
Abstract

The study analyzed the spatial distribution of the change of bus boarding and alighting frequency at the bus stops of Gyeonggi Province under the COVID-19 spread starting from 2020. A theory of power function found the relationships between the bus use frequency and the number of stops having the corresponding frequency. A theoretical model estimated the impacts of land use and demographic characteristics of the geographical region on the change of such relationships. The study classified about 30,000 bus stops of Gyeonggi Province into Pareto and Long-tail bus stops based on the bus use frequency and examined the spatial distribution of the bus use change at the bus stops. The analysis found that the bus use frequency reduced by the biggest amount during the first mass infection of COVID-19, and regional characteristics such as population size and the existence of commercial facilities affect the change in bus use frequency of Gyeonggi Province. The analysis results suggests that, considering the safety against the contagious diseases, the focus of the transportation policy should shift from mass transport and efficiency to customized services for the local small population.

Keyword COVID-19, Bus stop, Bus use volume change, Bus use pattern change, Multi-nuclear decentralization