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Spatial Differentiation Patterns and Influencing Mechanism of Urban Greening in China: Based on Data of 289 Cities

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Abstract : Significant differences in urban greening have occurred in Chinese cities, which accompanied with China's rapid urbanization. However, few studies focused on the spatial differentiation of urban greening in China with large amounts of data. The spatial differentiation pattern, spatial correlation characteristics and the distribution shape of urban green space ratio, urban green coverage rate and public green area per capita were calculated and analyzed, using Global and Local Moran's I using data from 289 cities in 2014. We employed Spatial Lag Model and Spatial Error Model to assess the impacts of urbanization process on urban greening of China. Then we used Geographically Weighted Regression to estimate the spatial variations of the impacts. The results showed: 1. a significant spatial dependence and heterogeneity existed in urban greening values, and the differentiation patterns were featured by the administrative grade and the spatial agglomeration simultaneously; 2. it revealed that urbanization has a negative correlation with urban greening in Chinese cities. Among the indices, the the proportion of secondary industry, urbanization rate, population and the scale of urban land use has significant negative correlation with the urban greening of China. Automobile density and per capita Gross Domestic Product has no significant impact. The results of GWR modeling showed that the relationship between urbanization and urban greening was not constant in space. Further, the local parameter estimates suggested significant spatial variation in the impacts of various urbanization factors on urban greening.

Keywords : China’s urbanization, geographically weighted regression, spatial differentiation pattern, urban greening
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