

Cambridge Judge Business School
Cambridge Centre for Health Leadership & Enterprise

COVID-19 TRACKER: INDIA

30 October 2021



Centre for
**Health Leadership
& Enterprise**



After a 4 week interregnum during which infection incidence was declining in India, the COVID-19 Tracker¹ is back, with the focus solely on identifying states with relatively high infection incidence with daily cases expected to grow.

Assam, Himachal Pradesh, Jammu and Kashmir, Karnataka, Mizoram and West Bengal currently have a combination of relatively high infection incidence and positive growth in cases.

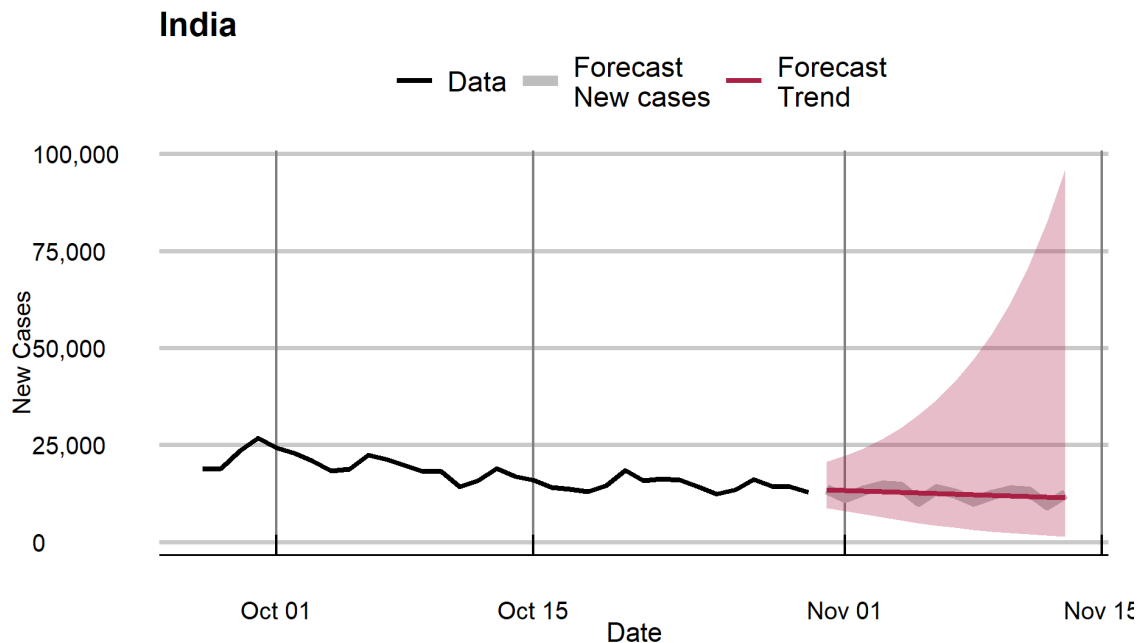
For India as a whole, the trend value of new COVID-19 cases is likely to fall to about 11,500 per day in two week's time, by 13 November. Daily cases are expected to fall in Andhra Pradesh, Kerala, Maharashtra, Odisha, Tamil Nadu and Telangana.

¹ CJBS COVID-19 Tracker for India can be accessed at: www.jbs.cam.ac.uk/covid-india.

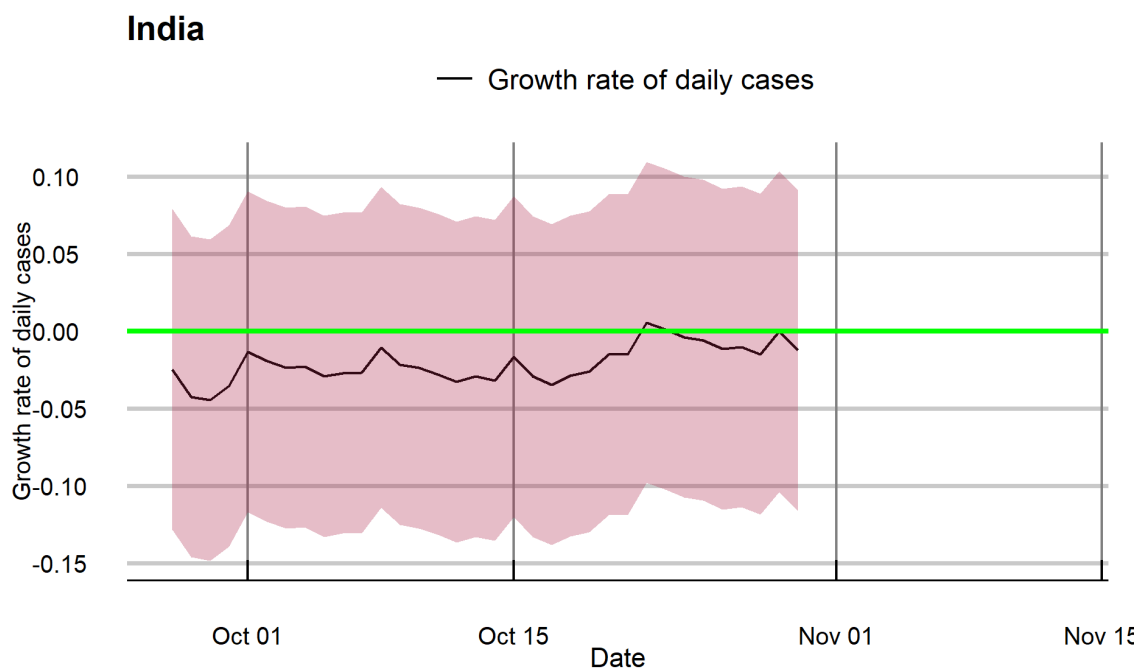
A UK [tracker](#) based on the same forecasting method is published by the [National Institute of Economic and Social Research](#).

