

# Research on the Impact of Real Estate Investment on Housing Prices

-- Case Study of Anhui Province

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**Abstract:** The real estate market occupies a core position in the national economic system, and its steady development is very important to maintain the steady growth of macro economy and promote the balanced progress of social well-being. This paper aims to explore the impact of real estate investment on housing prices and its regional heterogeneity, using the data of 16 prefecture-level cities in Anhui Province from 2001 to 2022. Using two-way fixed effect model, we find that real estate investment has a significant positive impact on housing price, which is still robust after controlling economic variables such as economic development level, government intervention degree, industrial structure, human capital and asset scale. The heterogeneity analysis further reveals that there are significant differences in the impact of real estate investment on housing price in northern Anhui, central Anhui and southern Anhui, and the positive impact in central Anhui and southern Anhui is more significant. Based on these conclusions, this paper puts forward targeted policy recommendations, including implementing regional differentiated regulation strategy, maintaining the balance between market supply and demand, strengthening market supervision, promoting the coordination between economic development and housing policy, and providing financial policy support, to promote the stable and healthy development of the real estate market in Anhui Province. The results not only provide a new perspective for understanding the operation mechanism of the real estate market, but also provide theoretical and empirical basis for formulating effective macro-control policies, which has reference significance for real estate market regulation in other regions.

**Keywords:** Investment; Housing prices; The Housing market.

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## 1. Introduction

The real estate market, as an important component of the national economy, plays a crucial role in promoting stable economic growth and harmonious social development through its healthy development. Anhui Province, as an important province in central China, has experienced rapid economic development in recent years, while the real estate industry has also shown a rapid growth trend. The rapid rise in housing prices has brought enormous pressure to residents' lives and posed challenges to the sustainable development of the economy. Since 2017, the principle of "houses are for living in, not for speculation" has been adhered to in China's real estate policy. Based on this, the regulation method of suppressing traditional demand and increasing supply has been adopted. As a result, the growth rate of real estate development investment in Anhui has significantly declined, and investment in the Anhui real estate market has become more rational. At the same time, the sales area and sales revenue of Anhui's commercial housing in 2022 have both experienced varying degrees of decline, indicating changes in the market supply and demand relationship. In this context, exploring the impact of real estate investment on housing prices is of great significance for understanding the operating mechanism of the real estate market and formulating effective macroeconomic regulation policies.

The development of the real estate market in Anhui Province is influenced by various factors, including government investment, monetary policy, economic factors, and the supply and demand situation of the real estate market

itself. With the deepening of market-oriented economy, the real estate industry has developed rapidly, and the stable development of the real estate market plays a crucial role in regional economy. Existing literature has conducted extensive and in-depth research on the mechanism and influencing factors of urban housing price growth, examining from the perspectives of market system, urban construction, and government behavior. However, existing research rarely focuses on examining the mechanism and influencing factors of housing price growth from an investment perspective. Therefore, this article further discusses the relationship between real estate investment and housing prices based on existing literature. The marginal contribution may lie in the use of data from 16 prefecture level cities in Anhui Province to examine the relationship between real estate investment and housing prices, providing new research evidence for related fields; The second is to study the mechanism that affects housing prices from the perspective of real estate investment; Thirdly, the factors influencing the real estate prices in Anhui Province were studied, and policy recommendations were proposed for the real estate market in Anhui Province.

This article will propose corresponding policy recommendations based on the research results, in order to provide reference for the regulation of the real estate market in Anhui Province. Through case analysis of Anhui Province, we hope to provide reference for the formulation of real estate investment policies in other regions. In academic research, the research on urban housing price growth mechanism and influencing factors has covered the estimation of supply price elasticity, the formation of housing value and the

development process of price foam, the cyclical characteristics of the housing market, and urban growth. In addition, the relationship between urban housing prices, population mobility, and total factor productivity has also been deeply explored. Studies have shown that the higher the level of human capital contained in the floating population, the higher its degree of "technology spillover", which will have a significant positive effect on regional technological progress and output level. These studies provide important perspectives for understanding the complex relationship between housing prices and economic growth. On this basis, this article will further explore how investment affects housing prices, providing more accurate policy guidance for macroeconomic regulation of the real estate market.

