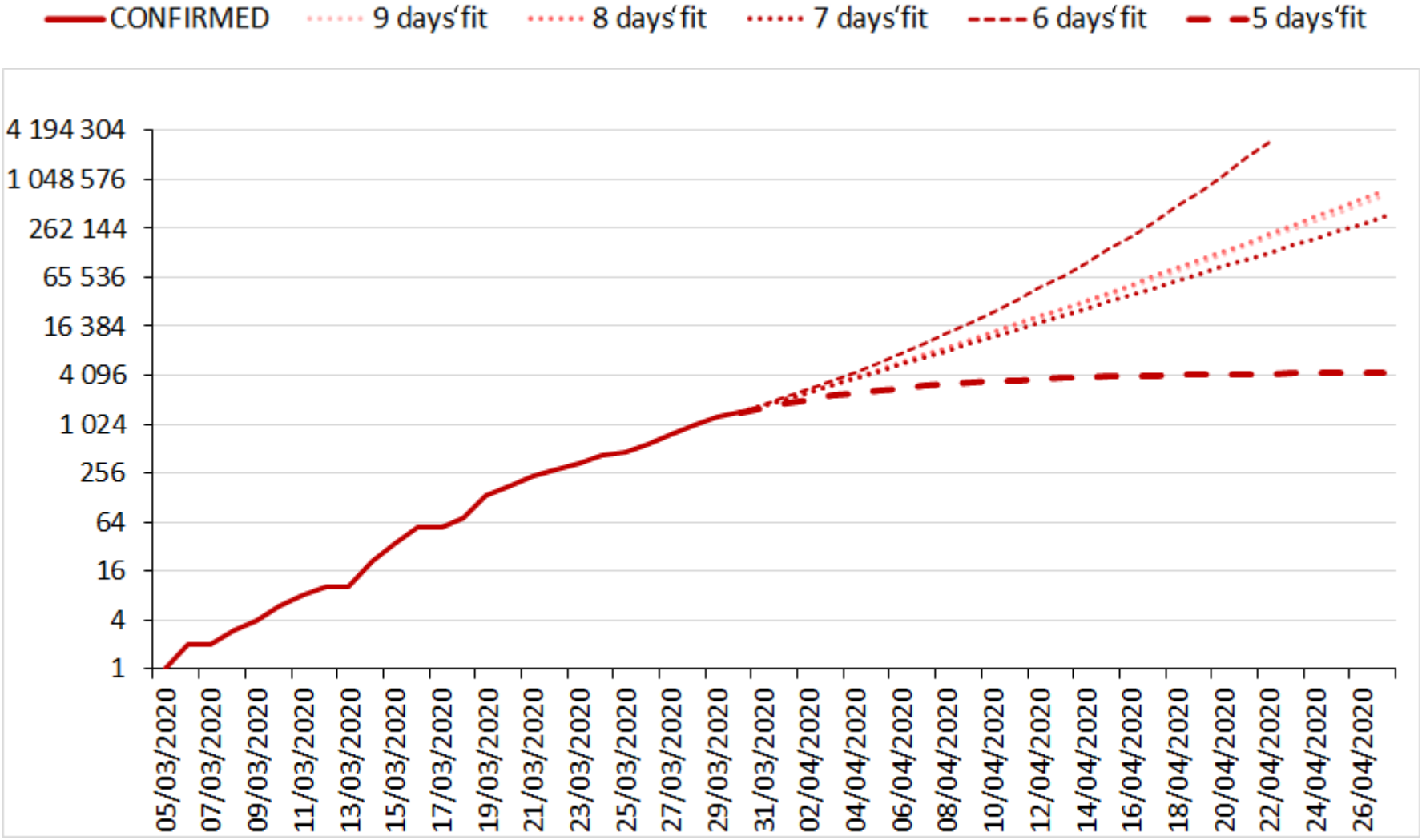
Data: The Johns Hopkins University, Politolog.com

# Spain



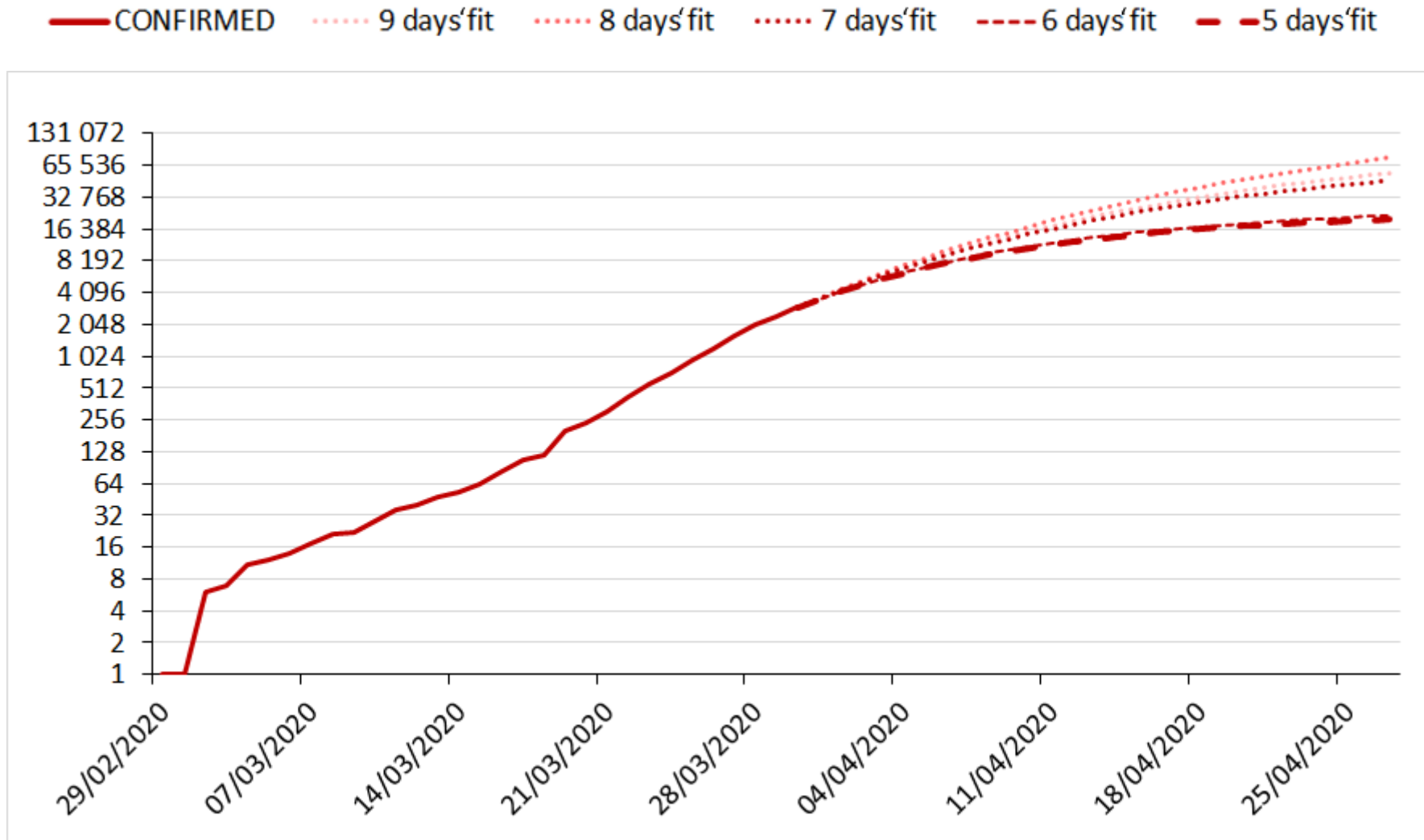
Data: The Johns Hopkins University, Politolog.com

# United Kingdom



Data: The Johns Hopkins University, Politolog.com

# USA

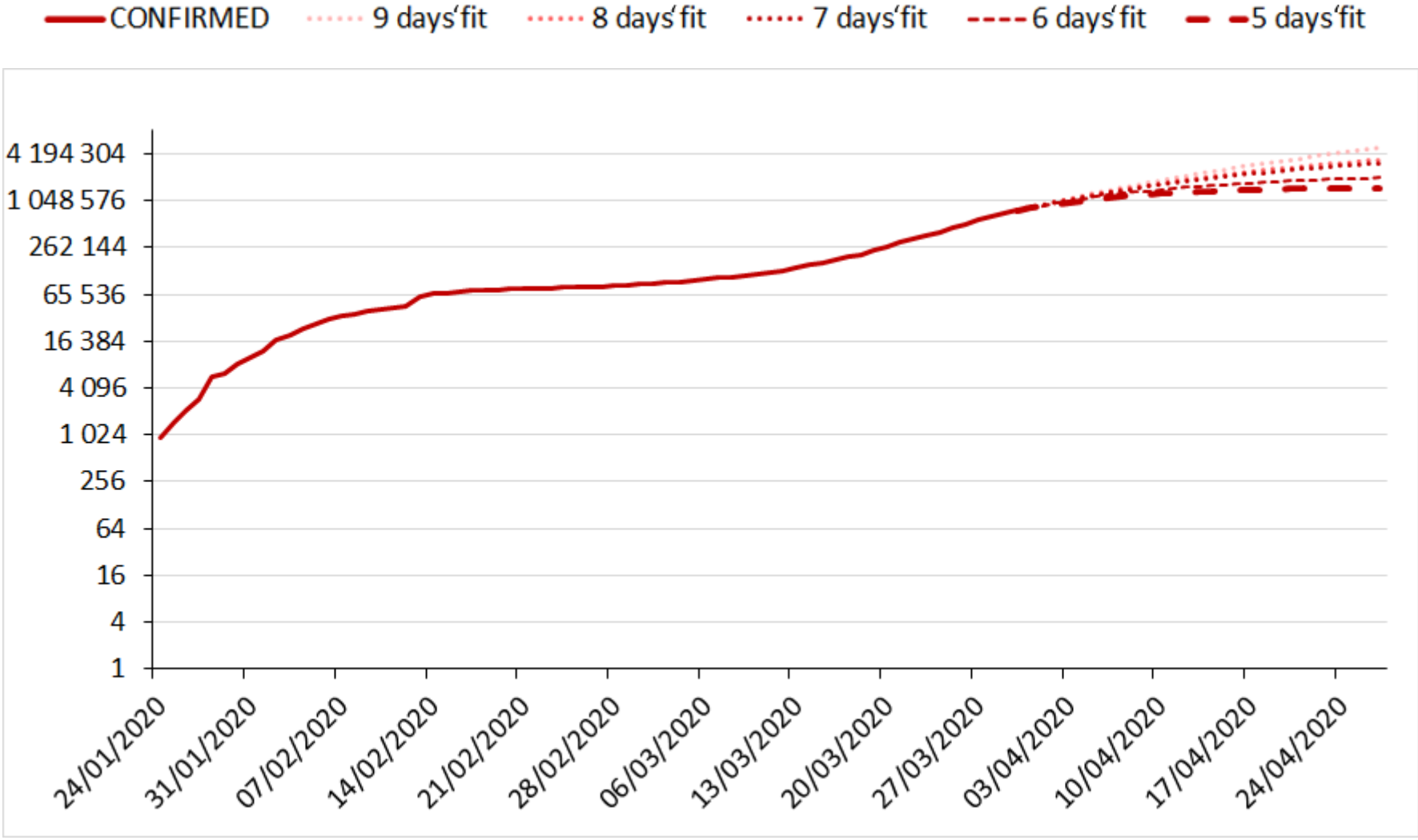


Data: The Johns Hopkins University, Politolog.com

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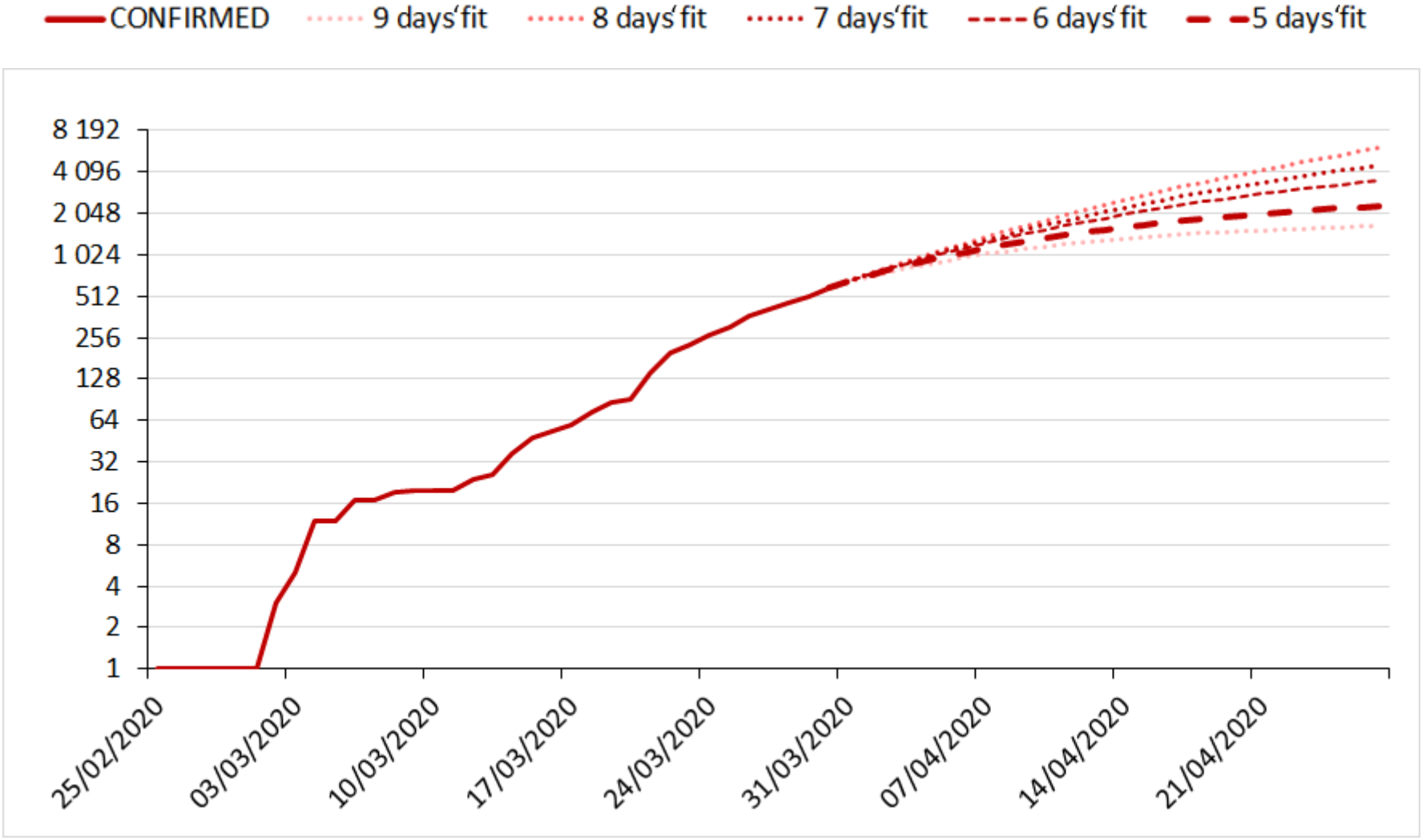
# CUMULATED CASES - PROJECTIONS

# World



Data: The Johns Hopkins University, Politolog.com

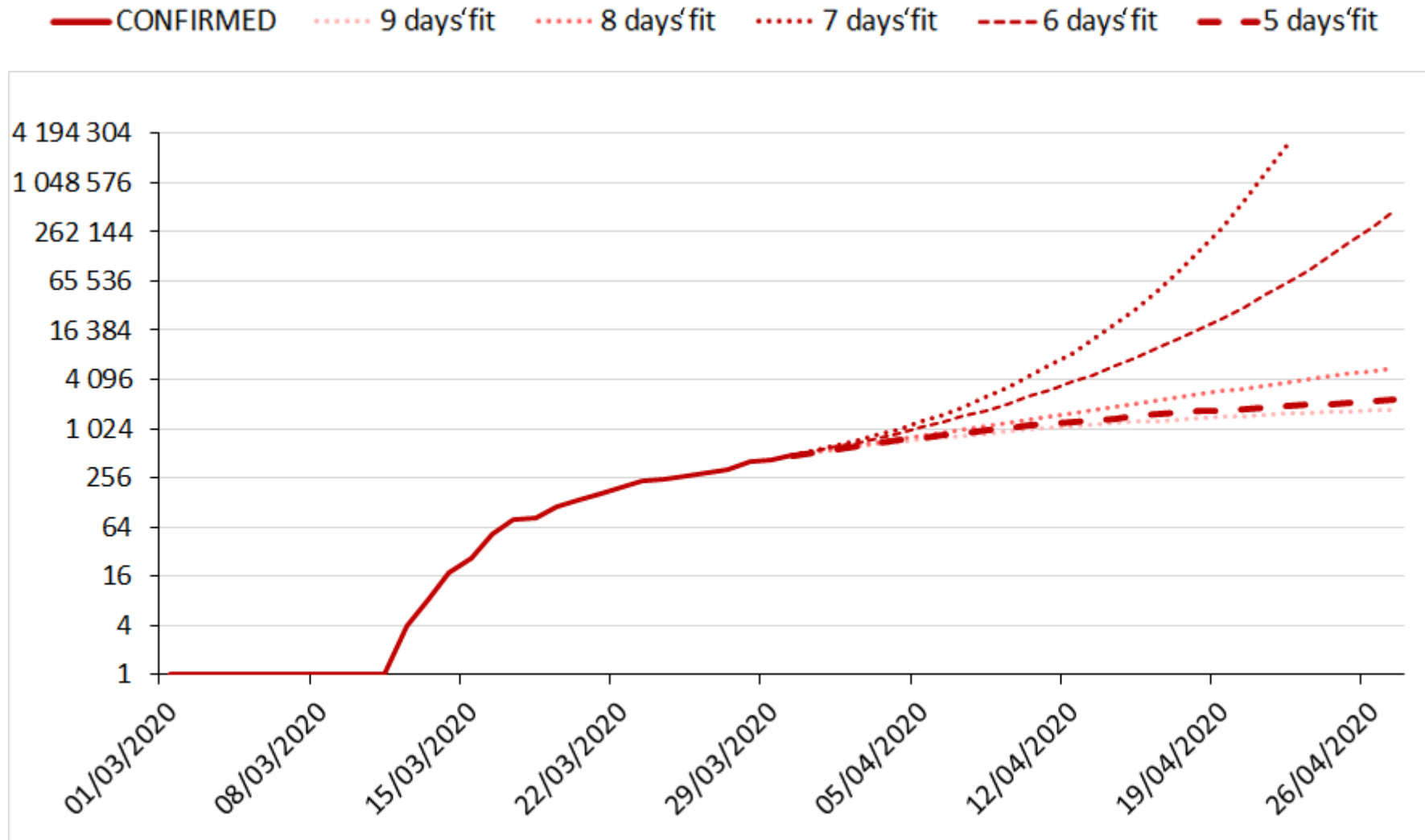
# Algeria



Data: The Johns Hopkins University, Politolog.com

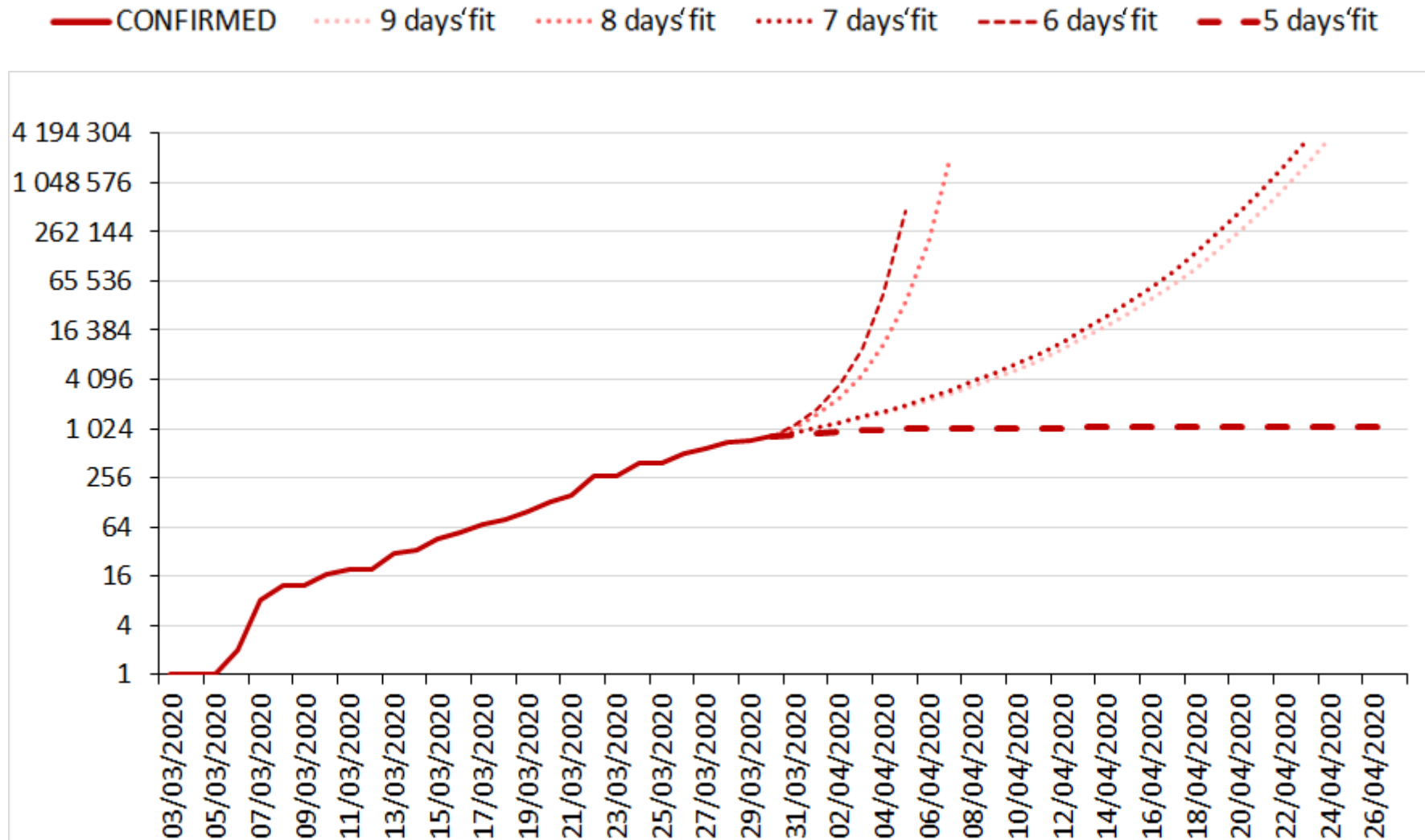


# Armenia



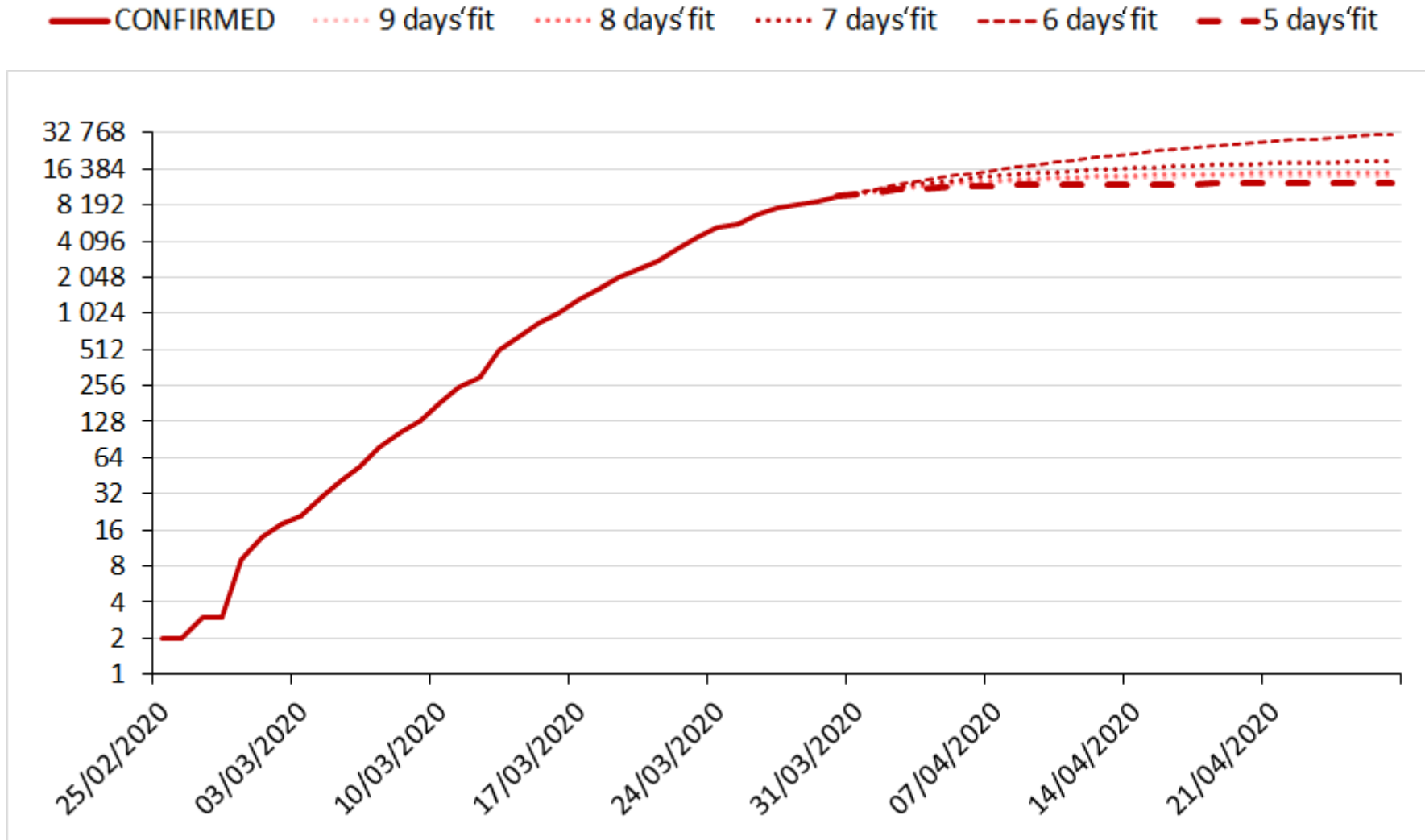
Data: The Johns Hopkins University, Politolog.com

# Argentina



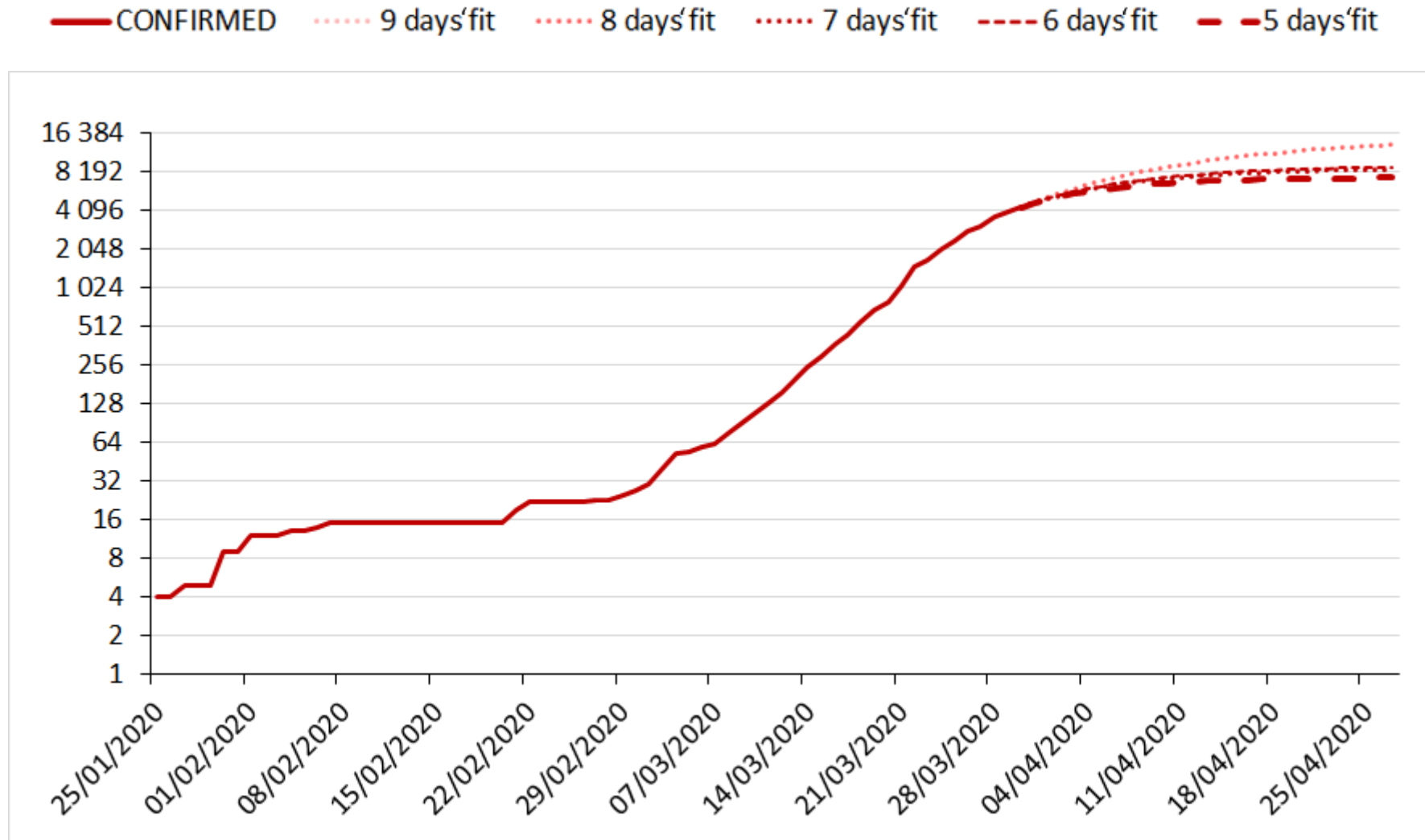
Data: The Johns Hopkins University, Politolog.com

# Austria



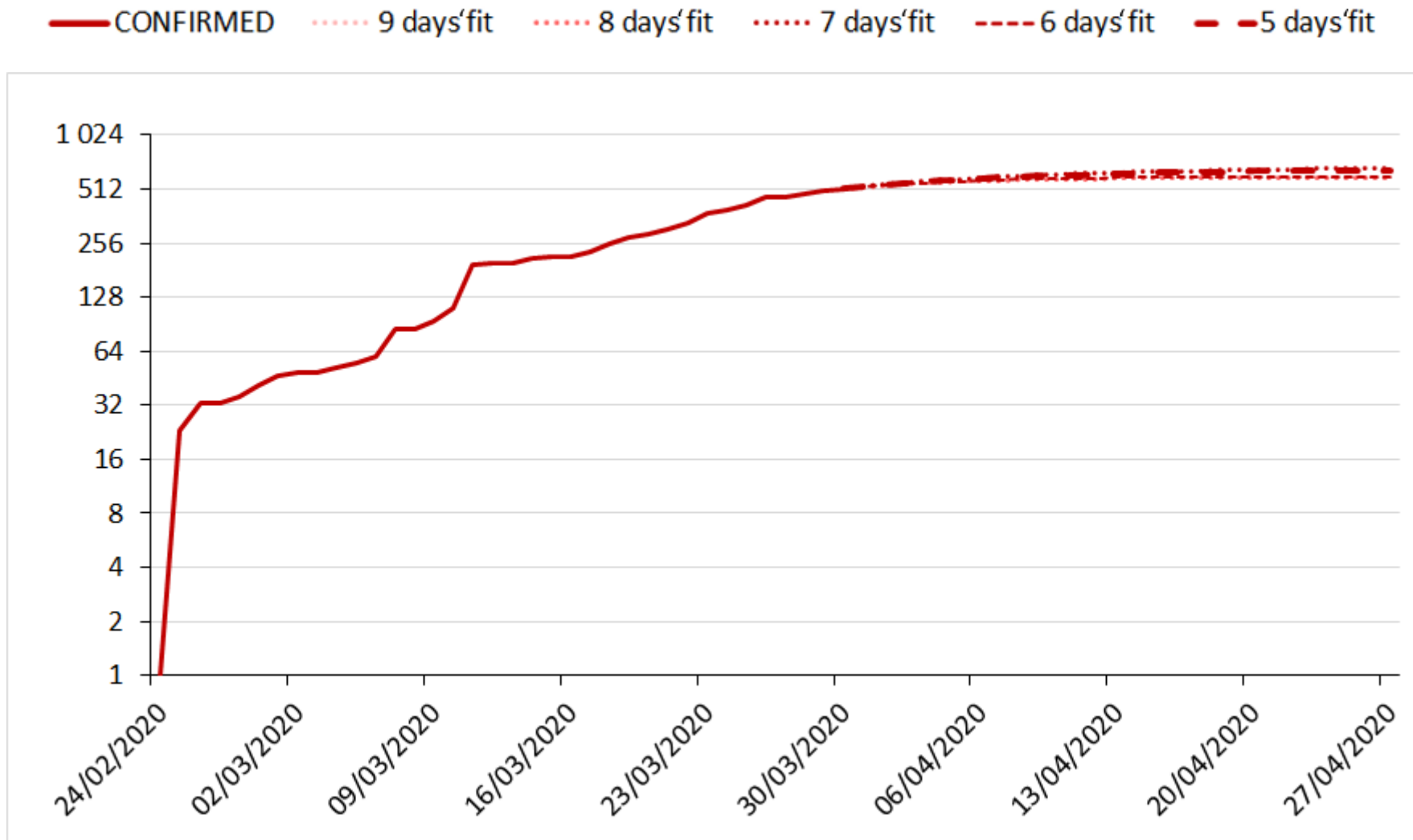
Data: The Johns Hopkins University, Politolog.com

# Australia



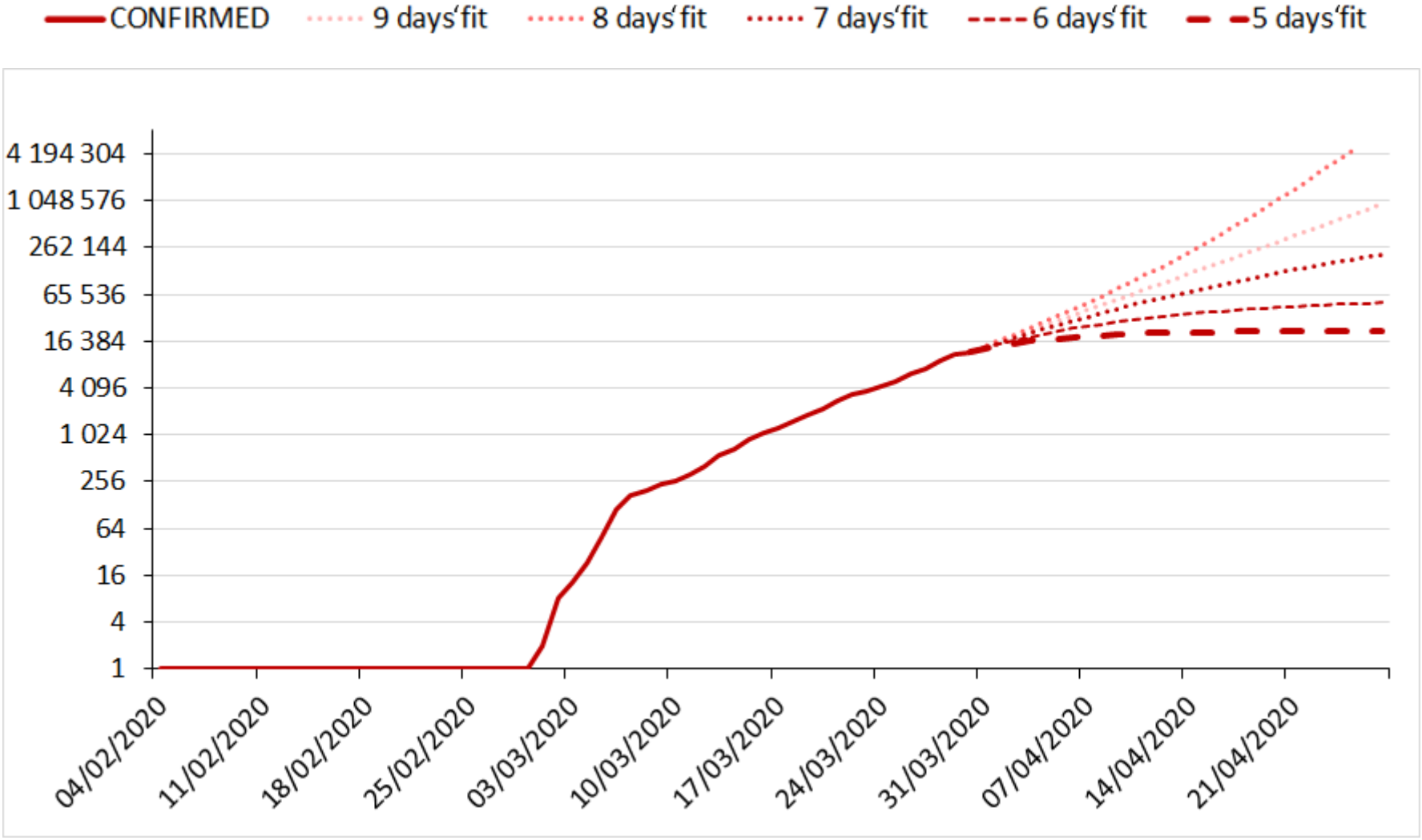
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# Bahrain



