

## **Should internal migrants take full responsibility for spreading COVID-19?**

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## **Should internal migrants take full responsibility for spreading COVID-19?**

**Abstract:** 2019 novel coronavirus disease (COVID-19) has quickly swept through China; and mass internal migration during the Chinese Spring Festival is now widely blamed for this. This statement, we argue, is misleading. Internal migrants should not be responsible for the initial spread of COVID-19; as cities being first affected are megacities that connect with the epicentre Wuhan more in business and tourism than in migration. The scale of the epidemic can only be partially explained by internal migration. Severe outbreaks are not limited to cities that neighbour Hubei Province and have large migration to Wuhan. They also occurred in provincial capitals that are neither contiguous with Hubei nor connected with Wuhan in migration. Even though a few cities far away from the epicentre were hit severely by COVID-19 due to migration, the major contributor is not the migrant job-seekers but businesspeople. The responsibility of spreading COVID-19 so fast, so large-scale, and so far is by no means fully on internal migrants.

**Keywords:** COVID-19; Internal migration; Geography; Cartogram; China

2019 novel coronavirus disease (COVID-19) has spread from Wuhan to every province in China within 30 days ([Gao et al., 2020](#)). When asked why it can travel so far and so fast, millions of internal migrants returning to hometown during the Chinese Spring Festival for reunion is almost always the easy answer ([Chen et al., 2020](#)). The complete answer, however, should be much more than this. Population movement in China is now not restricted to internal migrants; it also involves tourism and business travel.

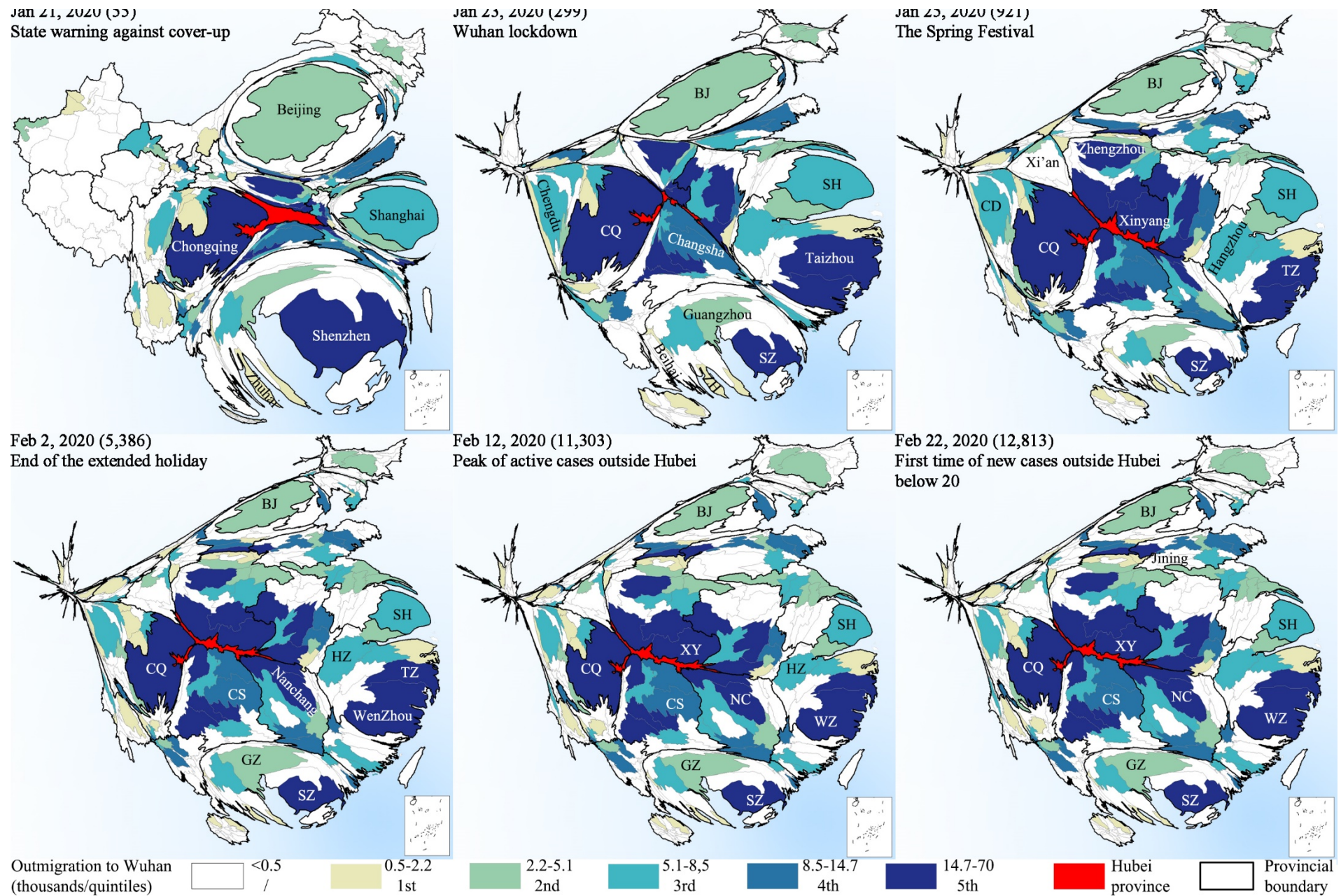
Over the past two decades, rail and air passengers in China have increased over threefold and nearly tenfold respectively (Li et al., 2019). In spreading the disease, tourism and business trips should now play an equal, if not greater, role than the travel of internal migrants, who simply want to reunite with their families.

