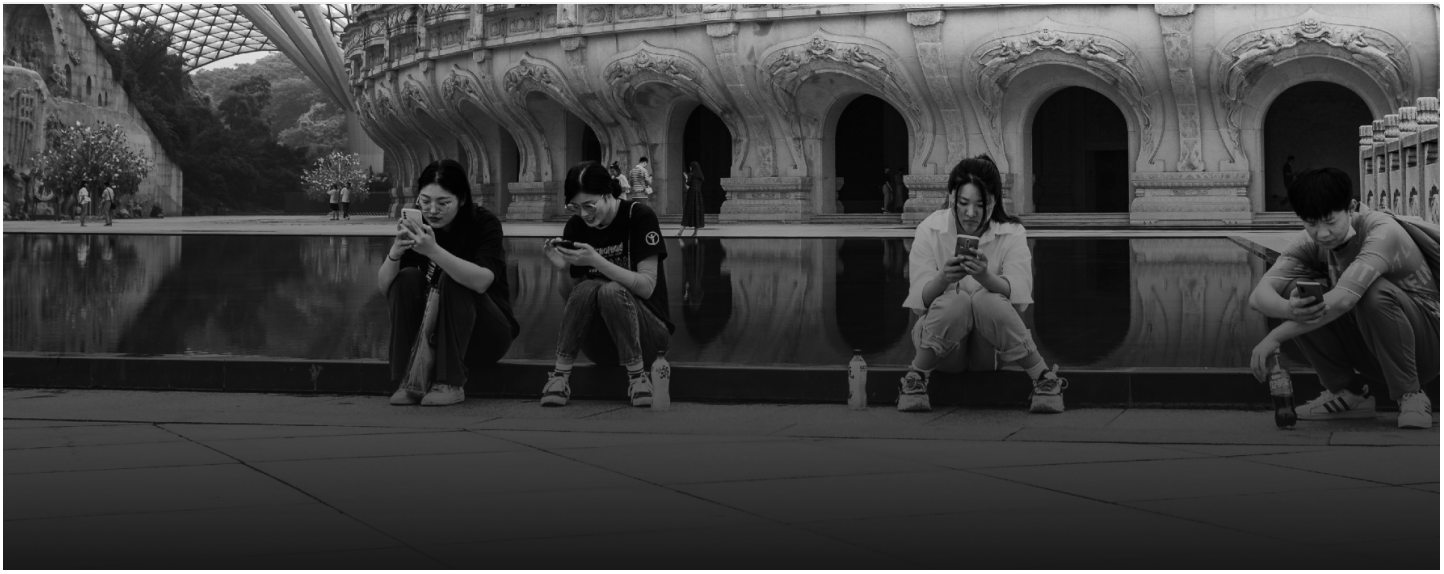


Hao Zha Yuxi Zhang Thomas Hale February 16th, 2022

How Chinese provincial governments responded to the Delta and Omicron waves

Estimated reading time: 4 minutes

*How long will China continue to try to eliminate COVID? A change of strategy is not very likely, argue **Hao Zha (Tsinghua)**, **Yuxi Zhang (LSE)**, and **Thomas Hale (Oxford)** who collect and analyse China's data for the Oxford COVID-19 Government Response Tracker.*

China saw four waves of COVID-19 transmission in 2021, with a fifth (Omicron) wave emerging at the beginning of 2022. Data from the Blavatnik School of Government's Oxford COVID-19 Government Response Tracker suggests that China's policy has become more targeted over the course of 2021, even when confronting Omicron.

By late 2021, most countries with high vaccination rates had moved toward "living with COVID", including some previous "zero-COVID" holdouts, such as Australia, New Zealand and Singapore. However, China has become virtually

the only country which continues to try to eliminate the virus. Can it continue to do so? This article summarises the arguments we make in a new working paper.

The Delta and Omicron waves in China are larger than previous outbreaks, measured by the number of provinces affected (see Table 1), compared with the few local flare-ups during the year before. The media have paid particular attention to the outbreak in Xi'an, an ancient capital city in northwest China, where transmission of the Delta variant led to a city-wide lockdown for a month – the largest lockdown across the country in 2021. Many anticipated that the COVID elimination strategy was "not sustainable", "getting bumps", "under strain", or "put to its toughest test".

However, comparative data tell a more nuanced story. Based on the Blavatnik School's Oxford COVID-19 Government Response Tracker (OxCGRT) at the Chinese subnational level, a dataset recording daily government responses to COVID in 31 provincial-level jurisdictions in mainland China since 1 January 2020, we unpack the regional policy variation between provinces and over time.

Restrictive policies have been increasingly geographically targeted

We find that Chinese provincial governments have been able to implement the so-called "dynamic clearance" strategy consistently over time. Although the case of Xi'an is quite salient, the average time needed to bring a new provincial outbreak to zero has become shorter, not longer, even during the Delta and Omicron waves. Restrictive policies have been increasingly geographically targeted. With some baseline prevention and control measures,

costly policy options, such as stay-at-home orders, are no more common at the start of 2022 than they were at the start of 2021.