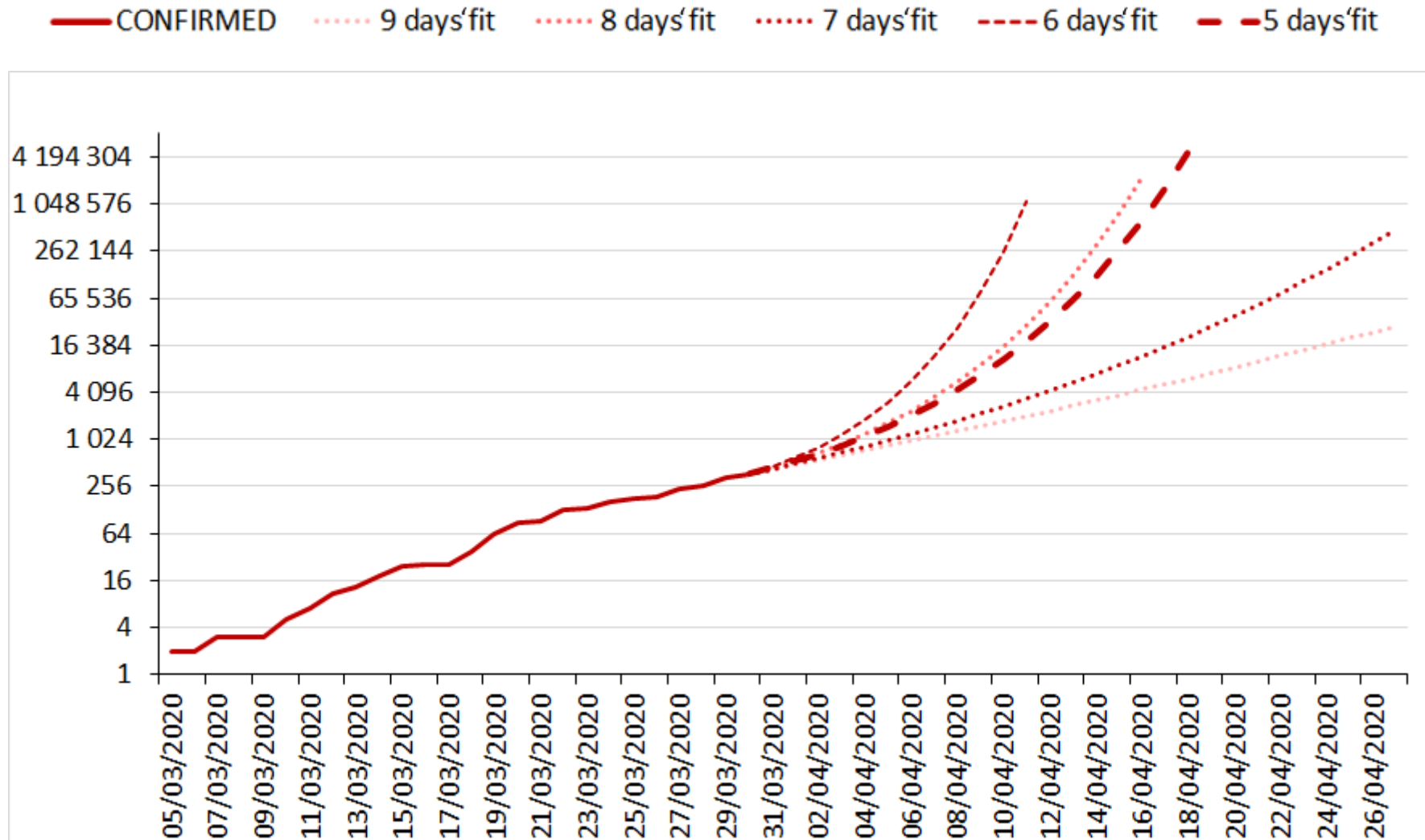
Data: The Johns Hopkins University, Politolog.com

# Belgium



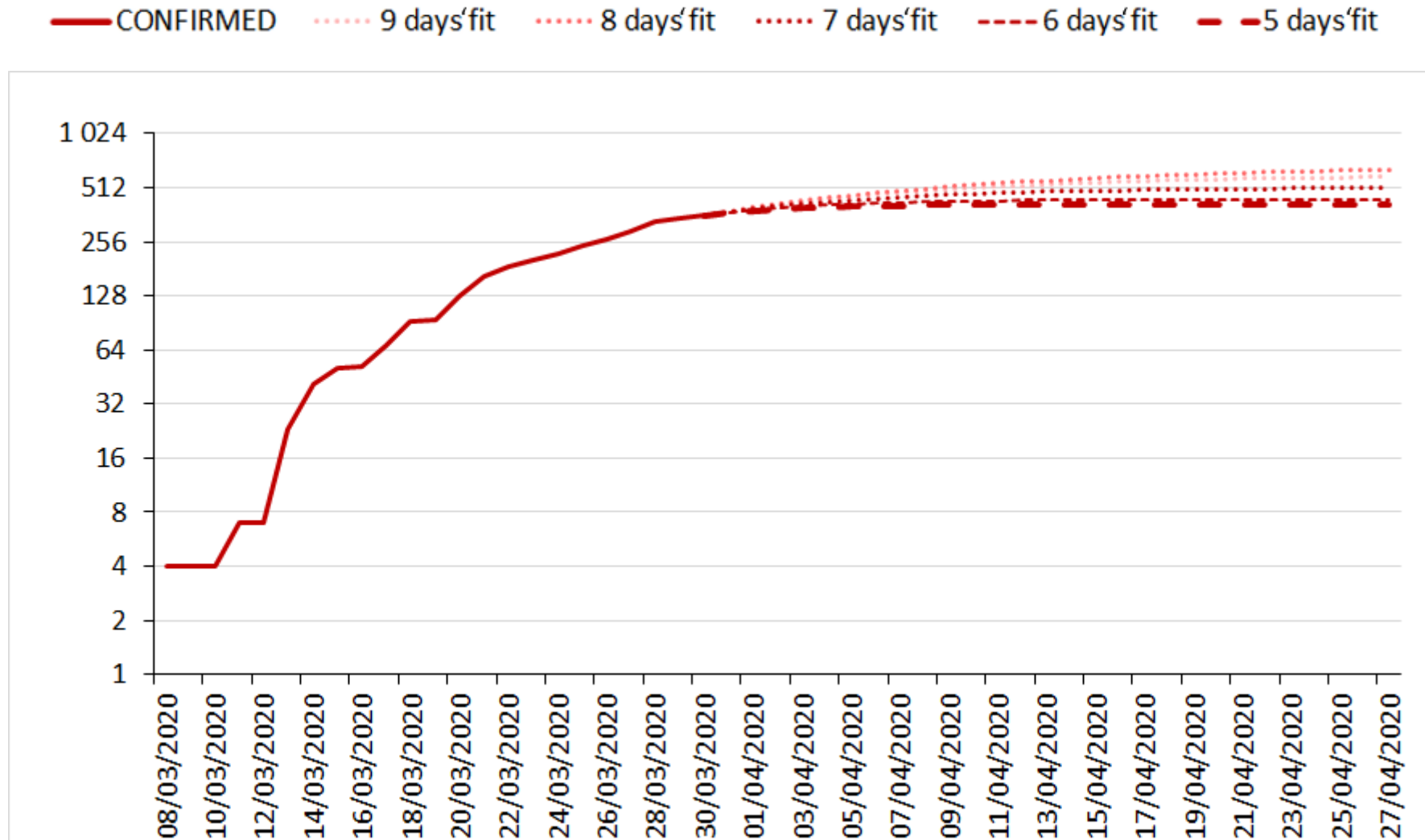
Data: The Johns Hopkins University, Politolog.com

# Bosnia and Herzegovina



Data: The Johns Hopkins University, Politolog.com

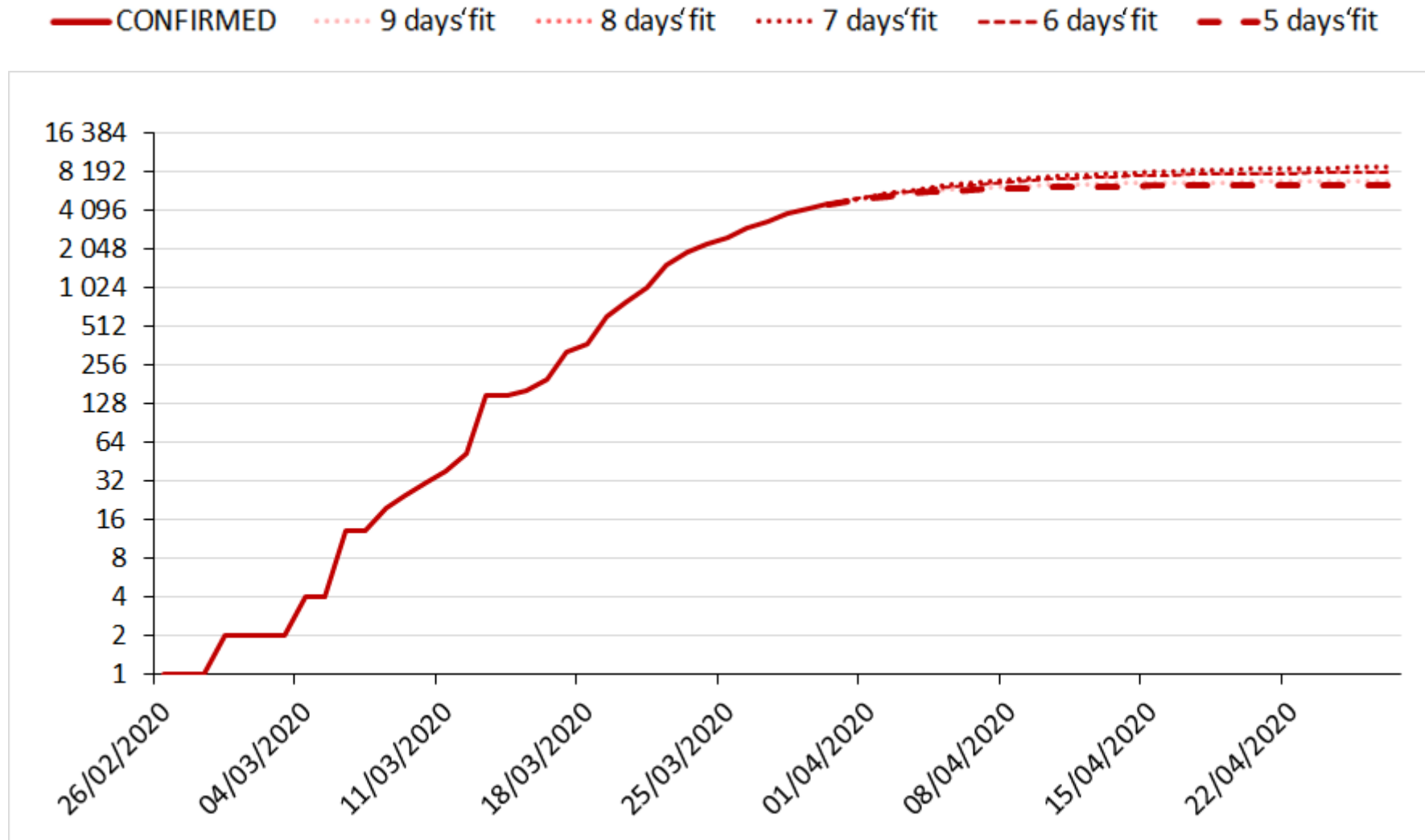
# Bulgaria



Data: The Johns Hopkins University, Politolog.com

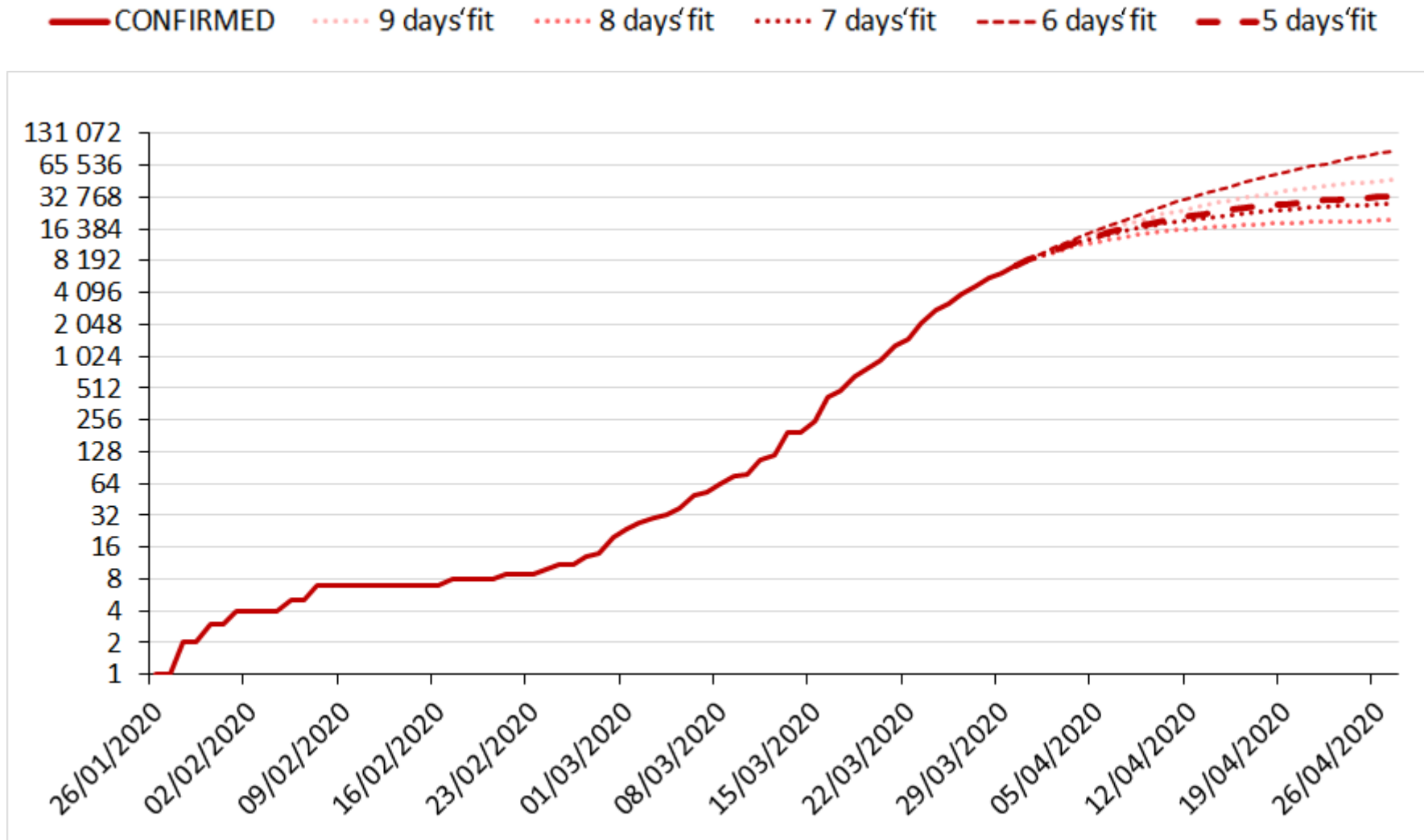


# Brazil



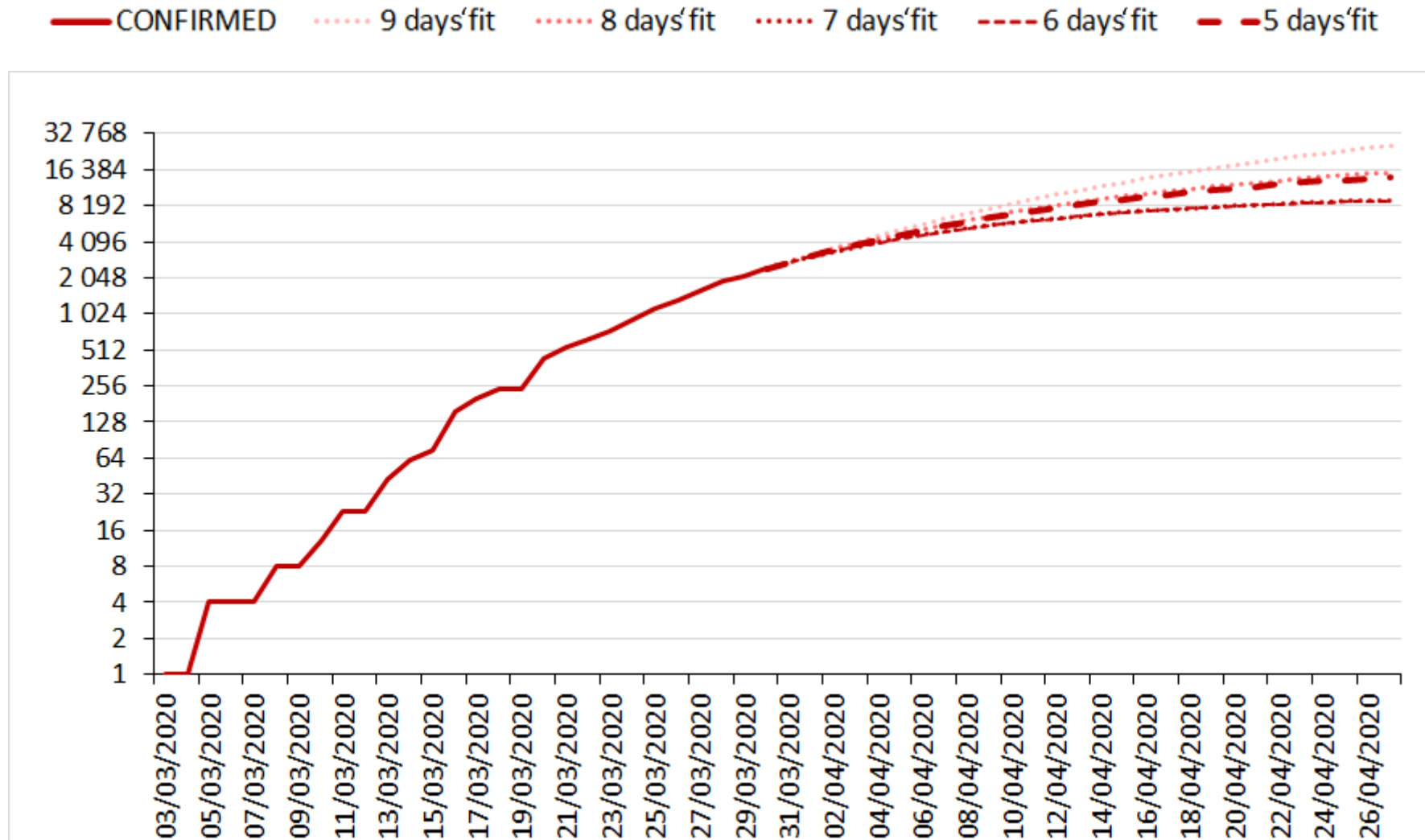
Data: The Johns Hopkins University, Politolog.com

# Canada



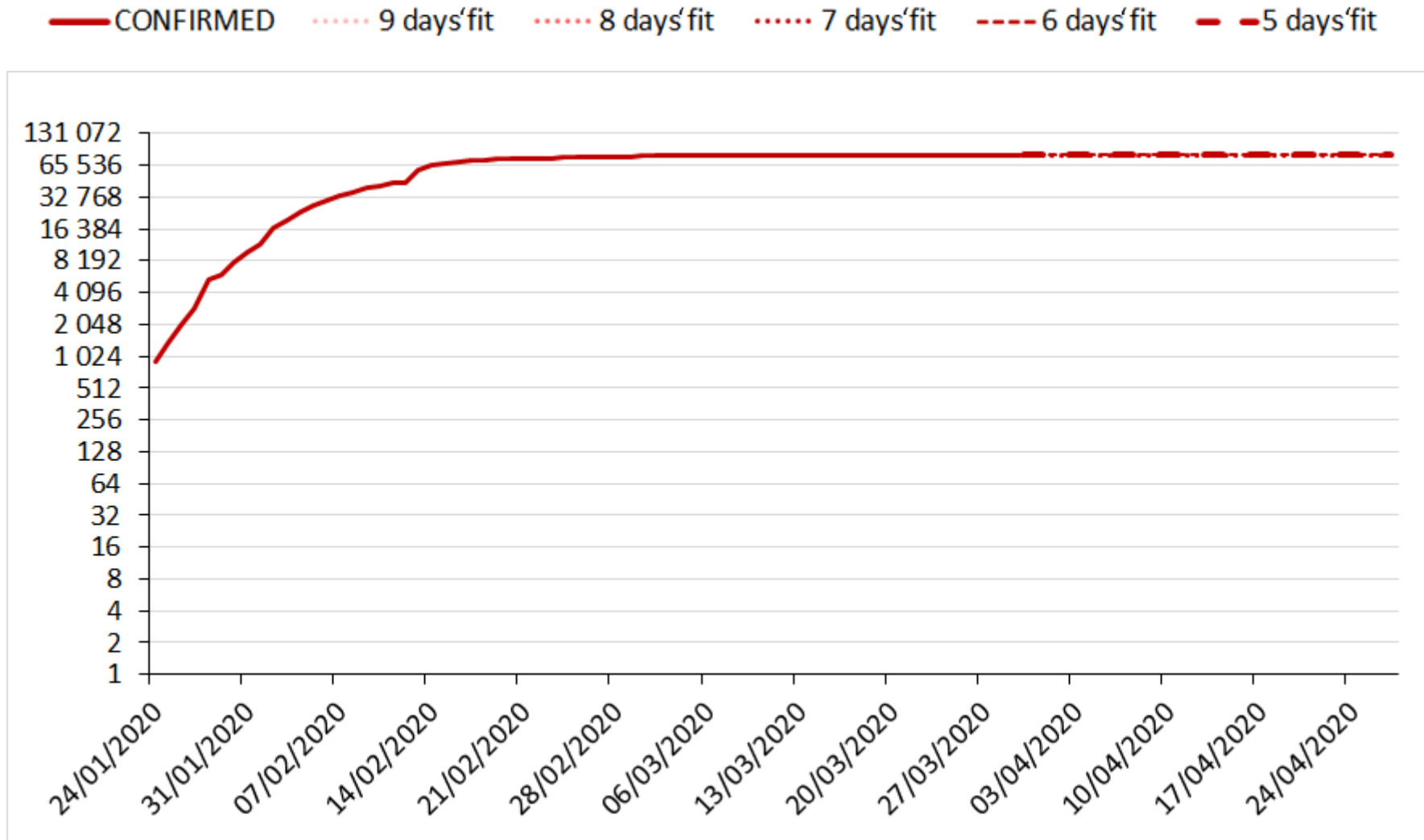
Data: The Johns Hopkins University, Politolog.com

# Chile



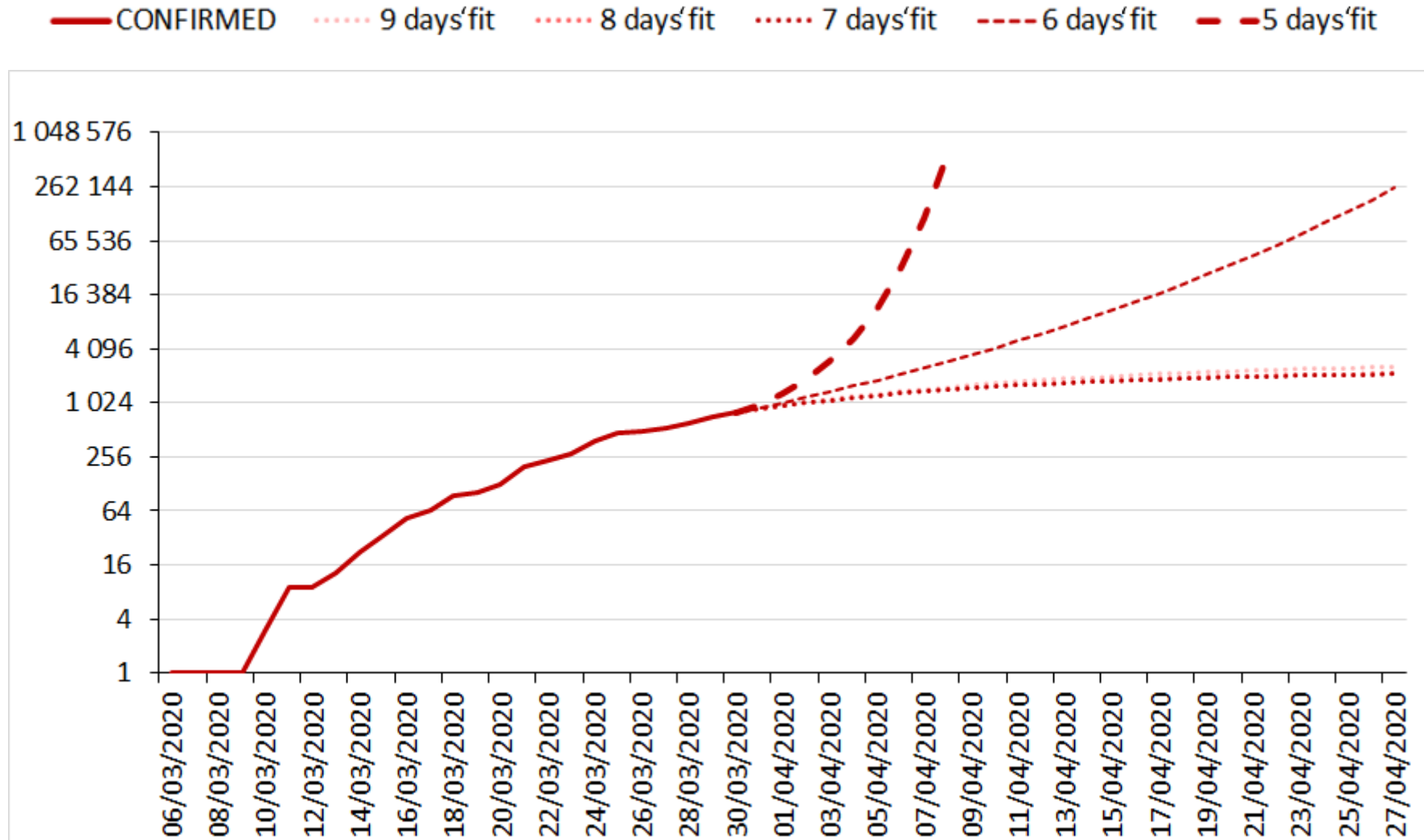
Data: The Johns Hopkins University, Politolog.com

# China



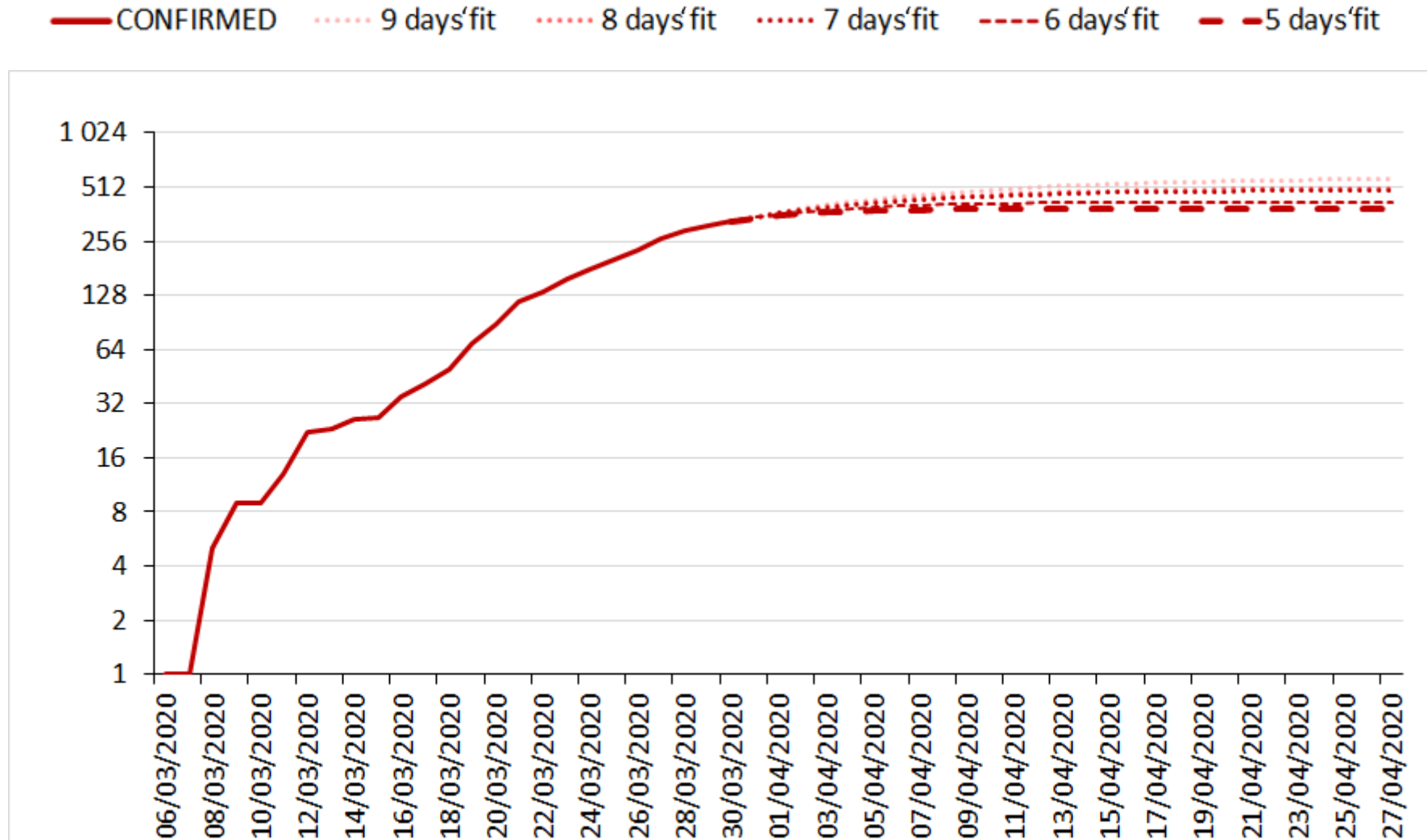
Data: The Johns Hopkins University, Politolog.com

# Colombia



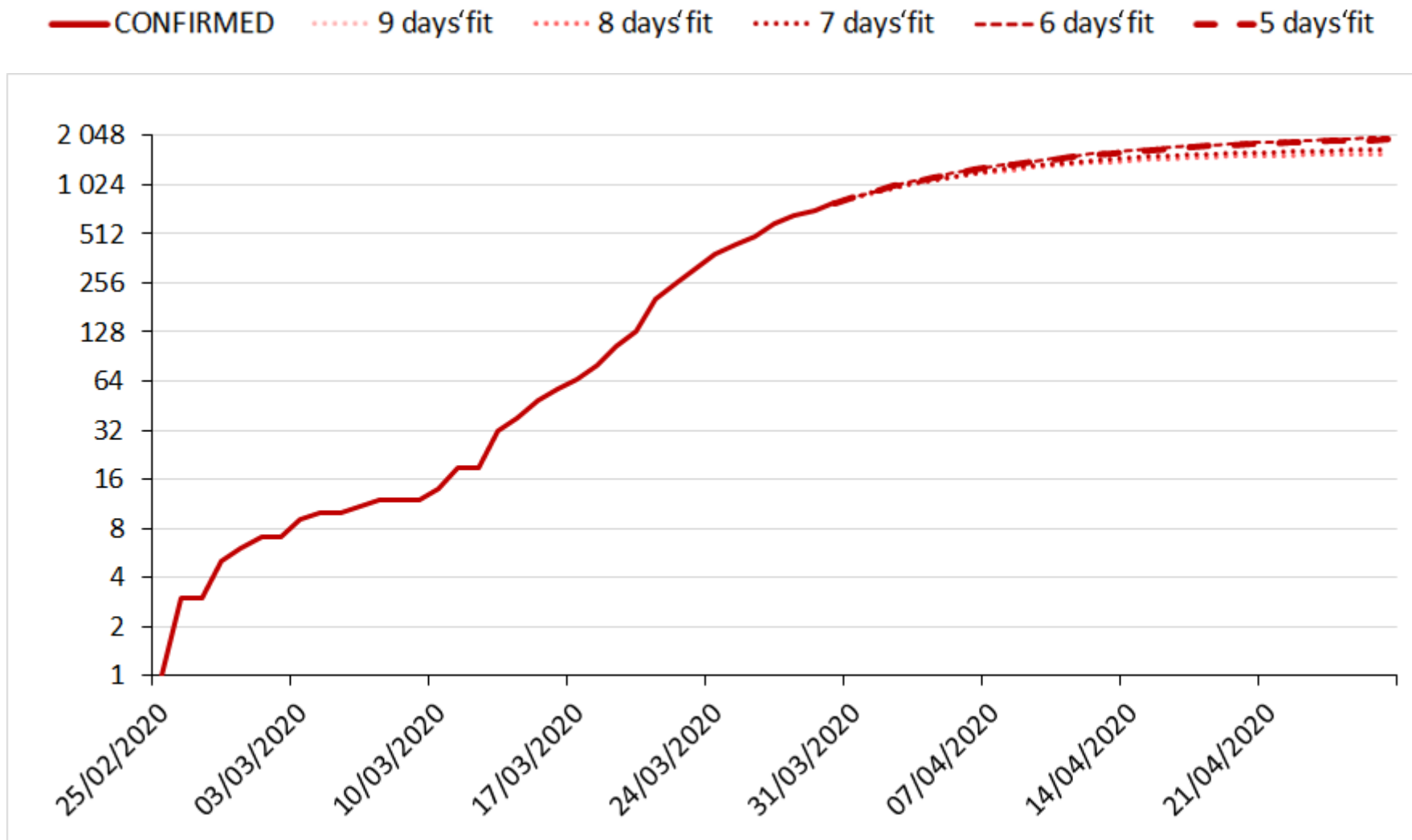
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# Costa Rica



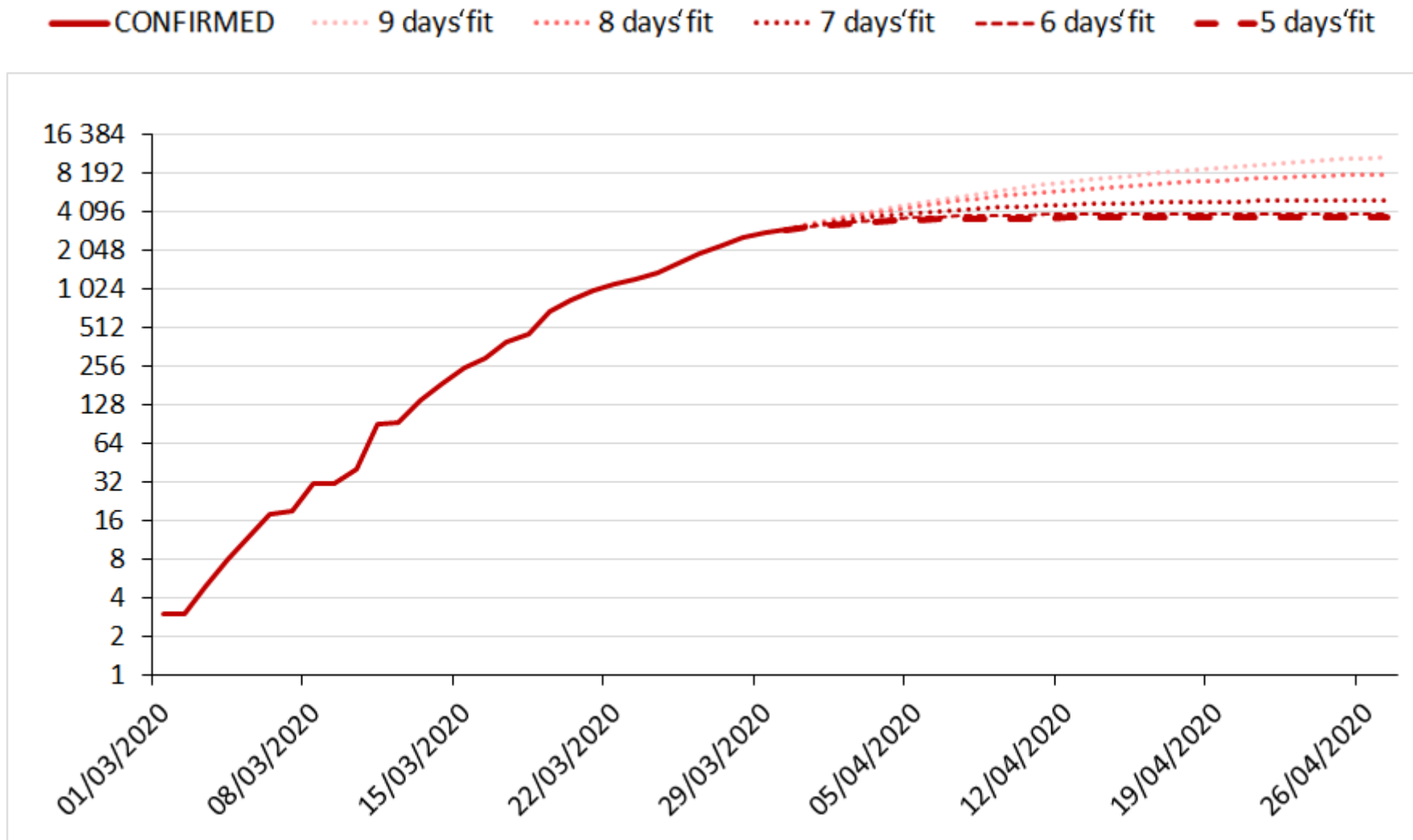
Data: The Johns Hopkins University, Politolog.com

