

Research on The Influencing Factors of Housing Price in Hefei and Its Countermeasures

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Abstract

In view of the influencing factors of commercial housing prices in Hefei, through the analysis of data in 2010-2021, select six influencing factors for empirical analysis, using Eviews software to establish principal component regression analysis model, regional GDP, real estate investment, urban residents disposable income, urbanization rate, population natural growth coefficient are positive, in Hefei, the consumer price index and house prices negatively correlated, in view of the current Hefei housing prices put forward corresponding reasonable Suggestions.

Keywords

House Price; Influencing Factors; Principal Component Regression Analysis.

1. Introduction

Hefei city, referred to as "Lu", is a prefecture-level city and provincial capital in Anhui Province, with jurisdiction over 4 districts, 4 counties and 1 county-level city. Hefei is a sub-central city of China's Yangtze River Delta city cluster approved by The State Council, and is an important national scientific research and education base, modern manufacturing base and comprehensive transportation hub. In 2021, the regional GDP of Hefei reached 1,141.280 billion yuan, an increase of 9.2% over the previous year. The data of related factors affecting the housing price in Hefei from 2010 to 2021 was selected for principal component regression analysis, and conducted in-depth research, and put forward corresponding rationalization suggestions.

2. Model specification

2.1. Factors affecting the housing price in Hefei city

There are many actual factors affecting the housing price in the real society. Considering the actual situation of Hefei and the collection of data, the housing price in Hefei mainly has the following six aspects.

2.1.1. Regional annual GDP

The annual GDP of a region reflects the total value of all the final products and services produced in a region in a complete year, and the size of the GDP directly reflects the level of the local economy. Generally speaking, the higher the GDP of a region, the higher the economic level, the higher the housing price.

2.1.2. Real estate investment amount

According to the development characteristics of the industry, when the investment in a certain industry is larger and larger, the product price of the industry will be higher, the rising trend of the product price will be obvious, and the investment will increase.

2.1.3. Residents' disposable income

Residents' disposable income is directly determined by the local housing price level, which is the primary factor affecting the housing price. With the continuous development of the regional economic level, the disposable income of local residents keeps increasing, and the housing price will also increase. Housing is also a commodity. When the disposable income increases, the demand increases and the housing price rises.

2.1.4. Urbanization rate of permanent residents

The urbanization rate of permanent residents refers to the proportion of the urban resident population in the total population of a region. When the urbanization rate of permanent population increases, the urban population increases, the housing demand increases, the market supply, the housing price rises accordingly.

2.1.5. Natural population growth rate

As the natural growth rate of population rises and the total population of a region continues to increase, the demand for housing will continue to grow, and the contradiction between supply and demand will intensify, and the housing price will naturally rise.

2.1.6. Consumer price index

The CPI refers to the consumer price index, which indicates the purchasing power of residents in a certain area. If the CPI rises moderately and slowly, it will have a favorable impact on economic development. If the CPI index grows too fast, the market will suffer from inflation. At this time, the economic development will stagnate and the currency will depreciate, and the residents will invest in real estate, and the housing price will rise.

2.2. Variable selection

This article for data collection and research, selected in 2010-2021 Hefei house prices (Y) as an explanatory variable, regional annual GDP (X1), real estate investment (X2), urban disposable income (X3), the permanent population urbanization rate (X4), the natural population growth rate (X5), the consumer price index (X6) annual data as an explanatory variable. This paper aims to study the influencing factors of the housing price in Hefei city and put forward the corresponding countermeasures.

The model is set as:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} \quad (1)$$

3. Model estimation

This paper uses the principal component regression model analysis method to estimate the parameters of the above model to analyze the main influencing factors affecting the housing price in Hefei. The specific steps of the estimation are as follows:

(1) Since there are 6 explanatory variables selected in a large number, in order to avoid the problem of multicollinearity among explanatory variables, the principal component regression method is used to conduct dimension reduction analysis. Through the principal components are extracted, the score of the principal components is calculated, and which principal components are adopted;

(2) Taking the housing price of Hefei city as the explained variable and the principal component score as the explanatory variable, find out the index parameters of the above regression model equation, and conduct the data test to verify the accuracy of the calculation.

