

Real Estate Investment Environment Analysis and Research based on Urban Computing

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Abstract: Mainly residential real estate has become a mainstay industry of China's national economy. The land amount developed by real estate industry is exponentially rising, and real estate prices are climbing an upward momentum, the real estate trade is gradually developing towards the direction of high-end residential and office buildings. In addition, in some places, the scale and speed of real estate development has exceeded the local average level of disposable income and the average growth rate, so the regional real estate bubble has emerged. In order to avoid the real estate regional economic bubble collapse, we present analysis and research about the real estate investment environment based on urban computing.

Keywords: Real estate; Investment; Environment; Research

1. Introduction

As an important feature of real estate, location is an important reason for the real estate price differences between the city and within the city, but it not the only reason. Scholars, at home or abroad, have demonstrated people's expectations would have a negligible effect on the change of real estate prices, and people's expectations for the future economic and social development, changes in income in house prices are more from the development and introduction of economic and social development planning, urban planning, ecology environmental construction planning. Therefore, the study about the effect of location factors and planning factors on real estate prices become the focus of domestic and foreign theorists and practitioners concerned [1-2]. The traditional real estate appraisal is primarily a manual, experience and static assessment, with the development of computer technology and information technology, people gradually began to learn to use real estate appraisal technology based on 3S and information systems. Including the use of 3S technology to obtain land utilization alteration information, urban environmental quality, urban vegetation dynamics and other aspects' study.

According to the current development of the real estate industry, on the one hand, from the house price data of Chinese 35 large and medium-sized cities in 2012, the highest average house price is Beijing, it reached to 26,156 yuan / square meter, the lowest average price is Xining, which is 5145 yuan / square meters, during the same period, the city's highest price is five times as the lowest prices, the price difference is quite significant [3-

4]. According to the housing price change process of Chinese 35 large and medium cities from 2001 to 2012, the change process, trends and magnitude of housing price in various cities are not the same, from the view of changeable range, the largest is Ningbo, the housing price of 2012 is 7.58 times as 2001, while the smallest change is Shenyang, house prices in 2012 is only 2.87 times as 2001. [5] What make the housing price differences of various cities so remarkable on earth? How can we gradually narrow the difference?

The real estate business strength has been greatly enhanced after several years of vigorous development, and it have turned to foreign investments. Meanwhile, international funds also turned to our country, on August 24, 2003, "Park Avenue" residential Chaoyang district in Beijing, which is invested by Hans, real estate company in the United States, had agreed by Chinese Ministry of Construction Industrialization Promotion Center review group to become Beijing "AAA Certificate" (the highest level of residential property, including applicable residential property, security, performance, durability, environmental performance and economic performance) residential projects. Hans real estate company entered to the Chinese real estate market at the end of 1997. There are many foreign investment companies in China's real estate market like Hans real estate companies, but they just chose different cities. In early 2002, Australia's largest investment bank Macquarie Bank established a "The First China Real Estate Development Group Limited" in Shanghai, and successfully built the upscale residential district "O Rei Garden". In addition to Macquarie Bank, there are HineS, Dutch ING Group and other organiza-

tions overseas funds enter into China's real estate development market. And several major real estate groups in Hong Kong, such as Cheung Kong, Hutchison, New World China, Henderson China, Sun Hung Kai Properties, Hang Lung Group, Kerry lorded it over a district. According to statistics, there are 82 foreign real estate companies in more than 400 real estate development companies in Qingdao City. Compared with foreign real estate companies, domestic real estate companies are more active in inter-regional investment. Vanke Group, Chinese real estate industry leader, the development projects are almost all over the eastern coastal provinces and cities. Shenzhen Golden Group, the real estate developers has already formed scale in Shenzhen, Beijing, Shanghai. In early 2003, Guangzhou's real estate investments are also to aim at the nation. Guangzhou R & F Properties Group bid for the real estate development project of Beijing state-owned land with 3.16 billion yuan, which is the largest tender amount. Pearl and Hopson joint development in Beijing, but also to speed up the operation of their projects in Tianjin, Shanghai and Hangzhou. With China's domestic real estate market continues to mature, the regional real estate developers access reduce the "threshold", especially the local government give the preferential police to the foreign real estate investors, which promote China's real estate development from the regionalization to nationalization, and the inter-regional investment increasingly active. In some counties and cities of the mainland, the proportion of foreign developers development projects have reached more than 90% of the amount of local real estate development projects. Lots of money is used in real estate, it caused overheated investment in some areas and not enough in some areas. Therefore, it is necessary to analyze and research real estate industry and real estate market from multiple levels and multiple perspectives, and give some guidance to market participants so that we can make accurate spatial expansion decisions, in this way, the real estate market would run smoothly.

