

COVID-19 and Urban Density

(Economy and Society Study Group Commentary No.13)

Toyoda Nao

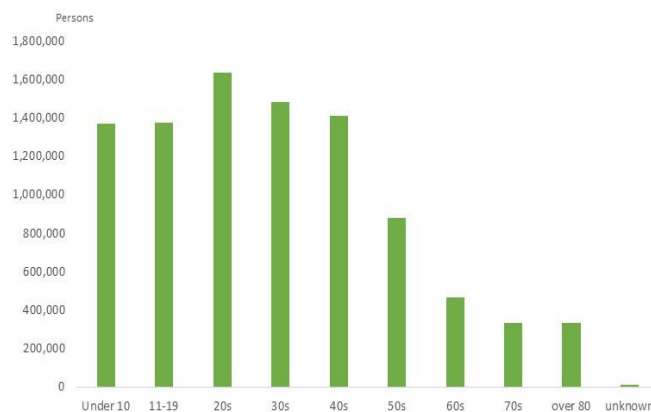
Junior Associate Professor
Department of Economics, Kanto Gakuin University

1. Infectious Diseases and Social Distance

The Novel Coronavirus (hereafter referred to as COVID-19) continues to have an enormous impact on the socioeconomics both in Japan and in countries around the world. As of December 23, 2022, the cumulative number of confirmed cases worldwide was approximately 652 million, and in Japan the figure was approximately 28 million. In the first wave in 2020, the proportion of those infected was high among those aged 70 and over, but since then it has been declining due to progress in vaccination and other measures (National Institute of Infectious Diseases (2022)). After the second wave, the ratio of infected persons was high among young people in their teens to thirties, and the sixth wave in 2021 showed a relative increase in the age group of 19 years and younger, who were not eligible for vaccination. Although there is an impression that more people are infected in the senior age group because hospitals and elderly care facilities were often reported as the location of cluster outbreaks, the cumulative number of reported cases from late March 2020 to mid-June 2022 shows that infection is more common among the younger generation who are socially active (see figure).

In the period between the first confirmation of infection and the present, avoiding the three densities (dense, close, and enclosed), called the “3 Cs” in Japanese: “crowded, close, and closed,” in public spaces such as offices, schools, theaters, supermarkets, and railroads, as well as facilitating ventilation, has become the new routine. Compared to before COVID-19, it seems that people are always conscious of avoiding crowds and maintaining social distance from other people.

Figure: Number of reported cases of novel coronavirus



Source: based on National Institute of Infectious Diseases (2022)

2. Relationship between Cities and COVID-19

Particularly in the early stages of the COVID-19 outbreak, it was feared that the characteristics of large cities, where there are many opportunities for human contact, could be a factor in causing a pandemic, and the view that cities were vulnerable to unknown infectious diseases grew. Larger cities with larger populations were considered to be higher risk locations, and the need to rethink the nature of cities in the post-COVID-19 era has actively been noted, both domestically and internationally.

In fact, under the first emergency declaration, many companies accelerated the introduction of telework and remote work, and interest in migration from the Tokyo area to regional areas has increased compared to the pre-COVID-19 period (Cabinet Office (2022)). Katz (2020) also notes that the Zoom meeting and remote work are becoming more commonplace in a society where remote work has become the new normal. Katz (2020) also expressed the view that reverse urbanization may be possible in a society where Zoom conferencing and remote work have become the new normal.

On the other hand, as the analysis controlling for factors other than population have progressed, there is a growing consensus that the concentration of urban functions and population density are not factors that influence the spread of infection. For example, Hamidi, S. *et al.* (2020) analyzed the impact of COVID-19 in the United States and found no significant positive effect of population density on infection rates. In addition, he points out that the more urban functions are concentrated in an area, the better the environment for access to medical services is secured, which is a factor that has a statistically significant effect on reducing the mortality rate. OECD (2020) also found no relationship between COVID-19 infection and urban population density, and Florida (2020) predicts that urbanization will continue to outpace infectious diseases, given cities' history of being epicenters of infectious diseases and then growing back.