4. Empirical analysis

4.1. Select the samples

In order to highlight the analysis, this paper specially selects the housing price data of Hefei from 2010 to 2021 to analyze and study the factors affecting the housing price in Hefei. All the data in this paper are selected from Hefei Statistical Yearbook and Hefei Statistical Bulletin.

4.2. Sample data and analysis

Table 1: Data of housing prices and influencing factors in Hefei city in 2010-2021

a partic ular year	housing price (first/m ²)Y	area GDP(100 million yuan) X1	Real estate investmen t(100 million yuan) X2	The disposable income of urban residents (Yuan) X3	The urbanizatio n rate of permanent residents (%)X4	natural populati on growth rate(%) X5	consum er price index (%)X6
2010	5502.00	2701.60	819.03	19051	62.80	6.75	102.70
2011	5607.55	3636.60	889.60	22459	64.60	4.83	105.7
2012	5754.31	4164.30	913.80	25434	66.45	4.64	102.2
2013	6084.00	4672.91	1105.81	28083	67.79	4.35	102.7
2014	6917.00	5157.97	1127.35	29348	69.10	7.00	102.0
2015	7512.00	5660.27	1259.14	31989	72.25	8.10	101.6
2016	9312.00	6274.38	1352.59	34852	74.80	11.60	102.6
2017	11442.00	7213.45	1557.41	37972	77.18	9.99	101.4
2018	13068.63	7822.91	1527.17	41484	79.25	12.27	102.0
2019	14086.00	9409.00	1556.08	45404	80.77	9.72	102.9
2020	15265.00	10046.00	1546.99	48283	82.28	7.78	102.3
2021	14443.00	11412.80	1466.42	53208	84.04	3.72	101.7

As shown in the table above, 2020 Hefei prices rise year by year, in 2020, the peak in 2021 from 15265 yuan/m² to 14443 yuan/m², although Hefei GDP is still growing steadily, urban disposable income and resident population urbanization rate is also growing, but the real estate investment fell 8.057 billion yuan, the natural population growth rate of 4.06%, the consumer price index also fell by 0.6%. The housing price has risen to the bottleneck, the dividend period has passed, the investment is decreasing, the new population is declining, the demand is decreasing, the early stage of continuous investment in building new houses, the supply is increasing year by year, the oversupply, the housing price is falling.

4.3. Principal component regression model analysis

The above six explanatory variables are used to directly establish the regression equation, the principal component regression method is adopted, and the cumulative contribution rate of variance is more than 85% as the principal component extraction standard to determine and extract the two principal components. Therefore, the two principal component functions can be written according to the eigenvector (load) matrix in the middle:

$$F_1 = 0.4195X_1 + 0.4244X_2 + 0.4258X_3 + 0.4349X_4 + 0.2043X_5 - 0.2265X_6 \tag{2}$$

$$F_2 = 0.286X_1 - 0.1392X_2 + 0.2293X_3 + 0.1X_4 - 0.8108X_5 + 0.4028X_6 \tag{3}$$

These two principal components express 88% of the information of the six explanatory variables, bringing the standardized value of all the explanatory variables of the sample data into the principal component function equation described above, which can calculate the scoring formula of the principal components.

$$\hat{Y}_1 = 0.484F \quad (4)$$

$$F = (5.2132 * F_1 + 0.9669 * F_2) / (5.2132 + 0.9669) \quad (5)$$

4.4. Estimate the regression equation

$$\hat{Y}_1 = 0.484F \quad (4)$$

Take into the above regression equation, and get the restored regression equation is:

$$\hat{Y}_1 = 0.1924X_1 + 0.1623X_2 + 0.1907X_3 + 0.1846X_4 + 0.022X_5 - 0.0618X_6 \quad (5)$$

In the above equation, the greater the absolute coefficient of the explanatory variable, the greater the influence on the explained variable Hefei housing price Y, and the top three factors with the largest influence on the explained variable Y are annual GDP (X1), disposable income of urban residents (X3), and urbanization rate of resident population (X4); only the consumer price index X6 has negative influence on Hefei housing price Y.