Figure 1 and Table 1 together show that China has been hit by five relatively large waves of COVID since the beginning of 2021. Most Delta or Omicron-driven transmission clusters have spread to multiple provinces (Wave 2-5). Top officials from the national health authority warned that China faced a hefty challenge in controlling the virus during the 2021-2022 winter-spring season.

Figure 1: Daily new confirmed COVID cases since 2021 (updated to 19 January 2022)

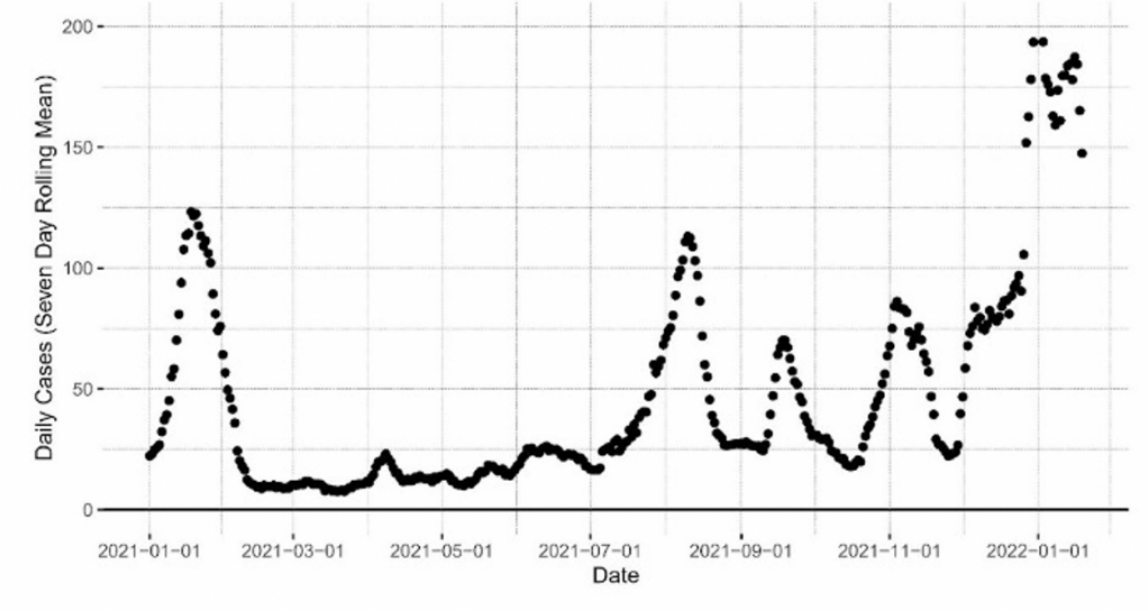
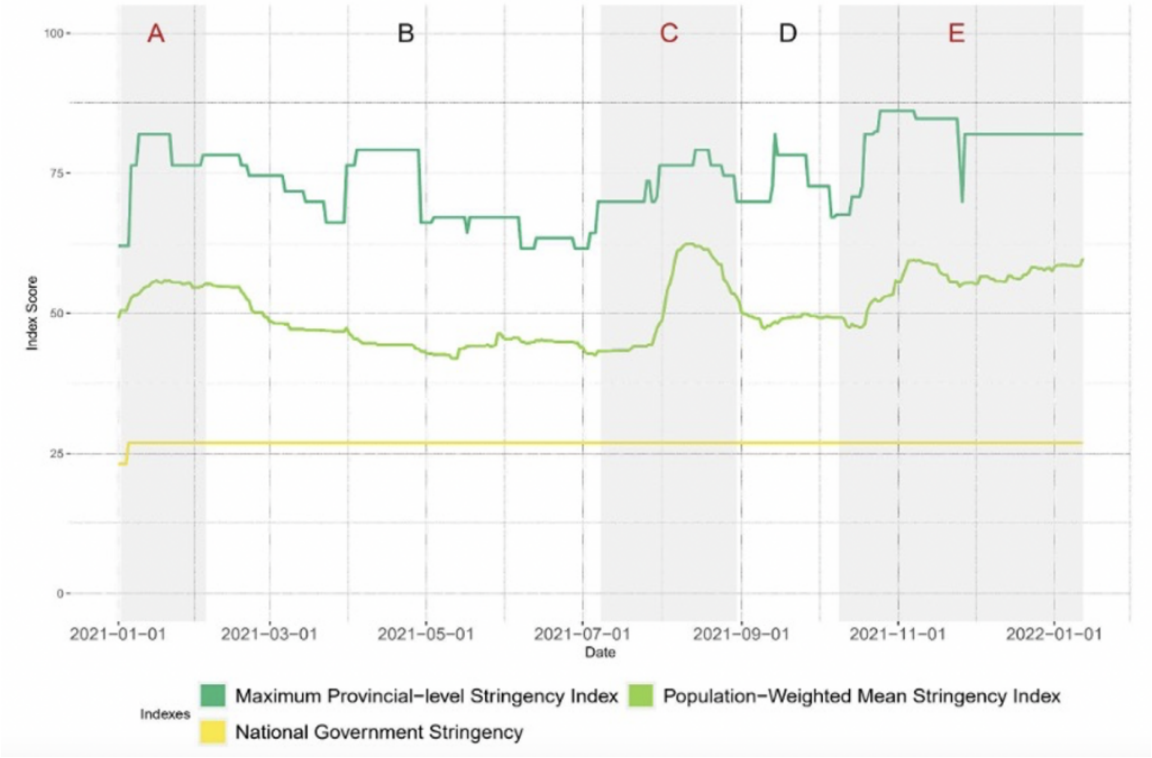