# Croatia



Data: The Johns Hopkins University, Politolog.com

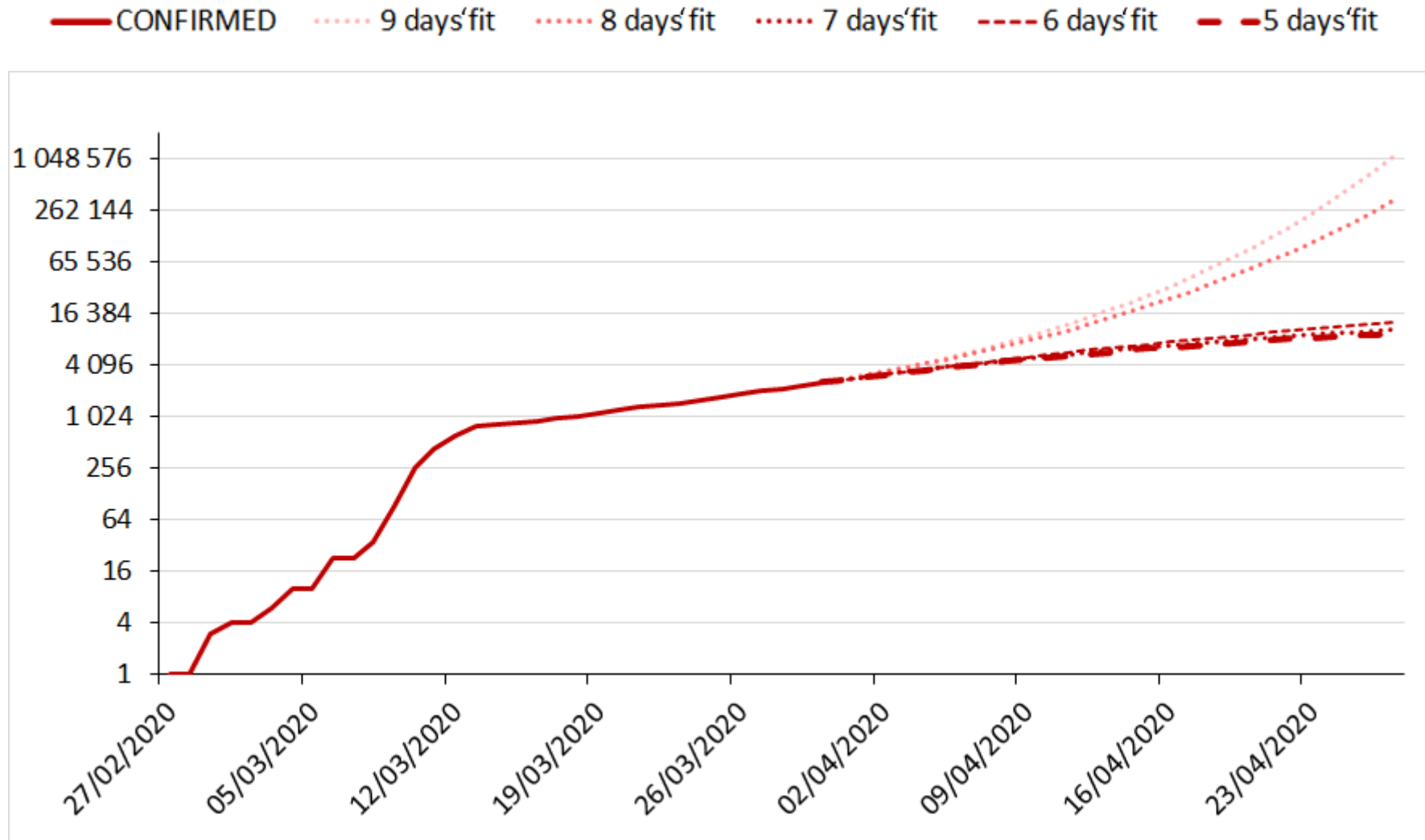
# Czech Republic



Data: The Johns Hopkins University, Politolog.com

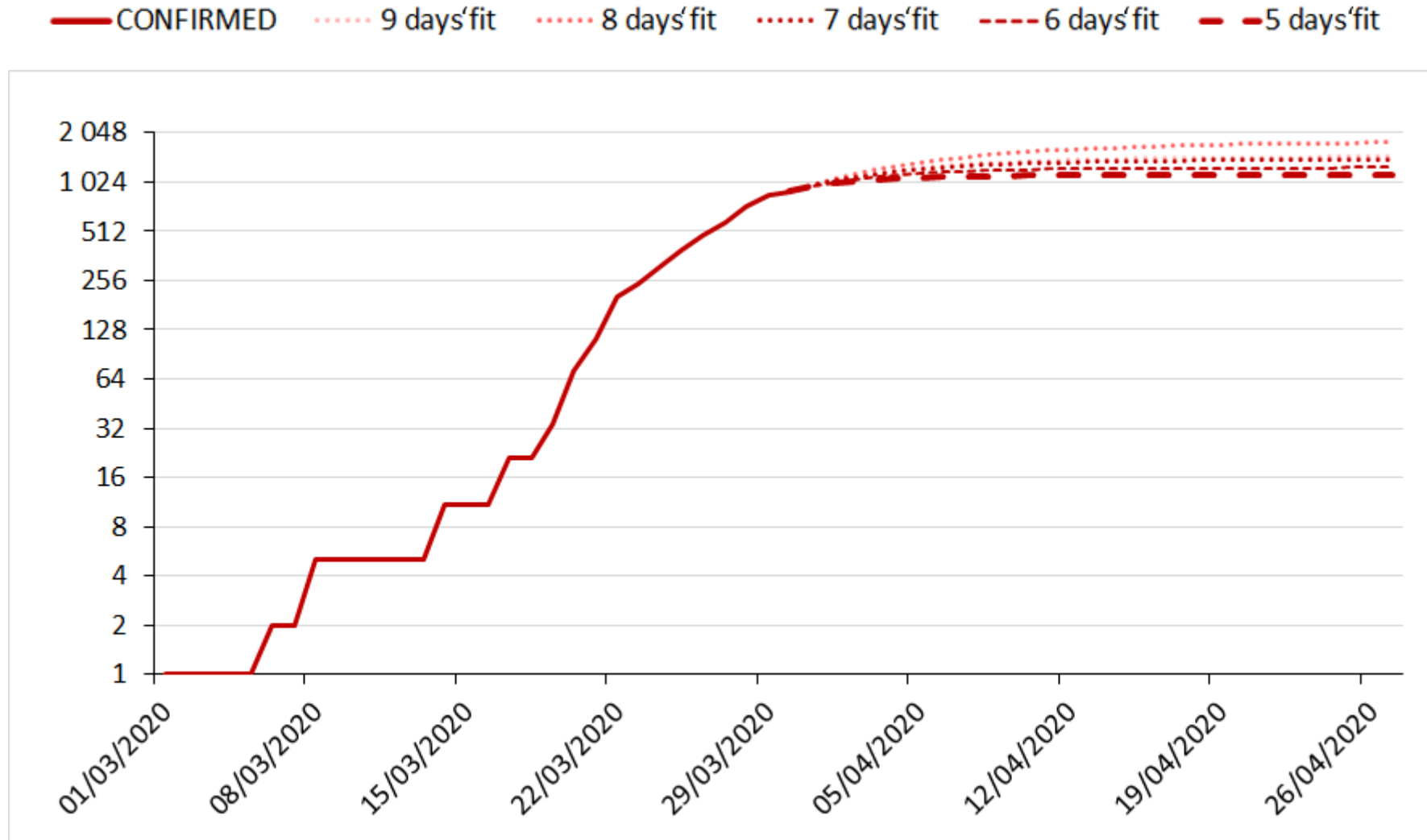


# Denmark



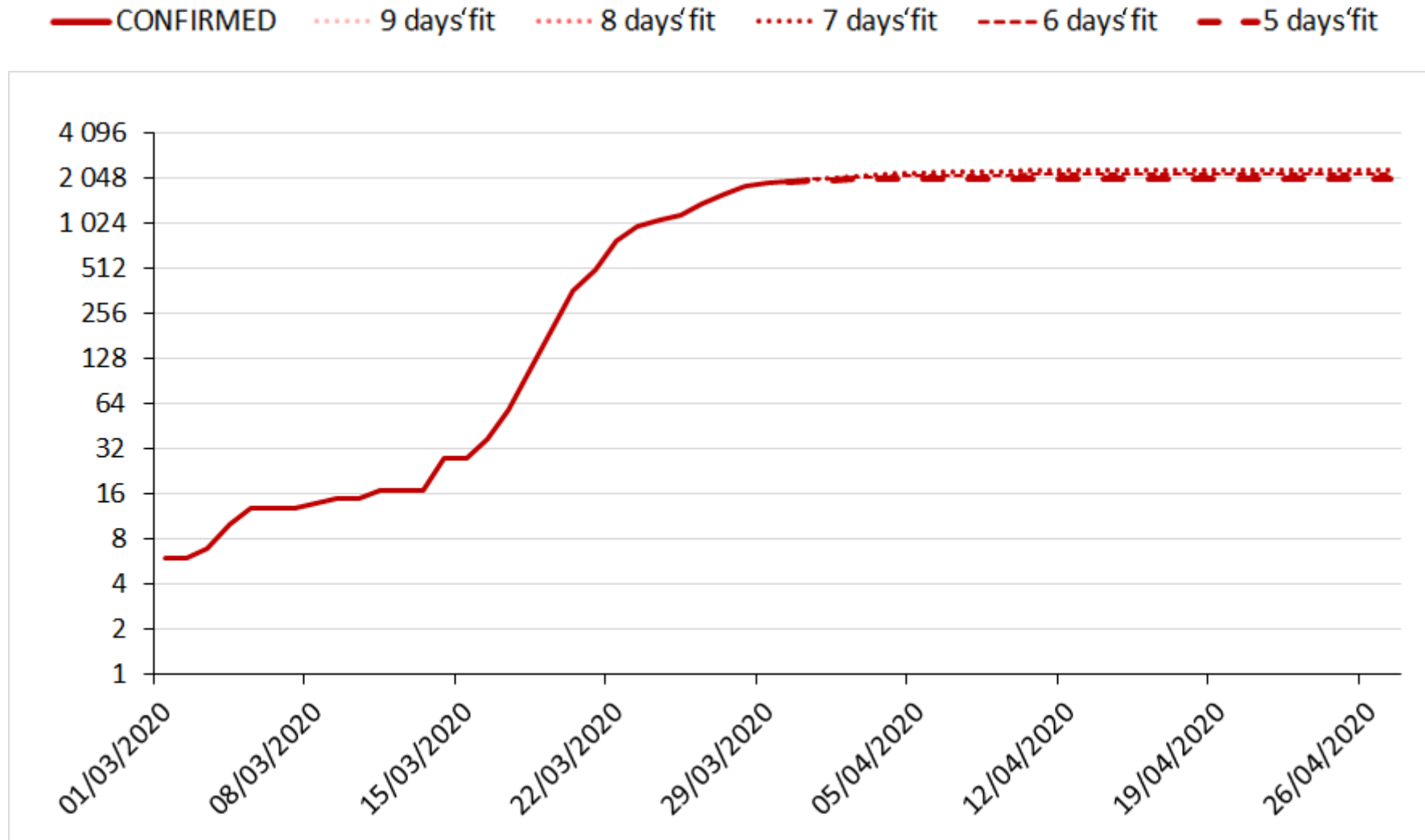
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# Dominican Republic



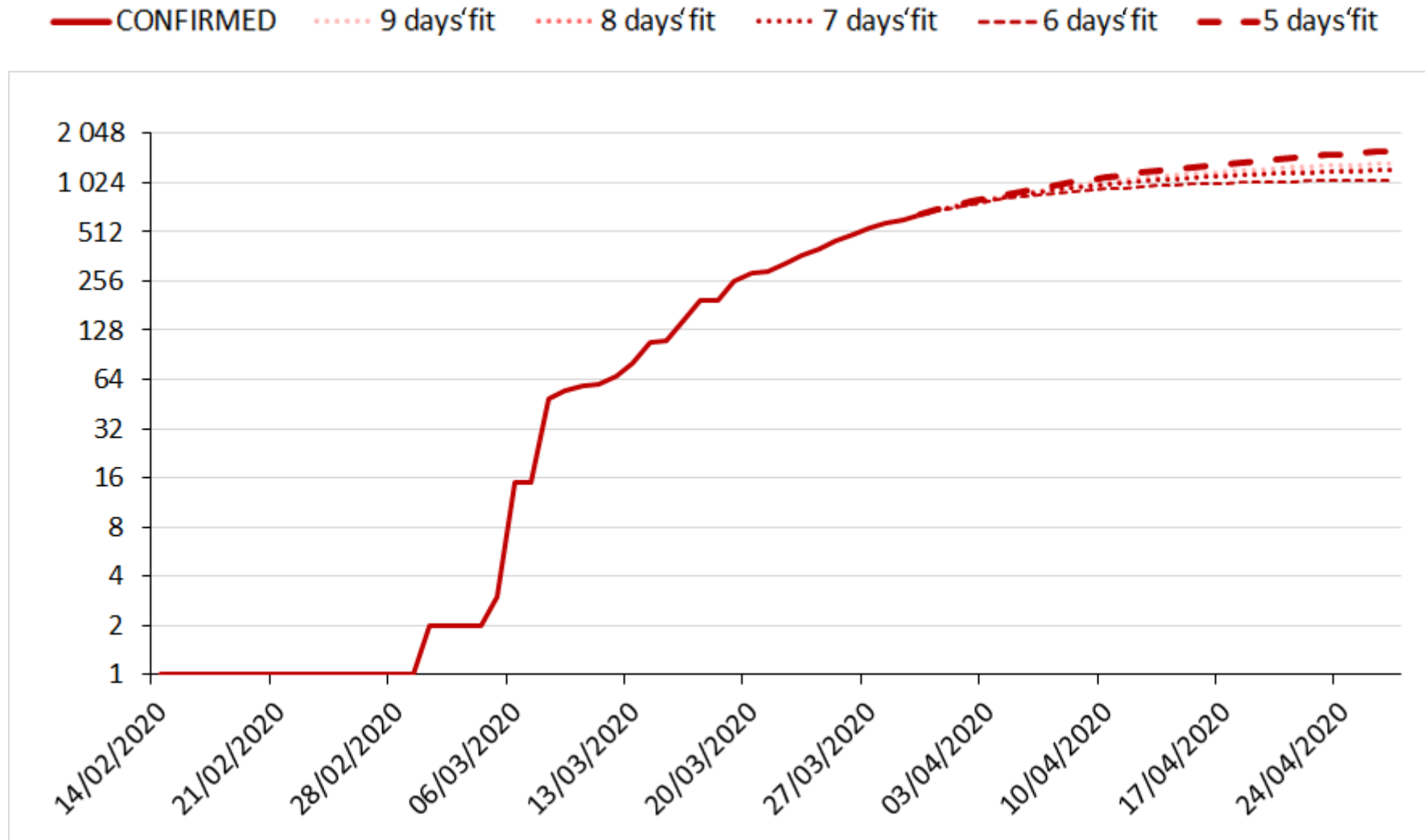
Data: The Johns Hopkins University, Politolog.com

# Ecuador



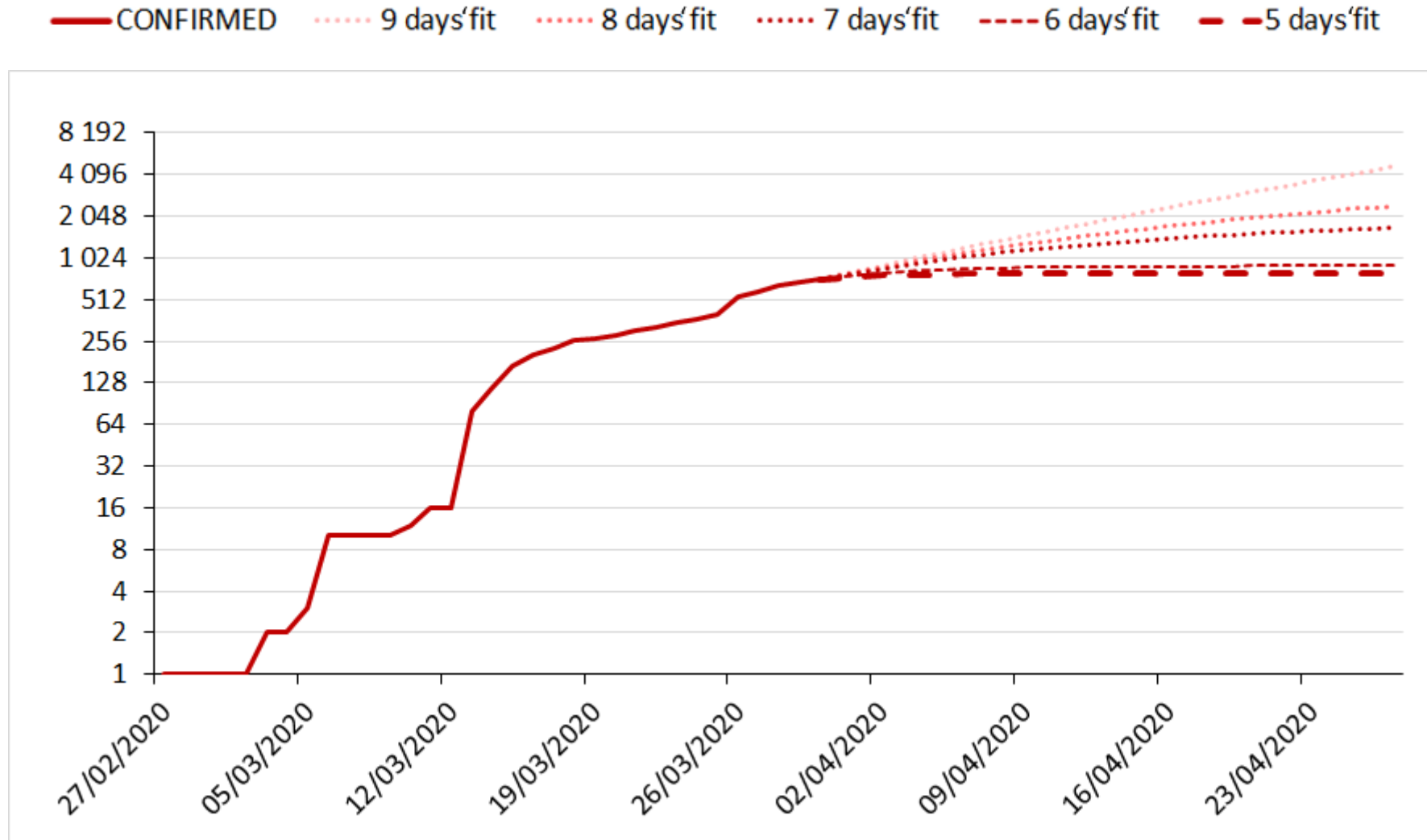
Data: The Johns Hopkins University, Politolog.com

# Egypt



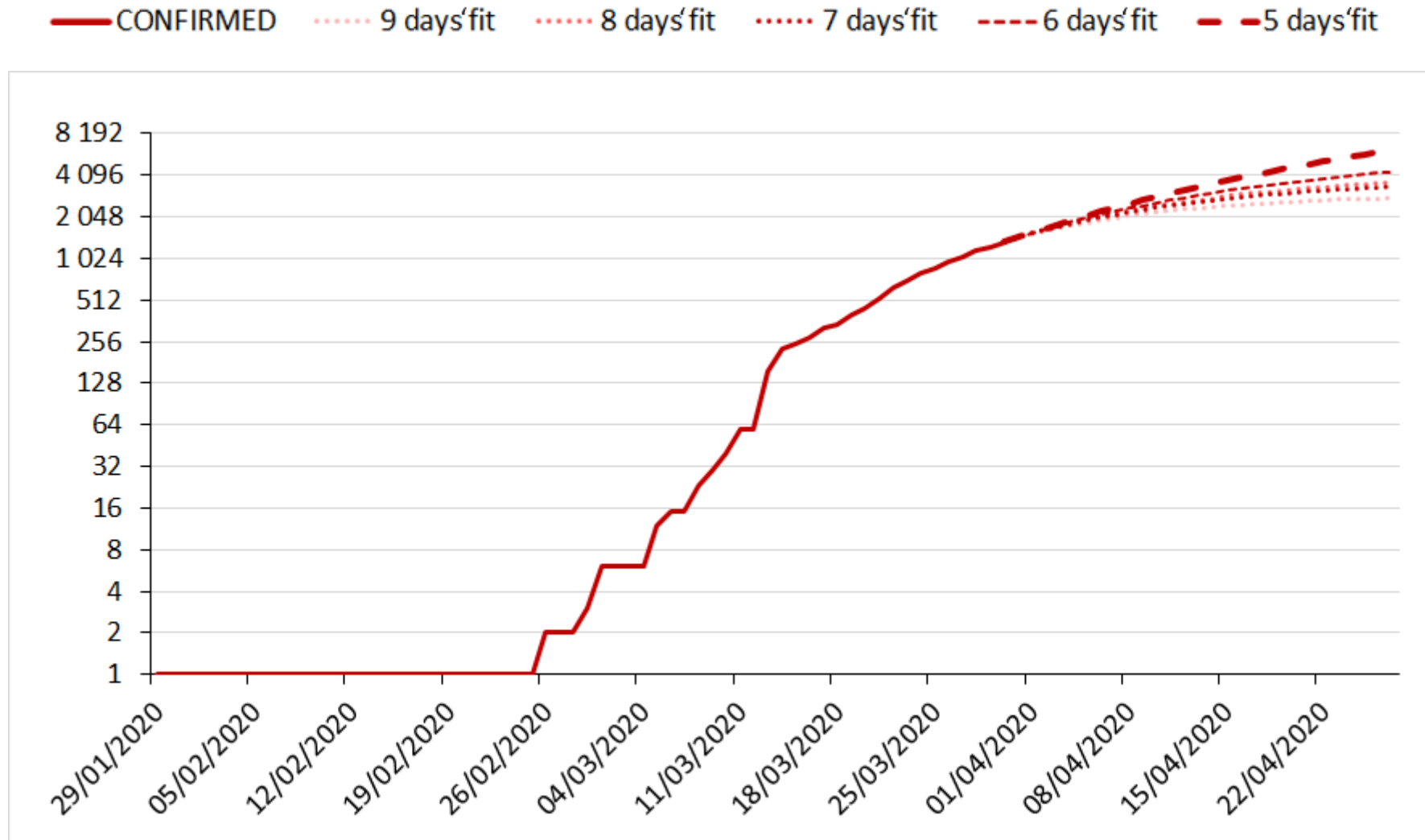
Data: The Johns Hopkins University, Politolog.com

# Estonia



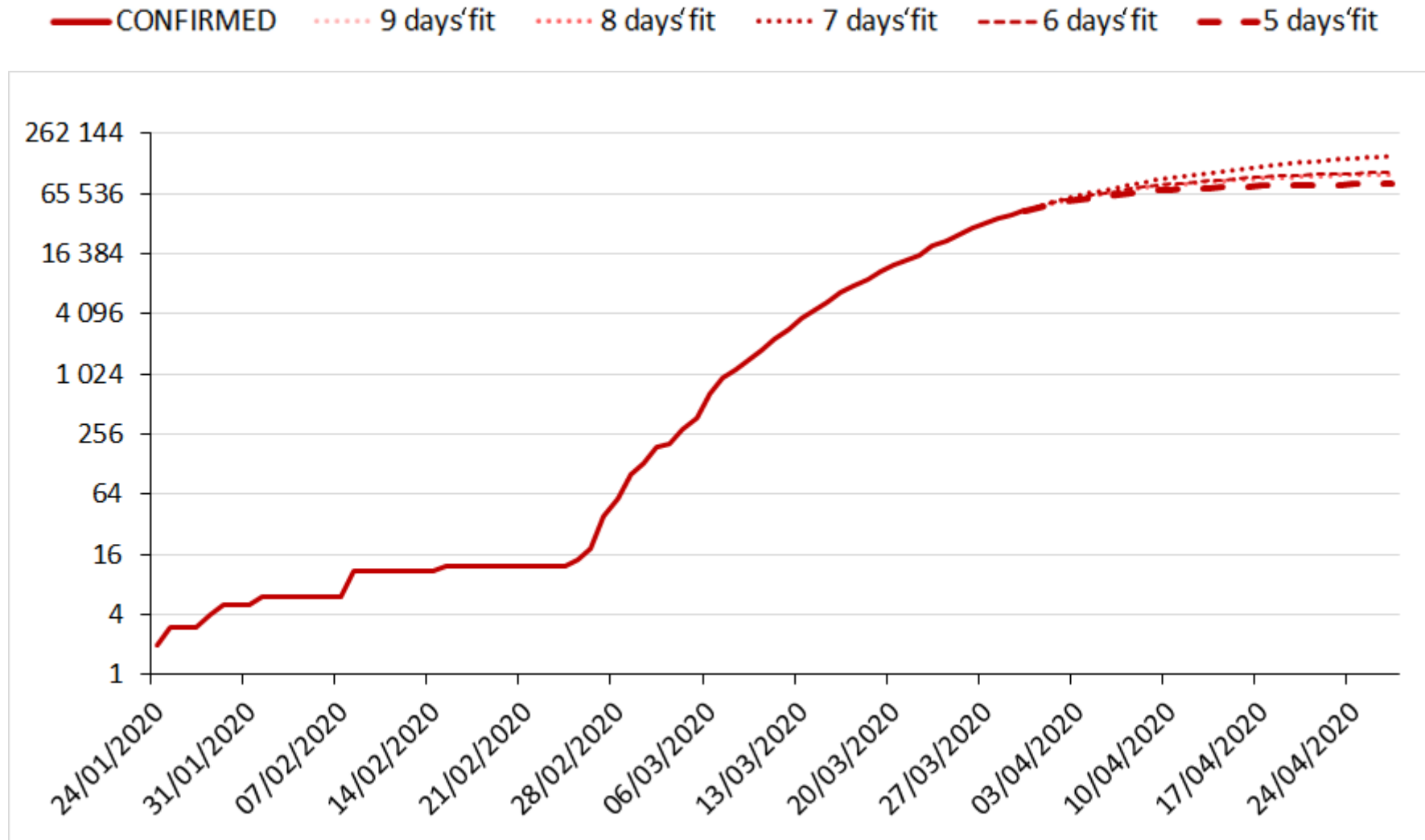
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# Finland



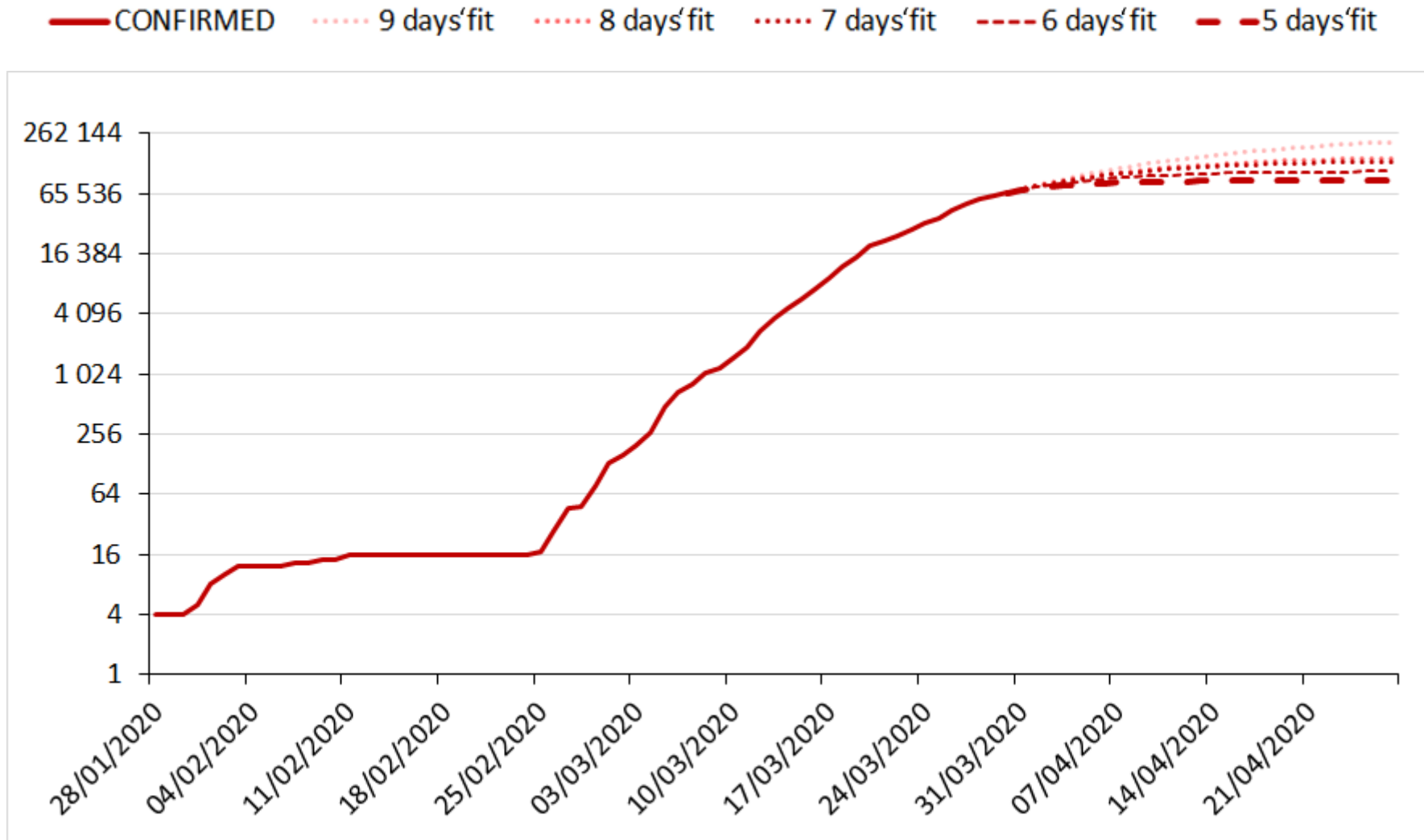
Data: The Johns Hopkins University, Politolog.com

# France



Data: The Johns Hopkins University, Politolog.com

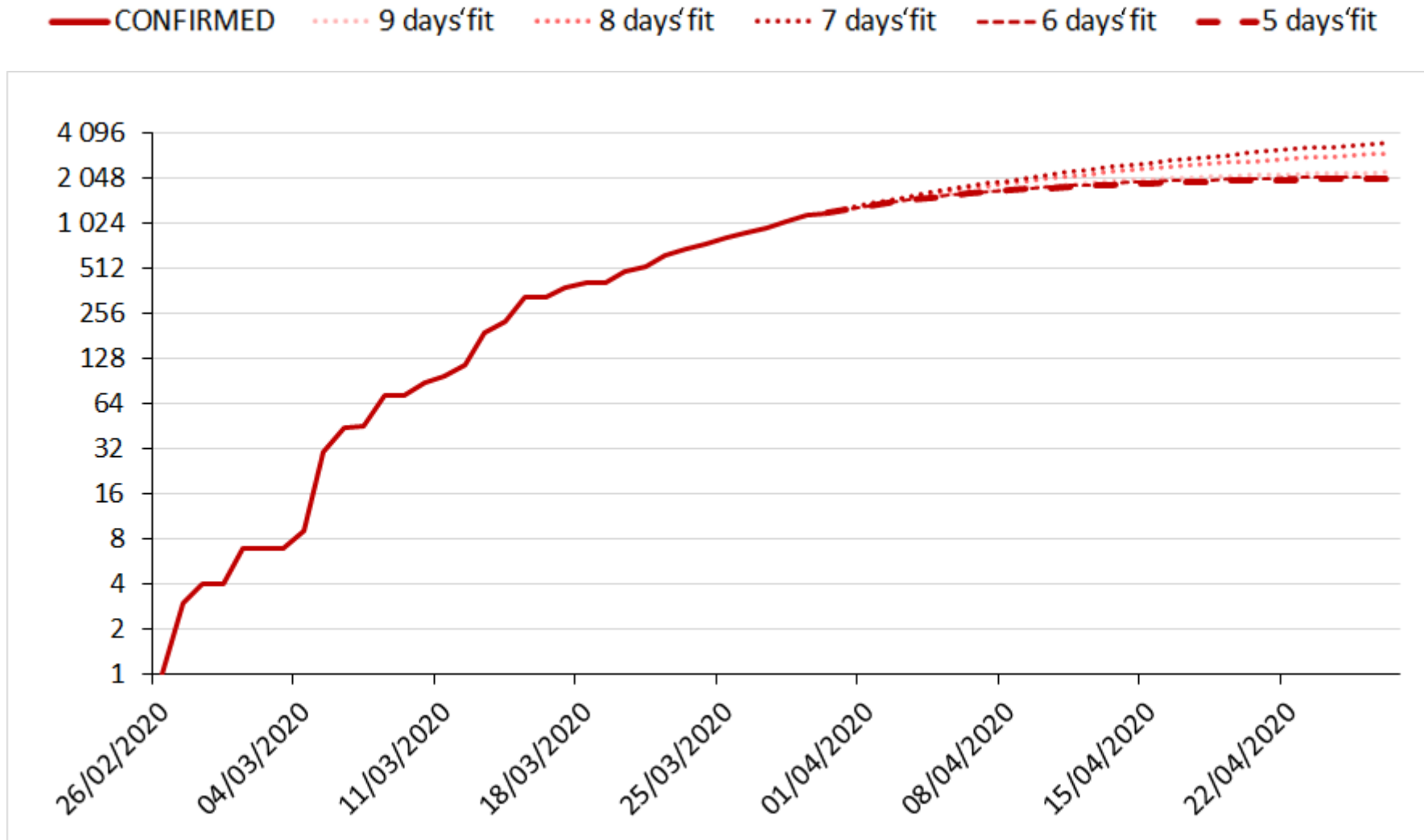
# Germany



Data: The Johns Hopkins University, Politolog.com

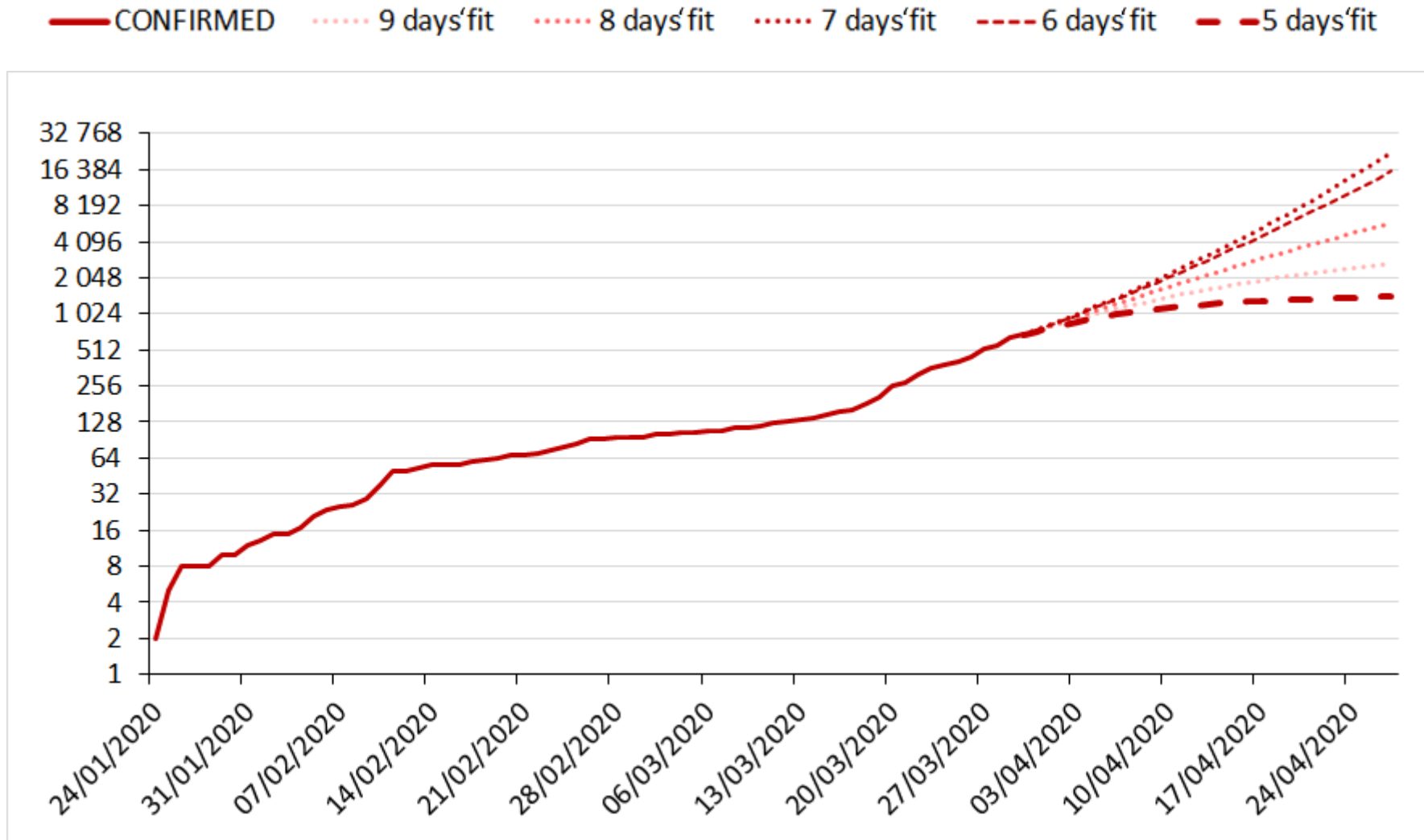


# Greece



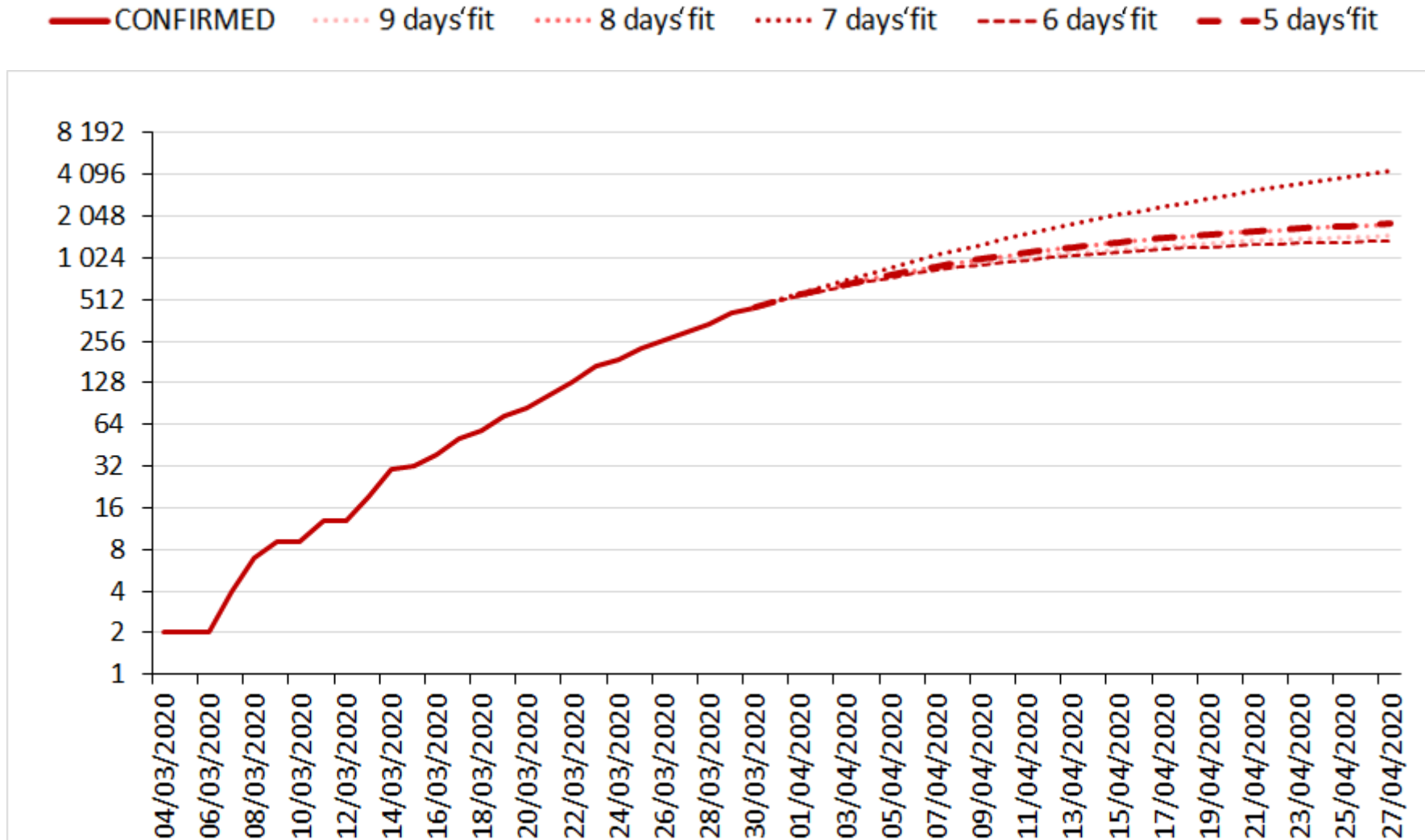
Data: The Johns Hopkins University, Politolog.com