5. Conclusion and policy recommendations

The empirical analysis shows that in Hefei to stable prices in the short term, reduce the impact on the economy, need to improve regional GDP to speed up economic development, improve urban residents disposable income, improve the population of permanent residents urbanization rate, macroeconomic regulation and control of consumer price index, ensure the steady economic development, stable housing prices in Hefei.

5.1. Increase regional GDP and accelerate economic development

At present, the main impetus of Hefei's economic growth is the secondary industry and the tertiary industry. In order to ensure the steady economic growth, the secondary industry has to be stable and make progress, and the tertiary industry should be vigorously developed. Hefei city should implement the macro-positive economic policy, gradually improve the quality of economic development, gradually get rid of the economic development mode with real estate as the pillar, and smoothly transform to the economic development mode of high-tech industry. Hefei should speed up the adjustment of industrial structure and actively cultivate new economic growth points. As an urgent task of current economic work, industrial structure adjustment must be further strengthened to promote the upgrading of industrial structure and improve the quality and efficiency of economic growth. First, actively use advanced technology to transform and improve traditional industries. Eliminate outdated industrial technology and production equipment, and compress the remaining production capacity. Second, we should vigorously revitalize the equipment manufacturing industry. In combination with the acceleration of infrastructure construction, relying on major national construction projects, we should focus on the introduction, cooperative design and cooperative manufacturing of foreign

advanced technologies, improve the ability of independent development, promote the independent production of key equipment, and improve the technical level of the equipment industry. Third, develop emerging industries and high-tech industries, and increase the proportion of technology-intensive industries in the national economy. We will explore the mechanism of high-tech venture capital investment, pilot the financing of high-tech industry projects, support the construction of high-tech industry demonstration projects, and accelerate the development of the electronic information industry.

5.2. Ensuring employment and increasing the disposable income of urban residents

The second largest factor is the urban residents disposable income, urban residents' disposable income mainly comes from work remuneration, ensure stable employment of urban residents, prevent because the outbreak and other factors lead to large number of unemployment, Hefei should formulate corresponding measures, to ensure enterprise stable operation, prevent a large number of unemployed residents, gradually improve urban residents minimum wage income standard, only urban residents income, housing demand, housing prices to stable, avoid economic fluctuations in the transformation in Hefei, steady prices is also the economy.

First, Hefei should play a role in promoting employment by formulating employment support policies and providing public employment services; The effect of entrepreneurship in promoting employment is significant. We need to adopt fiscal, tax and financial support policies to encourage entrepreneurship, and strengthen entrepreneurship training and services. Second, Hefei should implement the employment priority strategy, which is to take the promotion of employment as the priority goal of economic and social development, put it in the priority position of economic and social development, pay more attention to the selection of economic and social development strategies conducive to employment expansion, and strengthen the government's responsibility to promote employment. Third, Hefei should implement a more active employment policy, that is, according to the changes in the employment situation and the focus of employment work, timely enrich and improve various employment policies, and strengthen the coordination of employment policies and industrial, trade, fiscal, tax, financial and other policy measures. Fourth, Hefei should increase the investment of public finance in promoting employment, improve the fiscal, tax and financial support policies, and focus on supporting the development of modern service industries, strategic emerging industries, labor-intensive enterprises and small and micro enterprises with strong employability. Fifth, Hefei should adhere to urban-rural integration, improve the equal employment system for urban and rural workers, improve the "trinity" working mechanism of vocational training, employment services, and labor rights protection, guide rural labor to enter the city for employment in an orderly manner, encourage local and nearby employment, support homecoming entrepreneurship, and do a good job in the employment of rural migrant labor. Sixth, Hefei should give play to the fundamental role of market mechanism in the allocation of human resources, accelerate the construction of a unified, standardized and flexible human resources market, improve the equal employment system for urban and rural workers, improve the human resources market supervision system, and develop the human resources service industry. Seventh, Hefei should improve the public employment service system covering urban and rural areas, speed up the construction of public employment service institutions focusing on grass-roots public service platforms, and establish a national employment information network. Eighth, Hefei should further improve the policy system of unemployment insurance to prevent unemployment and promote employment, and encourage enterprises to stabilize jobs, attract unemployed people to obtain employment, build a long-term mechanism of stabilizing employment, and effectively strengthen the role of unemployment insurance in promoting employment by implementing policies such as

unemployment insurance fund to pay job subsidies, social insurance subsidies, training subsidies, and employment subsidies.