2. Real Estate

Urban real estate mainly include residential real estate, commercial real estate and industrial real estate. The real estate discussed in this article includes these three property types, on the set of evaluation system take into account the characteristics of this three types, at the same time, when the weight is considered, it depends on the difference of the three types make moderately slope.

The investment environment is the external conditions combination which would affect direct investment form in a certain time and space, is a interactional contradiction entity with a variety of factors such as investment-related society, nature, economy, law, culture, infrastructure and so on. Which is all external conditions general term on the basis of investment subject influence or re-

strict the investment motive, investment decision-making behavior and efficiency [s]. The investment scale has various characteristics, such as regional, dynamic, diversity, systematicness and dominance and so on, is a very rich connotation study[4]. Which initially present natural and geographical conditions and infrastructure, commonly known as "hard environment". With economic development, investment environment gradually added political and economic, legal and cultural content, relative to "hard environment", which is called "soft environment". The investment environment is a complex system, the evaluation naturally involve many theories and methods, evaluation of real estate region investment environment is even more. By summarizing the relevant theories and methods, we can better provide guidance to real estate investment environment evaluation, the theory and method which mainly related is shown in Figure 1.

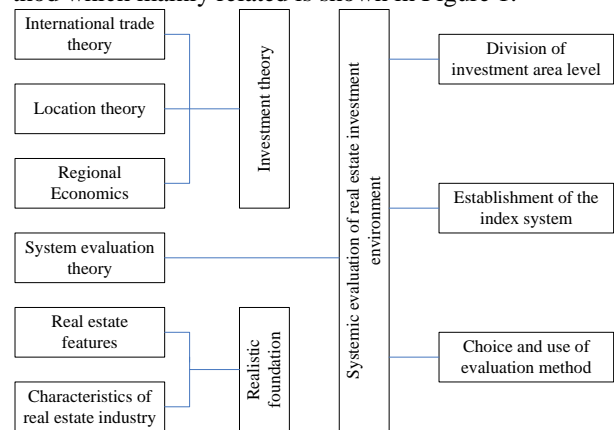


Figure 1. Theory and method of real estate investment environment

3. Real Estate Investment Environment Evaluation System

Investment environment assessment is related tightly with regional economic development from the very beginning and the apply of assessment or improvement of regional investment environment is not limited by industry division. However, in fact, investors, especially real estate investors firstly focus not only on regional investment environment but also on different industries. The geographical imbalance of economic development in our country leads to the imbalance of development in real estate industry. Based on the data of investment for developing real estate in different areas in 2003, the development is highly imbalanced. The national real estate development largest investment volume is Guangdong Province, it was 120.992 billion yuan, while the smallest is only 172 million yuan in Tibet Autonomous Region; real estate development and investment vilume before five were Guangdong, Beijing, Zhejiang, Shanghai and

Jiangsu Province, which covered 50.42% of the total investment volume.

From the perspective of discipline to see real estate investment environment systematic evaluation, which involves many disciplines, including economics, regional science, systems engineering, geography, investment in science, sociology and other disciplines. Various disciplines with the real estate feature and current development of real estate industry combined together to decide the regional investment environment evaluation of real estate. The logical relationship is shown in Figure 2.

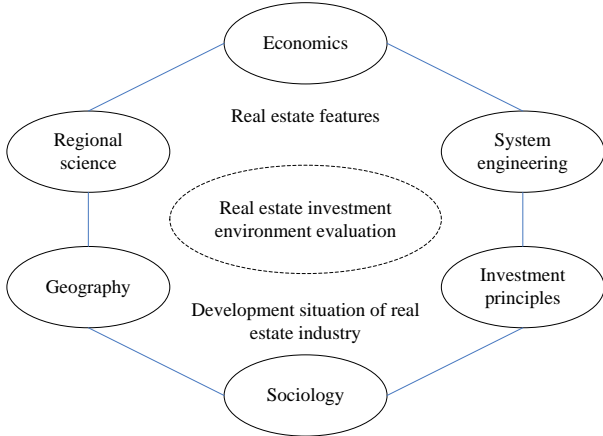


Figure 2. Investment environment and cross-discipline relationships

4. Real Estate Investment Environment System

The basic program of the real estate regional investment environment systematic review: First, divide the Chinese real estate market area into three levels, including the macro-level, middle level and micro level; then, for each level determine evaluation objectives, establish the index system, select the appropriate methods to evaluate, which is shown in Figure 3.