# Hong Kong



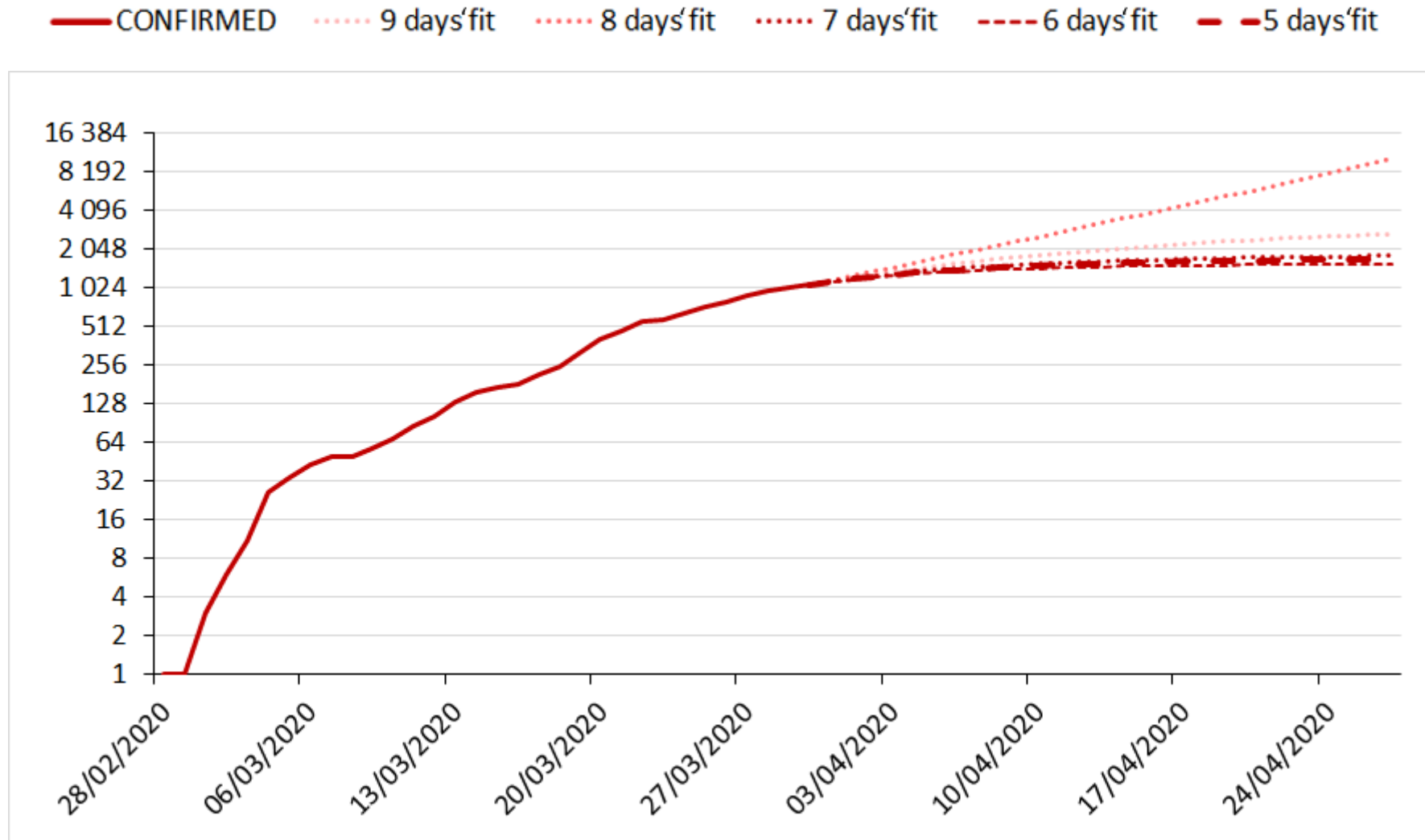
Data: The Johns Hopkins University, Politolog.com

# Hungary



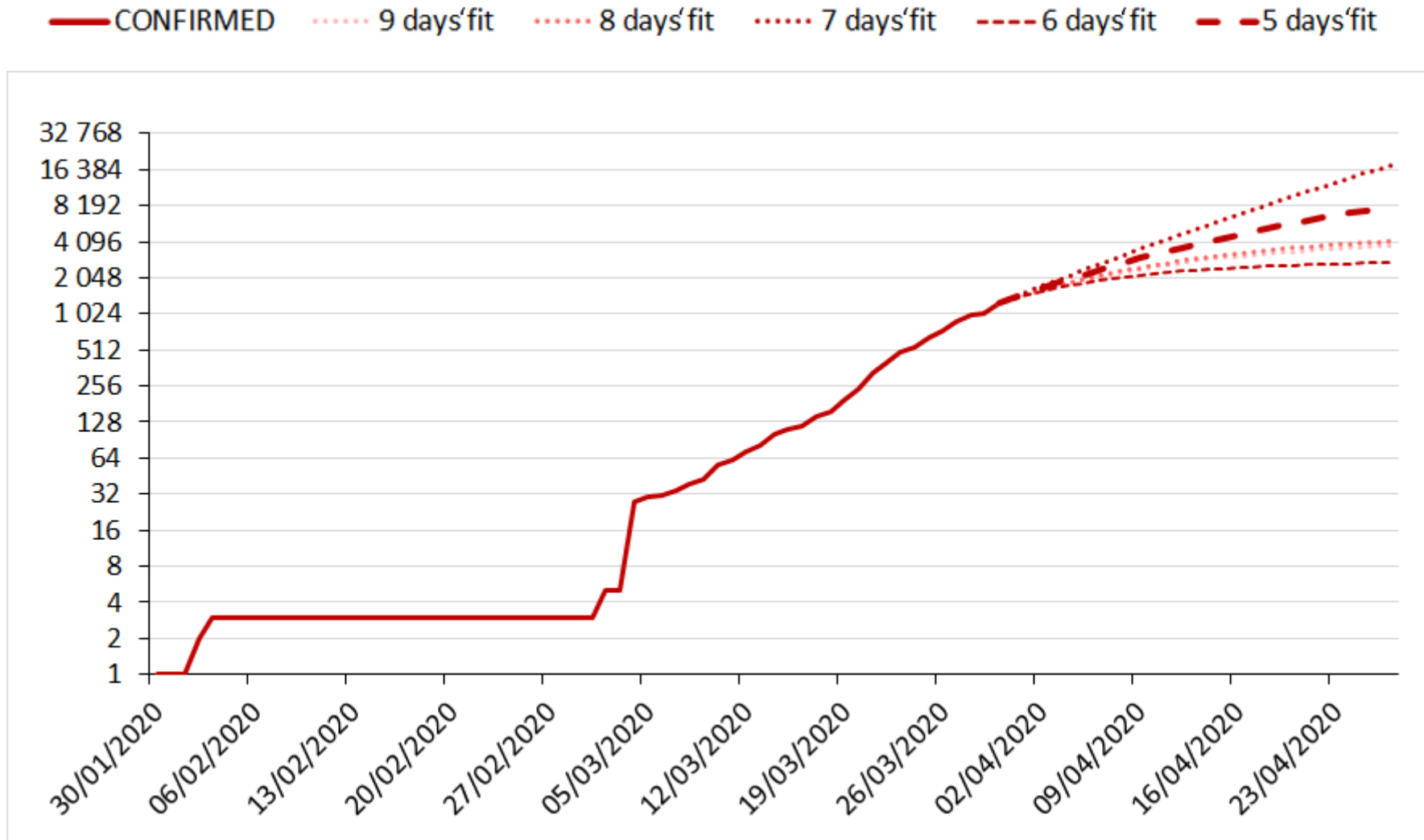
Data: The Johns Hopkins University, Politolog.com

# Iceland



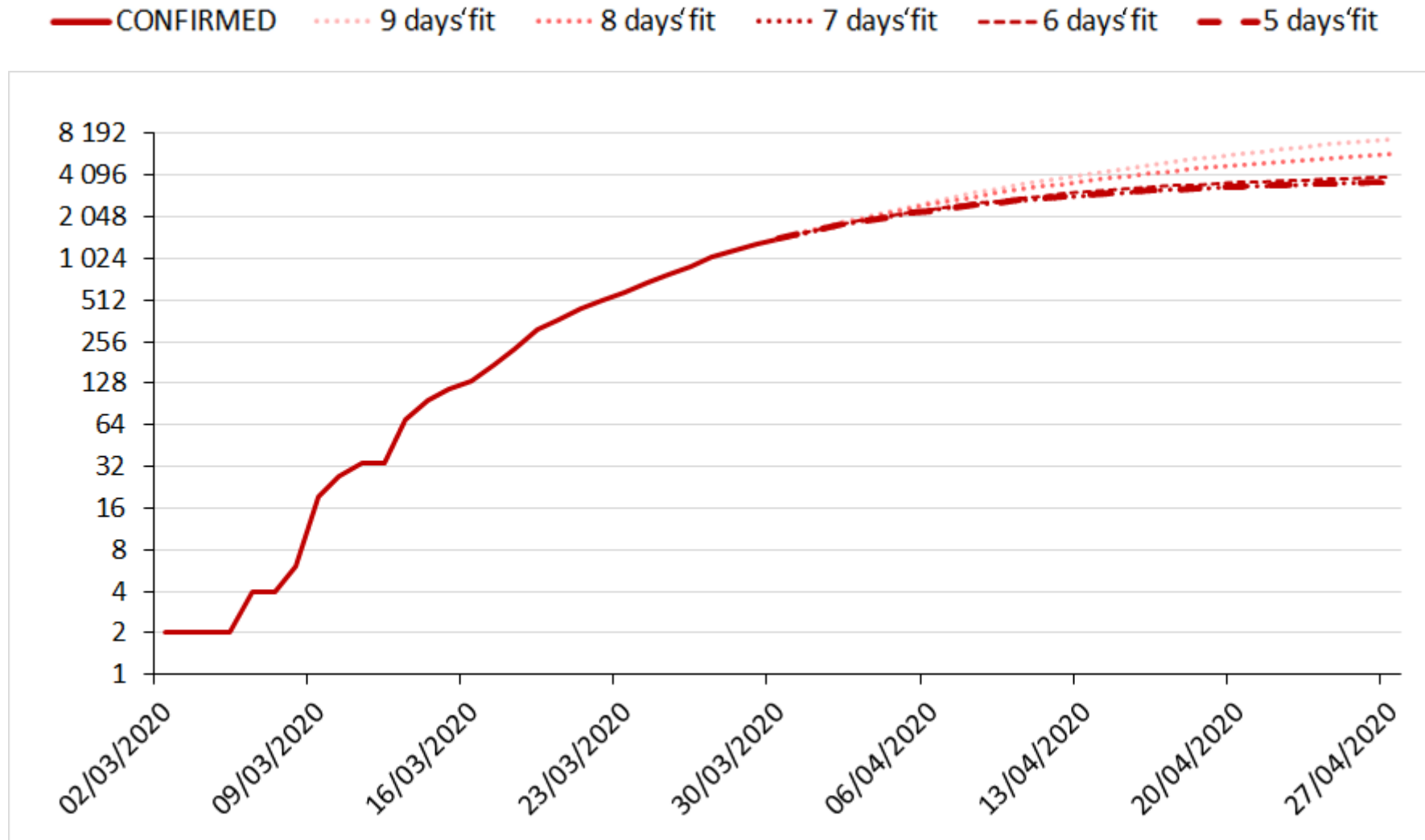
Data: The Johns Hopkins University, Politolog.com

# India



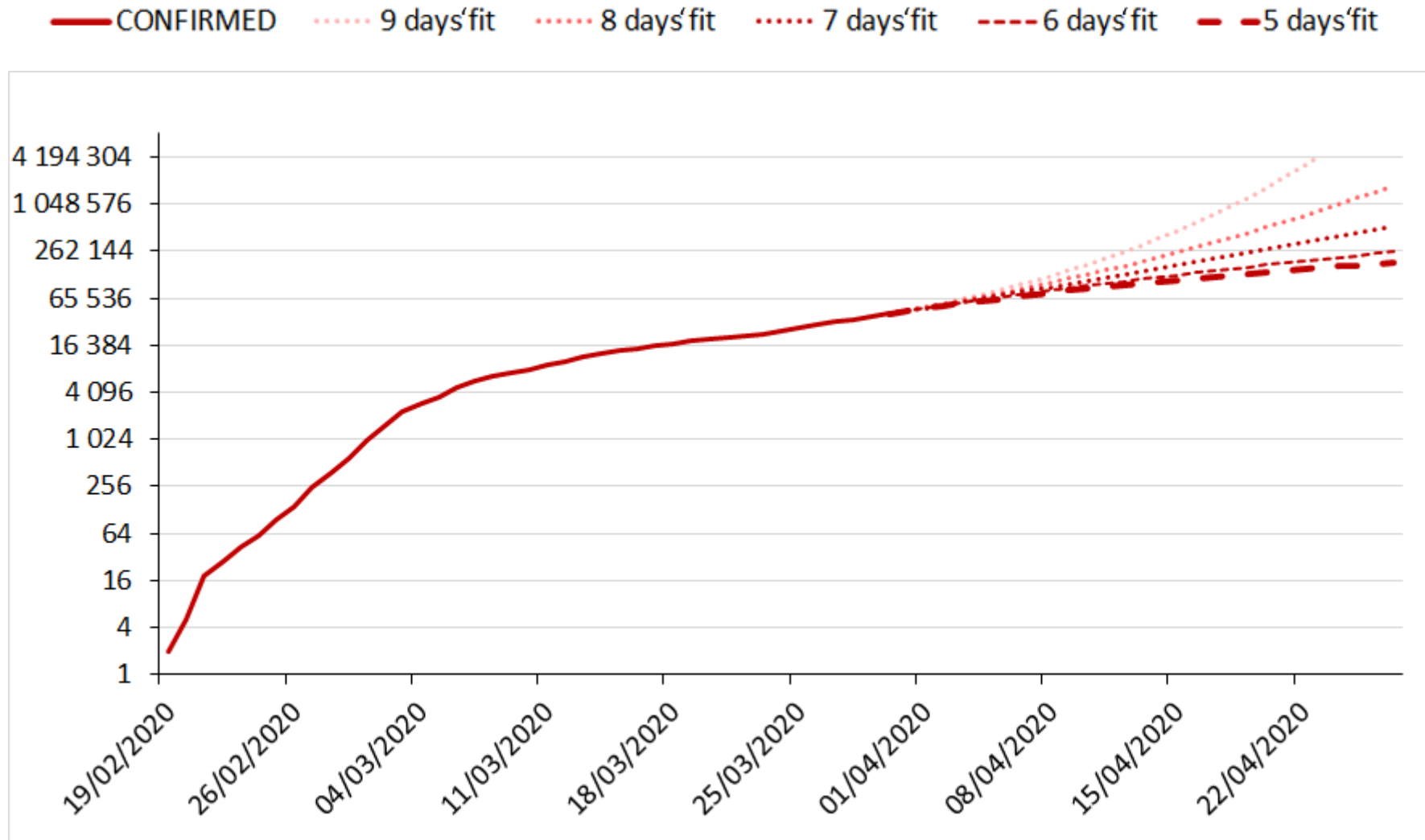
Data: The Johns Hopkins University, Politolog.com

# Indonesia



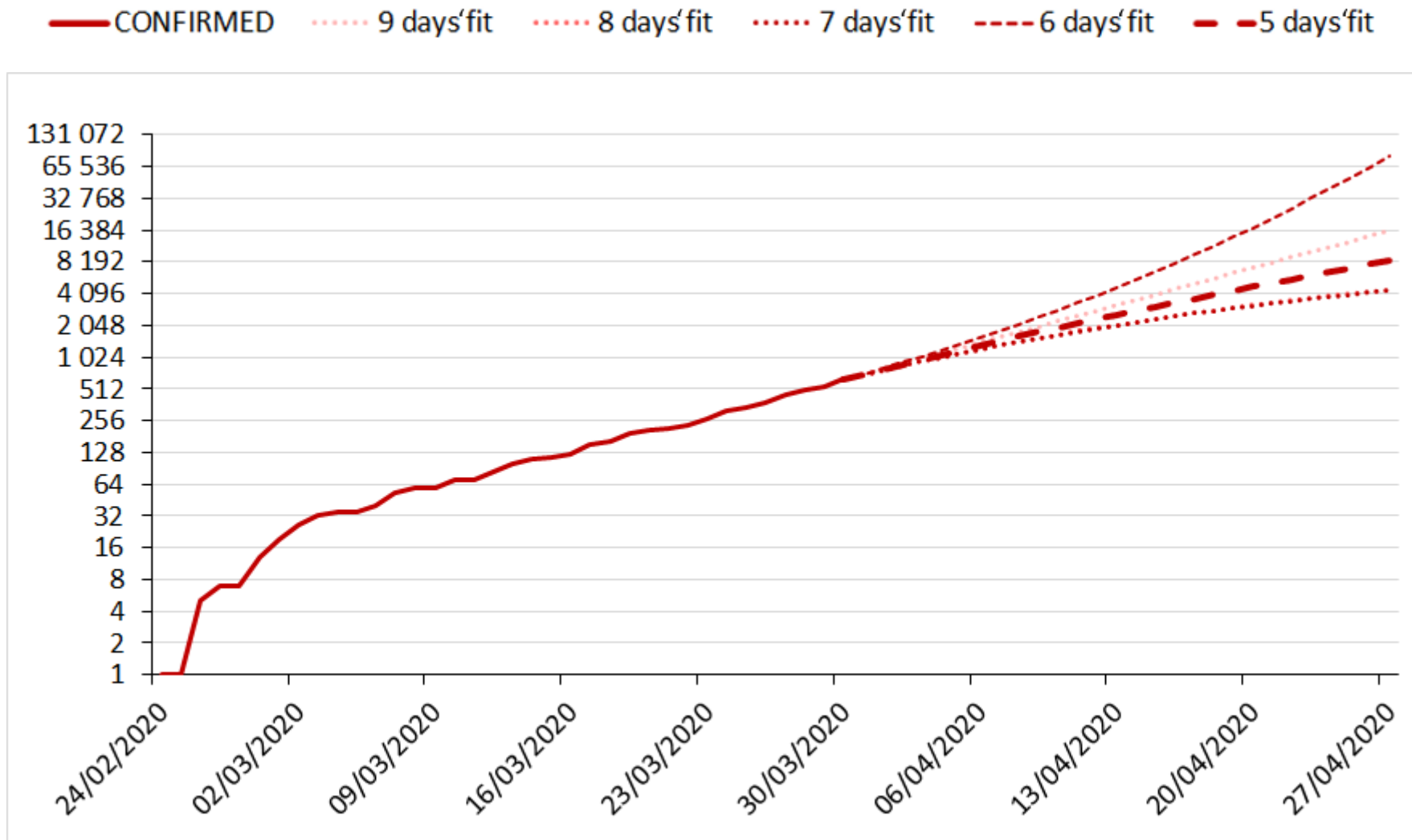
Data: The Johns Hopkins University, Politolog.com

# Iran



Data: The Johns Hopkins University, Politolog.com

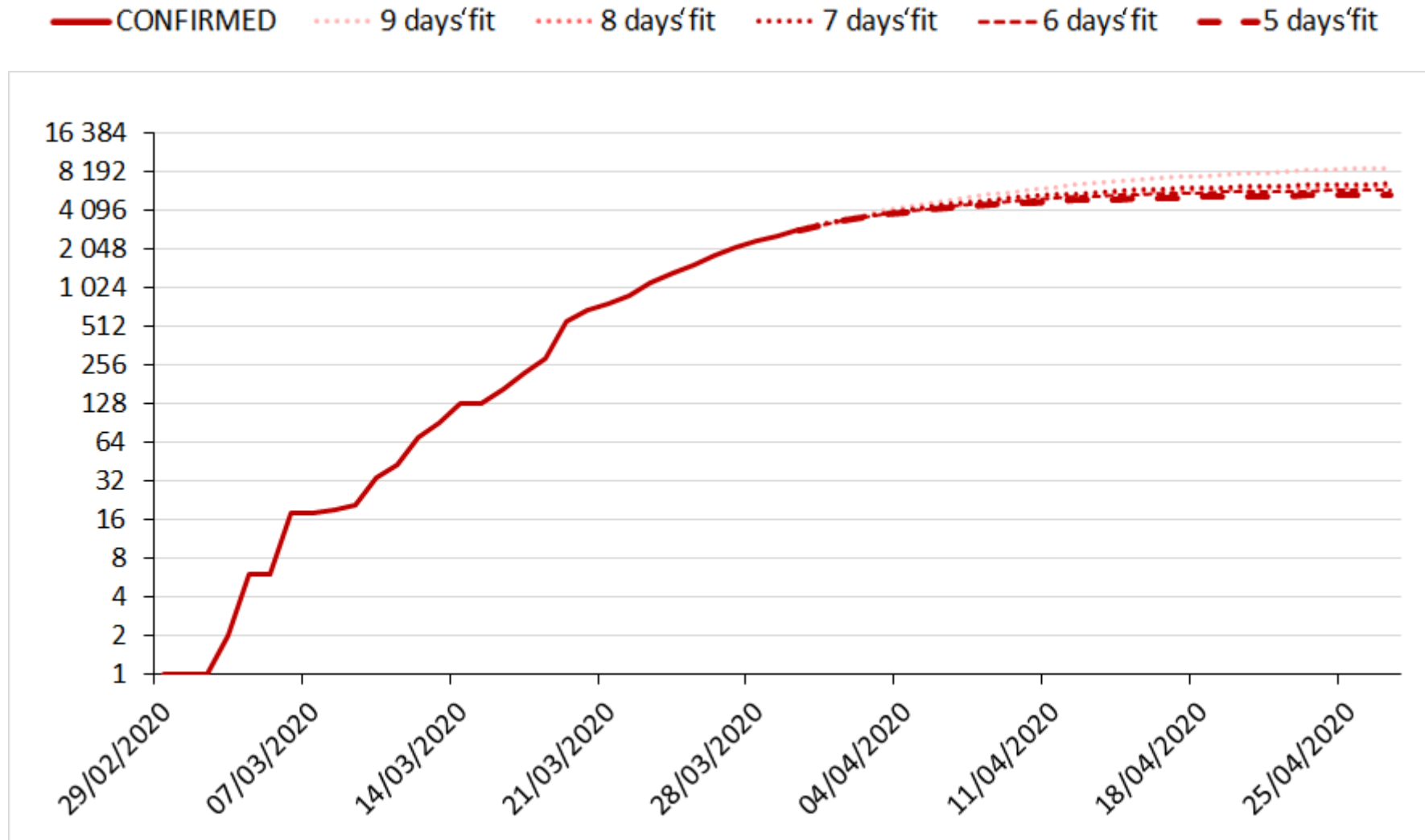
# Iraq



Data: The Johns Hopkins University, Politolog.com

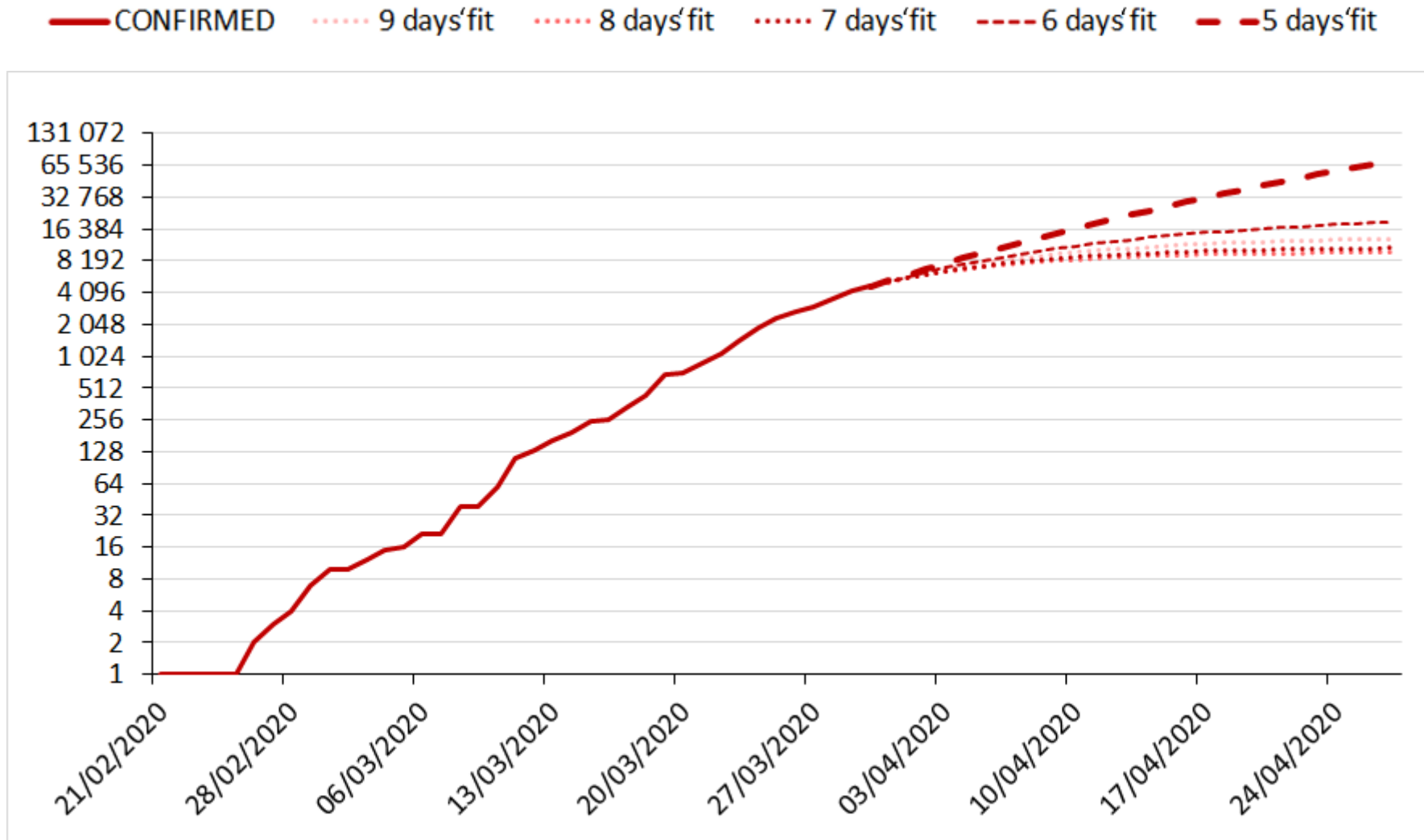


# Ireland



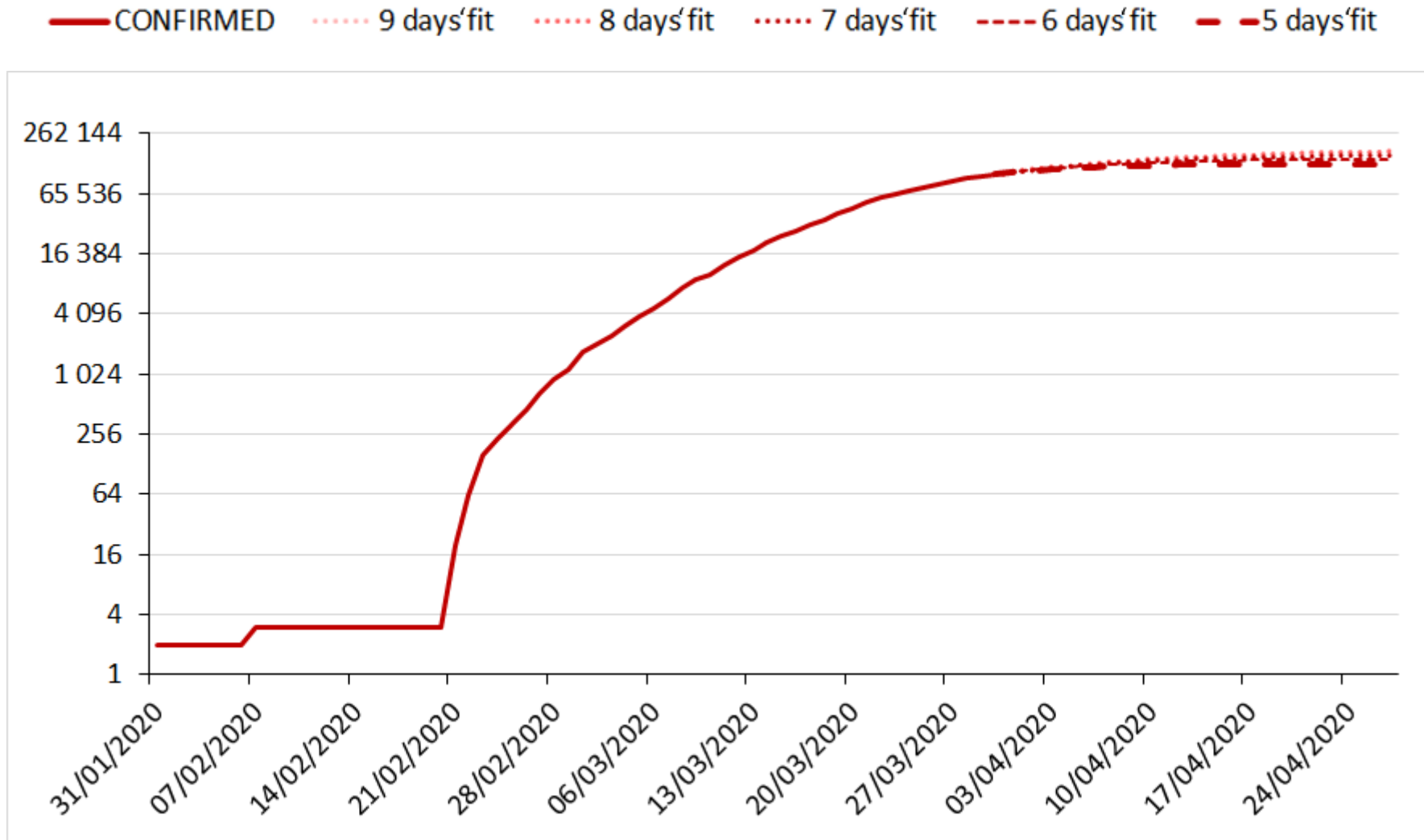
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# Israel