We map the spread of COVID-19 and the geography of internal migrants in China. In doing so, we attempt to ask: should these migrants be so hugely blamed for spreading the virus so fast, to everywhere, and at a large scale? The technique of cartogram is used to draw these maps (Figure 1). Prefectural-level cities are resized by their confirmed COVID-19 cases, and are coloured by their number of citizens working in Wuhan, the origin of the outbreak. Cities in the same province as Wuhan are excluded; for there are significant differences between intra- and inter-province connections. Six time points are chosen to show different phases of COVID-19 spread in China. Epidemic data are collected daily from official websites of provincial Health Commissions. Data on internal migrants are derived from China's fourth one per cent national sample census conducted in 2015.

Internal migrants should not be responsible for the initial spread of COVID-19. Cities first being affected are national leading megacities Beijing, Shanghai, Shenzhen, and Chongqing. Their connection with Wuhan is far stronger and closer in business and tourism travel than in domestic migration. Their leading position in confirmed cases has also remained before, during, and after the Spring Festival. Whether internal

migrants travel or not, these megacities are always highly exposed to epidemics. Internal migrants are only partially responsible for raising the outbreak to a large scale. Admittedly, cities neighbouring Hubei with large migration to Wuhan have seen dramatic increase in confirmed cases throughout the holiday until February 2<sup>nd</sup>. But severe outbreaks also occurred in these cities' provincial capitals, some of which, such as Xi'an, are neither contiguous with Hubei nor strongly connected with Wuhan by domestic migration. Business travels between provincial capitals should by no means be ignored. Lastly, Wenzhou and Taizhou, two coastal cities about 800 km away from the epicentre, were hit early and hard by COVID-19 ([Xu et al., 2020](#)). Although internal migrants are responsible, the contributors are not the kind of migrants we usually think of. The two cities are famous for their businesspeople, who have greater mobility and larger social networks than the migrant job-seekers.

Around two weeks after Wuhan lockdown, the geography of COVID-19 seems to begin to stabilise; and active cases outside Hubei have reached the peak on February 12<sup>th</sup>. The current success in China reveals the effectiveness of limiting population movement in general. Now COVID-19 is spreading quickly in Europe and the Middle East, even though both regions are now not in the holiday season. Population movement has become a norm. No one or no group should be particularly blamed for spreading epidemics.



**Figure 1. The spread of COVID-19 and geography of internal migrants in China**

Notes: Area is proportional to the number of confirmed COVID-19 cases; Number in the bracket after each date is the total confirmed cases outside Hubei Province by 24:00 of that day; Top five cities of confirmed cases were labelled for January 21<sup>st</sup> and top 10 cities were labelled since January 23<sup>rd</sup>; Cities first being labelled were in their full names, afterwards they appeared as initialisms

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