

# Don't Panic, Be Cautious, and Together We Can Stop the Coronavirus Epidemic!

Lawrence J. Lau and Yanyan Xiong<sup>1</sup>

5 April Supplementary Charts

6 April 2020

Since the publication of our paper in the *Asia Pacific Biotech News*<sup>2</sup>, we have continued to monitor the development of the COVID-19 epidemic on the Mainland of China and updated the relevant charts in our original paper on a weekly basis<sup>3</sup>. We have prepared this current update, through midnight (2400) of 5 April. We note that the COVID-19 epidemic was essentially over on the Mainland ex Hubei by the middle of March. It was over on the entire Mainland, including Hubei and Wuhan, at the end of March, in accordance with the prediction in our paper. Concern has now shifted to how to isolate and contain new cases imported into the Mainland from abroad, and similar cases in Hong Kong and Taiwan, which have been rising fast.

In this update, we have adjusted the data on newly confirmed cases and deaths of Wuhan and Hubei, so as to smooth out their reported surges on 12 February, which were primarily caused by a change in the definition of “confirmed” case in Hubei, including Wuhan. We have redistributed the “excess” cases and deaths proportionally to the days between 16 January and 12 February<sup>4</sup>.

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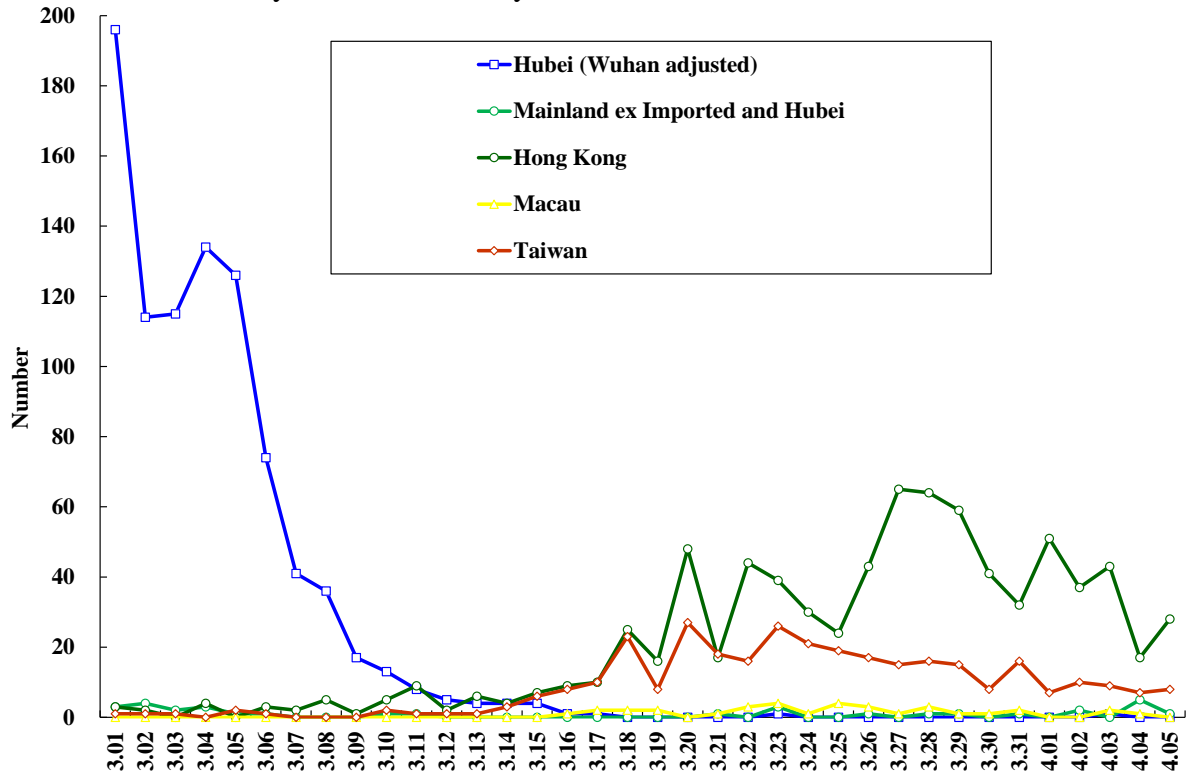
<sup>1</sup> Lawrence J. Lau is Ralph and Claire Landau Professor of Economics, The Chinese University of Hong Kong, and Kwoh-Ting Li Professor in Economic Development, Emeritus, Stanford University, and Yanyan Xiong is ZJU100 Young Professor, School of Economics, and Research Fellow, Center of Social Welfare and Governance, Zhejiang University. Earlier and shorter versions of this paper were published in Lawrence J. Lau, “Why Good Hygiene is More Effective Than Closing Borders,” *South China Morning Post*, Hong Kong, 4 February 2020, p. A11; and Lawrence J. Lau, “Don't Panic, Be Cautious, and Together We Can Stop the Epidemic!” *China-U.S. Focus*, Hong Kong, 8 February 2020. The authors are most grateful to Professor Dean T. Jamison and Ms. Ayesha Macpherson Lau for their helpful comments and suggestions on earlier drafts of this paper. Responsibility for any errors remains with the authors.