Data: The Johns Hopkins University, Politolog.com

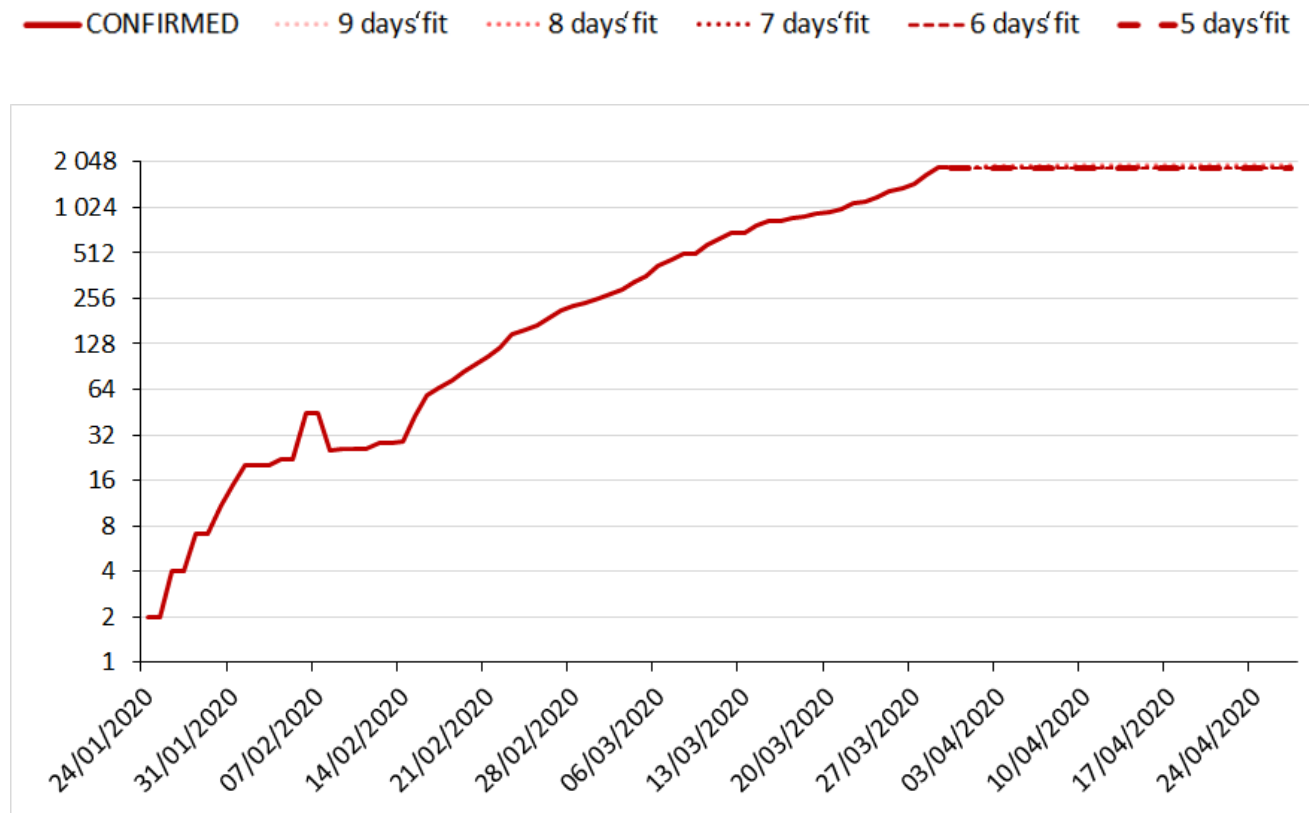
# Italy



Data: The Johns Hopkins University, Politolog.com

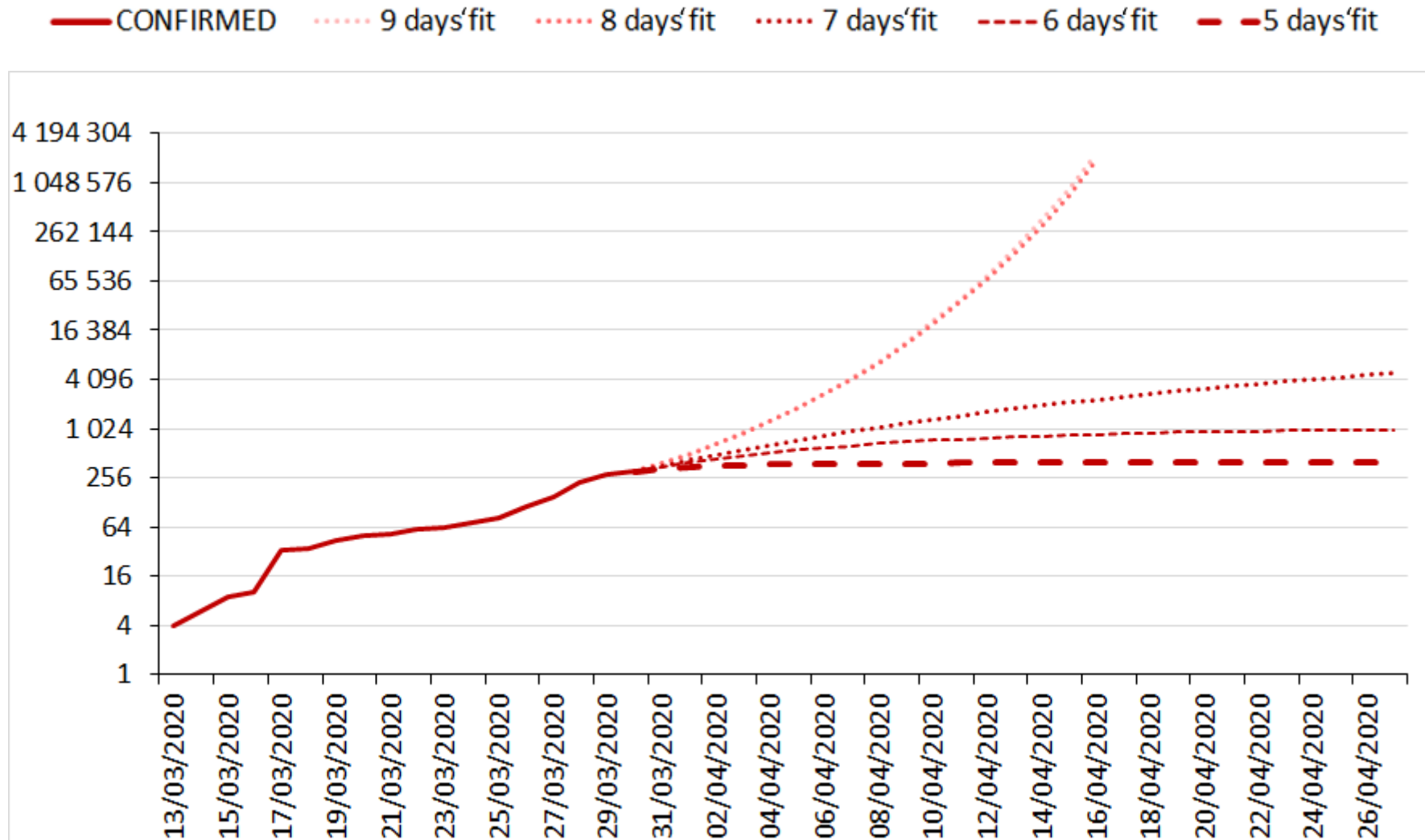
# Japan

Japan reported no new case on the 30<sup>th</sup> of March, which might be a data error. The fits are therefore probably misleading



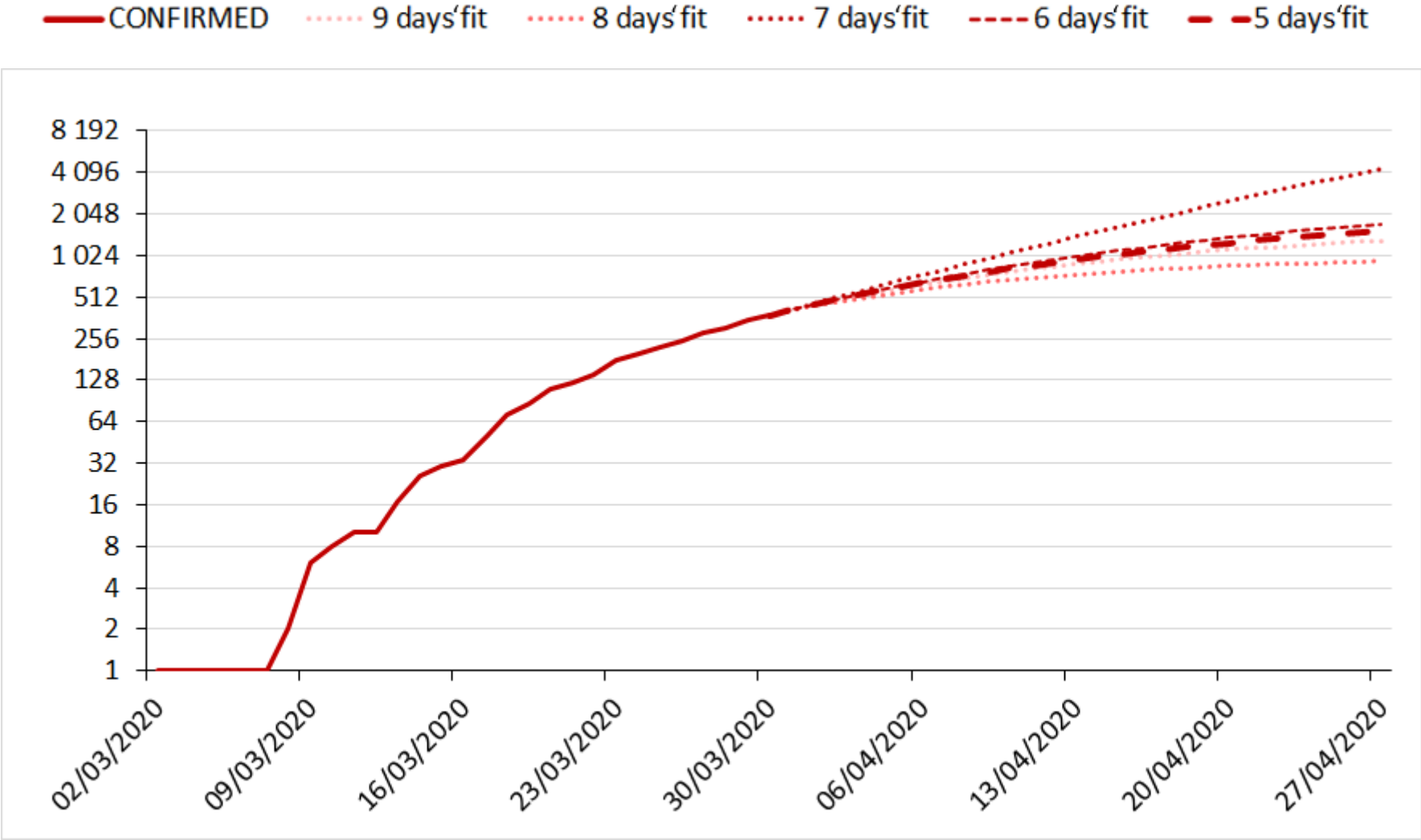
Data: The Johns Hopkins University, Politolog.com

# Kazakhstan



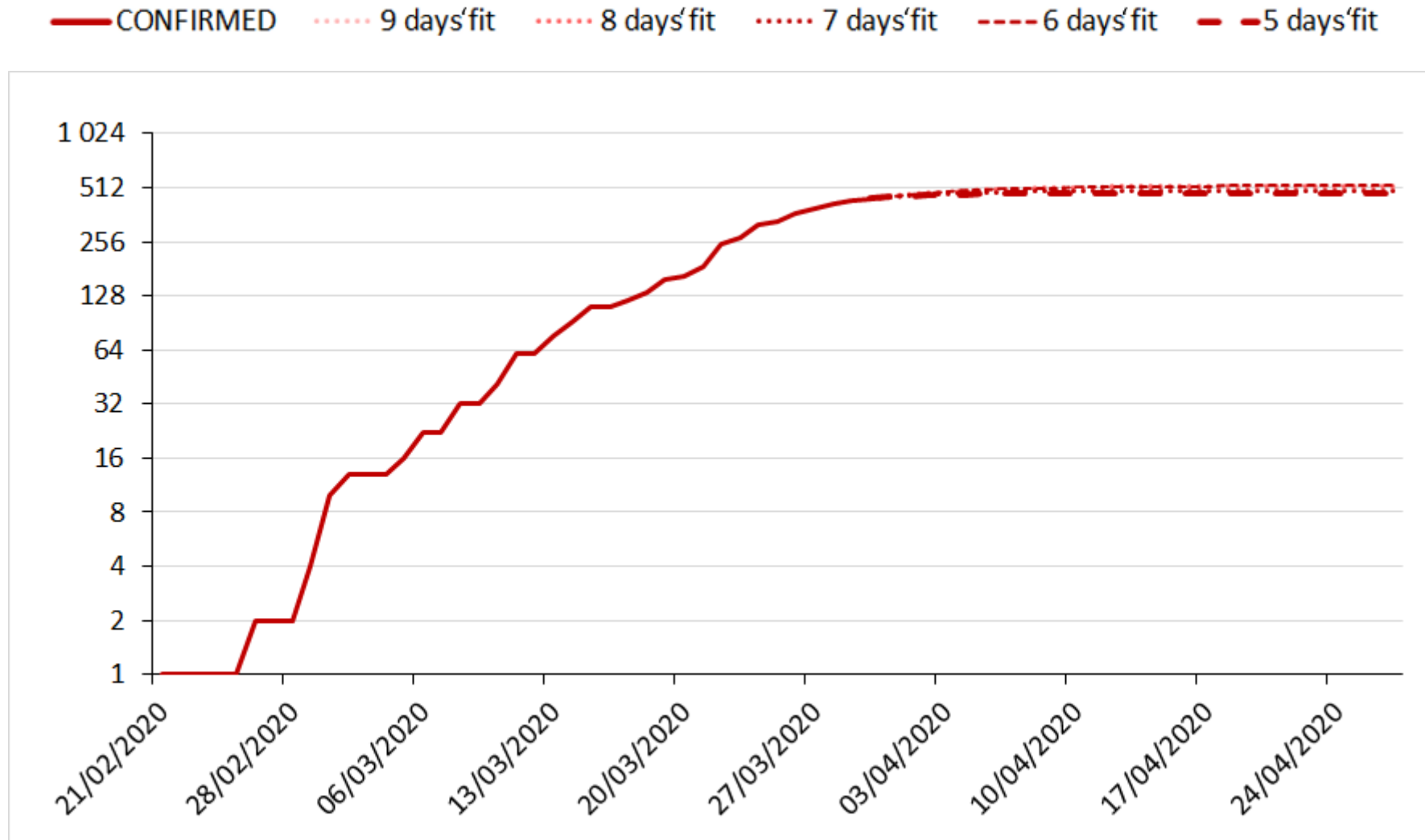
Data: The Johns Hopkins University, Politolog.com

# Latvia



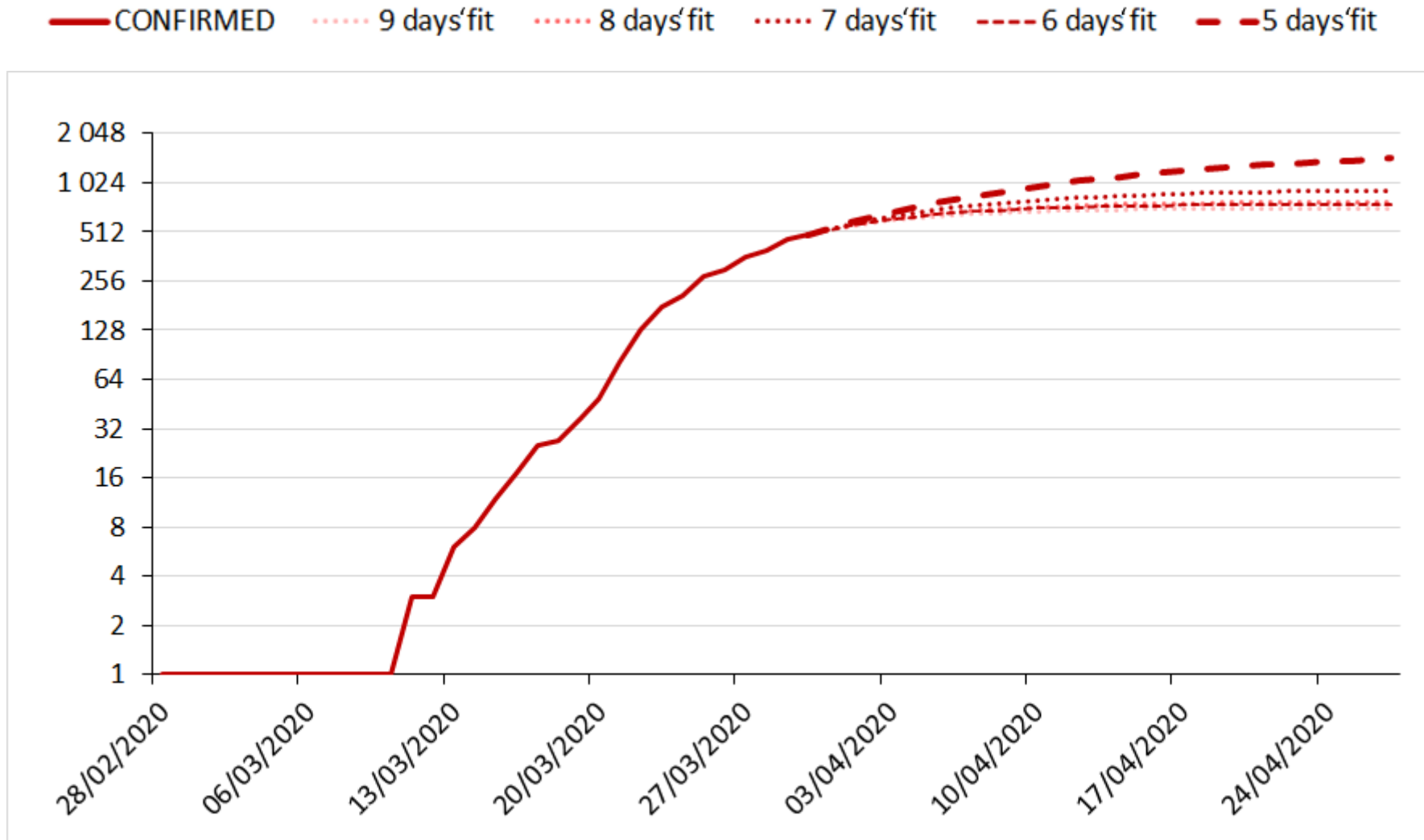
Data: The Johns Hopkins University, Politolog.com

# Lebanon



Data: The Johns Hopkins University, Politolog.com

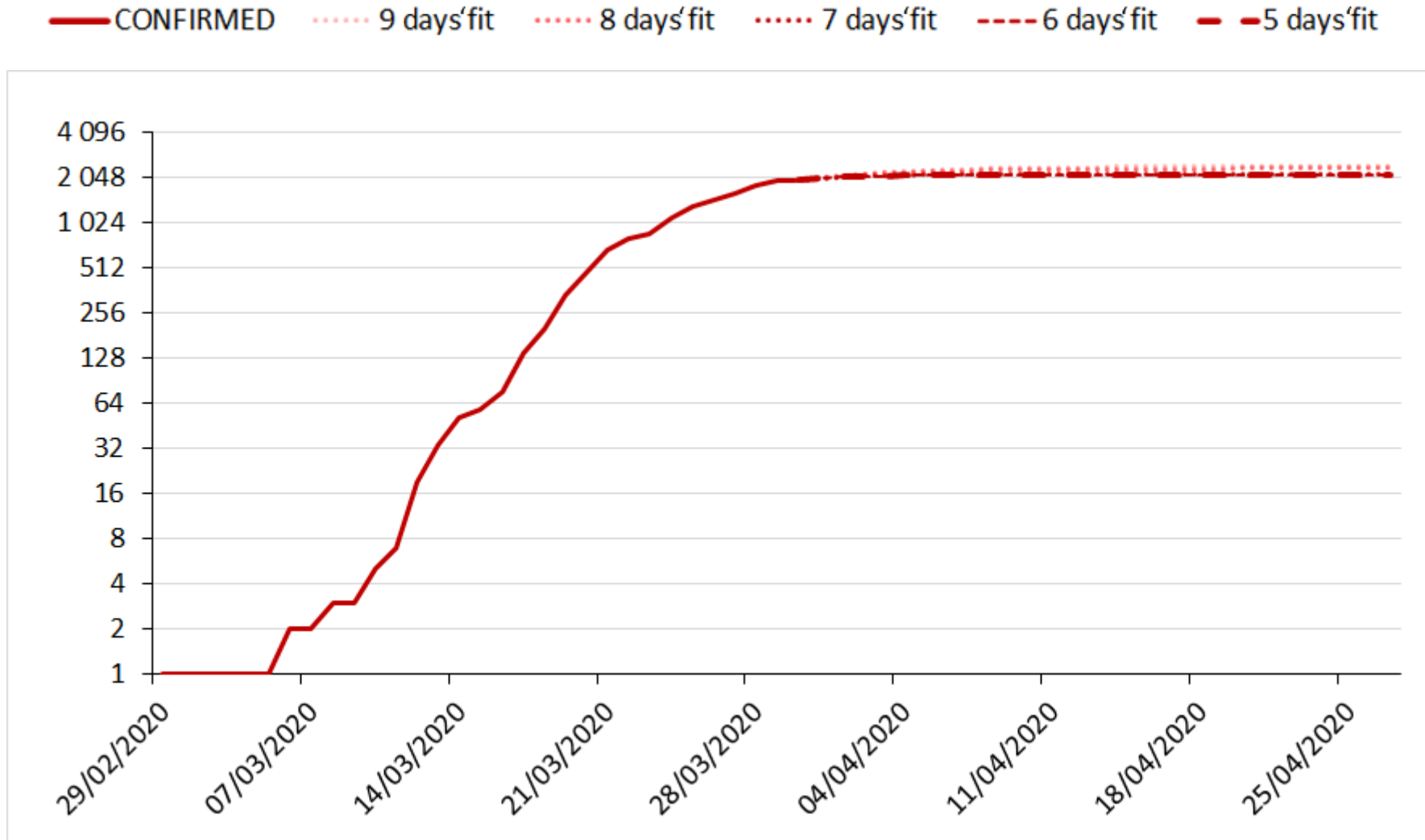
# Lithuania



Data: The Johns Hopkins University, Politolog.com

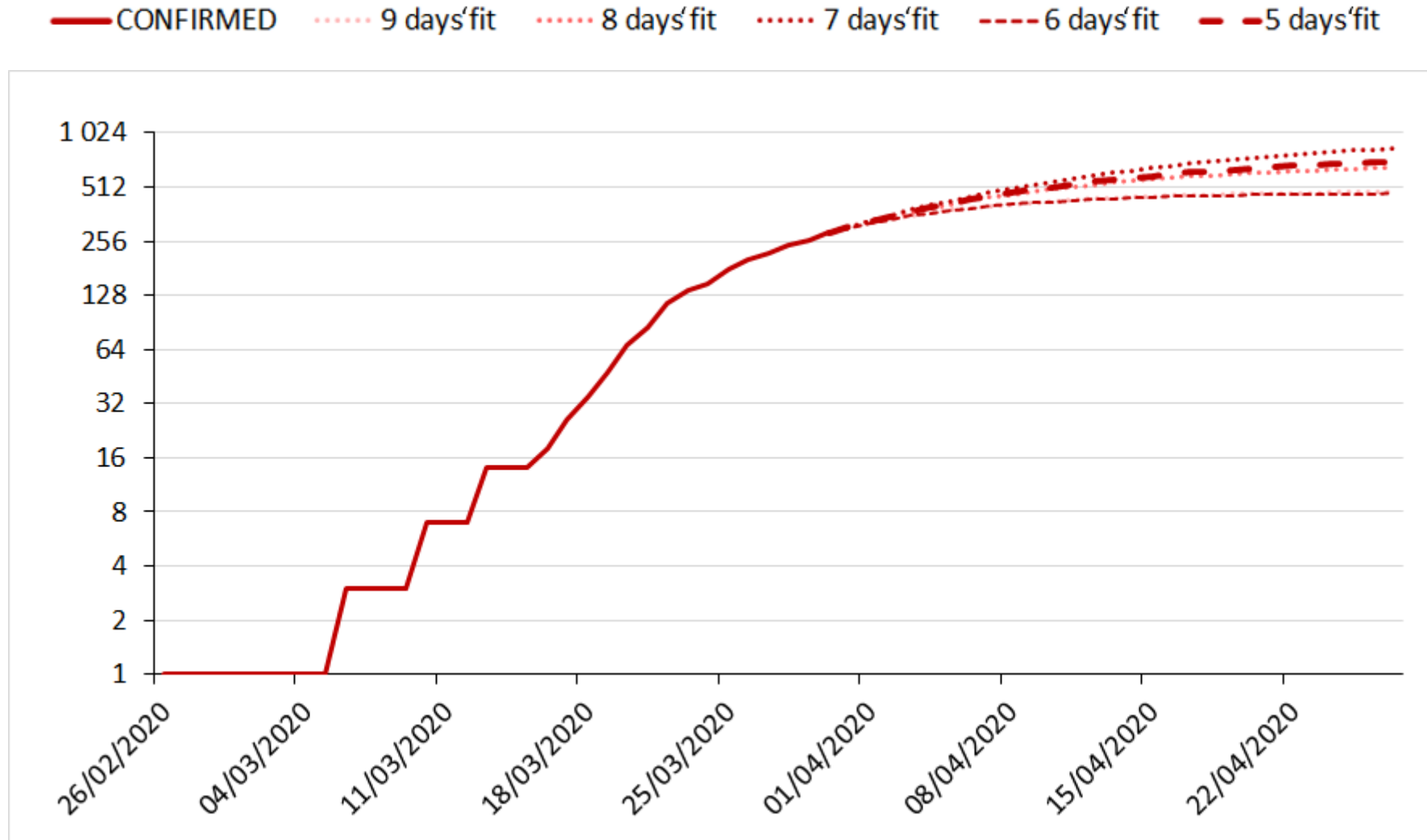


# Luxembourg



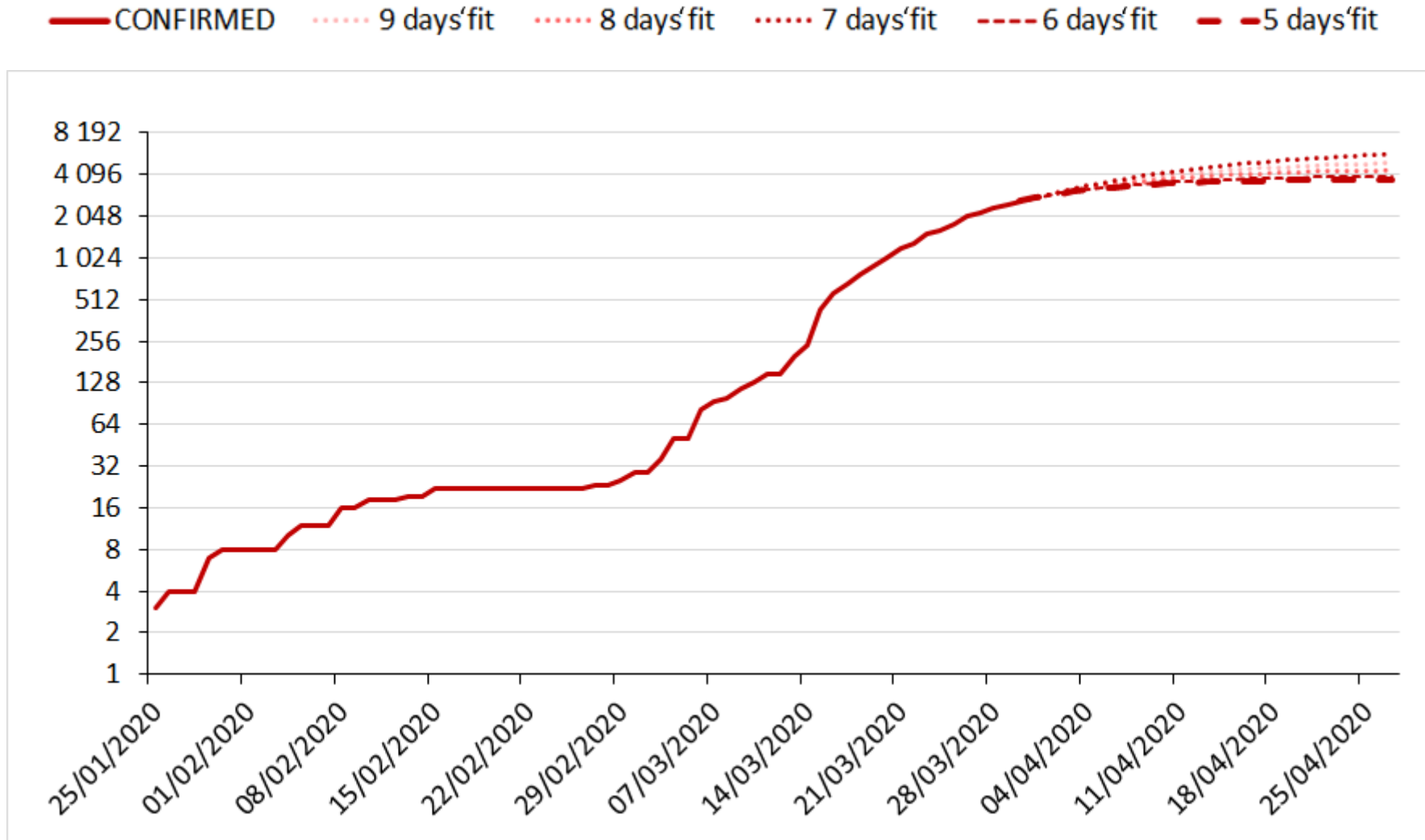
Data: The Johns Hopkins University, Politolog.com

# Macedonia



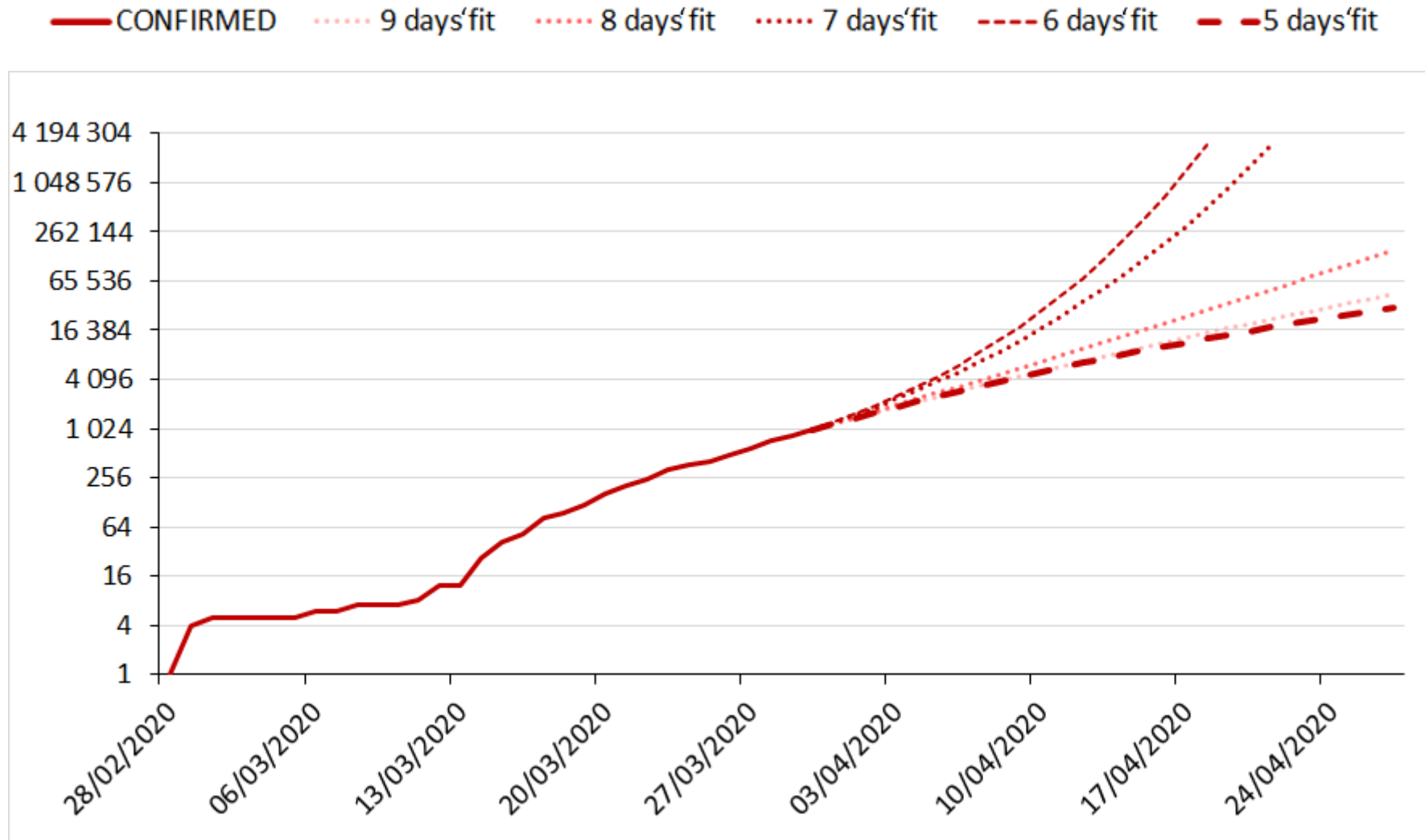
Data: The Johns Hopkins University, Politolog.com

# Malaysia



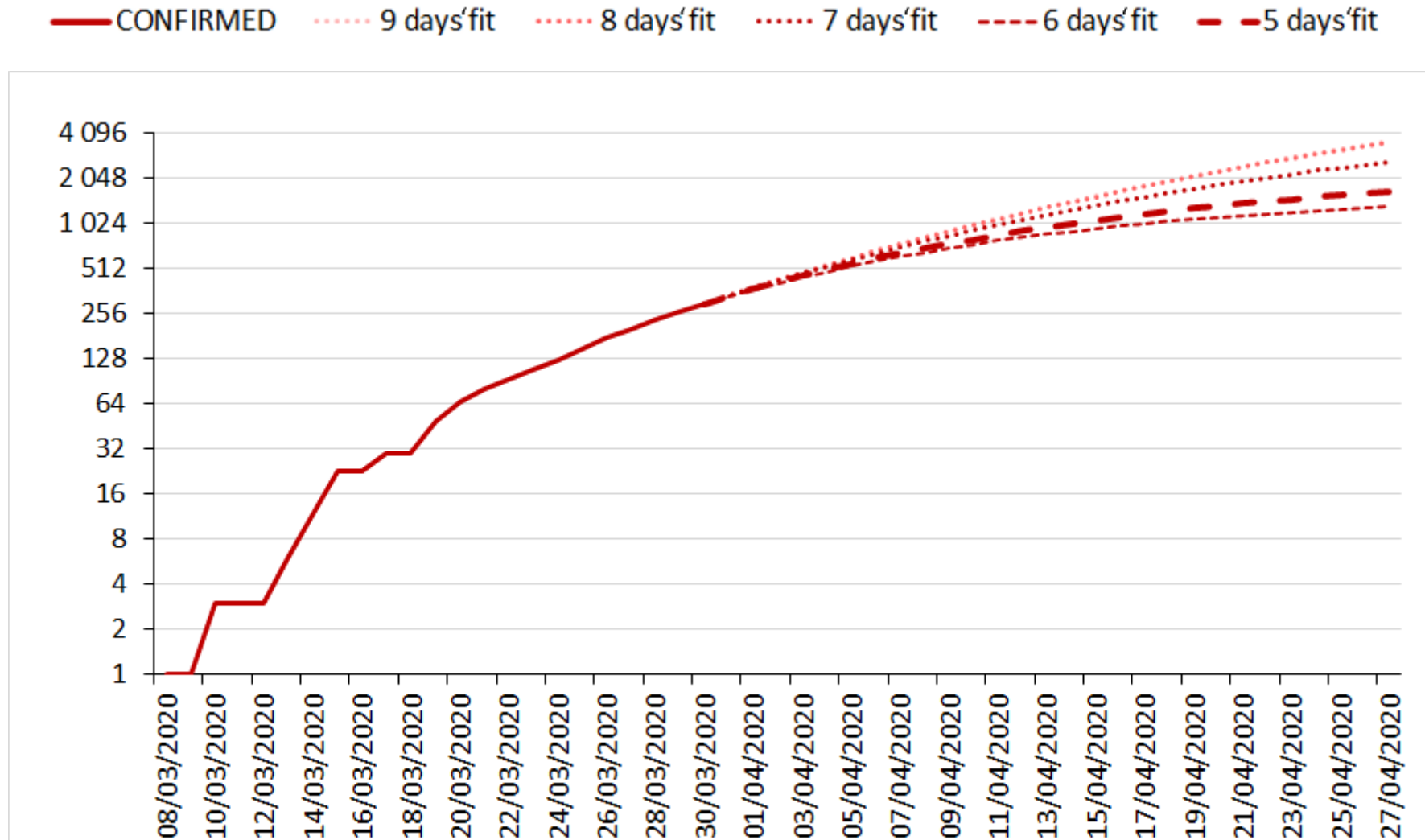
Data: The Johns Hopkins University, Politolog.com

# Mexico



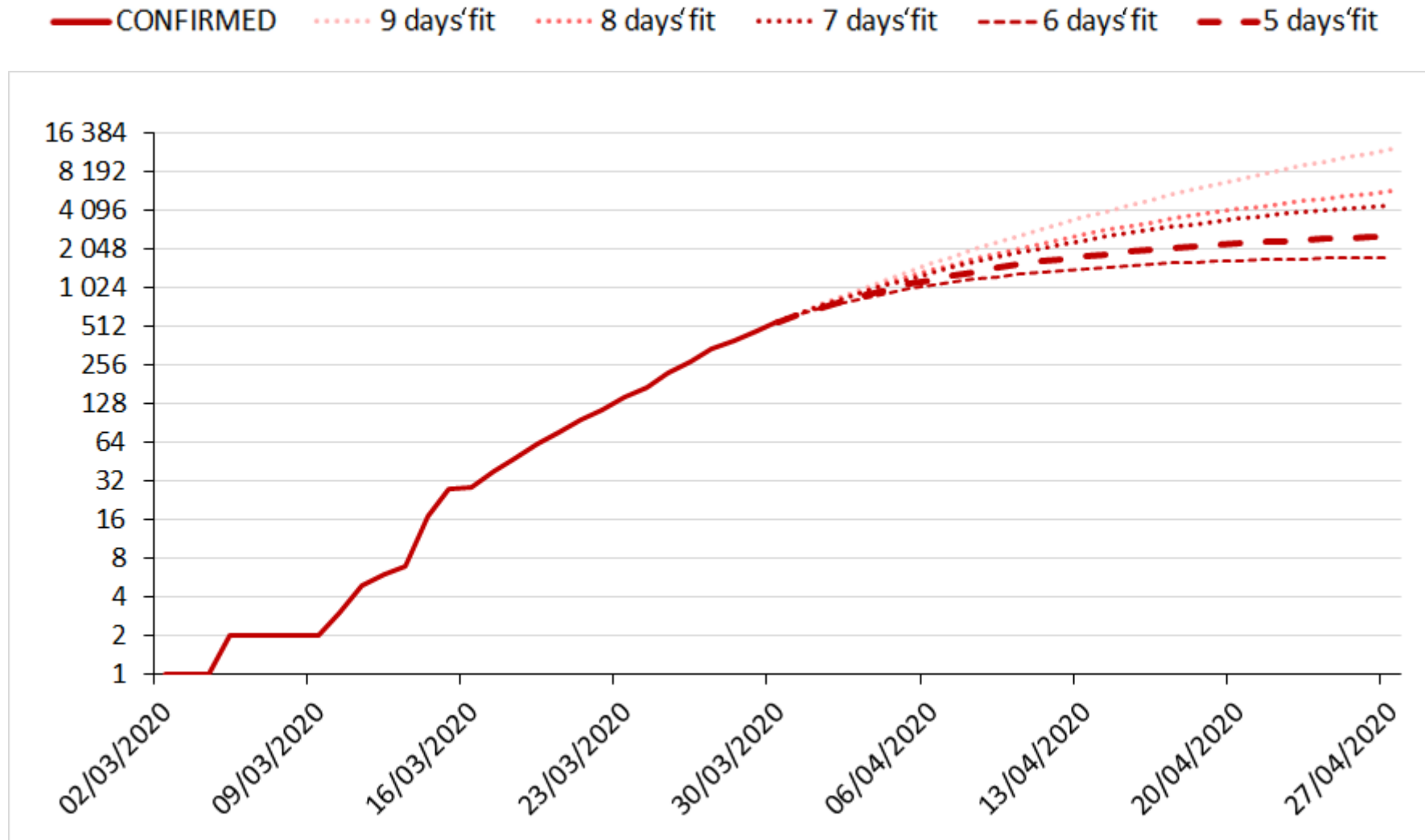
Data: The Johns Hopkins University, Politolog.com