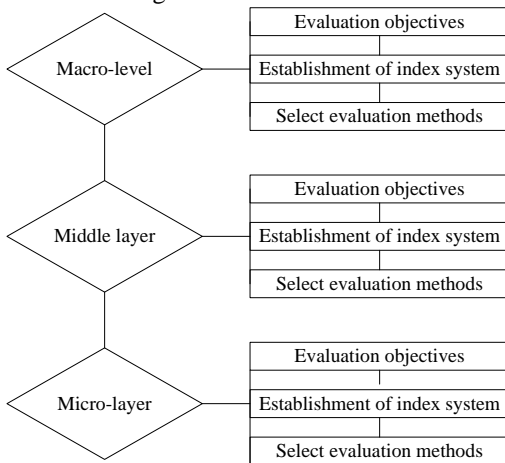


Figure 3. Real estate investment environment system

From the Figure, it is easy to get it that the evaluation of real estate regional investment situation can be divided into comprehensive evaluation and partial evaluation. As for the so-called comprehensive evaluation, it refers to the longitudinal evaluation on the three regional layers in the whole process, namely; the macro-layer, the meso-layer and the micro-layers, which is also a whole process from strategic evaluation to implementation evaluation; while the so-called partial evaluation is evaluation on the partial investment environment of one or two regional layer. According to the different motivations and needs, the evaluator can select one layer as the evaluation objective, and establish appropriate evaluation index system, then choose an appropriate evaluation method to evaluate. So that is the partial evaluation; While the comprehensive evaluation is combined according to macro-order, meso-order and micro-order.

4.1. The Four-quadrant Model Theory

Given the real estate can either be as a consumer, but also can be used as capital goods, four-quadrant model divide the real estate market into relatively independent but closely linked two markets: asset markets and used market, as shown in Figure 4. In the four quadrants of Figure 4, the first and fourth quadrant on behalf of residential use market, the second and the third quadrant on behalf of residential property market.

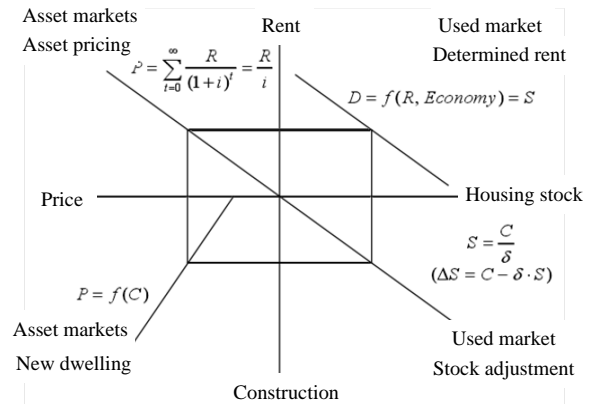


Figure 4. Real estate investment environment four-quadrant model

The Four-quadrant model exists with two assumptions: one is that with the rest given conditions of the market, the residential asset prices are determined by the mutual interaction of the housing market's supply and demand. Second, with the rest given conditions of the market, in the residential market, the supply and demand relationship of the use right determines the price of the use right, namely, the rent. Assumptions above refer to that other conditions do not change and the asset market and use market are relatively independent.

4.2. Price Theory of Real Estate Investment

When consumer demand for the marginal price of each housing features with the price of the stealth characteristics is equivalent, consumers actualize their maximum utility, in this case, the consumer price bids curve and housing characteristic price curve is tangent, consumers will make the best choice; Similarly, when developers' profit is maximum, the marginal supply price is equal to the invisible price of characteristic, in other words, when developers asking price curve and the characteristic curve is tangent, housing developers will make the best choice, as shown in Figure 5.

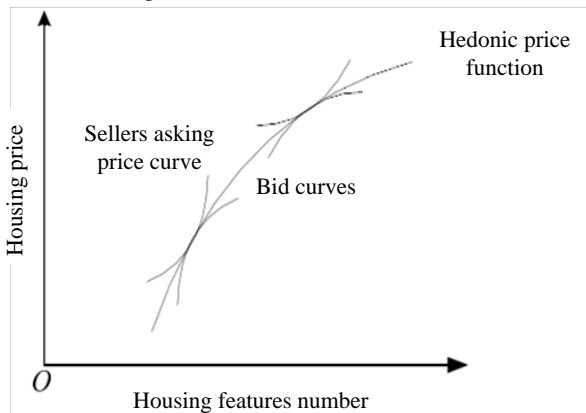


Figure 5. Real estate investment environment curve

Therefore, under the premise of the housing market is in equilibrium, if consumers and developers make their utility (or profit) maximization as premise, then for each feature that housing involved should be tangent with consumers bid curve, developers asking price curve and housing characteristic curve to the point. Therefore, it can analyze the relationship between housing prices and housing characteristics through econometric models to obtain the marginal prices of various features.

5. Conclusion

With the growth of real estate investment environment, the real estate economy are becoming increasingly overload, in order to avoid the real estate bubble economy occurs, we proposed analysis and research about the real estate investment environment based on urban computing. The paper mainly analysis the real estate investment environment theory and system assessment as well as real estate prices from real estate investor's view and the point of regional environment and investment price. The results showed that the evaluation system has practical reference value, and it has a role in promoting real estate economy development, so in this way, the paper has important research significance.

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