<sup>2</sup> Lawrence J. Lau and Yanyan Xiong, “Don't Panic, Be Cautious, and Together We Can Stop the Coronavirus Epidemic,” *Asia Pacific Biotech News*, Special Issue 1, March 2020, doi: s0219030320001202, pp. 90-107.

<sup>3</sup> The weekly updated charts may be found on the webpage of Lawrence J. Lau, <http://www.igef.cuhk.edu.hk/people/professor-lawrence-j-lau/>.

<sup>4</sup> The redistribution has no effect on our conclusions. However, it does facilitate comparison across countries, regions and municipalities.

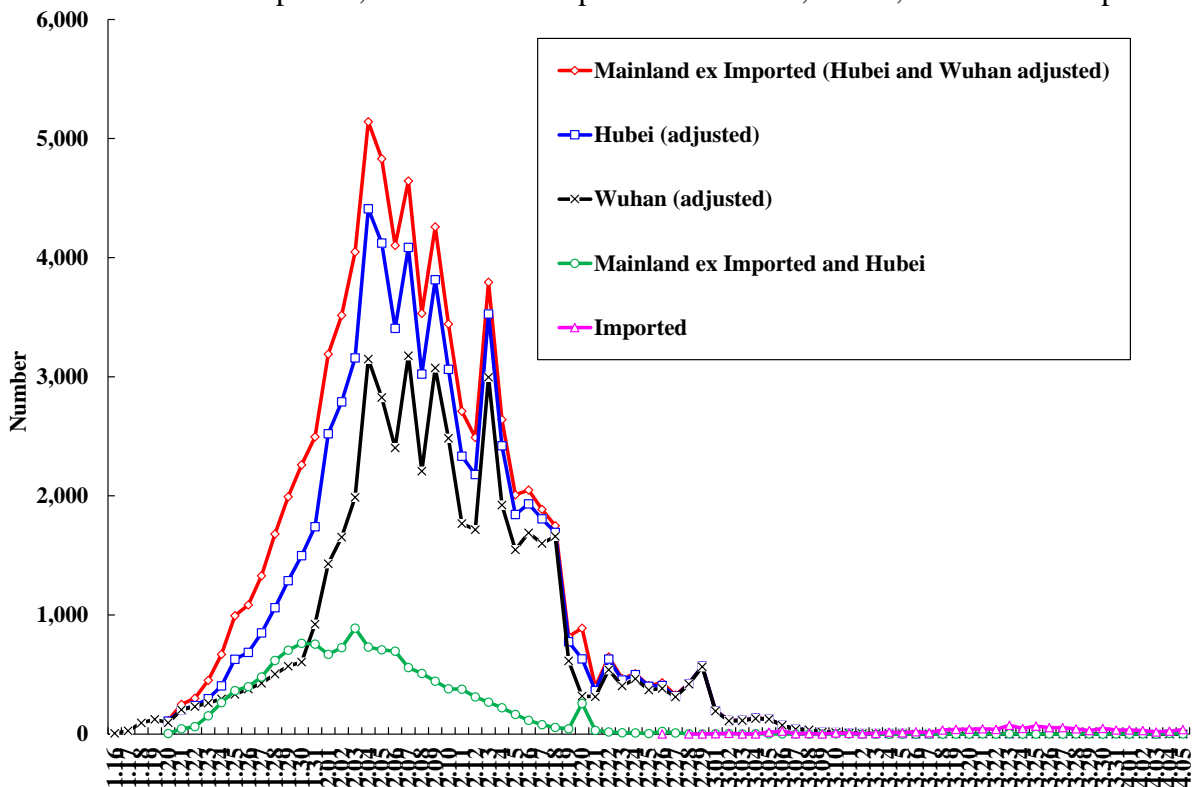
Chart 2A: The Daily Number of Newly Confirmed Cases in Selected Areas outside Hubei



