

Research on the Spatial Organization and Collaborative Innovation of Innovation Corridors from the Perspective of Ecological Niche: A Case Study of Seven Municipal Districts in Jiangsu Province, China

Authors : Weikang Peng

Abstract : The innovation corridor is an important spatial carrier to promote regional collaborative innovation, and its development process is the spatial re-organization process of regional innovation resources. This paper takes the Nanjing-Zhenjiang G312 Industrial Innovation Corridor, which involves seven municipal districts in Jiangsu Province, as empirical evidence. Based on multi-source spatial big data in 2010, 2016, and 2022, this paper applies triangulated irregular network (TIN), head/tail breaks, regional innovation ecosystem (RIE) niche fitness evaluation model, and social network analysis to carry out empirical research on the spatial organization and functional structural evolution characteristics of innovation corridors and their correlation with the structural evolution of collaborative innovation network. The results show, first, the development of innovation patches in the corridor has fractal characteristics in time and space and tends to be multi-center and cluster layout along the Nanjing Bypass Highway and National Highway G312. Second, there are large differences in the spatial distribution pattern of niche fitness in the corridor in various dimensions, and the niche fitness of innovation patches along the highway has increased significantly. Third, the scale of the collaborative innovation network in the corridor is expanding fast. The core of the network is shifting from the main urban area to the periphery of the city along the highway, with small-world and hierarchical levels, and the core-edge network structure is highlighted. With the development of the Innovation Corridor, the main collaborative mode in the corridor is changing from collaboration within innovation patches to collaboration between innovation patches, and innovation patches with high ecological suitability tend to be the active areas of collaborative innovation. Overall, polycentric spatial layout, graded functional structure, diversified innovation clusters, and differentiated environmental support play an important role in effectively constructing collaborative innovation linkages and the stable expansion of the scale of collaborative innovation within the innovation corridor.

Keywords : innovation corridor development, spatial structure, niche fitness evaluation model, head/tail breaks, innovation network

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