Daily Covid-19 cases in India: Forecast

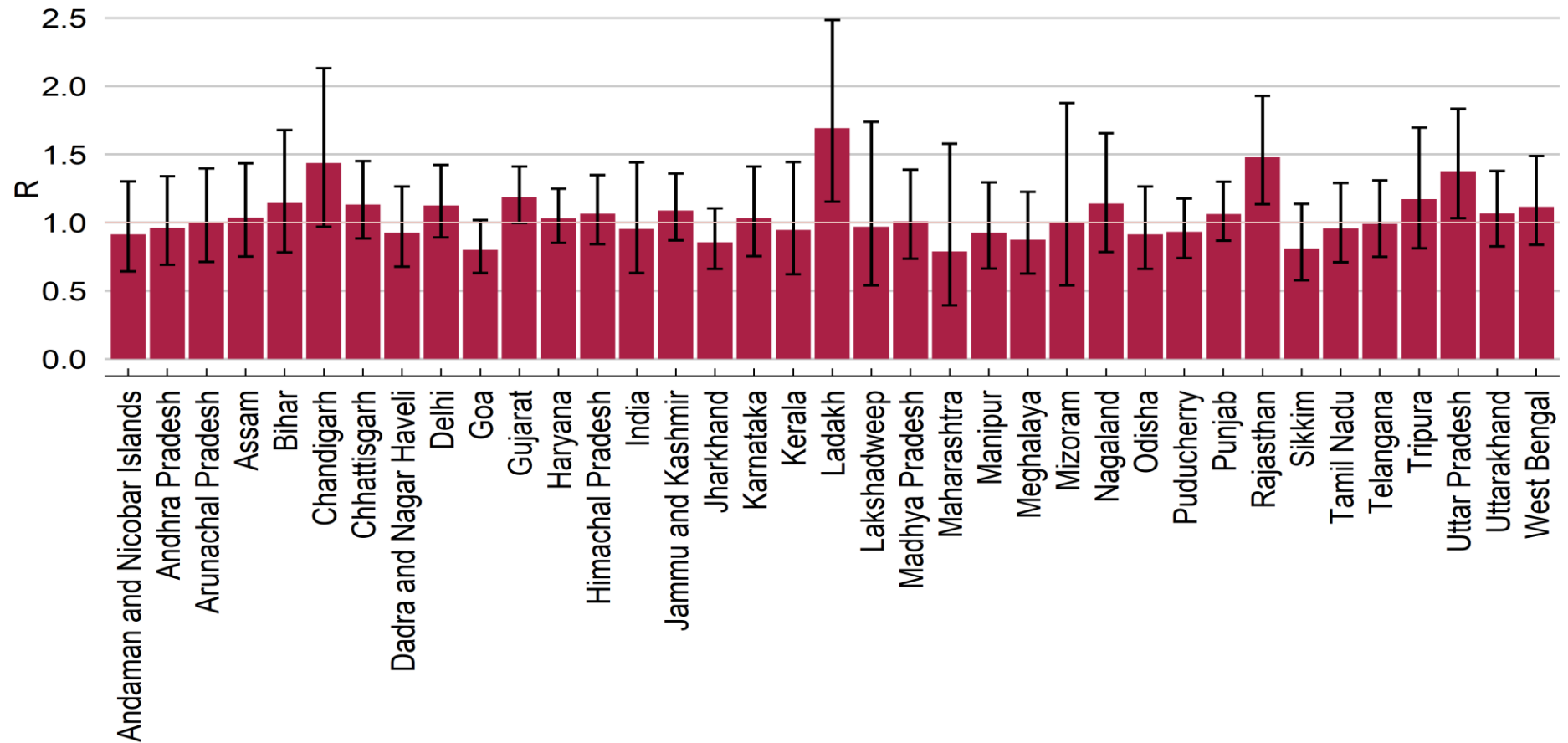
Forecasts of daily new cases for the period 31 October to 13 November 2021, based on data till 30 October 2021. The trend value of new COVID-19 cases is likely be about 11,500 per day by 13 November.



The filtered growth rate of daily new cases was -0.012 (-1.2 %) as on 30 October 2021.



R_t: 30 October 2021



Bar chart shows point estimates of R and the ± 1 standard deviation confidence intervals

Note: Small daily numbers (less than 25) currently seen in Andaman and Nicobar Islands, Arunachal Pradesh, Bihar, Chandigarh, Dadra and Nagar Haveli, Goa, Haryana, Jharkhand, Ladakh, Lakshadweep, Madhya Pradesh, Nagaland, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh and Uttarakhand make their estimates and forecasts less precise.

Filtered daily growth rates for States and Union territories with relatively high infection incidence and growth in daily cases