Sources: Same as Chart 1.

In the updated Chart 2A, the five major Chinese cities outside of the Province of Hubei are no longer shown separately. Instead, the daily number of newly confirmed domestic cases outside Hubei is represented by a single line, Mainland ex imports and Hubei. This line is hardly visible and averages 0.8 case per day since 16 March. Similarly, the number of daily newly confirmed cases within Hubei (including Wuhan) has also been essentially zero since 16 March, with an average of 0.2 cases per day. In fact, the epidemic has been basically over on the Mainland, where economic activities have already begun to return to normal, initially outside of Hubei, and then in Hubei (including Wuhan) itself. However, the daily newly confirmed cases in Hong Kong and Taiwan rose rapidly between 16 March and 5 April (respectively 28 and 8 on 5 April), especially in Hong Kong, because of the influx of a large number of returning residents from Europe and North America. Hong Kong now has more current COVID-19 cases than any other municipality, province and region on the Mainland, including even Hubei. In the meantime, on the Mainland, newly confirmed cases imported from abroad have also been identified in many places, notably in Beijing, Shanghai and the Province of Guangdong. Strict quarantine measures must be taken on the Mainland to prevent the imported cases from spreading and possibly triggering a resurgence of the COVID-19 epidemic.

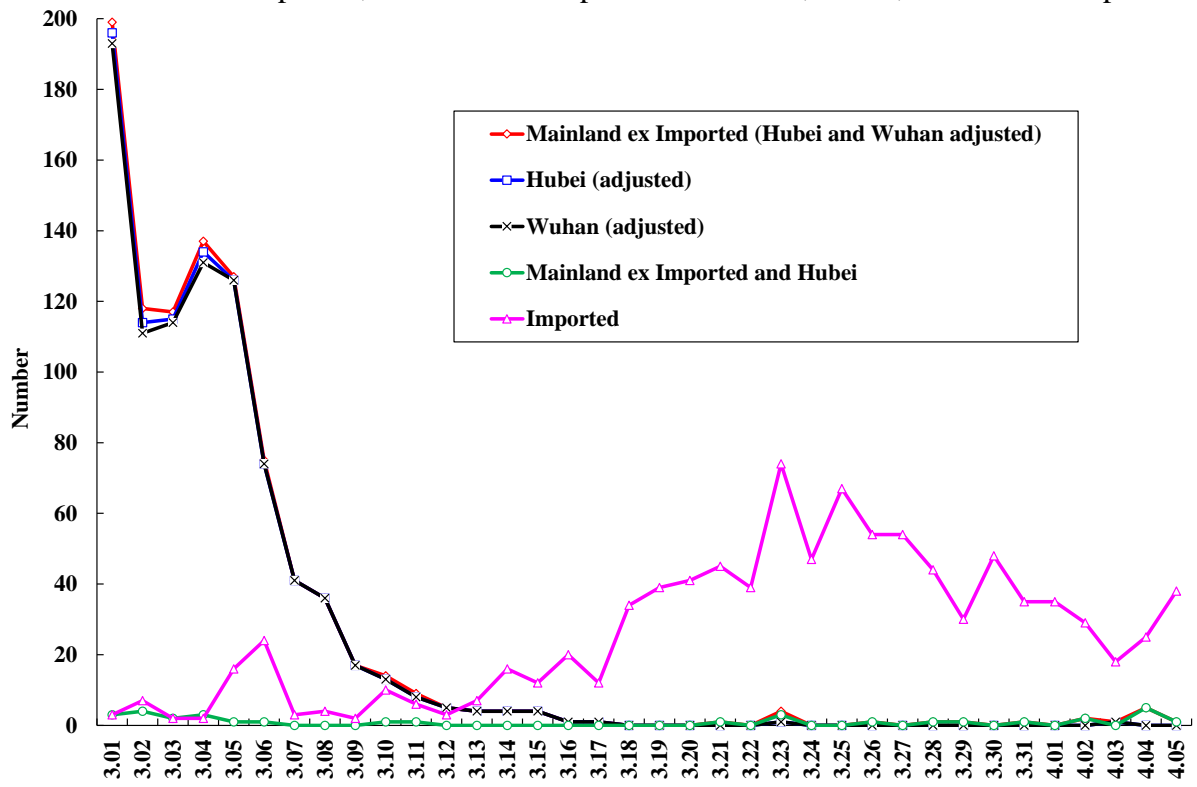
Chart 3: The Adjusted Daily Number of Newly Confirmed Cases:  
The Mainland ex Imported, Mainland ex Imported and Hubei, Hubei, Wuhan and Imported



Sources: Same as Chart 1.

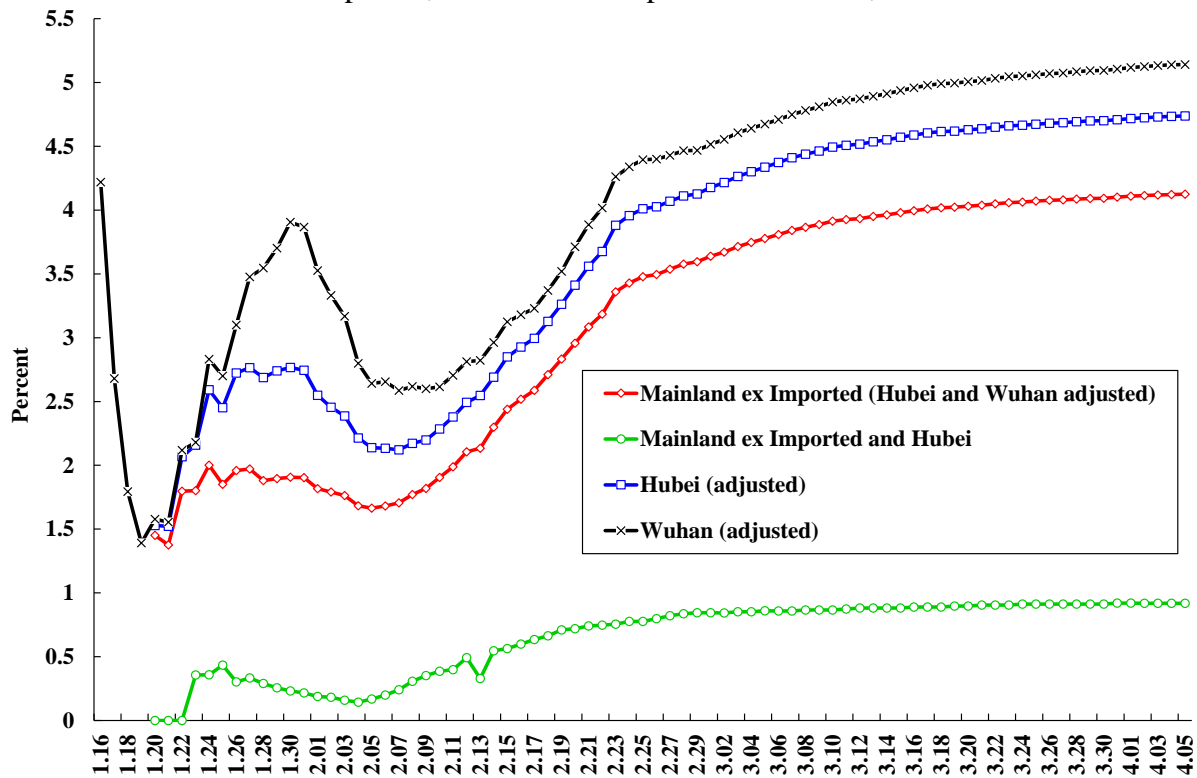
The updated Chart 3 shows the trajectory of daily numbers of newly confirmed domestic cases on the Mainland after the reallocation of the surge on 12 February. The average number of newly confirmed domestic cases per day during the three weeks from 16 March to 5 April is 1.0. The first imported COVID-19 case was identified on 26 February. The updated Chart 3A, which begins with 1 March, shows that almost all of the daily newly confirmed cases on the Mainland since 16 March have been imported cases. All the signs confirm that the epidemic is over on the entire Mainland, including the Province of Hubei and its capital Wuhan. The daily number of imported newly confirmed cases averaged 39 for the three weeks 16 March-5 April. China must take steps to prevent the number of imported cases from growing and quarantining any such cases because they may rekindle domestic transmission of the COVID-19 virus in an uncontrollable way.