## 2. Theoretical Analysis and Empirical Design

### 2.1. Theoretical Analysis

The positive correlation between real estate investment and housing prices can be analyzed from multiple theoretical perspectives. Firstly, from the perspective of supply and demand theory, real estate investment, as an important component of the supply side, often indicates an increase in housing supply in the market. According to the theory of supply and demand, an increase in supply may lead to a decrease in housing prices when demand remains constant. However, if the increase in real estate investment is accompanied by regional economic development, population growth, or urbanization processes, it may increase the demand for housing, thereby driving up housing prices in the supply-demand balance; From the perspective of investment theory, real estate investment is regarded as a form of capital formation, and its increase may increase productivity and promote employment, thereby increasing residents' income and improving housing demand, all of which will drive up housing prices. In addition, real estate investment has increased the attractiveness and convenience of housing by improving infrastructure and public services, which is also an important factor driving up housing prices.

In summary, the positive correlation between real estate

investment and housing prices is the result of multiple factors working together, including changes in supply and demand, economic development levels, etc.

### 2.2. Empirical Design

This article uses a bidirectional fixed effects model to alleviate the problem of omitted variables, and designs the following model:

$$hp_{i,t} = \alpha_0 + \alpha_1 rei_{i,t} + \alpha_2 controls_{i,t} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

Among them, the explained variables include housing prices (hp); The core explanatory variable is real estate investment (rei); i and t respectively represent the city and year;  $\mu_i$  And  $\lambda_t$  represent individual fixed effects and time fixed effects respectively,  $\varepsilon_{it}$  representing random perturbation terms.

## 3. Variable and Data Explanation

This article studies the impact of real estate investment on housing prices at the level of prefecture level cities in Anhui Province. Due to the lack of data at the level of some county-level cities and adjustments made by various county-level cities during the research period, using statistical caliber data at the prefecture level city level is more reliable. The data of the 16 prefecture level cities selected in this article are all from the Anhui Statistical Yearbook, EPS database, and housing transaction websites such as Anjuke. Considering the availability and completeness of data, the period from 2001 to 2022 is selected as the research interval. In addition, to avoid the possibility of heteroscedasticity caused by dimensional issues in variables such as economic development level, government intervention degree, industrial structure, human capital, and asset size, they are treated separately.

The dependent variable is housing price (hp). This article adopts the unit price of residential commercial housing (yuan per square meter) and performs logarithmic operation to eliminate dimensional influence for representation.

**Table 1.** Model variables and their meanings

Variable	Index Name	Specific Calculation Method
hp	Housing price	The unit price of residential commercial housing (yuan per square meter) is taken as logarithm
rei	Real estate investment	Real estate development investment (100 million yuan) is taken as logarithm
agdp	Economic development level	Per capita GDP (yuan/person) is taken as logarithm
gov	Degree of government intervention	Fiscal expenditure/Gross Regional Product
indu	Industrial structure	Proportion of added value of tertiary industry
hc	Human capital	Education expenditure/fiscal expenditure
as	Asset size	Total assets/Gross Regional Product

**Table 2.** Descriptive statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
hp	352	8.325	0.597	7.025	9.615
rei	352	3.923	1.5	0.909	6.953
agdp	352	10.024	0.938	7.909	11.674
gov	352	0.167	0.064	0.07	0.327
indu	352	0.387	0.073	0.247	0.602
hc	352	0.18	0.047	0.094	0.296
as	352	1.179	0.646	0.346	2.908

Explanatory and control variables: The main explanatory variable is real estate investment (rei), which is unified with the dependent variable and expressed in logarithmic form. Based on existing literature research and theoretical foundations, variables such as economic development level (agdp), government intervention level (gov), industrial structure (indu), human capital (hc), and asset size (as) are selected as control variables. The model variables, their meanings, and descriptive statistics are as follows.

In addition, in order to test whether there is

multicollinearity among the variables, Pearson correlation test is performed on the variables. The test results are shown in Table 3. The correlation coefficient between explanatory

variables is basically less than 0.5, and there is no obvious correlation.

**Table 3.** Correlation test

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) hp	1.000						
(2) rei	0.858 (0.000)	1.000					
(3) agdp	0.838 (0.000)	0.841 (0.000)	1.000				
(4) gov	0.562 (0.000)	0.455 (0.000)	0.298 (0.000)	1.000			
(5) indu	0.465 (0.000)	0.389 (0.000)	0.349 (0.000)	0.240 (0.000)	1.000		
(6) hc	-0.412 (0.000)	-0.495 (0.000)	-0.676 (0.000)	-0.174 (0.001)	-0.168 (0.002)	1.000	
(7) as	0.135 (0.011)	0.193 (0.000)	0.395 (0.000)	-0.228 (0.000)	-0.306 (0.000)	-0.480 (0.000)	1.000

The variance expansion factor (VIF) between variables is also calculated. The results show that all independent variables are in the range of 0~10, and there is no multicollinearity between variables.

