Location Choice: The Effects of Network Configuration upon the Distribution of Economic Activities in the Chinese City of Nanning

Authors : Chuan Yang, Jing Bie, Zhong Wang, Panagiotis Psimoulis

Abstract : Contemporary studies investigating the association between the spatial configuration of the urban network and economic activities at the street level were mostly conducted within space syntax conceptual framework. These findings supported the theory of 'movement economy' and demonstrated the impact of street configuration on the distribution of pedestrian movement and land-use shaping, especially retail activities. However, the effects varied between different urban contexts. In this paper, the relationship between economic activity distribution and the urban configurational characters was examined at the segment level. In the study area, three kinds of neighbourhood types, urban, suburban, and rural neighbourhood, were included. And among all neighbourhoods, three kinds of urban network form, 'tree-like', grid, and organic pattern, were recognised. To investigate the nested effects of urban configuration measured by space syntax approach and urban context, multilevel zero-inflated negative binomial (ZINB) regression models were constructed. Additionally, considering the spatial autocorrelation, spatial lag was also concluded in the model as an independent variable. The random effect ZINB model shows superiority over the ZINB model or multilevel linear (ML) model in the explanation of economic activities pattern shaping over the urban environment. And after adjusting for the neighbourhood type and network form effects, connectivity and syntax centrality significantly affect economic activities clustering. The comparison between accumulative and new established economic activities illustrated the different preferences for economic activity location choice.

Keywords : space syntax, economic activities, multilevel model, Chinese city
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