Chart 3A: The Daily Number of Newly Confirmed Cases:  
 The Mainland ex Imported, Mainland ex Imported and Hubei, Hubei, Wuhan and Imported



Sources: Same as Chart 1.

Chart 5: The Instantaneous Cumulative Mortality Rates:  
The Mainland ex Imported, Mainland ex Imported and Hubei, Hubei and Wuhan

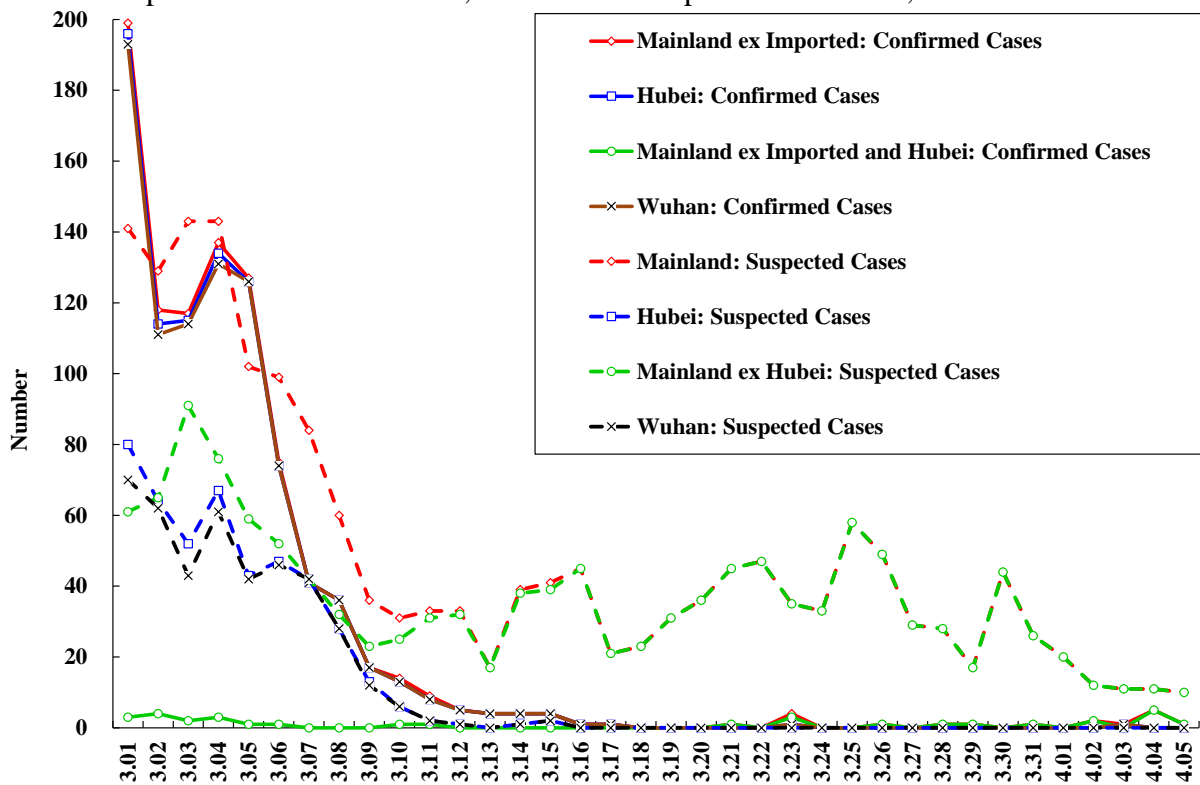


Sources: Same as Chart 1.

The updated Chart 5 reflects the reallocation of the surge in the reported number of deaths in Wuhan and Hubei ex Wuhan on 12 February. Because the cumulative newly confirmed domestic cases to date is no longer rising in Wuhan, Hubei and the Mainland, the instantaneous cumulative mortality rate (the cumulative total number of domestic deaths due to the COVID-19 virus divided by the cumulative newly confirmed domestic cases to date) will continue to rise, as expected, in Wuhan (5.1% as of 5 April), Hubei and the Mainland, as there were still 265 seriously ill confirmed COVID-19 patients as of 5 April. Outside of Hubei, the mortality rate of the Mainland has remained steady and been rising very gradually also because the cumulative number of confirmed cases is also no longer increasing. It stood at 0.9% as of 5 April, less than one-fifth of the mortality rate of Wuhan. These numbers confirm our assessment that the mortality rate of the COVID-19 virus is relatively low, probably not more than 1%, in places where adequate medical care is available.