# Moldova



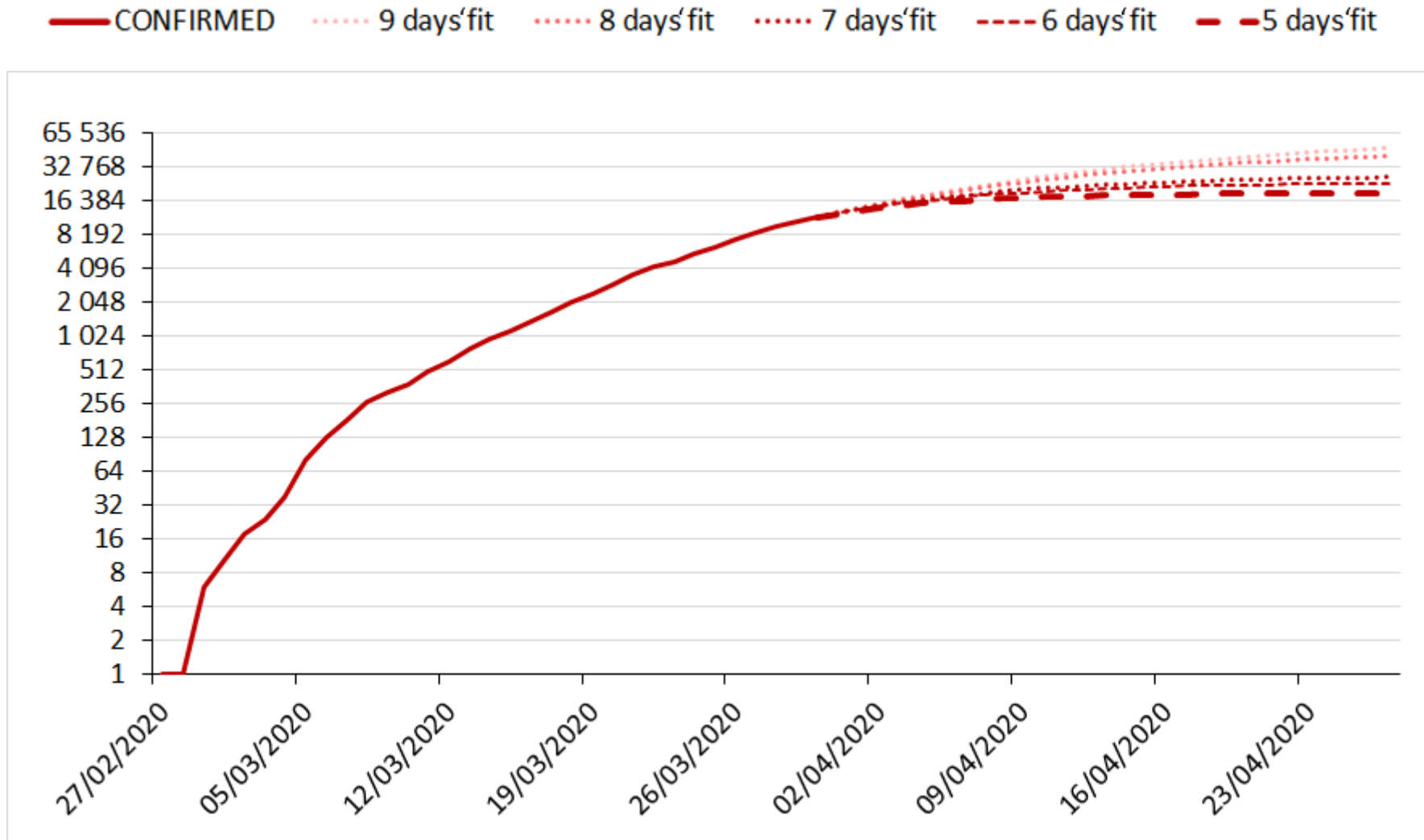
Data: The Johns Hopkins University, Politolog.com

# Morocco



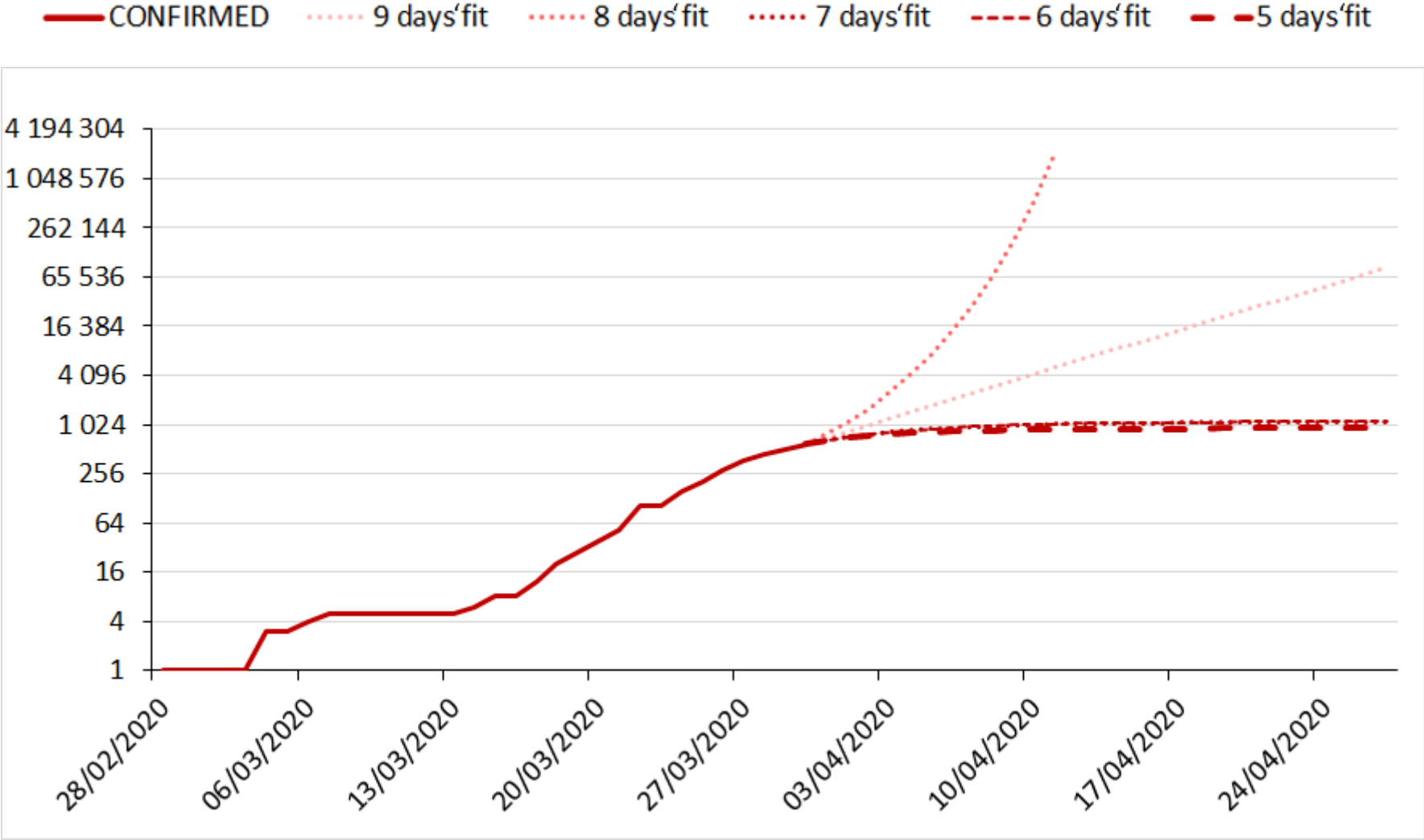
Data: The Johns Hopkins University, Politolog.com

# Netherlands



Data: The Johns Hopkins University, Politolog.com

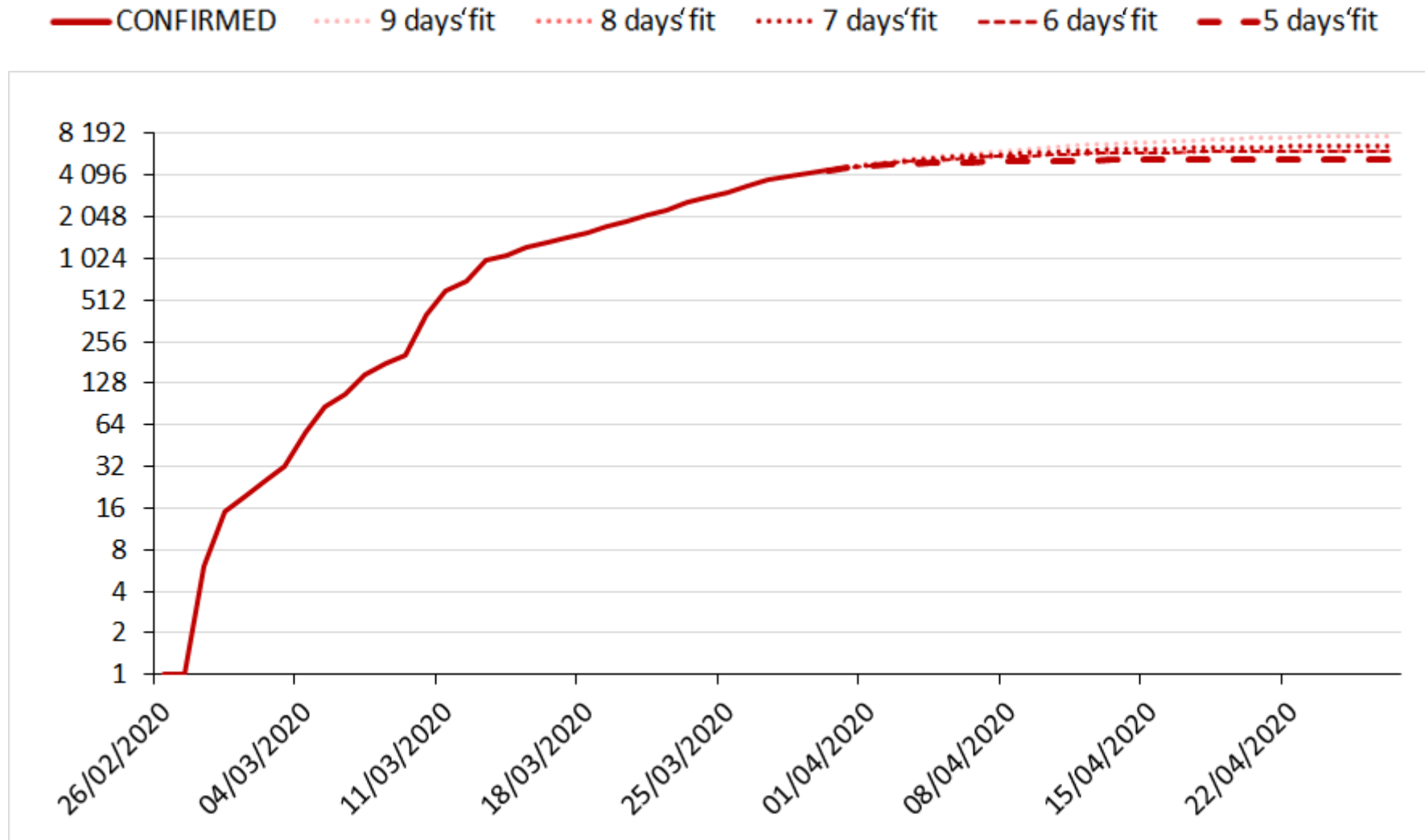
# New Zealand



Data: The Johns Hopkins University, Politolog.com

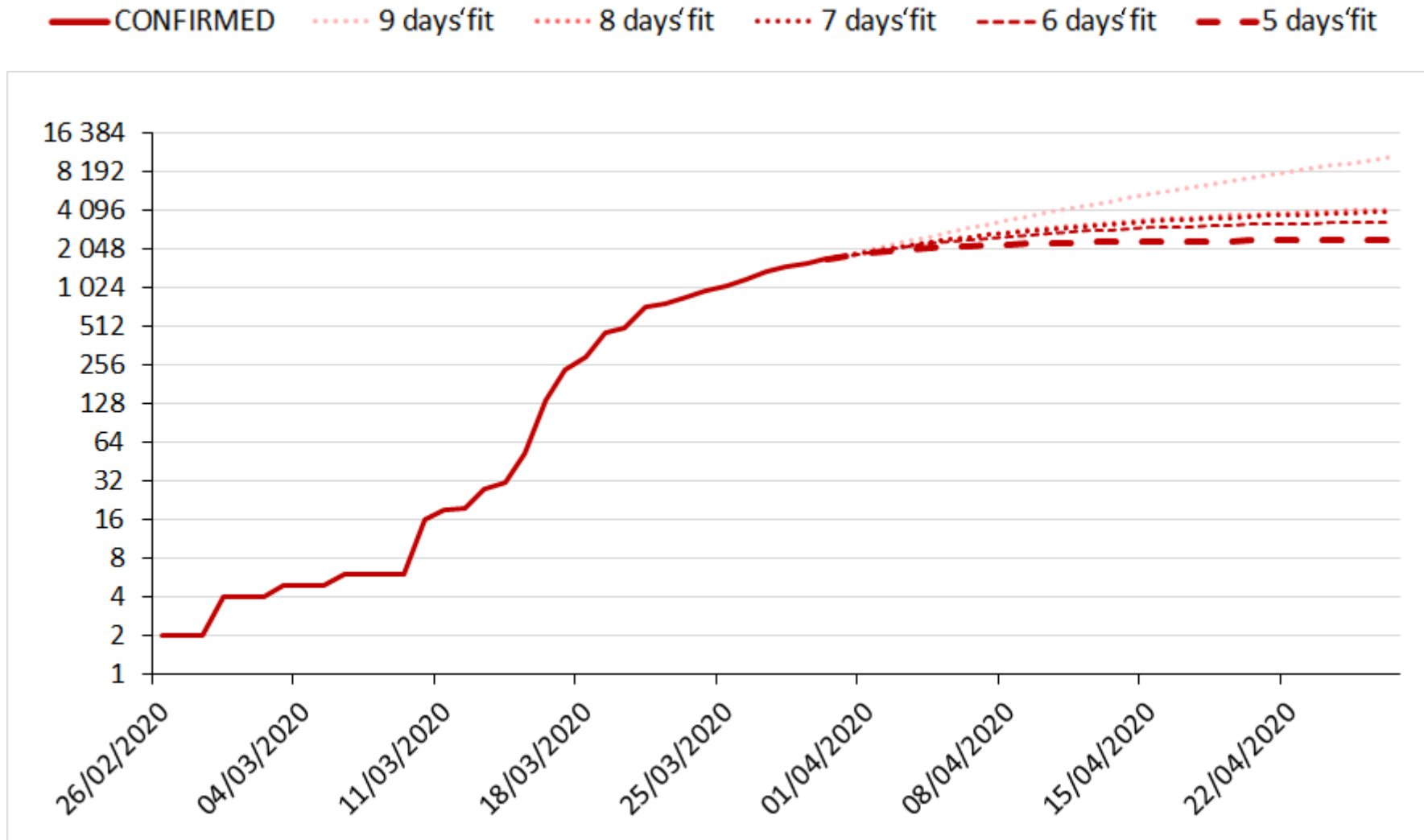


# Norway



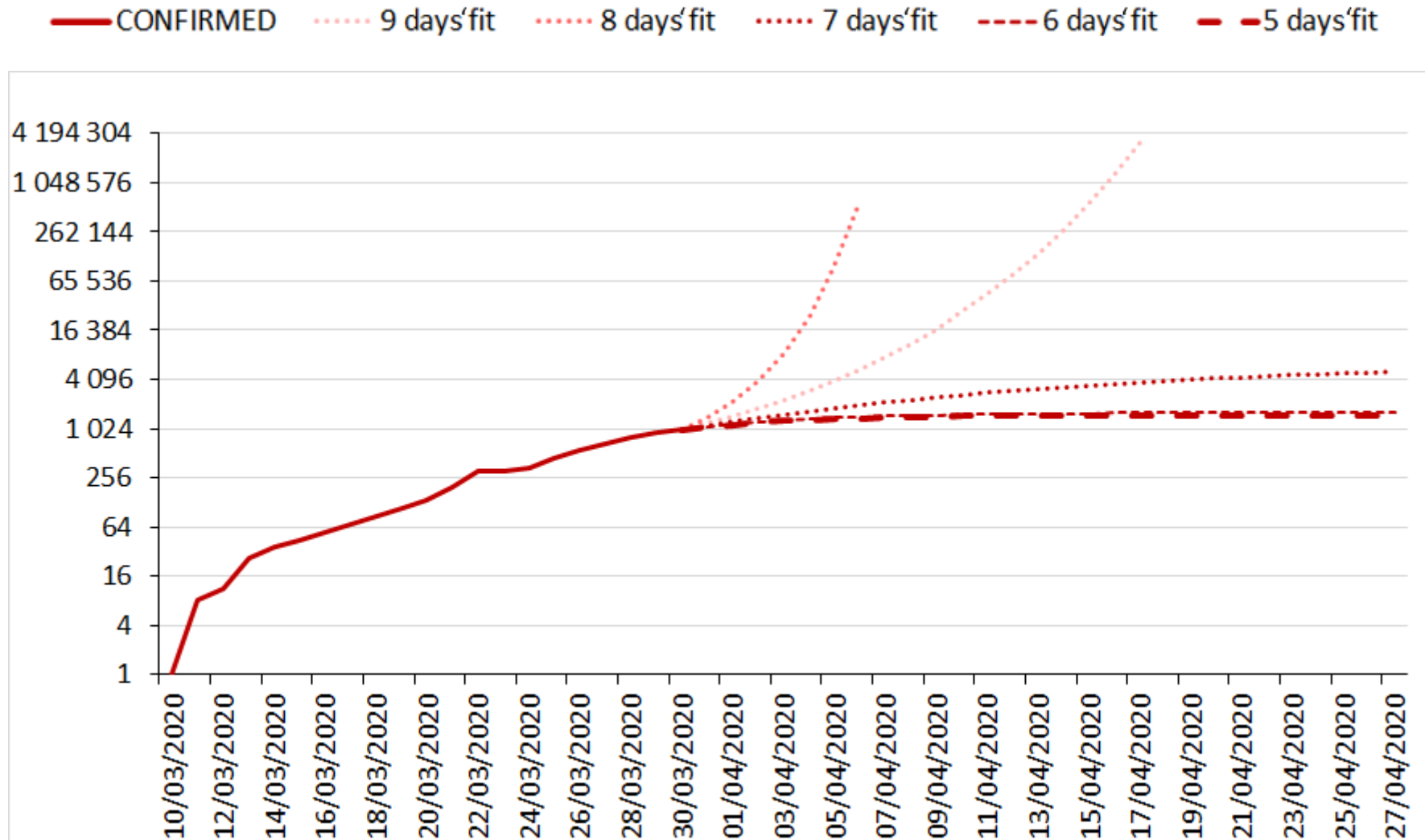
Data: The Johns Hopkins University, Politolog.com

# Pakistan



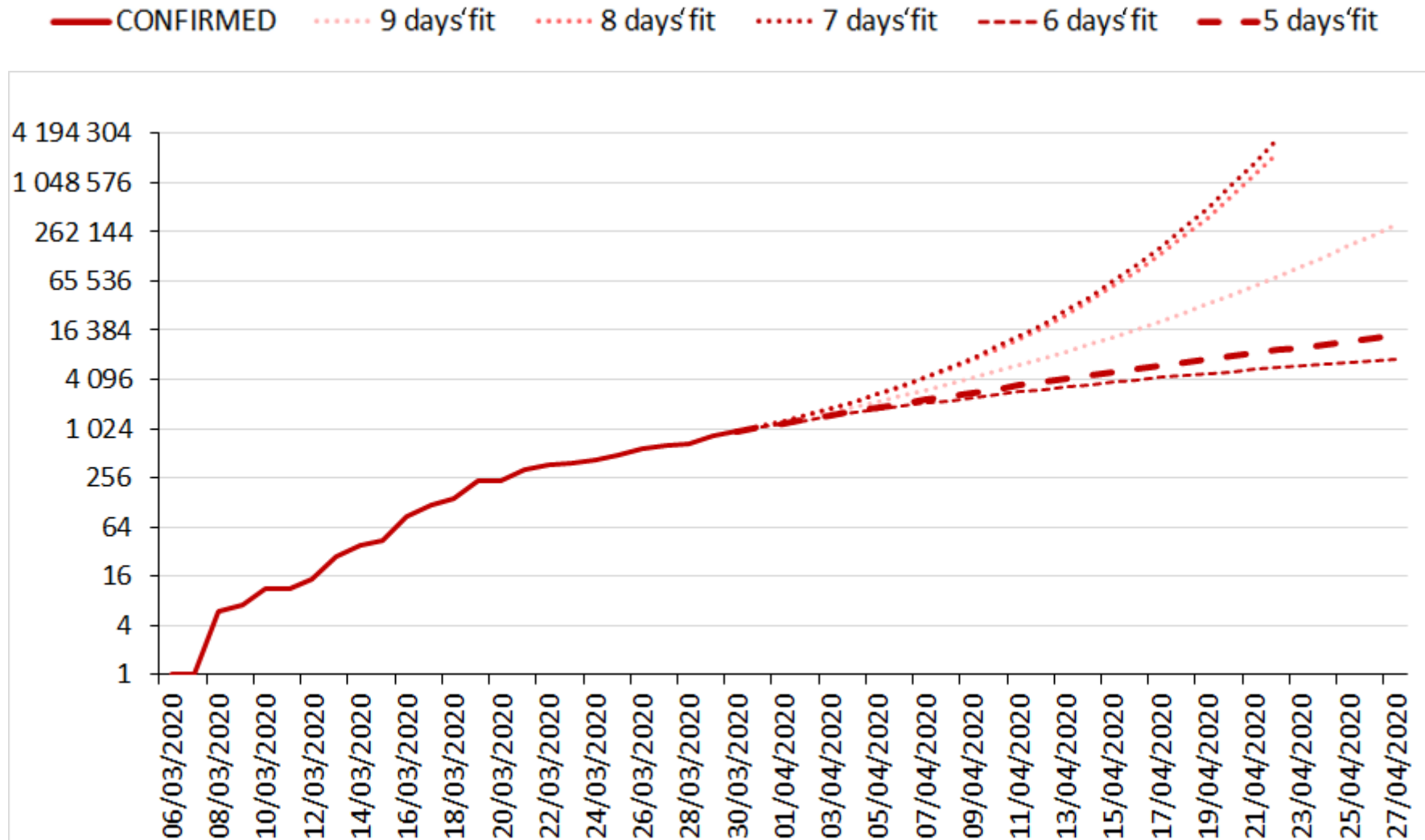
Data: The Johns Hopkins University, Politolog.com

# Panama



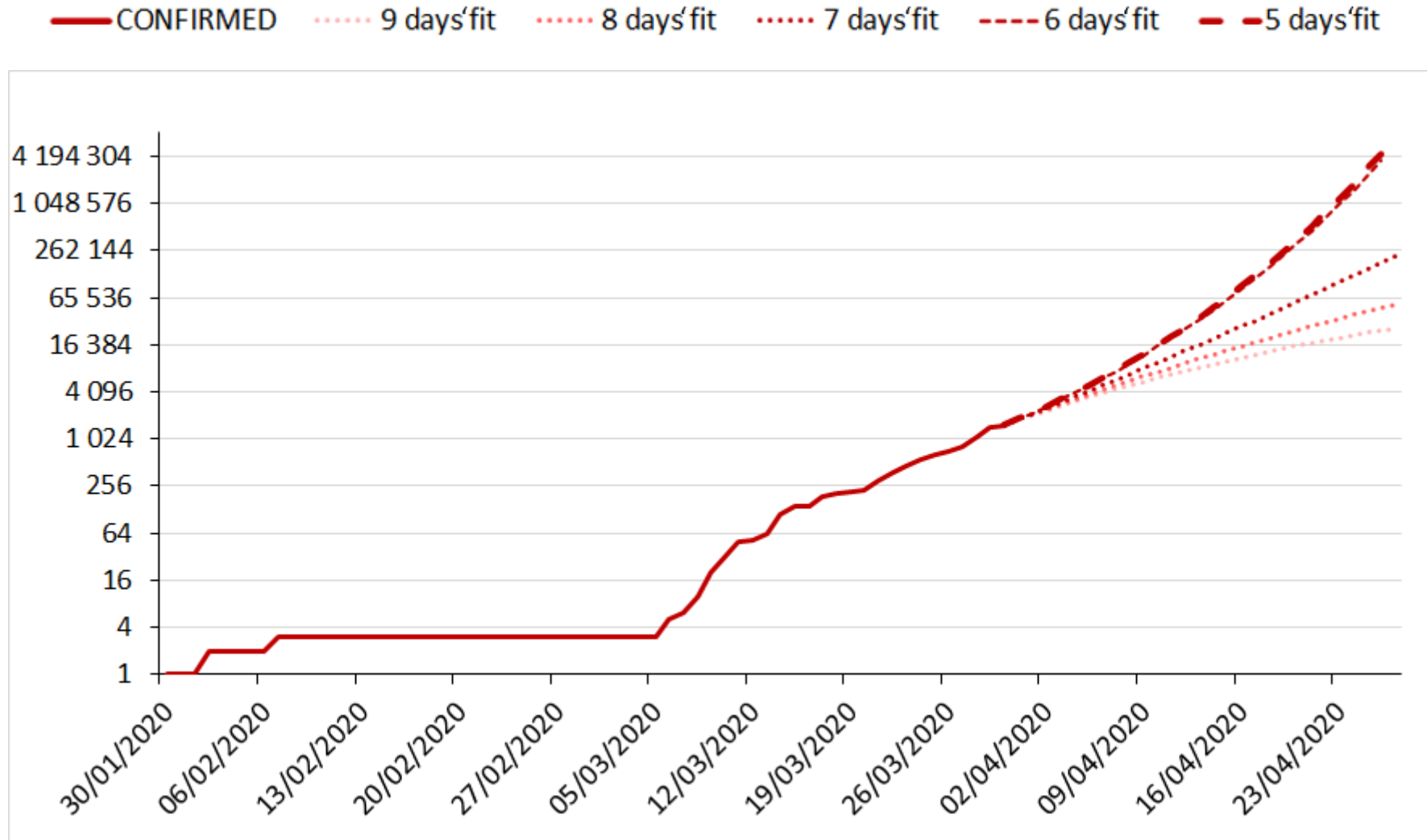
Data: The Johns Hopkins University, Politolog.com

# Peru



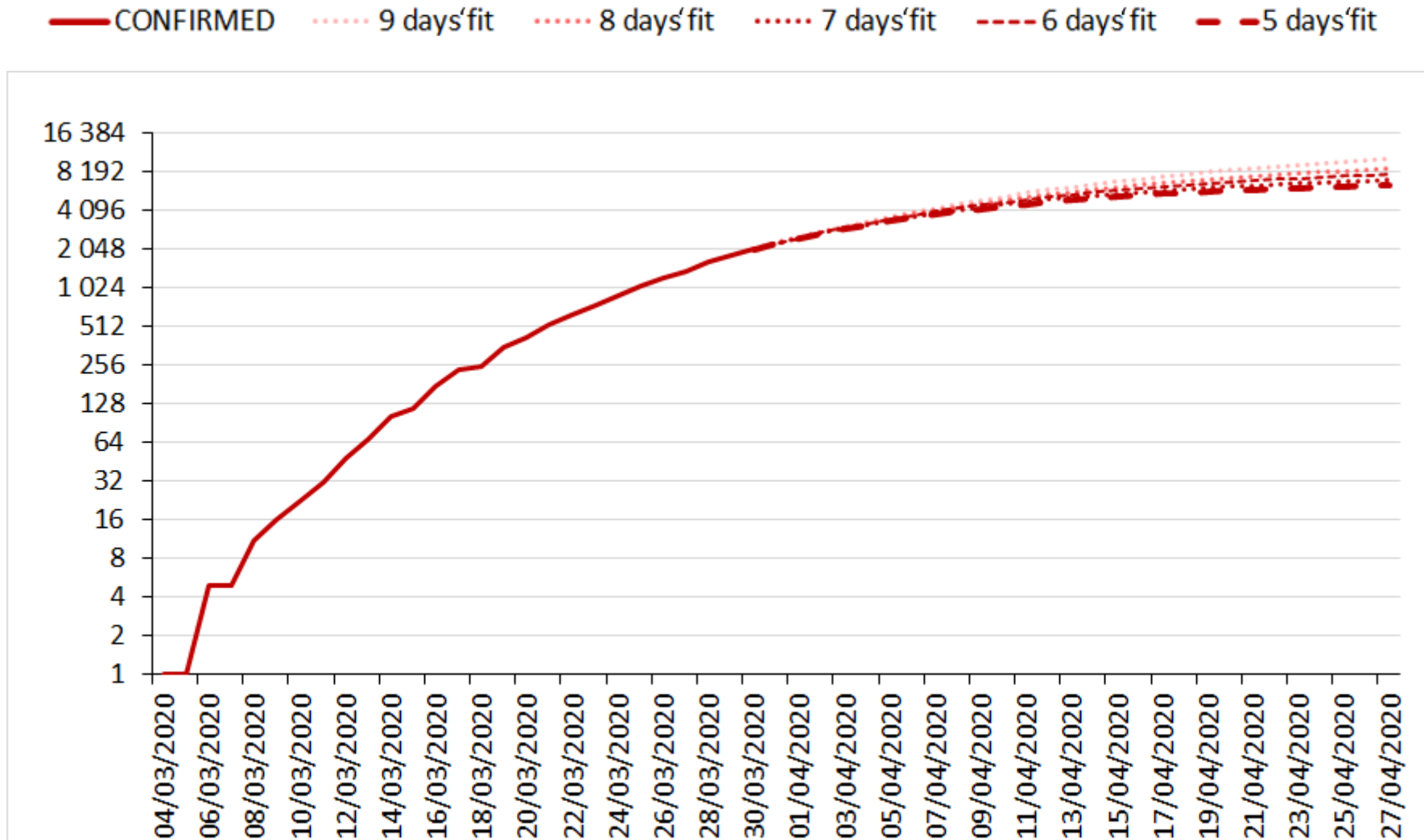
Data: The Johns Hopkins University, Politolog.com

# Philippines



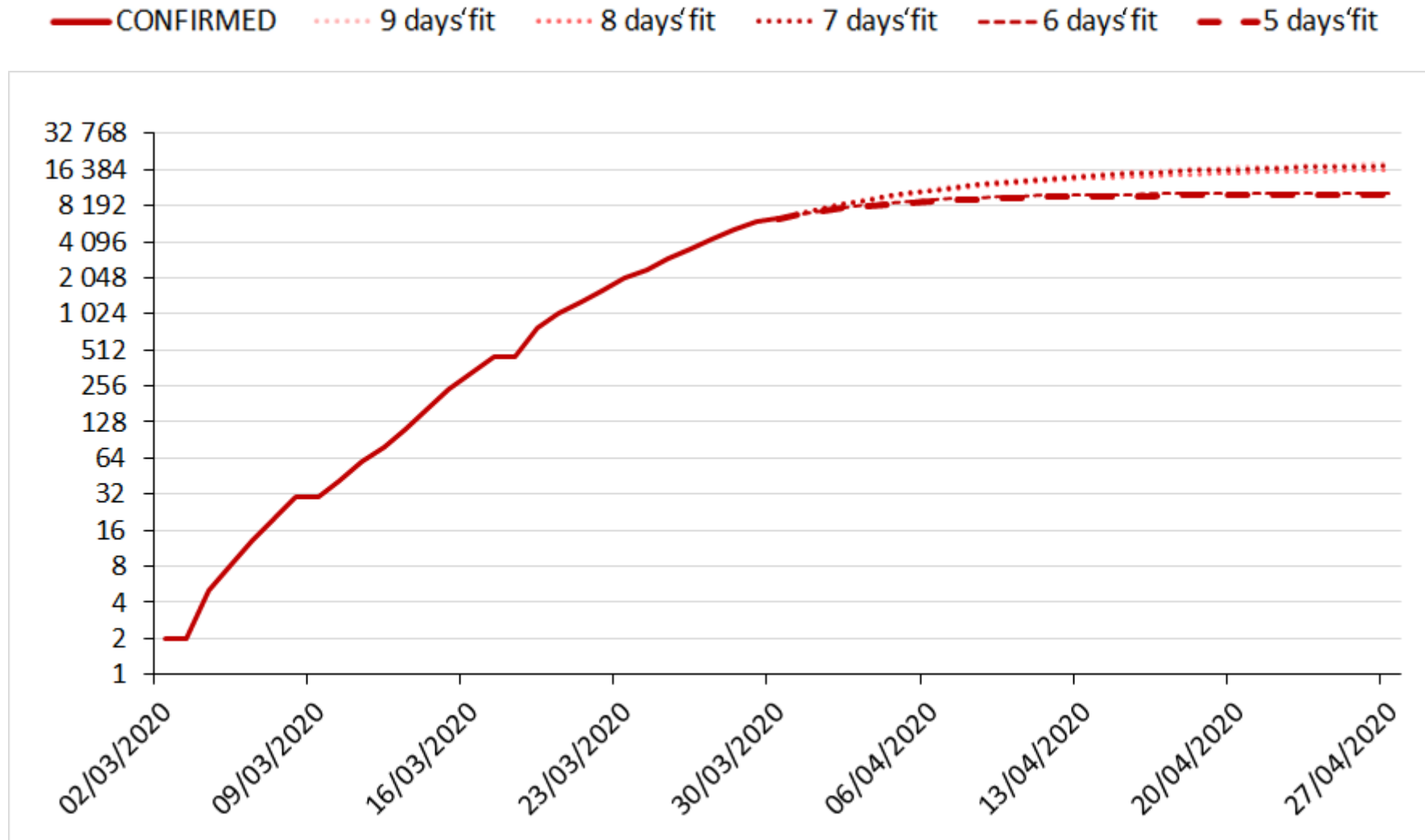
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# Poland



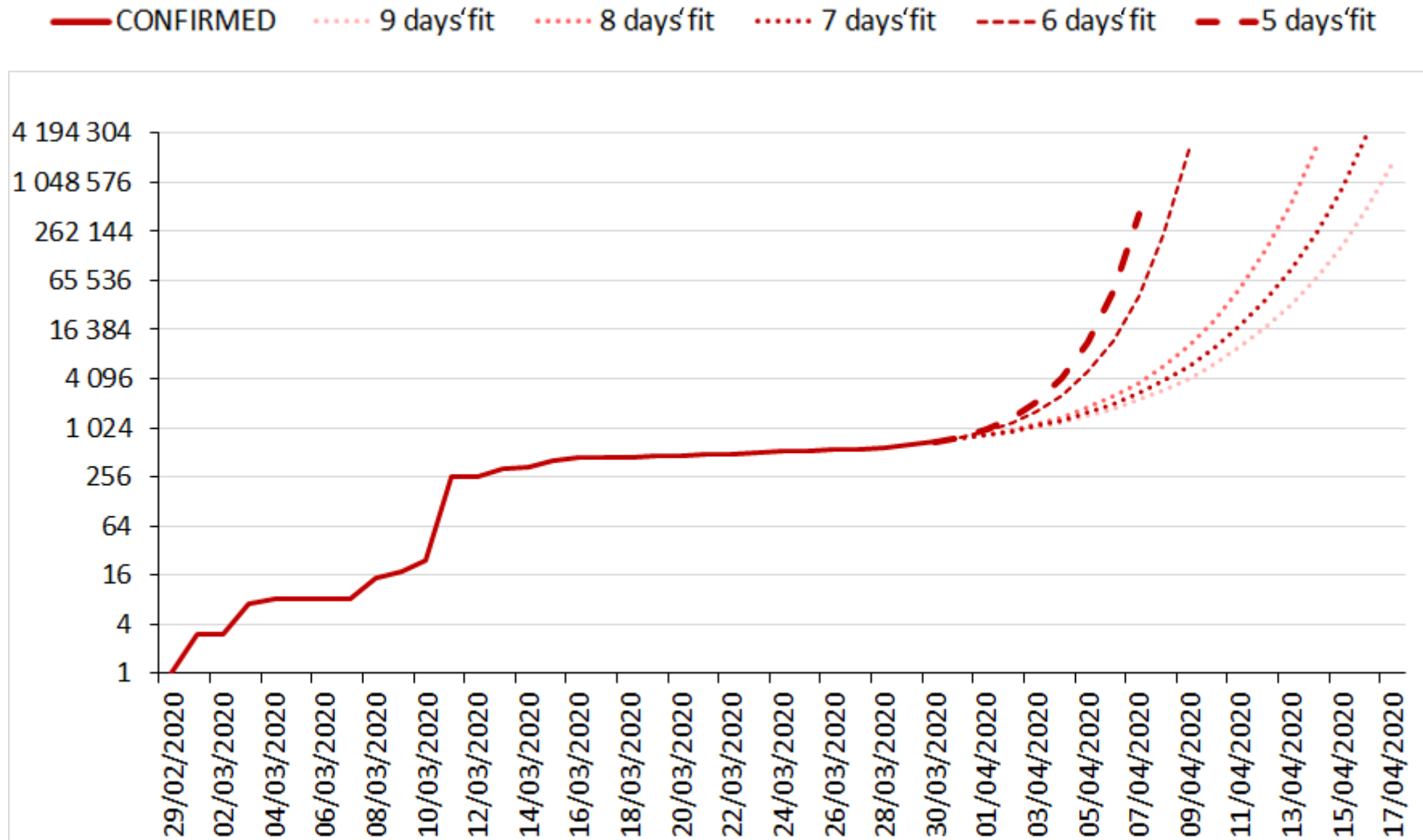
Data: The Johns Hopkins University, Politolog.com

