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# Big Data Analysis on the Development of Jinan's Consumption Centers under the Influence of E-Commerce

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**Abstract :** The rapid development of e-commerce has significantly transformed consumer behavior and urban consumption patterns worldwide. This study explores the impact of e-commerce on the development and spatial distribution of consumption centers, with a particular focus on Jinan City, China. Traditionally, urban consumption centers are defined by physical commercial spaces, such as shopping malls and markets. However, the rise of e-commerce has introduced a shift towards virtual consumption hubs, with a corresponding impact on physical retail locations. Utilizing Gaode POI (Point of Interest) data, this research aims to provide a comprehensive analysis of the spatial distribution of consumption centers in Jinan, comparing e-commerce-driven virtual consumption hubs with traditional physical consumption centers. The study methodology involves gathering and analyzing POI data, focusing on logistics distribution for e-commerce activities and mobile charging point locations to represent offline consumption behavior. A spatial clustering technique is applied to examine the concentration of commercial activities and to identify emerging trends in consumption patterns. The findings reveal a clear differentiation between e-commerce and physical consumption centers in Jinan. E-commerce activities are dispersed across a wider geographic area, correlating closely with residential zones and logistics centers, while traditional consumption hubs remain concentrated around historical and commercial areas such as Honglou and the old city center. Additionally, the research identifies an ongoing transition within Jinan's consumption landscape, with online and offline retail coexisting, though at different spatial and functional levels. This study contributes to urban planning by providing insights into how e-commerce is reshaping consumption behaviors and spatial structures in cities like Jinan. By leveraging big data analytics, the research offers a valuable tool for urban designers and planners to adapt to the evolving demands of digital commerce and to optimize the spatial layout of city infrastructure to better serve the needs of modern consumers.

**Keywords :** big data, consumption centers, e-commerce, urban planning, jinan
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