In the updated Chart 8, the daily newly confirmed cases are compared with the daily newly increased suspected cases for the period beginning on 1 March. Suspected cases are cases that have yet to become confirmed cases pending further clinical observations and/or nucleic acid tests. Once a case is determined one way or the other, it will no longer be retained as a suspected case. Thus, in general, the number of new suspected cases should exceed the number of newly confirmed cases, or at least should do so after a short time lag to allow for testing.

Chart 8: The Daily Newly Confirmed Cases and Newly Increased Suspected Cases: A Comparison for the Mainland, Mainland ex Imported and Hubei, Hubei and Wuhan



Sources: Same as Chart 1.

The updated Chart 8 shows clearly that the numbers of new suspected cases on the Mainland (excluding imports) and in Hubei and Wuhan have generally continued their declines. For the Mainland as a whole, the daily number of new suspected cases averaged 19 per day during the week of 30 March-5 April, compared to an average of 1.4 per day for newly confirmed cases. What is most remarkable is that in Hubei (and Wuhan), there have been zero new suspected cases since 16 March. This reflects the greatly improved availability of medical care in Wuhan and Hubei so that the backlog of unreported and suspected cases has been completely cleared. It further reinforces our confidence that the number of newly confirmed domestic cases in Wuhan, and hence in Hubei and on the Mainland, is likely to remain essentially zero in the near future. Imported cases are another matter altogether. They must be strictly controlled, isolated and quarantined to prevent a resurgence of the COVID-19 epidemic on the Mainland.