

## **Adaptation Mechanism and Planning Response to Resiliency Shrinking of Small Towns Based on Complex Adaptive System by Taking Wuhan as an Example**

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**Abstract :** The rapid urbanization process taking big cities as the main body leads to the unequal configuration of urban and rural areas in the aspects of land supply, industrial division of labor, service supply and space allocation, and induces the shrinking characterization of service energy, industrial system and population vitality in small towns. As an important spatial unit in the spectrum of urbanization that serves, connects and couples urban and rural areas, the shrinking phenomenon faced by small towns has an important influence on the healthy development of urbanization. Based on the census of small towns in Wuhan metropolitan area, we have found that the shrinking of small towns is a passive contraction of elastic tension under the squeeze in cities. Once affected by the external forces such as policy regulation, planning guidance, and population return, small towns will achieve expansion and growth. Based on the theory of complex adaptive systems, this paper comprehensively constructs the development index evaluation system of small towns from five aspects of population, economy, space, society and ecology, measures the shrinking level of small towns, further analyzes the shrinking characteristics of small towns, and identifies whether the shrinking is elastic or not. And then this paper measures the resilience ability index of small town contract from the above-mentioned five aspects. Finally, this paper proposes an adaptive mechanism of urban-rural interaction evolution under fine division of labor to response the passive shrinking in small towns of Wuhan. Based on the above, the paper creatively puts forward the planning response measures of the small towns on the aspects of spatial layout, function orientation and service support, which can provide reference for other regions.

**Keywords :** complex adaptive systems, resiliency shrinking, adaptation mechanism, planning response

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