Table 1: Five major COVID-19 outbreaks in 2021

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5
Start	1 Jan 2021	8 July 2021	10 Sept 2021	16 Oct 2021	26 Nov 2021
End	4 Feb 2021	30 Aug 2021	7 Oct 2021	19 Nov 2021	Continuing
Delta variant	No	Yes	Yes	Yes	Yes
Omicron variant	No	No	No	No	Yes
Total number of cases	2,598	2,917	1,229	1,948	6,830
Domestic cases	2,099	1,339	560	1,344	4,697

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5
Imported cases	499	1,578	669	604	2,133
Peak date	14 Jan 2021	9 Aug 2021	16 Sept 2021	2 Nov 2021	27 Dec 2021
Peak case number	144	143	84	109	209
Number of severe provincial outbreaks (>20 new daily confirmed cases)	3	3	2	4	7
Average duration of severe provincial outbreaks (in days)	16.7	14.7	14.5	5.0	11.6
Source cities of severe provincial outbreaks	Shijiazhuang, Suihua	Nanjing, Zhengzhou, Ruili	Putian, Ruili	Ejina, Dalian, Heihe	Manzhouli, Xi'an, Zhengzhou, Tianjin, Shanghai
Number of provinces with outbreaks connecting to source cities	7	14	2	16	14

Figure 2: Comparison of maximum recorded stringency, average population-weighted stringency of Chinese provinces, and stringency of the national government (updated to 12 January 2022)



The OxCGRT Stringency Index (SI) records the strictness of closure and containment policies, which reduce contacts between people. Figure 2 shows that the maximum SI (dark green line) in any province has remained 60 or above throughout the last year. This line shows the situation of the province with the most stringent policy level among 31 provincial-level jurisdictions in mainland China. Meanwhile, the mean population-weighted SI across provinces has remained around the medium level (the bright green line in Figure 2, 40≤SI≤60).

Young people in Nanjing, June 2021. Photo: Gauthier DELECROIX – 郭天 via a CC BY 2.0 licence

Observing the change over time, the mean SI experienced a rather steep increase from late July into August. Several factors may have contributed to the policy escalation: the first inter-provincial transmission of Delta variant in mainland China was identified during the Nanjing outbreak in late July at the height of the summer travel season. The centrality of Nanjing to China's transport network spread transmission to 12 provinces. Since then, the country's top scientific advisors have warned provincial officials about the higher infectiousness of the Delta variant, and provincial governments responded strongly when the risks from a new variant first materialised.

The mean SI then stayed relatively stable from August to October, despite two more Delta outbreaks in Yunnan and Fujian Province. Importantly, the two outbreaks were contained within the provincial borders, preventing a need for strict measures across multiple regions. Therefore, notwithstanding some

highly targeted restrictions in Yunan and Fujian, the country's average policy stringency level did not change much.

> *There is some evidence to suggest that local governments and populations are getting more efficient and effective in controlling outbreaks*

Since late October 2021, the mean SI has again risen, but not exceeding the level of the summer wave. The bulge in November corresponds to a Delta-driven outbreak that spilled into 16 provinces. However, this significant outbreak was then controlled quite quickly. While it took on average 16.7 days for provinces to bring the daily new case back down to under 20 in early 2021, they spent at least two days less when dealing with Delta waves. And it took only five days, on average, for a province to control the November Delta wave.

The December-January wave saw a new challenge from Omicron, but the time needed for provincial governments to turn the tide was still shorter than that at the beginning of 2021, and the overall stringency of responses was less than that during the first Delta wave in summer 2021.

On balance, then, Delta and now Omicron do not seem to be fundamentally changing the effectiveness of provincial-level responses. Indeed, there is some evidence to suggest that local governments and populations are getting more efficient and effective in controlling outbreaks.

Of course, there is no guarantee that past success predicts future success. The challenges of maintaining the current approach may accumulate over time, or new variants may introduce new complications. However, at the start

of 2022, it seems likely that Chinese officials will be able to maintain their current approach for the foreseeable future, should they choose to do so.

The OxCGRT Stringency Index records the strictness of 'lockdown style' policies that primarily restrict people's behaviour. The index is composed of nine individual policy response indicators, for example C1 school closing, C3 cancel public event, C6 stay-at-home requirement, C8 restrictions on international travel. Each of these ordinal indicators is rescaled to create a score between 0 and 100, with a missing value contributing 0. These scores are then averaged to get a composite index. Please refer to the working paper (pages 10-11) for the full list of composite indicators, the methods, suggestions and notices on how to interpret the index.

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This post represents the views of the authors and not those of the COVID-19 blog, nor LSE. It originally appeared on the Blavatnik School of Government's Voices blog.

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