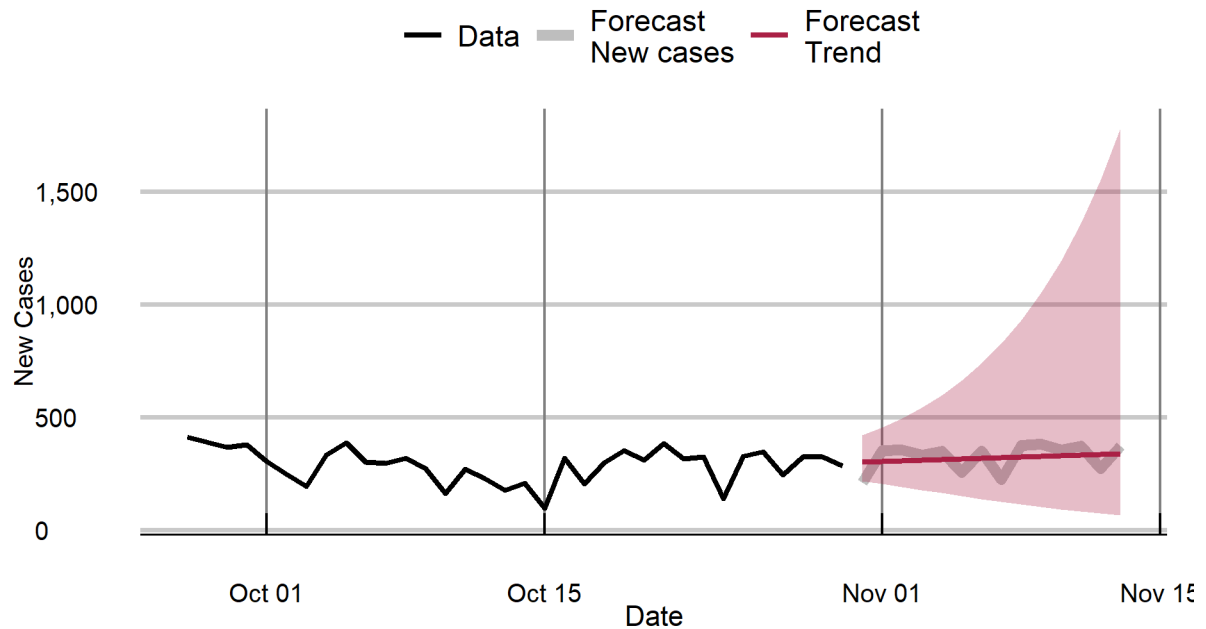
Date	Assam	Delhi	Himachal Pradesh	Jammu and Kashmir	Karnataka	Mizoram	West Bengal
17/10/2021	-1.0%	-2.1%	-0.2%	-2.2%	-3.9%	-5.6%	-4.3%
18/10/2021	0.5%	-3.6%	0.8%	-0.7%	-5.1%	-4.6%	-1.8%
19/10/2021	2.4%	-1.5%	3.1%	-0.1%	-3.3%	-5.3%	-0.2%
20/10/2021	3.2%	-2.2%	0.1%	-0.5%	-0.9%	-5.8%	1.5%
21/10/2021	4.7%	-2.9%	1.5%	-0.1%	-0.6%	-5.5%	2.3%
22/10/2021	6.2%	0.5%	2.7%	2.3%	1.2%	-2.5%	4.0%
23/10/2021	5.2%	2.7%	4.9%	0.8%	1.0%	-3.0%	4.5%
24/10/2021	1.9%	3.7%	1.1%	-0.4%	1.6%	-7.5%	4.8%
25/10/2021	1.6%	4.1%	3.2%	-0.9%	0.8%	-5.1%	4.5%
26/10/2021	1.6%	4.3%	4.5%	0.6%	-0.5%	-3.0%	3.5%
27/10/2021	-0.1%	3.6%	5.2%	-0.8%	-2.0%	-4.2%	3.2%
28/10/2021	0.1%	4.0%	3.9%	0.3%	0.1%	-3.9%	3.0%
29/10/2021	2.2%	3.7%	5.2%	1.4%	1.5%	-0.2%	3.7%
30/10/2021	0.9%	2.9%	1.5%	2.1%	0.8%	0.1%	2.7%

Forecasts of trend values of daily cases for States and Union territories with relatively high infection incidence and growth in daily cases

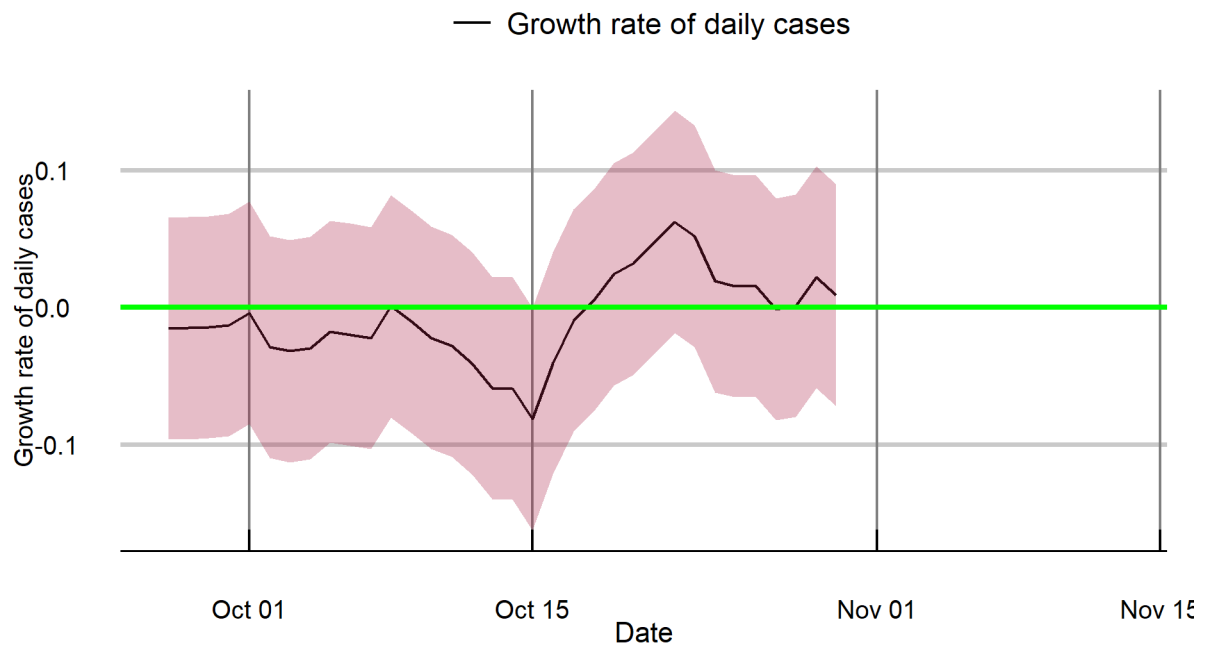
Date	Assam: Forecast trend	Delhi: Forecast trend	Himachal Pradesh: Forecast trend	Jammu and Kashmir: Forecast trend	Karnataka: Forecast trend	Mizoram: Forecast trend	West Bengal: Forecast trend
31/10/2021	301	40	210	91	357	554	1040
01/11/2021	304	42	213	93	359	554	1069
02/11/2021	306	43	216	95	362	555	1098
03/11/2021	309	44	220	97	365	556	1128
04/11/2021	312	45	223	99	368	556	1160
05/11/2021	315	47	227	101	370	557	1192
06/11/2021	318	48	230	103	373	557	1225
07/11/2021	321	50	234	106	376	558	1259
08/11/2021	323	51	238	108	379	558	1293
09/11/2021	326	53	241	110	382	559	1329
10/11/2021	329	54	245	112	385	559	1366
11/11/2021	332	56	249	115	388	560	1404
12/11/2021	335	57	253	117	390	560	1444
13/11/2021	338	59	257	120	393	561	1484