# Portugal



Data: The Johns Hopkins University, Politolog.com

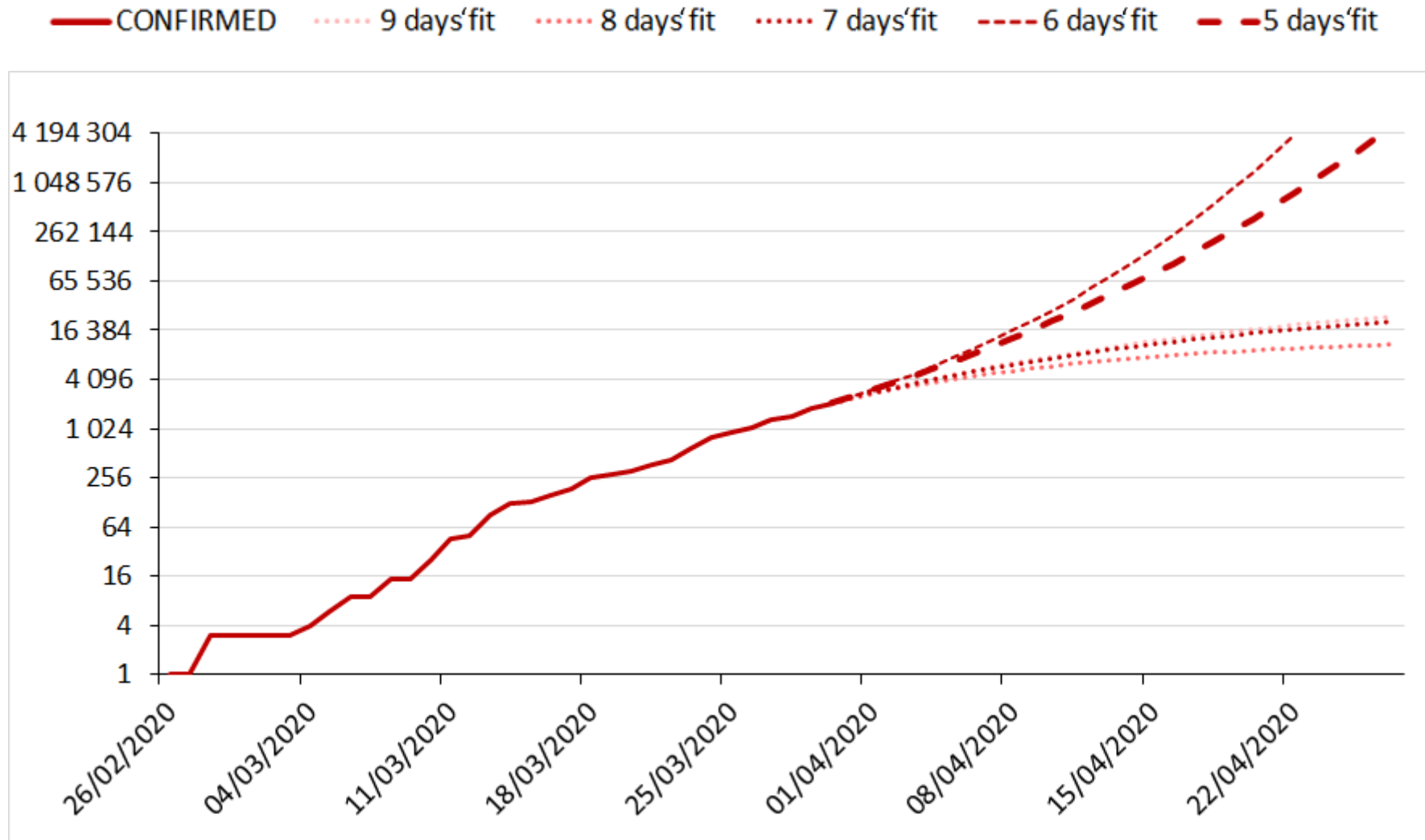
# Qatar



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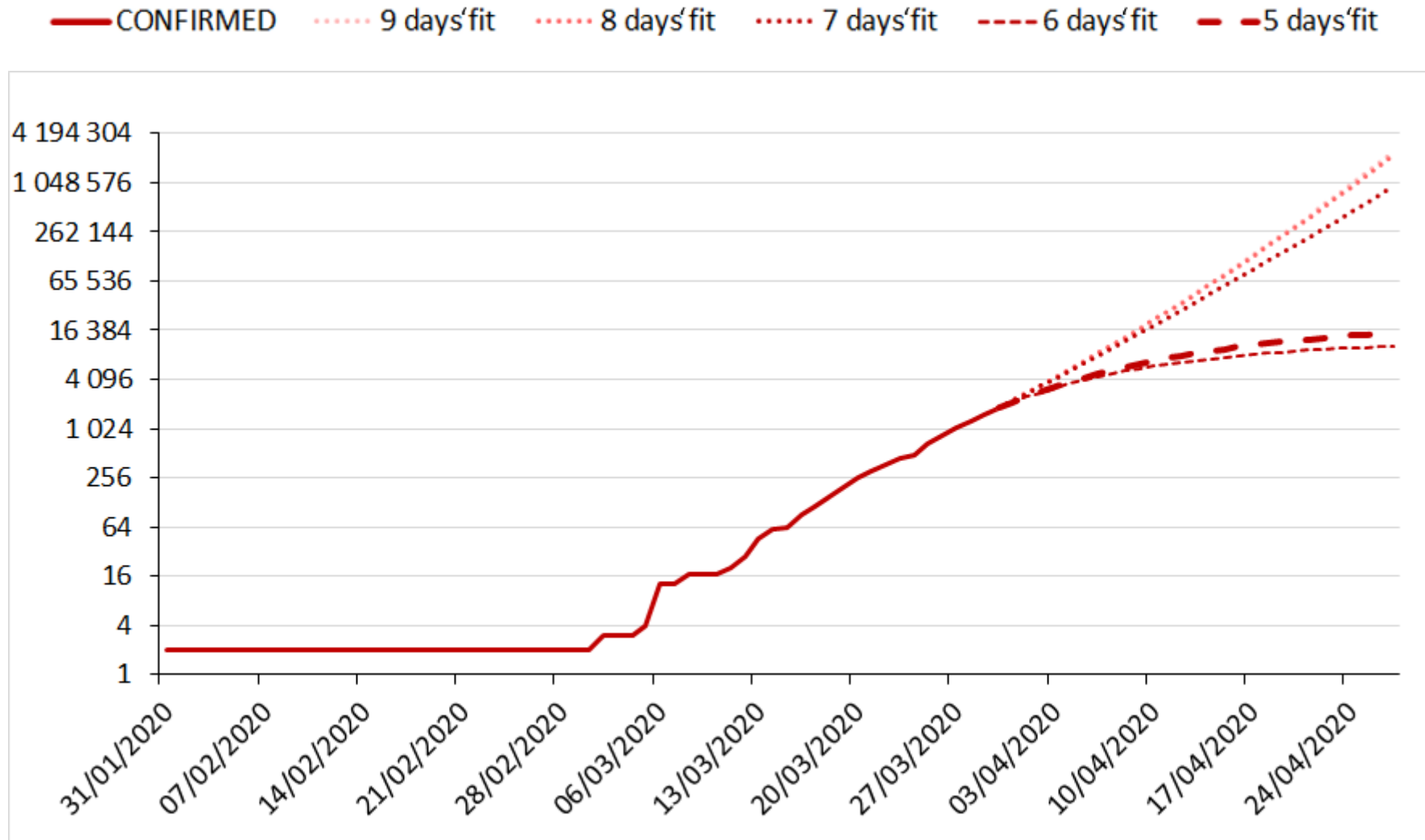


# Romania



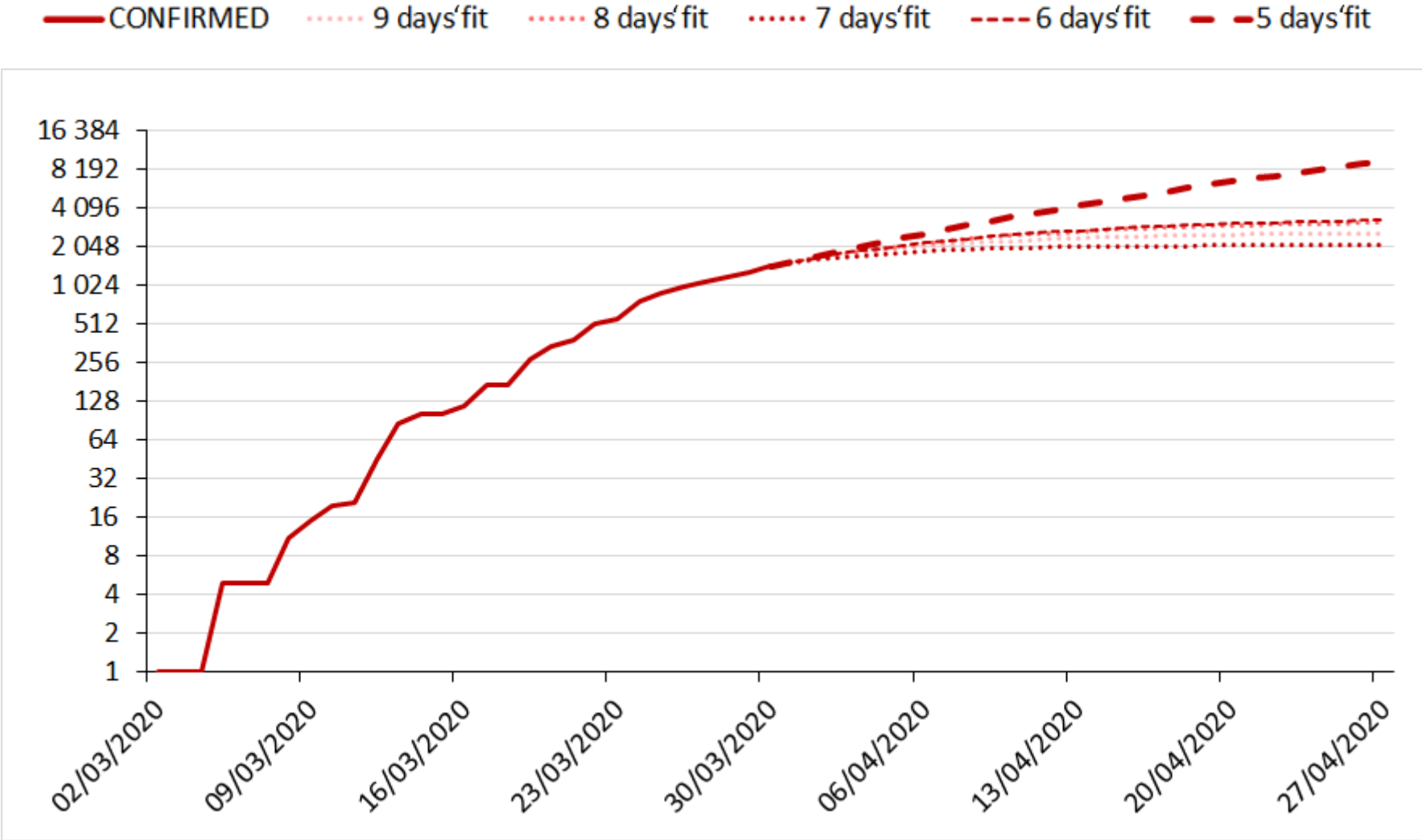
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# Russia



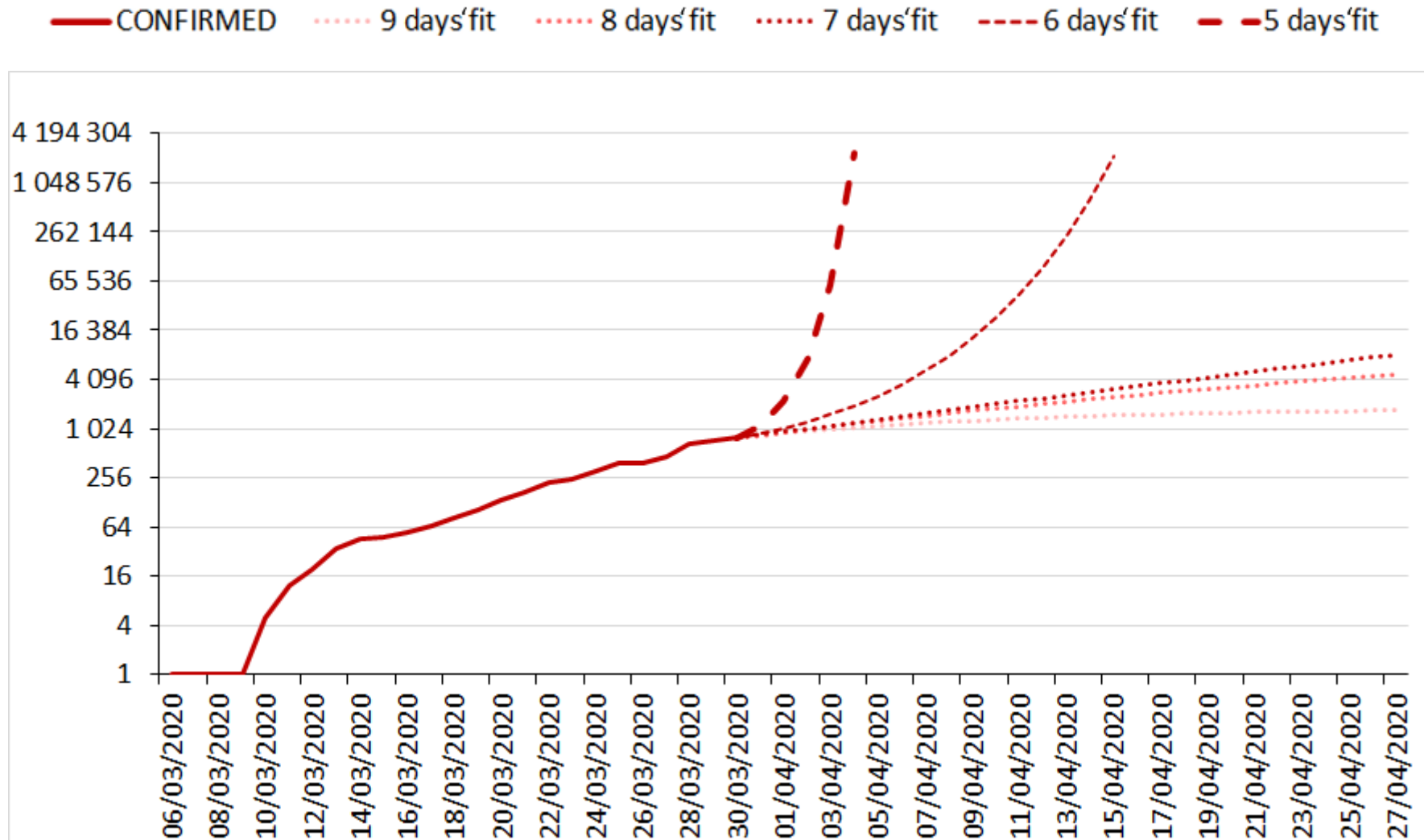
Data: The Johns Hopkins University, Politolog.com

# Saudi Arabia



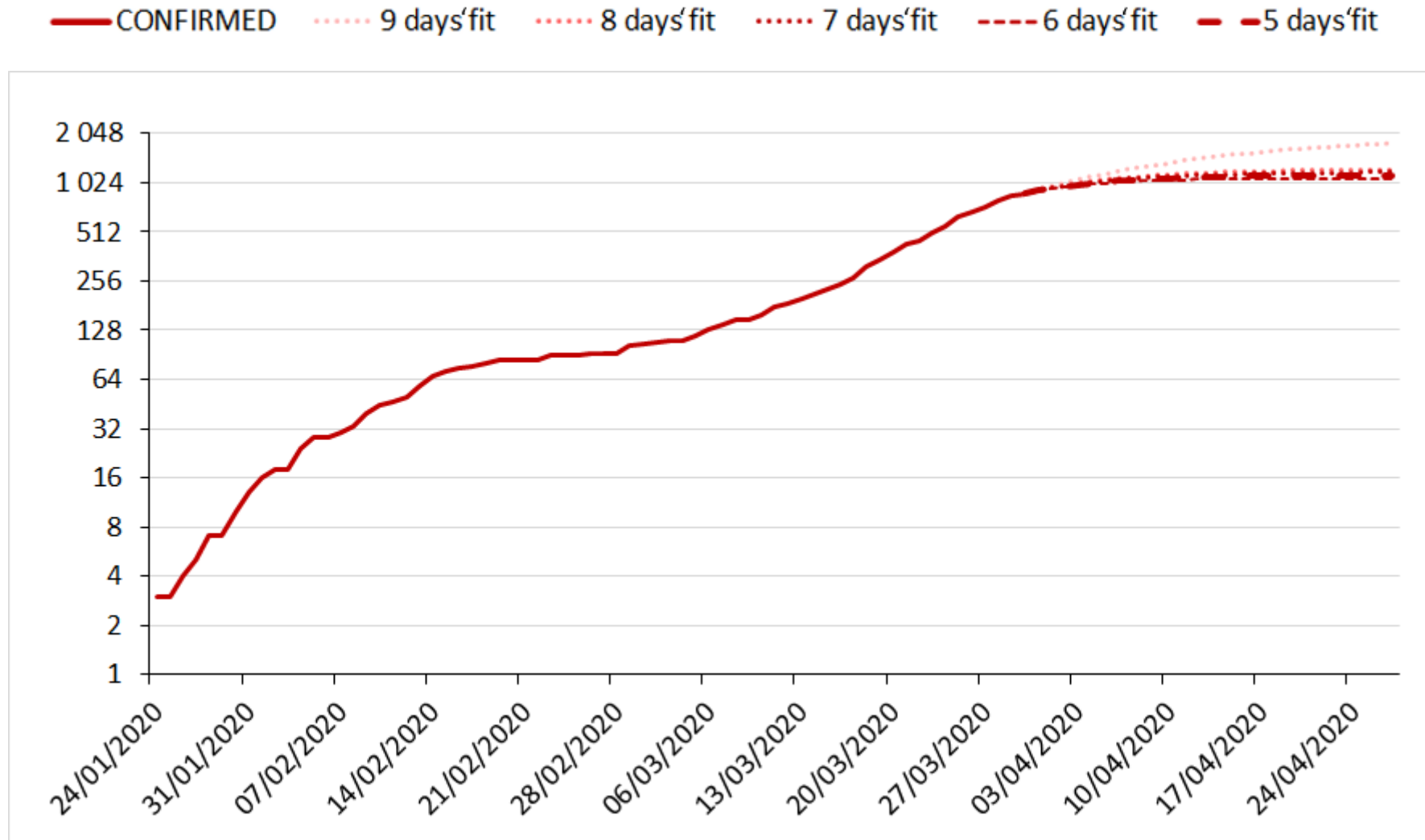
Data: The Johns Hopkins University, Politolog.com

# Serbia



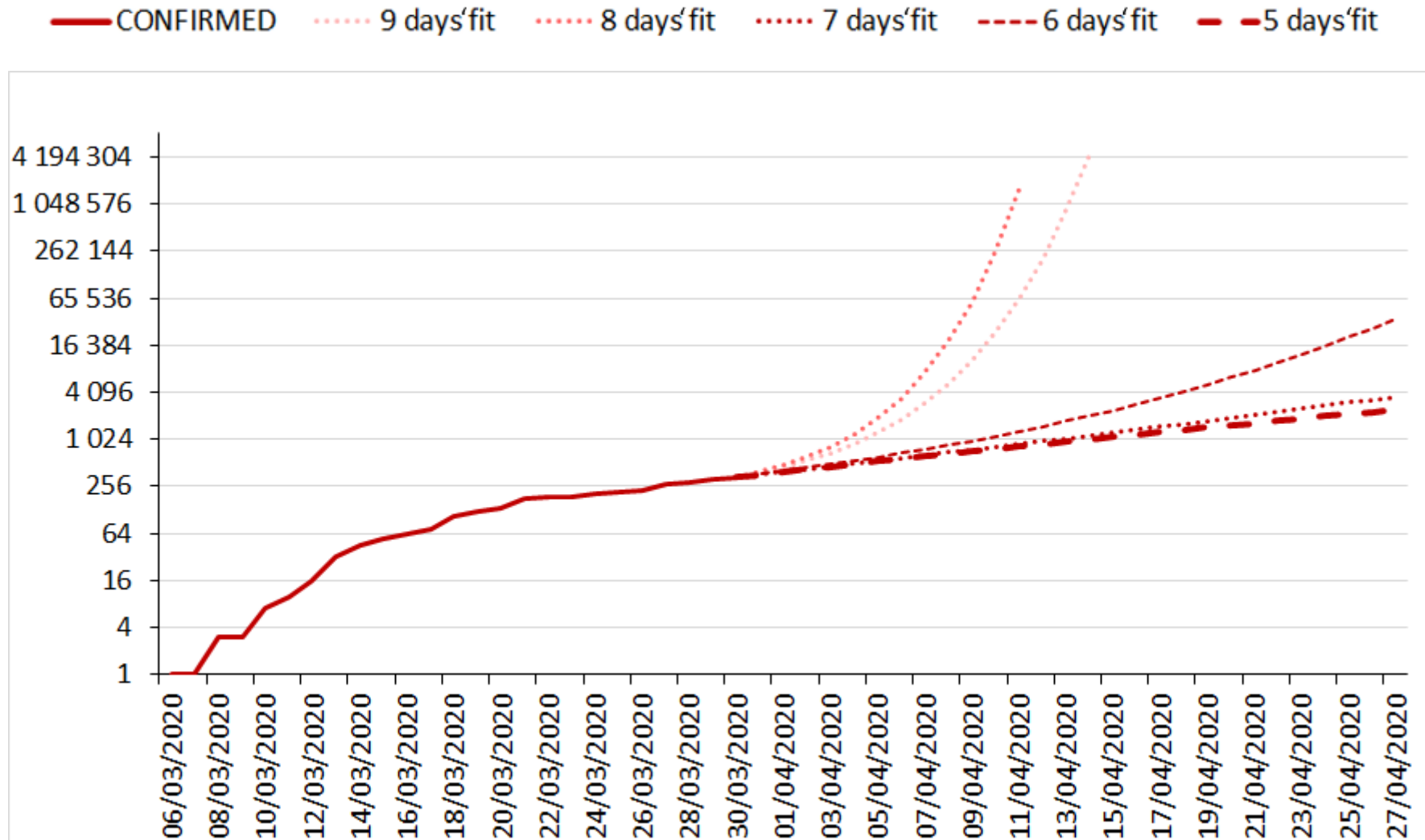
Data: The Johns Hopkins University, Politolog.com

# Singapore



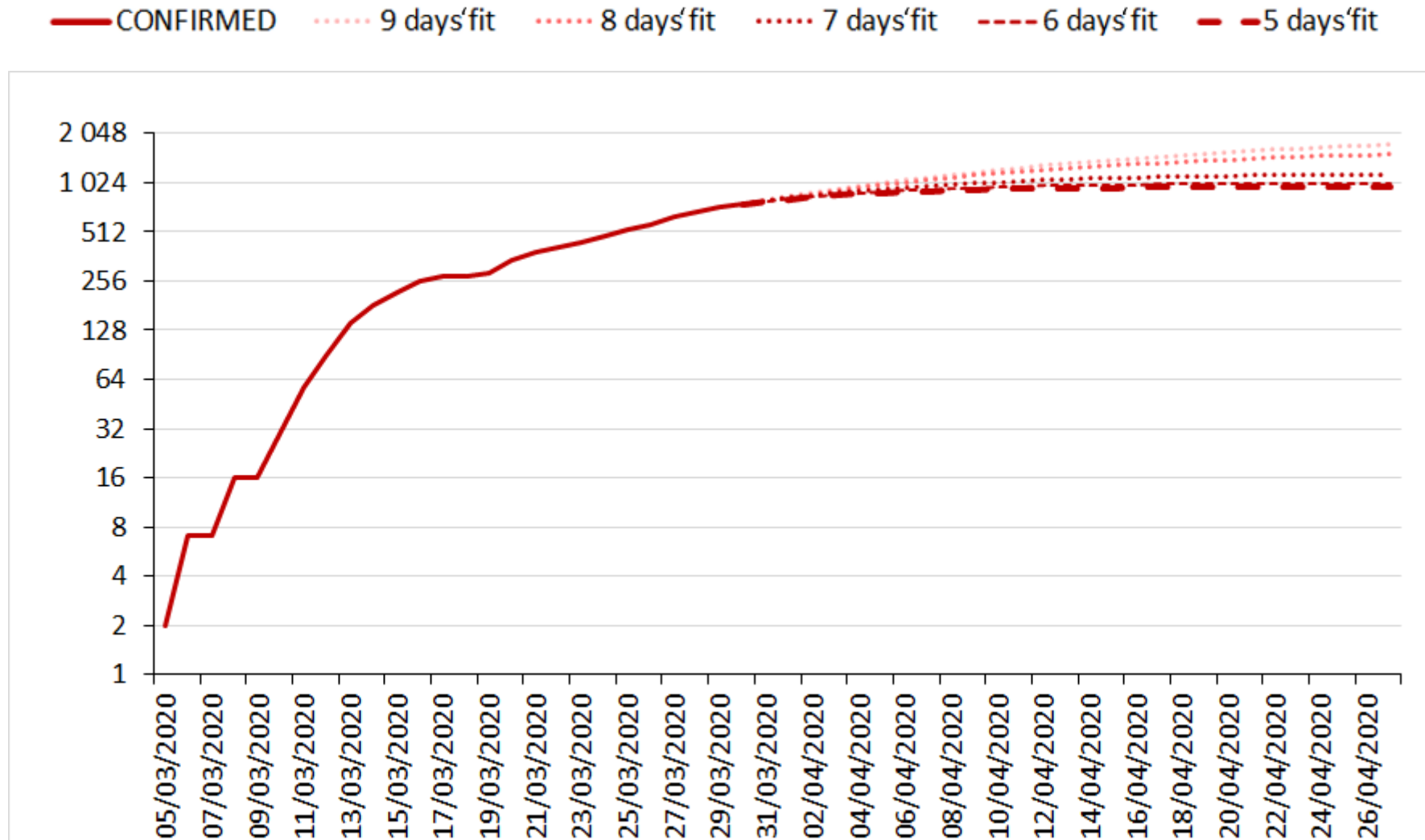
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# Slovakia



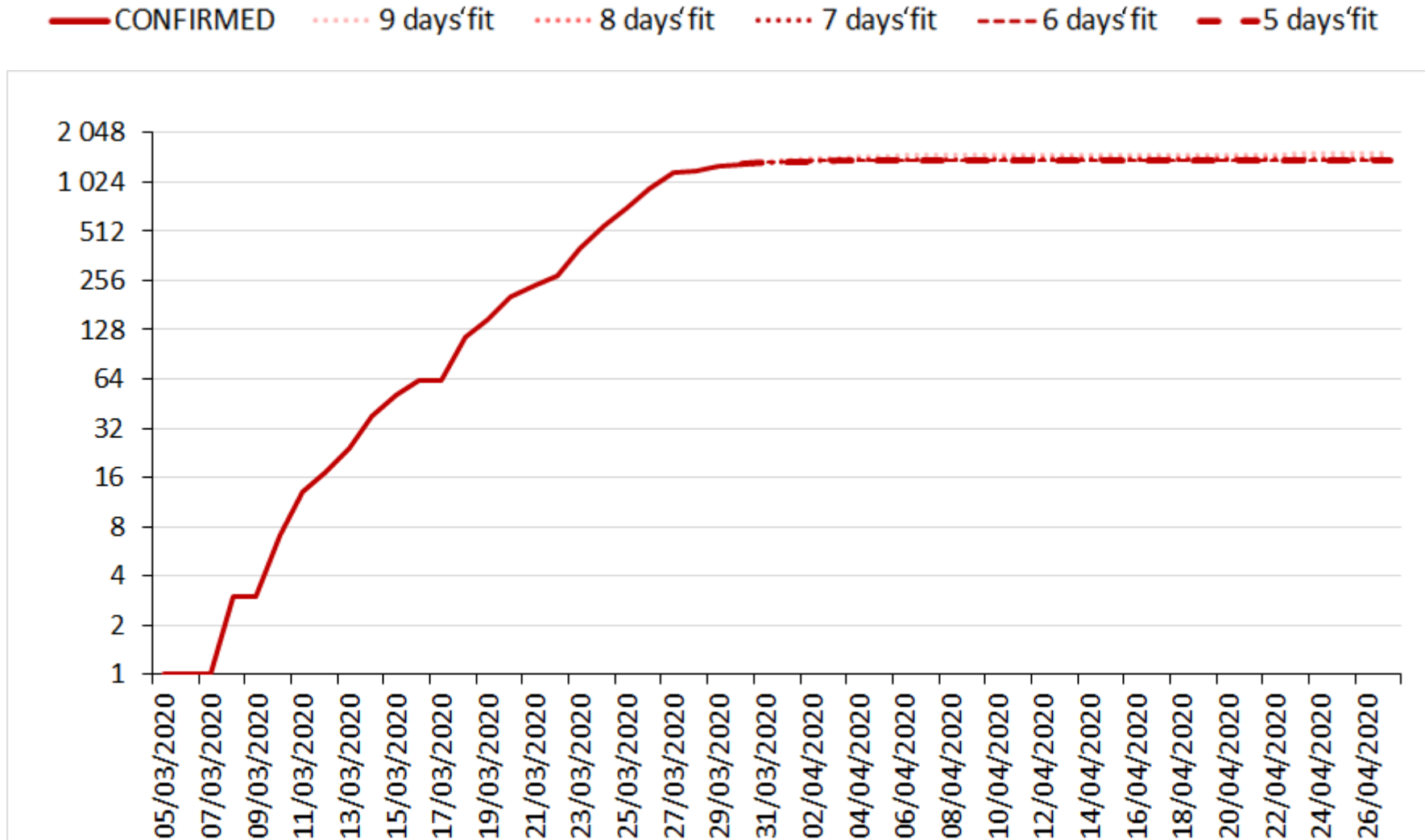
Data: The Johns Hopkins University, Politolog.com

# Slovenia



Data: The Johns Hopkins University, Politolog.com

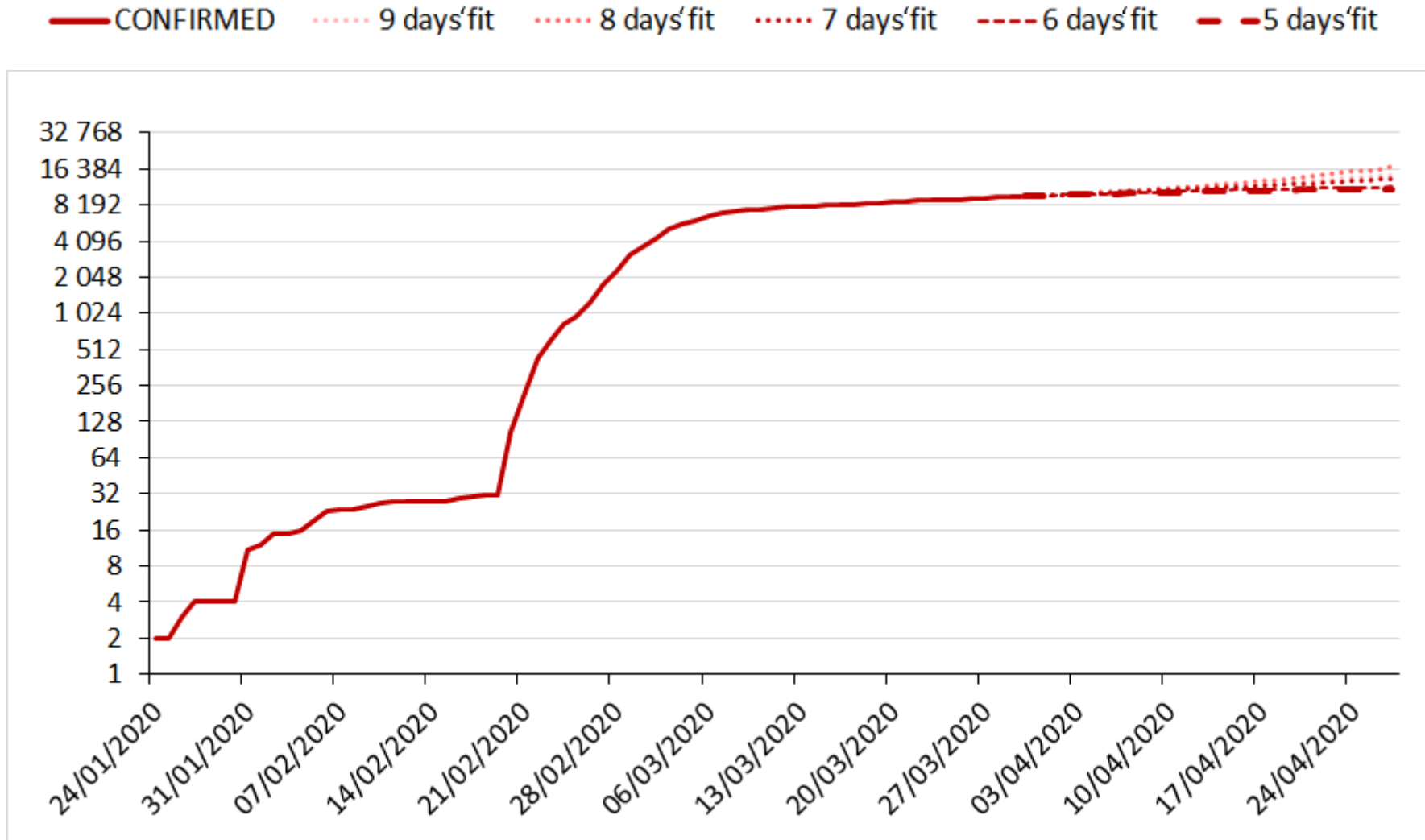
# South Africa



Data: The Johns Hopkins University, Politolog.com

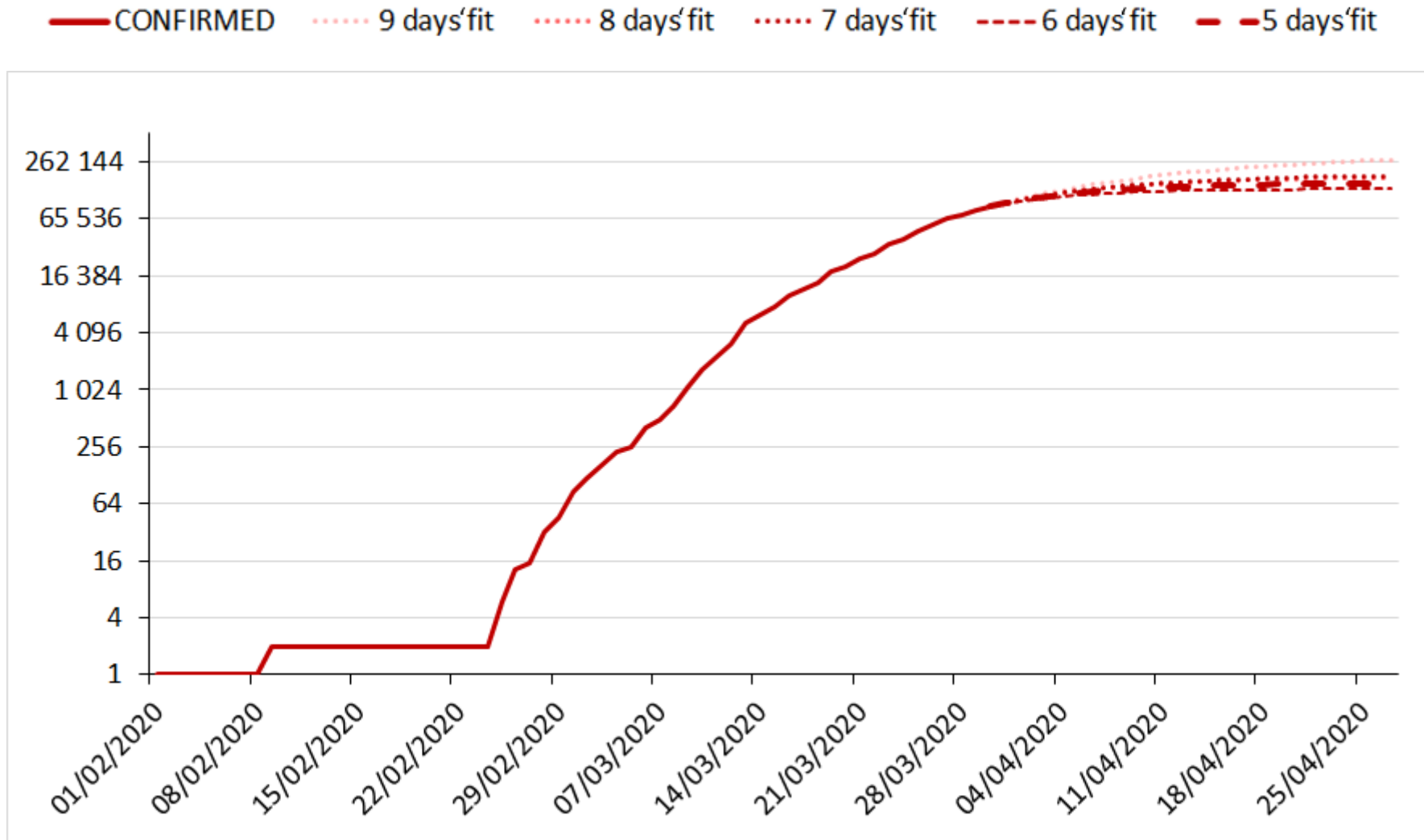


# South Korea



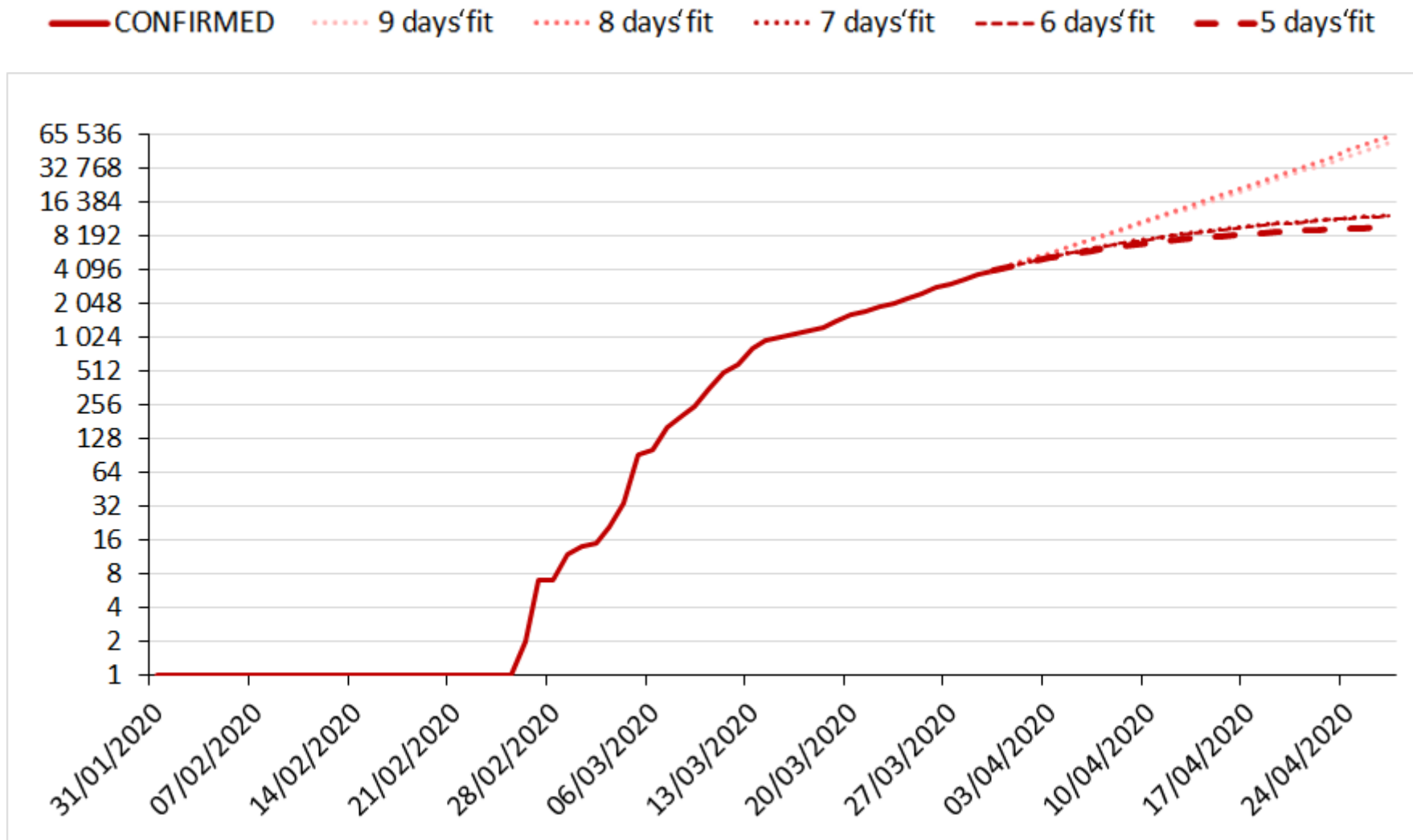
Data: The Johns Hopkins University, Politolog.com