5.3. Strengthen macro-control, maintain price stability, and increase the urbanization rate of permanent residents

Hefei should take various measures, maintain special economic price stability, because the consumer price index in Hefei house prices is negative influence, in the short term to maintain or reduce prices, although will make the Hefei GDP growth is slow, but can increase urban residents disposable income, it is more than the negative impact of the consumer price index, so the stability of Hefei prices stability and economic development has a positive impact. Hefei can also provide a more comfortable living environment and the allocation of medical and educational resources near housing, attract more migrants to move in, improve the urbanization rate of permanent residents in Hefei, increase the housing demand of residents, make every effort to ensure the stability of housing prices and avoid drastic fluctuations in Hefei's economy.

5.4. Transfer the investment tuyen, and reasonably maintain the real estate investment amount

Hefei before 2021 in the dividend period, real estate investment increased year by year, and growth is too fast, Hefei population growth in recent years, housing demand, lead to real estate oversupply, prices fell, so the Hefei to macroeconomic regulation and control, grasp the capital source, transfer investment tuyen, let social idle funds into high-tech industry, but reasonable to maintain real estate investment, stable prices, guarantee smooth economic transformation in Hefei.

First, Hefei should reasonably distinguish the risks of project subsidiaries and group companies for real estate development loans, and meet the reasonable financing needs based on the evaluation of individual projects and the principle of marketization. Second, Hefei should vigorously develop investable credit bonds and asset securitization products, including but not limited to commercial real estate mortgage-backed securities (CMBS), REITs, and REIT-like products. Third, for construction and installation enterprises with relatively smooth turnover of working capital, support the reasonable financing needs of enterprises; In terms of M&A loans, high-quality real estate enterprises are supported to apply for M&A loans of transaction funds and expenses by merging project companies or shareholding project companies. Fourth, support the reasonable overseas financing needs of real estate enterprises through products such as domestic insurance and foreign loans; Actively support the people's reasonable demand for housing loans, and continue to optimize the product system, policy, pricing, process and other aspects of personal housing loans. Fifthly, Hefei should take the controllable material risk as the basic principle, appropriately adjust the existing real estate business access standards, optimize and expand the scope of application of the existing credit approval "green channel" model, and accelerate the approval and issuance of key customers and important projects in the form of green channel on the premise of implementing relevant policies. Sixth, Hefei should treat all kinds of state-owned and private real estate large and medium-sized enterprises equally, do not set up differentiated approval conditions, and improve the approval efficiency through green channels, parallel operations and other ways for projects that meet the requirements. Seventh, Hefei should optimize the risk control model, improve the efficiency of intelligent approval decision-making, simplify the approval procedures, and make every effort to improve the efficiency of individual housing loan approval. For the stock financing of development enterprises, we should measure the de-stocking cycle realistically, and support it by extending the stock loans, adjusting the repayment arrangements and other ways to promote the completion and delivery of the project. Eighth, Hefei should adhere to the policy guidance of "no speculation in real estate", vigorously support the reasonable housing needs of

residents, allocate sufficient credit scale, and provide personal housing credit services continuously and stably. Ninth, Hefei should earnestly implement the duty-free mechanism, optimize the duty-free measures, clarify the duty-free requirements of real estate business, the reasons for exemption, etc., stimulate the enthusiasm of front-line credit personnel, dispel the worries behind, and make every effort to solve the problem of "not willing to lend, not willing to lend" in the process of serving the healthy development of the real estate market. We will strengthen the construction of credit teams and improve our ability to provide external services.

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