New cases forecasts and daily growth rates for States and Union territories with relatively high incidence and growth in infection

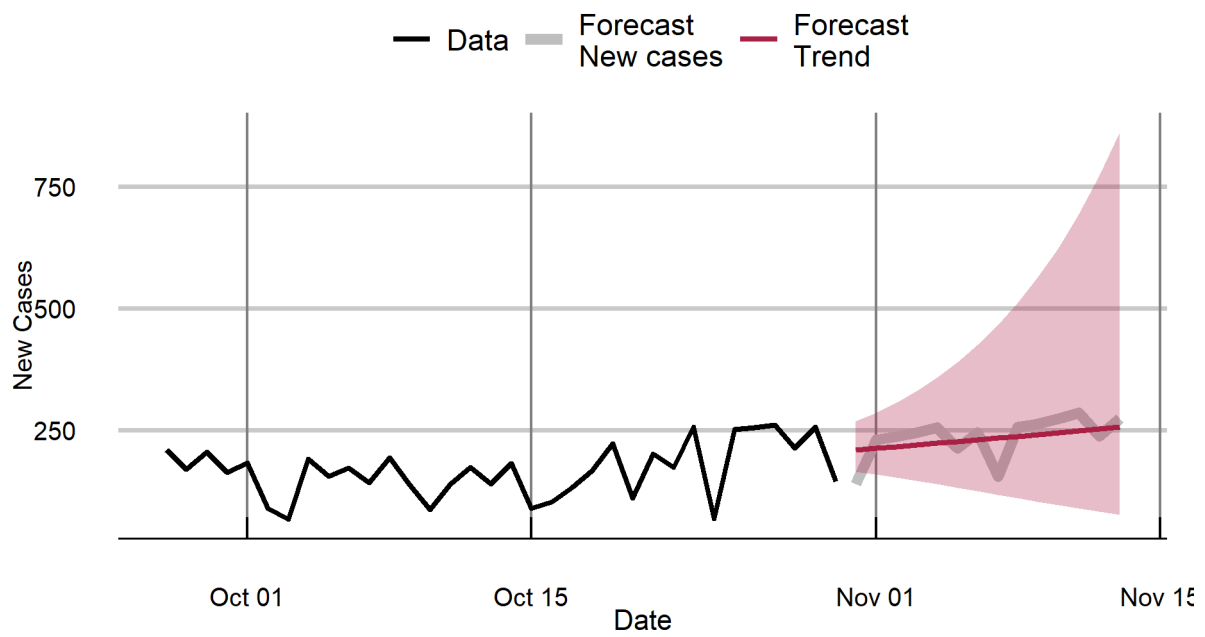
Assam



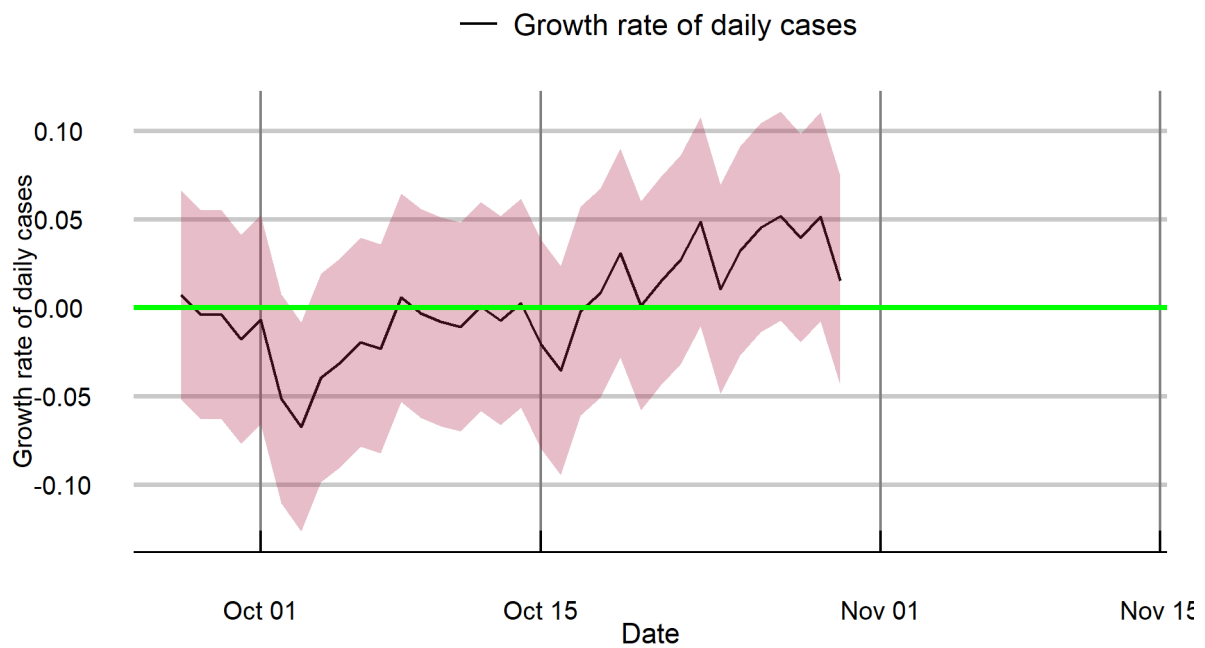
Assam



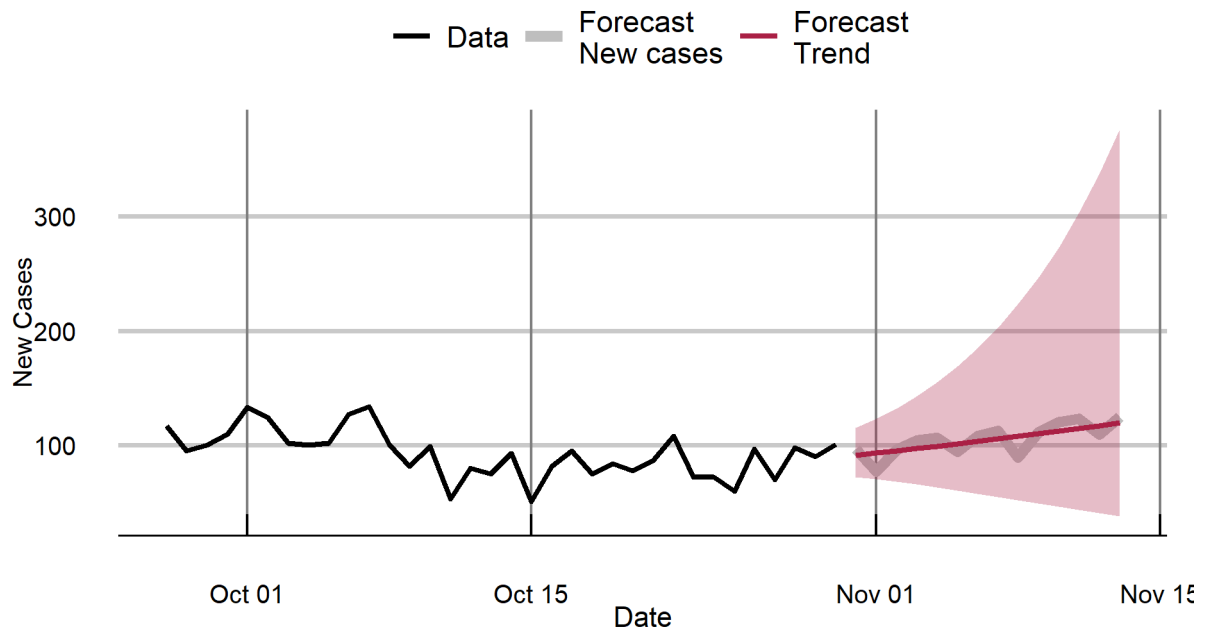
Himachal Pradesh



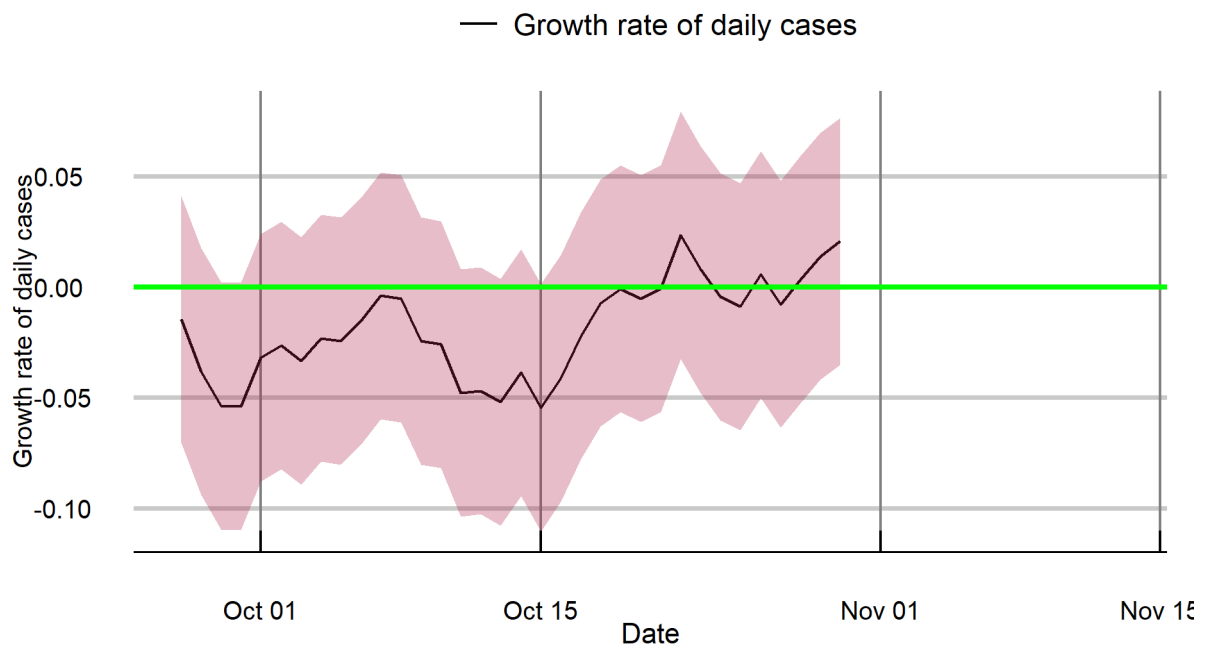
Himachal Pradesh



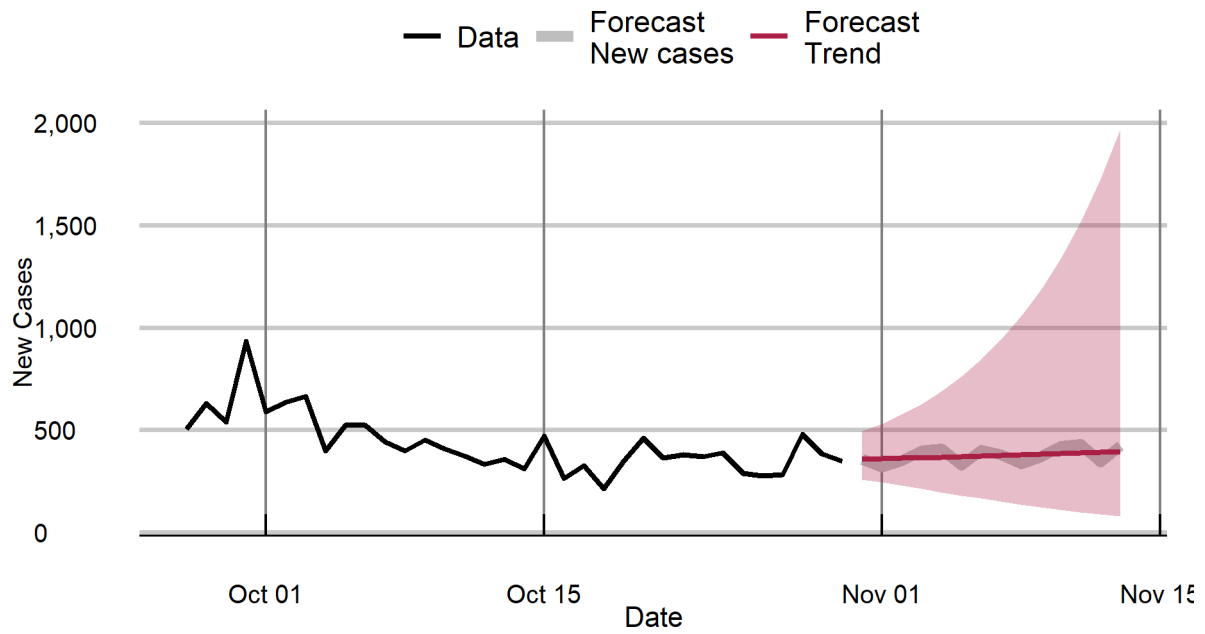
Jammu and Kashmir



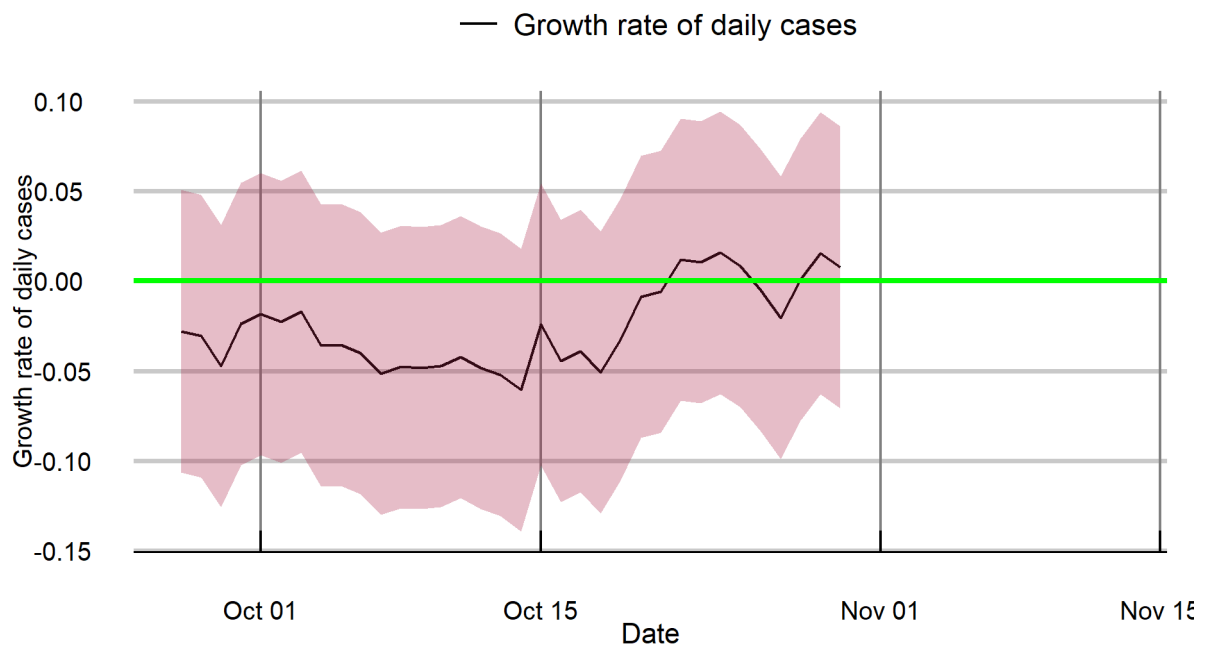
Jammu and Kashmir



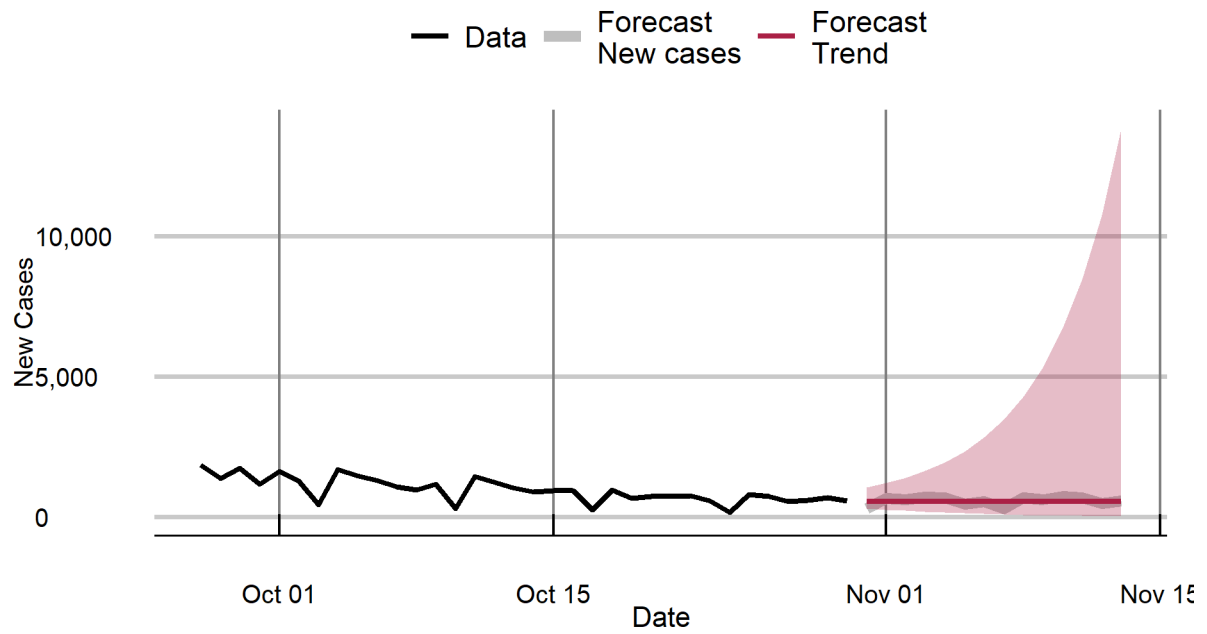
Karnataka



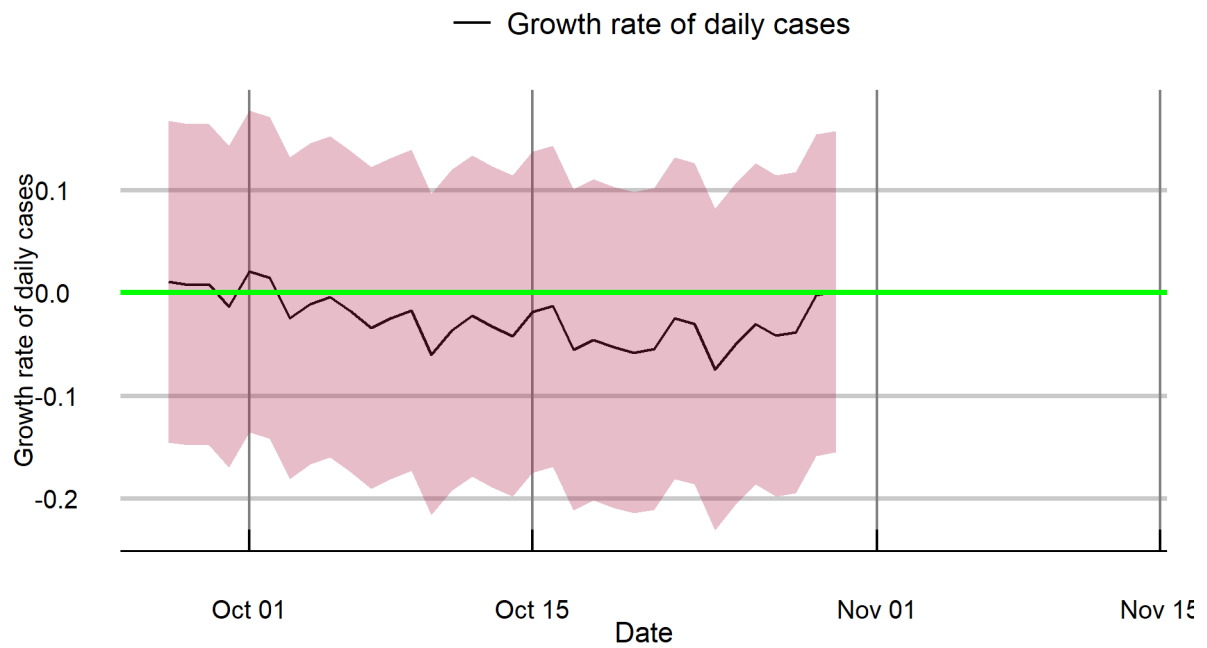
Karnataka



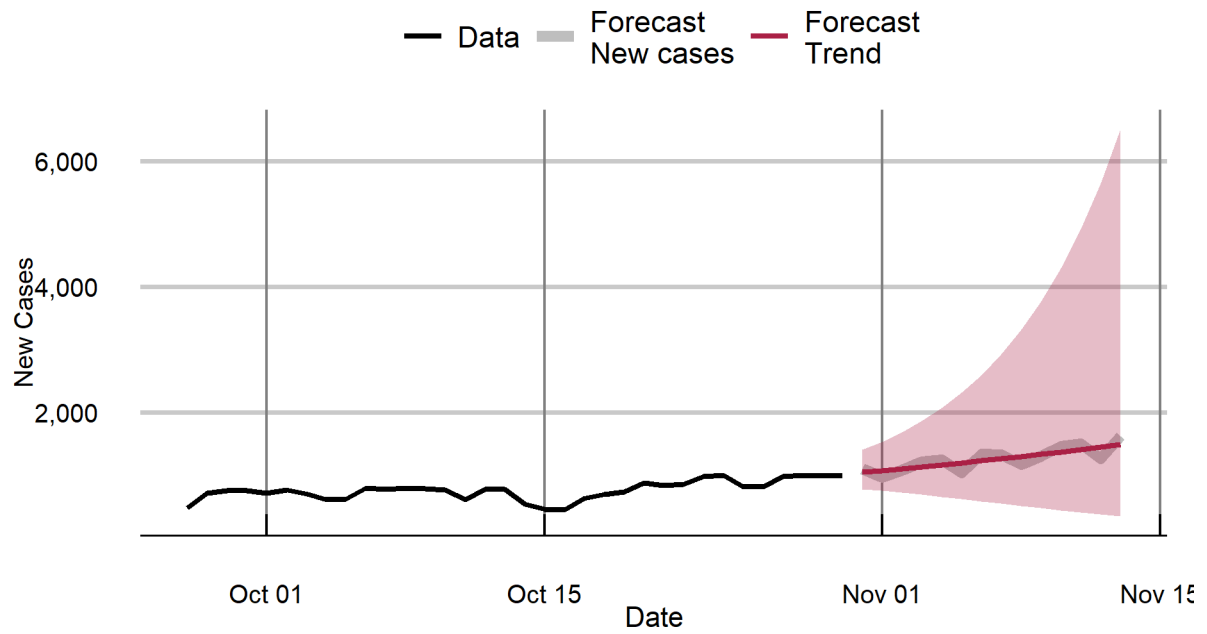
Mizoram



