An Exploratory Study on 'Sub-Region Life Circle' in Chinese Big Cities Based on Human High-Probability Daily Activity: Characteristic and Formation Mechanism as a Case of Wuhan

Authors : Zhuoran Shan, Li Wan, Xianchun Zhang

Abstract : With an increasing trend of regionalization and polycentricity in Chinese contemporary big cities, "sub-region life circle" turns to be an effective method on rational organization of urban function and spatial structure. By the method of questionnaire, network big data, route inversion on internet map, GIS spatial analysis and logistic regression, this article makes research on characteristic and formation mechanism of "sub-region life circle" based on human high-probability daily activity in Chinese big cities. Firstly, it shows that "sub-region life circle" has been a new general spatial sphere of residents' high-probability daily activity and mobility in China. Unlike the former analysis of the whole metropolitan or the micro community, "sub-region life circle" has its own characteristic on geographical sphere, functional element, spatial morphology and land distribution. Secondly, according to the analysis result with Binary Logistic Regression Model, the research also shows that seven factors including land-use mixed degree and bus station density impact the formation of "sub-region life circle" most, and then analyzes the index critical value of each factor. Finally, to establish a smarter "sub-region life circle", this paper indicates that several strategies including jobs-housing fit, service cohesion and space reconstruction are the keys for its spatial organization optimization. This study expands the further understanding of cities' inner sub-region spatial structure based on human daily activity, and contributes to the theory of "life circle" in urban's meso-scale.