# Spain



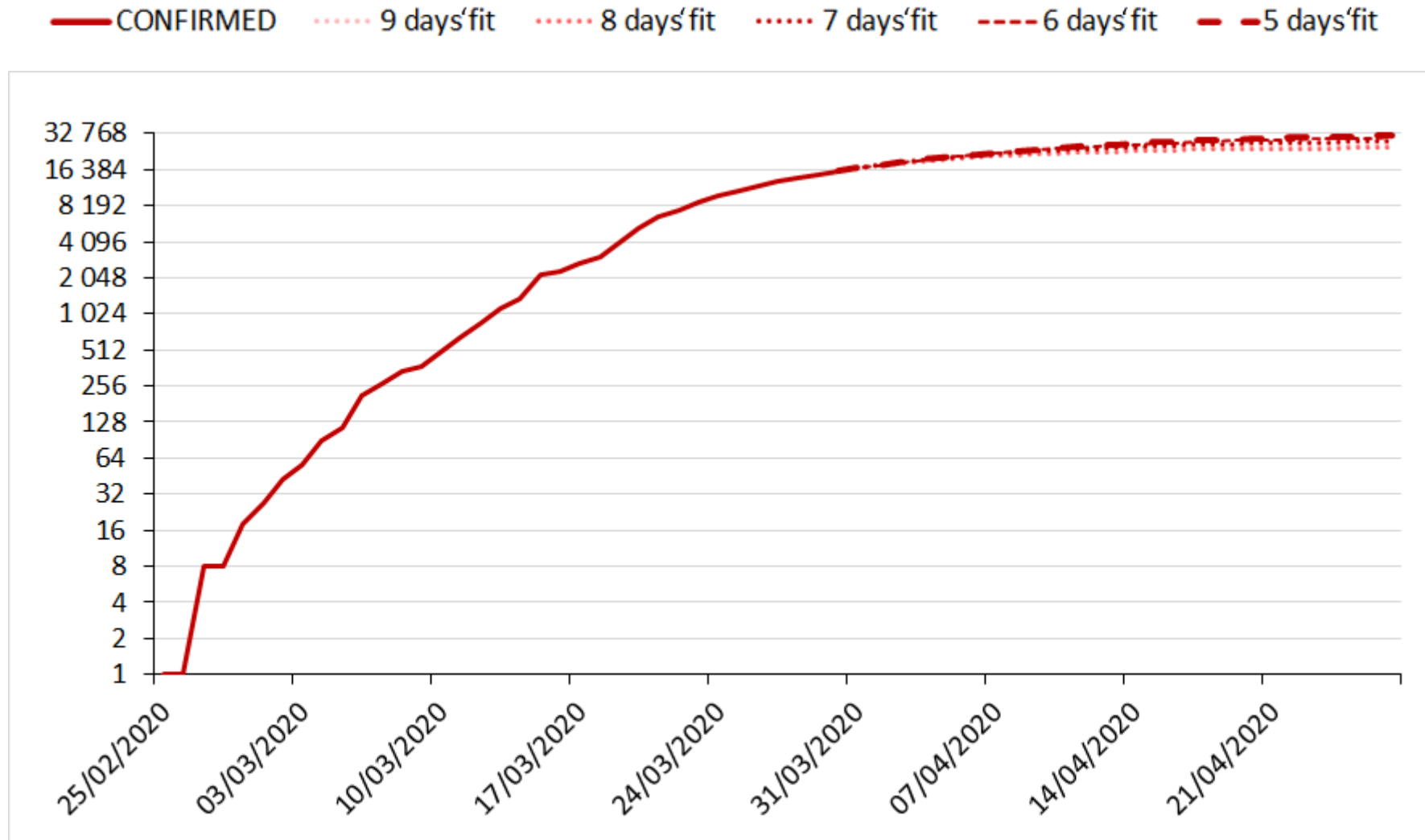
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# Sweden



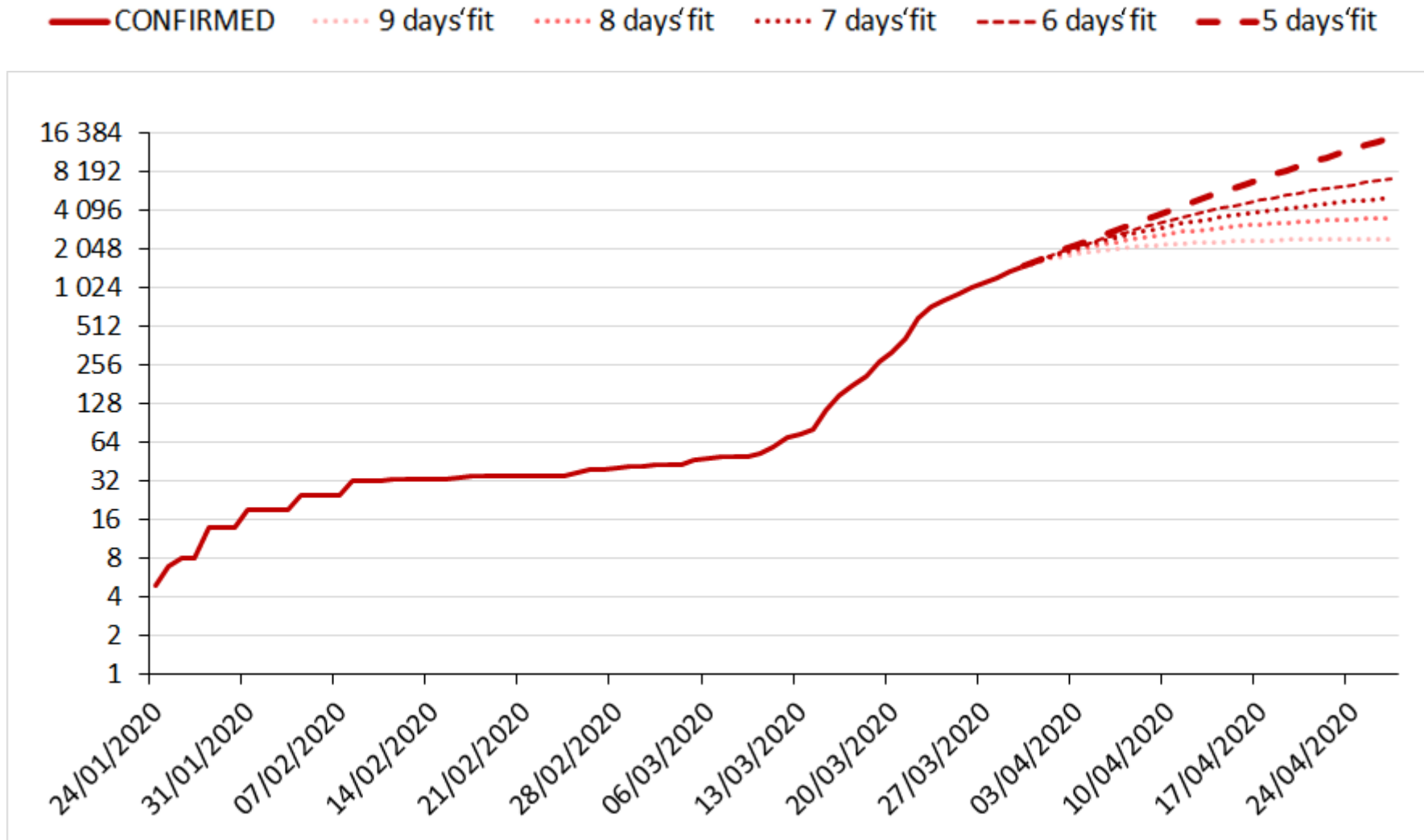
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# Switzerland



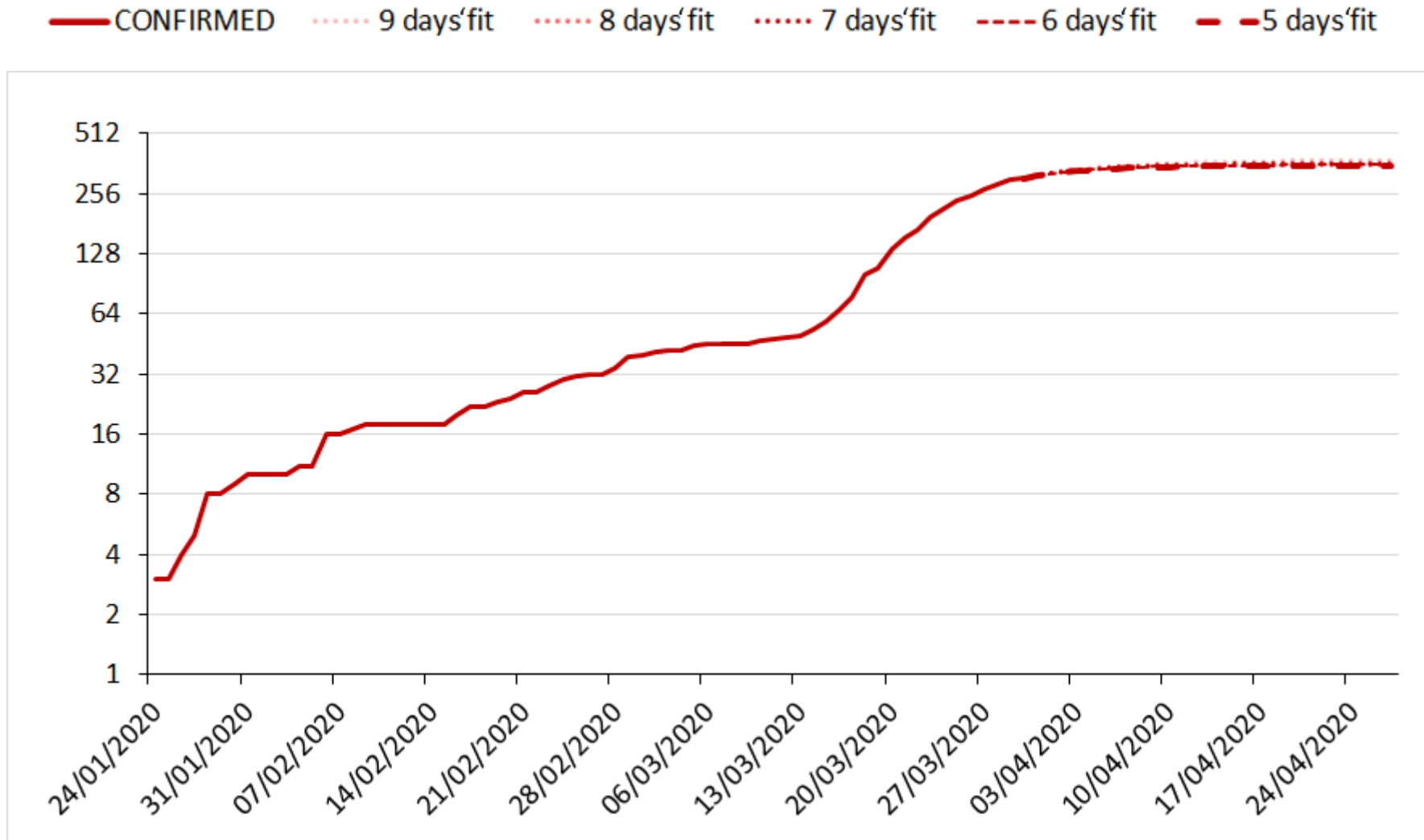
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# Thailand



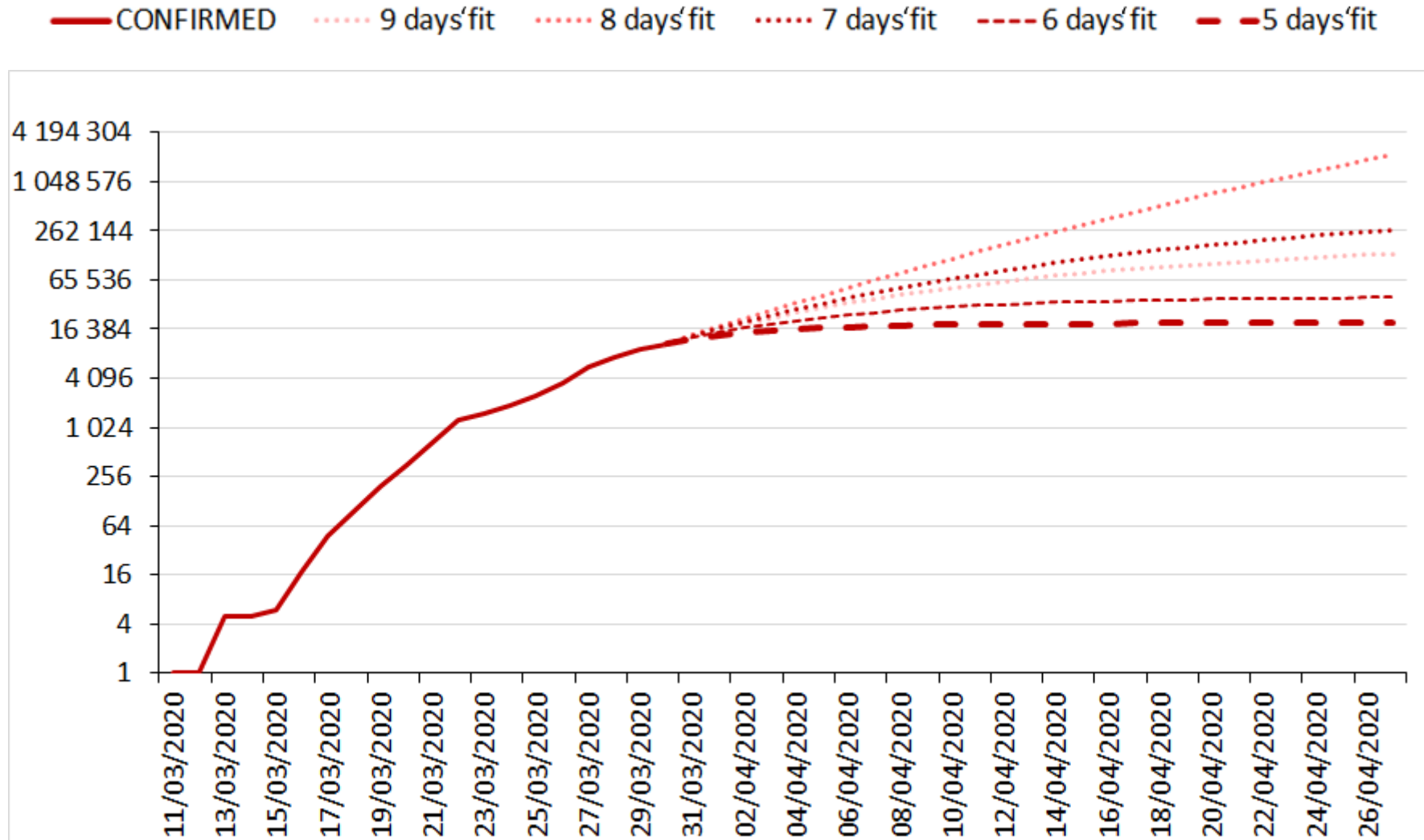
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# Taiwan



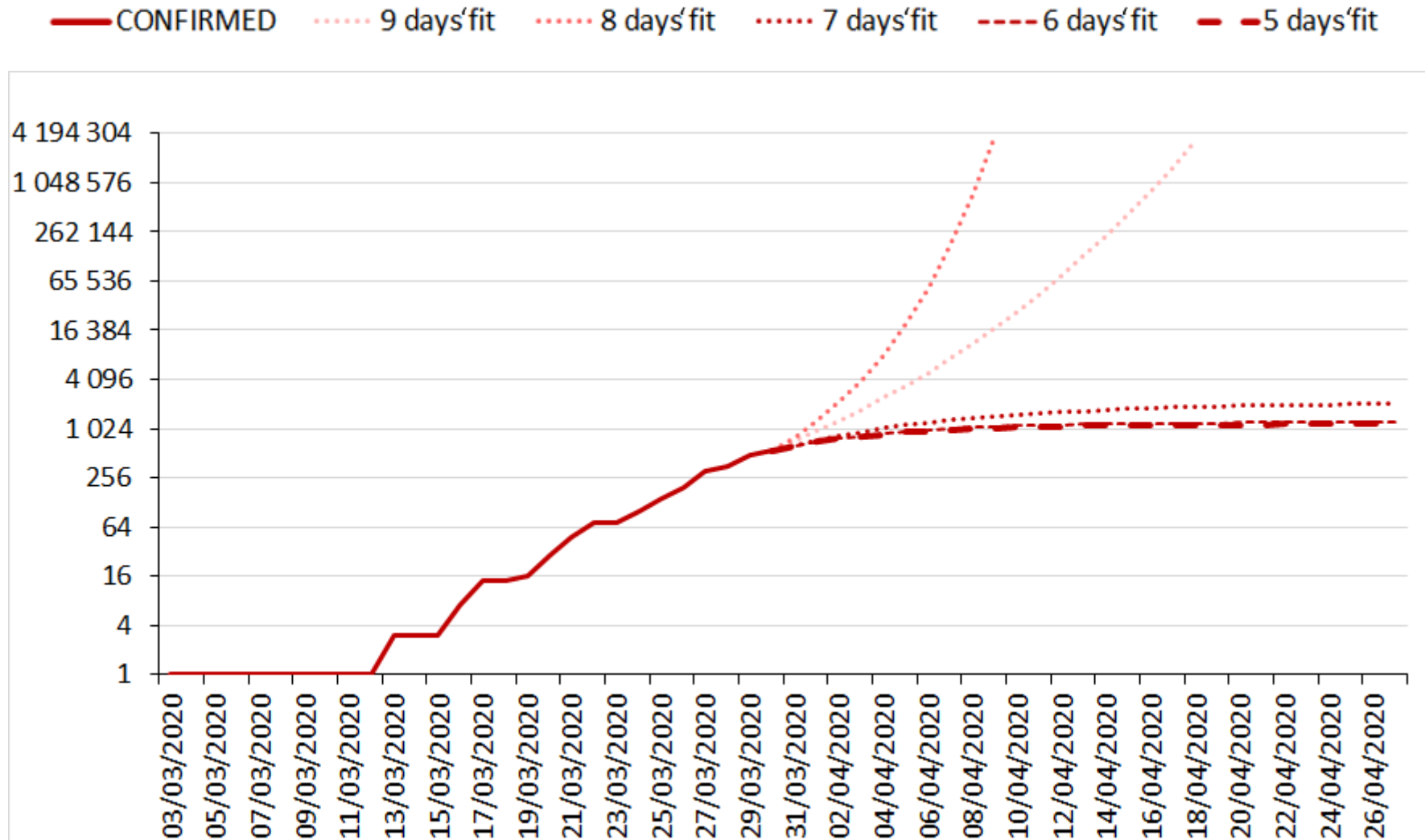
Data: The Johns Hopkins University, Politolog.com

# Turkey



Data: The Johns Hopkins University, Politolog.com

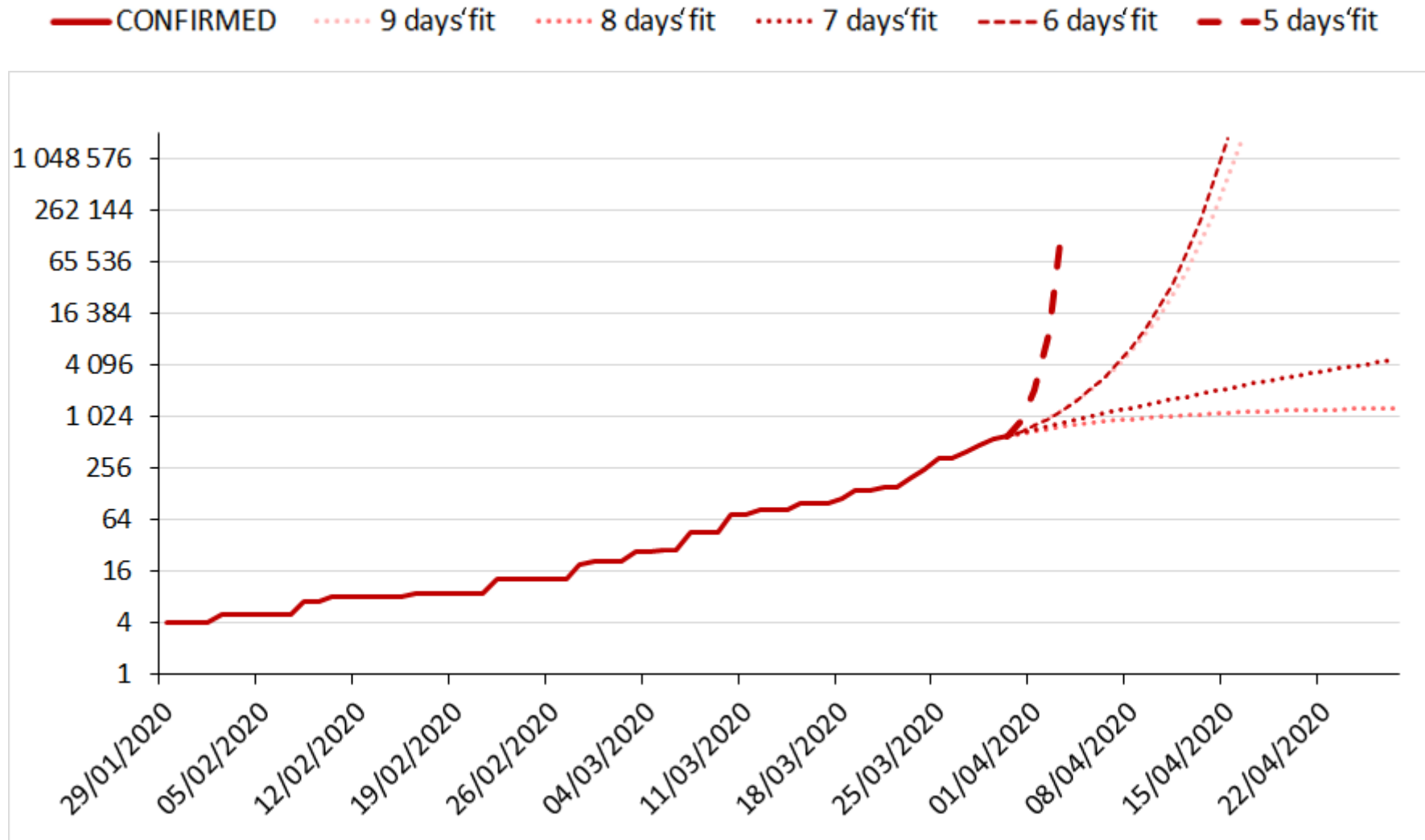
# Ukraine



Data: The Johns Hopkins University, Politolog.com

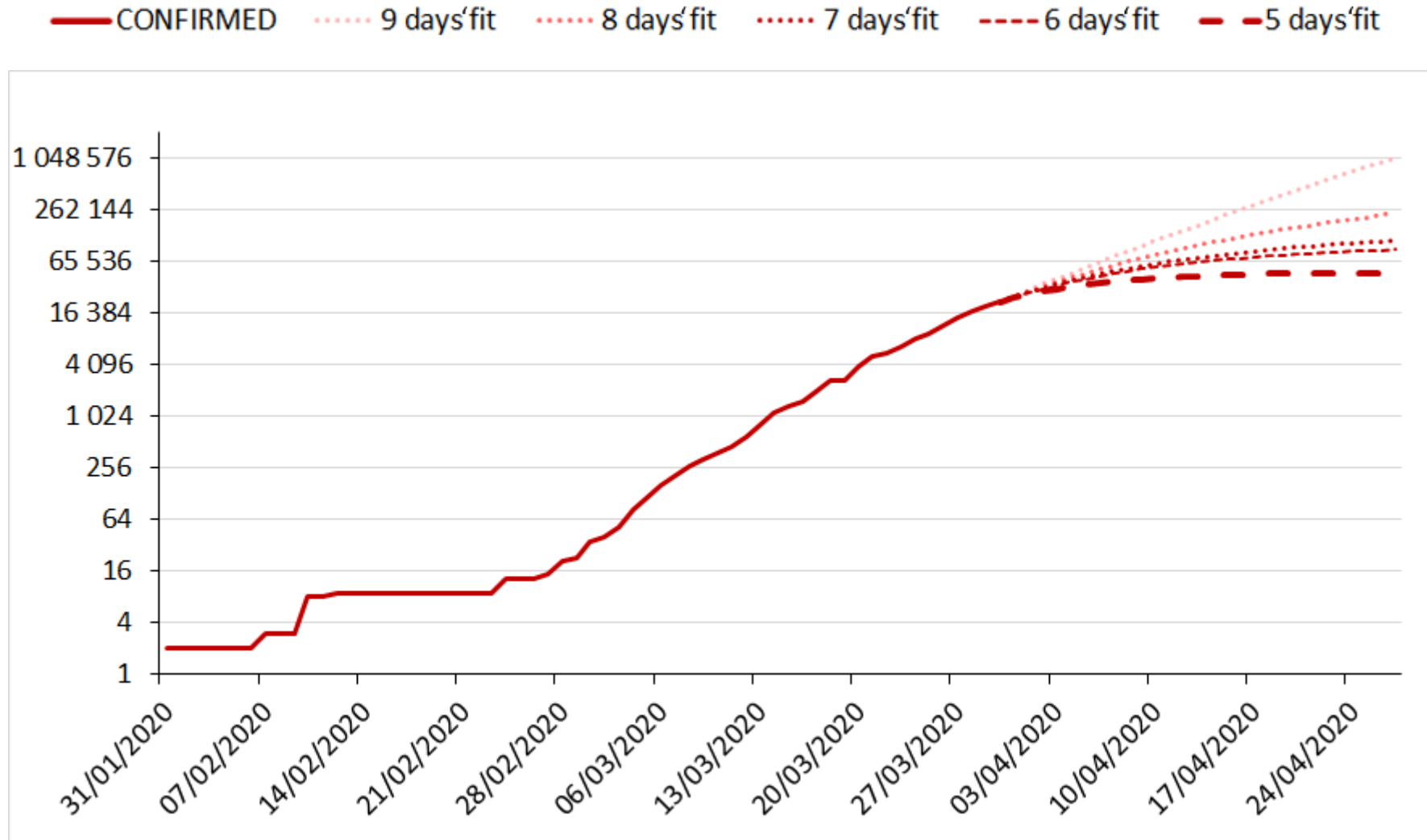


# United Arab Emirates



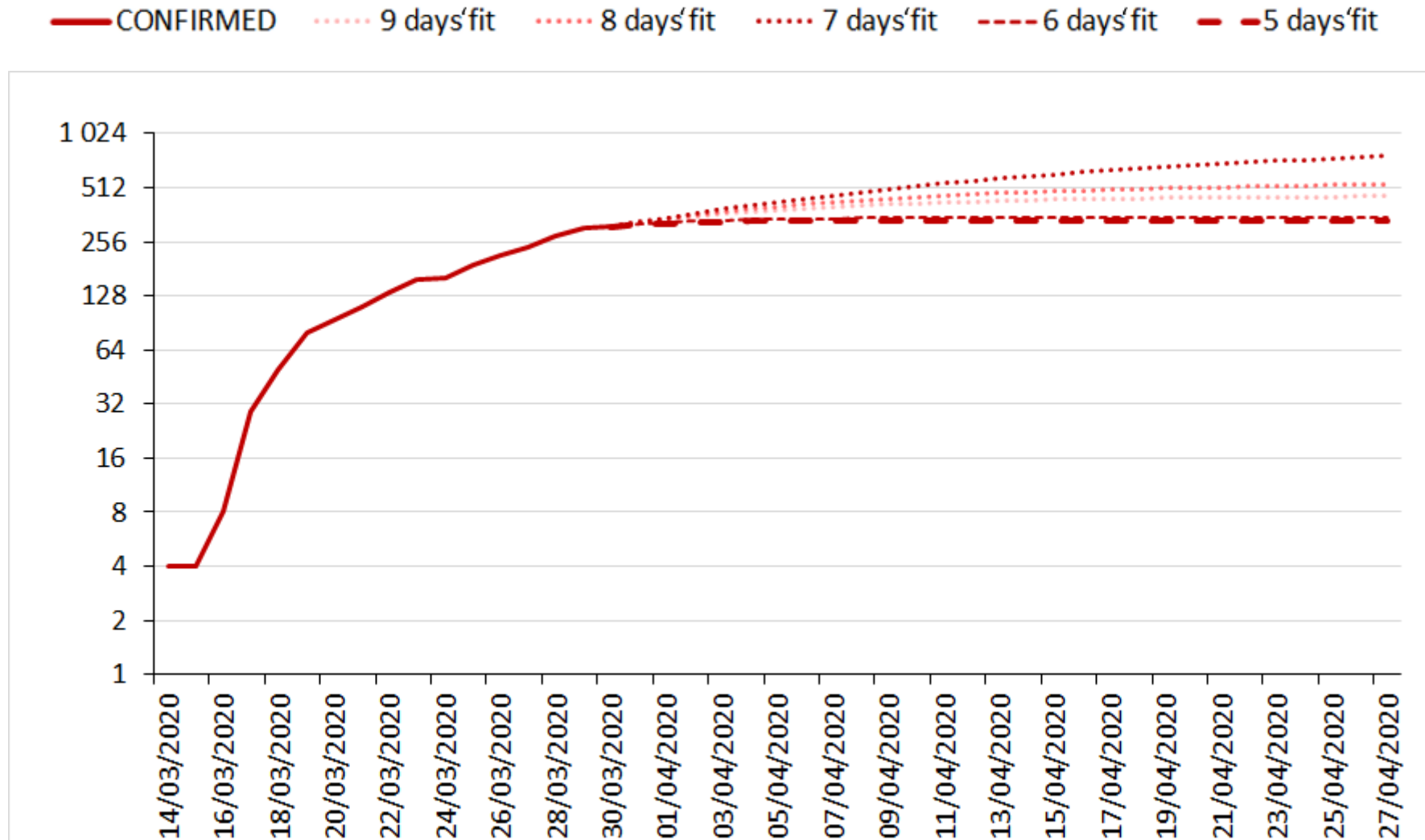
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# United Kingdom



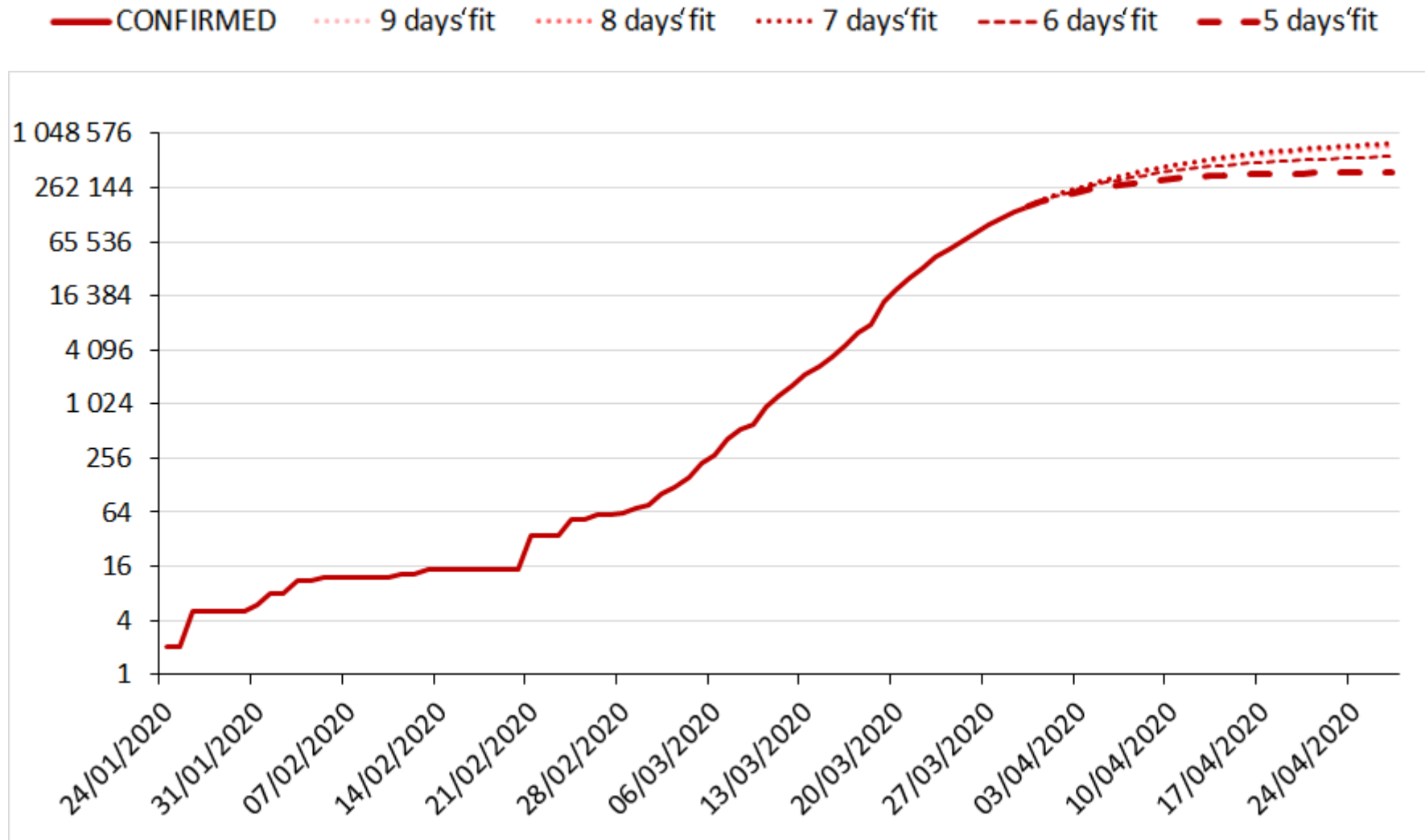
Data: The Johns Hopkins University, Politolog.com

# Uruguay



Data: The Johns Hopkins University, Politolog.com

# USA



Data: The Johns Hopkins University, Politolog.com



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