Recently, some have suggested that it is desirable to fully utilize information technology and decentralize urban functions so as to reduce population density. However, in Japan, which faces a declining population in the medium- to long-term under severe fiscal conditions, a decentralized, low-density urban structure is not a realistic option, and it is more reasonable to consider measures to increase resilience to infectious diseases in a way that does not cause a loss of urban characteristics.

3. Concepts of Urban Resilience and Density

Until now, cities have been regarded as hubs of knowledge and information brought about by human contact and as places for educational and cultural exchange, which in turn have been regarded as the driving force of economic growth. In a previous study, Inoue *et al.* (2017) argue that ICT has not surpassed the advantages of geographic concentration, and that the proximity of a location that enables face to face interaction is important for innovation. This suggests that even with the development of IT technologies such as the Internet, it will be difficult to completely replace the characteristics of cities, and it will be desirable to maintain the characteristics of cities where people and industries are concentrated in the post-COVID-19 society.

The author and others have discussed urban density based on population per square kilometer and focused on the possibility of a pandemic occurring when COVID-19 is combined with high population density. However, over time, the view has emerged that the problem is not agglomeration but overcrowding and density (Hamidi, S. *et al.* (2020) and Yahagi (2020)). To give one example, Citizens Housing & Planning Council (2020) presents the necessity of classifying spaces into four specific types, such as residential space and public space, and capturing urban density from each of these perspectives, rather than the conventional population density.

In the future, to improve the resilience of cities to infectious diseases, it is necessary to consider the appropriate density of cities from two perspectives: the structural functional concentration of cities, as typified by compact cities, and the way of using space to avoid overcrowding and density caused by the people involved in a particular space as described by the Citizens Housing & Planning Council (2020).

References

- Cabinet Office (2022). “Fifth Survey on Changes in Lifestyle Attitudes and Behaviors under the Influence of the New Type of Coronavirus Infection,” (in Japanese) Cabinet Office. <https://www5.cao.go.jp/keizai2/wellbeing/covid/index.html> (viewed January 5, 2023).
- Citizens Housing & Planning Council (2020). “Density & COVID-19 in New York City,” May 2020.
- Florida, Richard (2020). “Cities Will Survive the Coronavirus,” *How Life in Our Cities Will Look After the Coronavirus Pandemic*, UNHABITAT, <https://unhabitat.org/news/04-may-2020/how-life-in-our-cities-will-look-after-the-coronavirus-pandemic> (viewed January 20, 2023).
- Hamidi, S., Sabouri, S., and Ewing, W. (2020). “Does density aggravate the COVID-19 pandemic? Early findings and lessons for planners,” *Journal of the American Planning Association*, Vol. 86, No. 4, 495-509.
- Inoue, Hiroyasu, Nakajima, Kentaro, and Saito, Yukiko (2017). “The Impact of the Opening of High-Speed Rail on Innovation,” RIETI Discussion Paper Series 17-E-034, 1-17.
- Katz, Rebecca (2020). “Cities Will Excel at Disease Prevention and Response,” *How Life in Our Cities Will Look After the Coronavirus Pandemic*, UNHABITAT, <https://unhabitat.org/news/04-may-2020/how-life-in-our-cities-will-look-after-the-coronavirus-pandemic> (viewed January 20, 2023).
- Nakagawa, Masayuki (2020). “Telework: Influencing the Future of Cities: Population Agglomeration and Infectious Disease Risk,” Keizai Kyoshitsu, (in Japanese) *Nihon Keizai Shimbun*, July 9, 2020 morning edition.
- National Institute of Infectious Diseases (2022). “Epidemiological study of gender and age characteristics of each epidemic wave of novel coronavirus infection in Japan,” (in Japanese) *IASR* Vol. 43, 273-275, December 2022.

OECD (2020). OECD Policy Responses to Coronavirus (COVID-19), “Cities policy responses,” OECD, July 23, 2020.

Yahagi, H., D. Abe, K. Hattori, G. Cottera, and M. Borzoni (2020). *Will Cities Change with COVID-19? Reports from Europe and America*, (in Japanese) Gakugei Shuppansha.