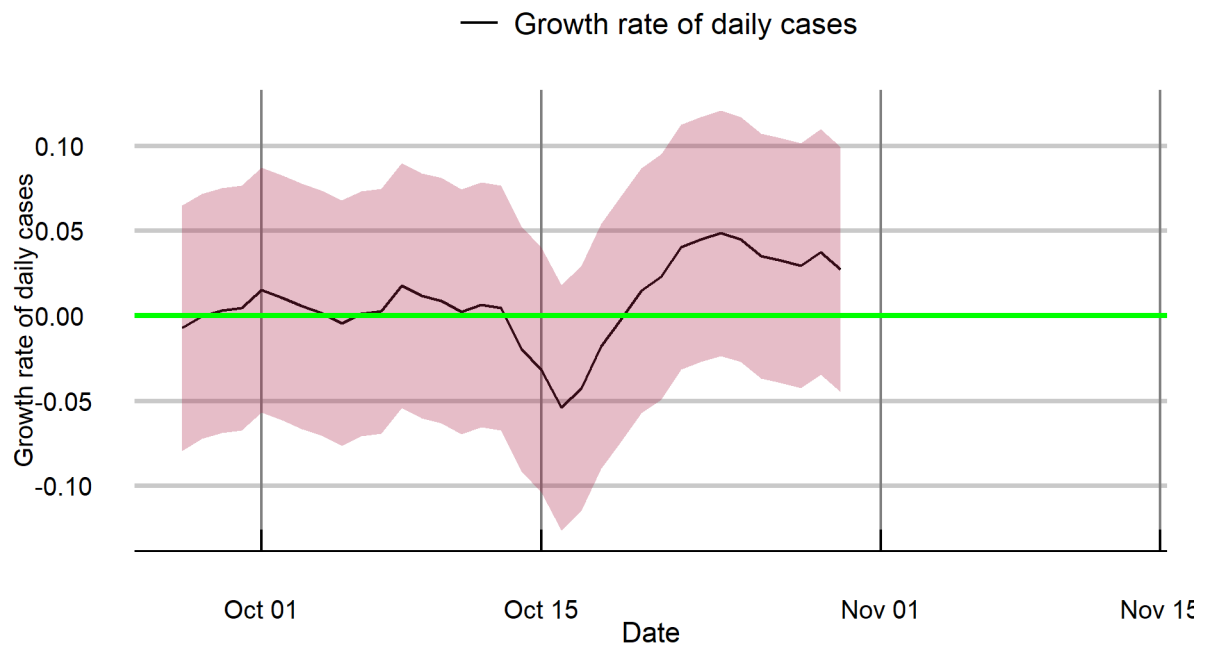
Mizoram



West Bengal



West Bengal



Notes

This tracker was developed by researchers at Cambridge Judge Business School and National Institute of Economic and Social Research, working with Health Systems Transformation Platform in India, as part of a pandemic monitoring series devoted to India and its states and union territories. It provides short term forecasts of the trajectory of the pandemic, identifying states and union territories that are at risk of increases in infection incidence.

Data: COVID-19 confirmed cases and deaths data are sourced from Johns Hopkins University (JHU), Center for Systems Science and Engineering (CSSE).

