Analysis of Residential Space Structure Based on Commercial Housing Price in Central Urban Area of Linyi

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Abstract. Taking the central urban area of Linyi as study area, the average selling price of 134 commercial residential projects for sale in March and April 2019 are collected. Kriging spatial interpolation method is used to analyze the spatial distribution characteristics of housing prices in the study area. On this basis, the paper analyzes the structural characteristics and formation mechanisms of the residential space. This paper state that the formation and development of residential space has historical continuity and is significantly influenced by policy factors. The market mechanism plays an important role in the adjustment of urban residential space, too.

Introduction

The urban residential space structure refers to the spatial distribution pattern of different types of residential areas combined within the city [1]. From the perspective of material space, it is mainly represented by the differences in living environment, supporting facilities and building quality of different types of residential areas [2]. These differences are the main reason for the difference in the price of commercial housing in different regions. Therefore, the spatial distribution characteristics of commercial housing prices can reveal the structural characteristics of urban residential space.

Along with the accelerating urbanization, the population concentration in the central urban area is increasing in Liny. The residential space is expanding and showing a more complex structure. As an important part of urban functional space, residential space has an important impact on the overall spatial structure of the city. Revealing the characteristics and formation mechanism of the residential space structure and further exploring how to guide the rational evolution is the prerequisite for improving the efficiency of urban spatial allocation and achieving coordinated development.

Research Area, Data and Methods

Research Area

In order to reveal the spatial distribution pattern of urban residential space more accurately, the downtown area of Linyi is identified as the study area, where the residential area is dense. According to the Linyi Master Plan (2011-2020), the boundary of the central urban is from north to North Outer Ring, west to Beijing-Shanghai Expressway, east to federal road, south to south outer ring, which with an area of 543.3km². It mainly involves Lanshan District, Hedong District, Luoqian District, Economic Development Zone and High-tech Development Zone [3].

Data and Methods

The price information was collected from the “Fang.com” network platform. After filtering and eliminating the abnormal information, the average selling price of 134 commercial residential projects for sale in March and April 2019 are retained.

The Kriging spatial interpolation method, which can better deal with spatial non-stationary variables, is used to analyze the spatial distribution characteristics of housing prices in the study area. The specific operation is as follows: First of all, the latitude and longitude coordinates of the
sample points are extracted by using the Baidu map API. Then, convert them into grid data by Surfer software. The space contour map of the housing price data is generated by the Kriging interpolation method at intervals of 500 yuan per square meter. As shown in Figure 1, the horizontal axis direction is the longitude coordinate, and the vertical axis direction is the latitude coordinate.

Figure 1. Contour Map of Commodity Housing Prices in Linyi Central Urban Area.

Spatial Distribution Characteristics of Commercial Housing Prices

Generally, there is a significant spatial difference in the price changes. The contours of commercial housing prices are dense in the city center. From the center to the periphery, the contours gradually become sparse.

1) High-priced houses are spatially discrete. In Beicheng New District and districts along the river, there are more high-priced residential buildings. The peak of residential prices appeared in the Beicheng New District.

2) The contour map shows that the prices are higher in the north and lower in the south, denser in the north and sparser in the south. It shows that the price change in the north is more obvious.

3) Commodity housing prices have a multi-centered pattern. It can be divided into five major areas: Lanshan District, Hedong District, Economic Development Zone, Luozhuang District and High-tech Zone. The housing price in each area shows a clear concentration distribution in a certain price range, and the difference between different areas is obvious.

4) The overall housing price level along the river is higher and the gradient change is obvious. There are rivers such as Yihe River, Benghe River, Suhe River and Liuqing River flowing through the central urban area of Linyi. While shaping the rich geographical landscape, Rivers have an important impact on housing prices. For example, the commercial housing distributed along the Yihe River and the Benghe River is obviously more expensive than other places in the same area.

Characteristics and Formation Mechanism of Residential Space Structure

Characteristics of Residential Space Structure

1) The living space continues to expand. Lanshan Old Town is still a concentrated living space in Linyi, and the living space structure is relatively stable. With the continuous development of the Beicheng New District and the construction of the high-speed rail area, the residential space continues to expand northward. There are many new commercial projects in the Beicheng New District, and the price of commercial housing is at a high level. The reconstruction characteristics of residential space in Beicheng New District are obvious.

2) High-grade residential buildings are mainly distributed in the old urban area of Lanshan, the new area of Beicheng and the riverside area of Hedong District. They are arranged along the northwest-southeast direction along the river. With the continuous development and construction of
Tangquan tourist area, some high-end hot spring health villas are built here, forming a new residential gathering place for wealthy people.

(3) The middle and low-grade residential areas are distributed in an irregular staggered circle. The newly developed commercial residential projects are interlaced with the demolition and resettlement community, Houses built by units and public rental housing.

Formation Mechanism

The Formation and Development of Residential Space Has Historical Continuity. Lanshan Old Town is the center of economic, political and cultural aspects of Linyi for a long time. It’s the preferred space for residents to live where with perfect infrastructure and supporting facilities. Under the promotion of the transformation of the old city, the newly developed commercial residence gradually replaced the old residential quarters of the original enterprises and institutions. A layered living space structure centered on the People's Square is formed.

As a new development area, Beicheng New District has a mix of existing residents' self-built houses, demolition and rebuilding houses and commercial houses. The living space structure is more complicated in this area.

The living space in other areas shows the original historical characteristics. The newly developed commercial housing mainly focuses on the surrounding residents. Communities transformed by rural settlements account for a large proportion of these areas.

The Structure is Significantly Affected by Policy Factors. The residential space of modern city is one part of the urban planning. The implementation of the government's urban master plan plays a decisive role in the formation of residential space. The expansion of urban residential space is generally synchronized with urban development.

In the urban master plan of Linyi (2011-2020), the development direction of urban is along the river, and going northward. The waterfront eco-city construction framework has been established, which taking the river as the axis and developing on both sides of the strait. Group-type residential space structure is gradually formed.

Market Mechanism Plays an Important Role in Urban Residential Space Adjustment. With the deepening of the market-oriented housing system, spatial differentiation began to appear in demand-oriented housing market, which constituted the material basis for the formation of residential space. Under the guidance of government planning, the spatial distribution of commercial housing is determined by the developer's investment decision-making and consumer consumption decision-making behavior. Different housing price levels correspond to different living space patterns.

Conclusion

The urban residential space is a spatial combination of certain functional buildings in the urban geographical space. It’s also a social space formed by integrating daily social behaviors of people's daily behaviors, living and living activities. The urban residential space is formed under the combined effects of urban development inertia, housing system arrangement, urban planning guidance, and consumer market selection.

The current expansion of residential space in central urban area of Linyi is mainly reflected in the accumulation and reconstruction of the city. With the implementation of the urban master plan of Linyi, the residential space structure will evolve from a simple circle structure to a complex group mode.

In the future urban development, urban planning should be regarded as a technical means of residential space regulation. Through planning, we can guide the rational flow of population to form a more reasonable residential space structure based on the principle of maximizing social benefits [4]. Urban planning should strengthen the construction of sub-centers in terms of land use nature, industrial layout and transportation facilities, so as to give full play to the balanced role of sub-centers in urban social spatial structure.
Especially in the development along the river, in order to solve the problem of traffic congestion caused by cross-river population flow, there should increase the construction of public transport lines with capacity. The construction of residential space should be guided by the concept of integration of production and city to reduce the separation of occupation and residence. Through planning guidance, the disorderly spread of residential space driven by market mechanism can be avoided.

References