New cases: forecasts. Forecasts above are based on a structural time series model that uses all the data in estimation but adapts to the trend emerging in the most recent period.

The method is described in: Harvey, A. and P. Kattuman (2020). Time series models based on growth curves with applications to forecasting coronavirus. *Harvard Data Science Review*, Special issue 1 - COVID -19. <https://hdsr.mitpress.mit.edu/pub/ozgix0yn/release/2> , and Harvey, A., P. Kattuman, and C. Thamotheram (2021). Tracking the mutant: forecasting and nowcasting COVID-19 in the UK in 2021. *National Institute Economic Review*. 256, 110-126. doi:10.1017/nie.2021.12.

New cases: growth rate. The filtered trends presented for daily growth rates of cases are estimated using the Kalman filter, applied to the observed series. The method filters out day of the week effects and random noise to reveal the underlying signal. Unlike methods such as the moving average, this method adapts the trend to changes in real time and characterises underlying patterns of surges or attenuations that are hidden in the volatile series. The method is described in the papers listed above.

R: The *R*-estimates are based on the nowcast of the growth rate; the estimation approach is described in Harvey, A. and P. Kattuman (2021). A farewell to R: Time series models for tracking and forecasting epidemics. *Journal of the Royal Society Interface*, 18, 20210179, <https://royalsocietypublishing.org/doi/10.1098/rsif.2021.0179>. The confidence interval is based on one standard deviation, with coverage of 68%.

Note: The accuracy of forecasts rely on the quality of the published data. Further, changes in government pandemic policies and in transmission relevant social behaviour may lead realised numbers to deviate from forecasts.

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