**Table 4.** Variance expansion factor

Variable	VIF	1/VIF
agdp	5.530	0.181
rei	4.260	0.235
hc	2.120	0.471
as	2.090	0.477
indu	1.580	0.633
gov	1.490	0.670
Mean VIF	2.850	

## 4. Analysis of Empirical Results

### 4.1. Benchmark Regression

The regression results of the two-way fixed effect model are shown in Table 5.

Both model (1) and model (2) adopt the double fixed effect model to control the unobservable individual heterogeneity and time effect, so as to reduce the error of missing variables and improve the consistency of estimation. The model results show that real estate investment (rei) has a significant positive impact on housing price (hp). From column (1) of table 5, it can be seen that the coefficient in model (1) is 0.116 without adding control variables; It can be seen from column (2) of table 5 that when the control variable is added, it is 0.079 in model (2), which is significant at the level of 1%, indicating that the increase of real estate investment has significantly promoted the rise of housing prices. In addition, the level of economic development (agdp), government intervention (gov), industrial structure (indu), human capital (hc), asset size (as) and other economic variables also have a significant positive impact on housing prices. These results are consistent with the discussion on the influencing factors of real estate prices in the above theoretical analysis.

In model (2), in addition to real estate investment, the addition of other economic variables significantly improved

the explanatory power of the model, and R square increased from 0.190 in model (1) to 0.285, indicating that the explanatory power of these variables on housing prices has been enhanced. This shows that real estate investment and other economic variables work together in the housing market, affecting the formation mechanism of housing prices.

**Table 5.** Benchmark regression results

	(1)	(2)
	hp	hp
rei	0.116*** (0.008)	0.079*** (0.018)
agdp		0.264*** (0.058)
gov		1.532*** (0.304)
indu		1.469*** (0.430)
hc		2.405*** (0.487)
as		0.082*** (0.018)
_cons	7.872*** (0.031)	4.012*** (0.765)
year	Yes	Yes
id	Yes	Yes
N	352	352
r2	0.190	0.285

Note: \*\*\* p<0.01, \*\*p<0.05, \*p<0.1, Use clustering robust standard error, and the standard deviation is in brackets; The following table is the same.

### 4.2. Robustness Test

The results of the robustness test are shown in Table 6.

The robustness test was carried out by eliminating special samples. After excluding samples during the period affected by the epidemic, the robustness test regression results shown in Table 6 further verified the significant positive impact of

real estate investment (rei) on housing prices (hp). In the two models, the coefficients of real estate investment are 0.119 and 0.101 respectively, which are significant at the level of 1%, indicating that the positive effect of real estate investment on housing prices is still robust even in different samples. In addition, the coefficients of economic variables such as the level of economic development (agdp), the degree of government intervention (gov), industrial structure (indu), human capital (hc), and asset size (as) also show a significant impact on housing prices, most of which are at 5% or 1%. These results are consistent with the benchmark regression analysis, which further confirms the robustness of the model.

**Table 6.** Regression results of robustness test

	(1)	(2)
	hp	hp
rei	0.119*** (0.009)	0.101*** (0.020)
agdp		0.223*** (0.060)
gov		1.454*** (0.325)
indu		1.520** (0.604)
hc		2.520*** (0.557)
as		0.101*** (0.021)
_cons	7.745*** (0.032)	4.258*** (0.851)
year	Yes	Yes
id	Yes	Yes
N	288	288
r2	0.215	0.295

### 4.3. Heterogeneity Analysis

The impact of real estate investment (rei) on housing price (hp) may be different in different samples, so this paper will group the urban samples from the regional perspective to test the heterogeneity of the impact of real estate investment (rei) on housing price (hp).

To test the impact of different urban regions on the empirical results, the sample cities are divided into northern Anhui, central Anhui and southern Anhui according to their regions, corresponding to (1), (2) and (3) columns respectively. The results of Northern Anhui (1) show that the impact of real estate investment on housing prices is not significant; Central Anhui Province (2) real estate investment has a significant positive impact on housing prices, with a coefficient of 0.174, which is significant at the level of 1%; The coefficient of Southern Anhui (3) is 0.046, which is also significant at the level of 10%, indicating that the impact of real estate investment on housing prices is different in different regions. On the whole, the regression results of central Anhui (2) and southern Anhui (3) are consistent with the previous article, while the regression results of Northern Anhui (1) are different from the previous article. These results show that the regional characteristics of the real estate market are crucial for understanding the relationship between real estate investment and housing prices, and the heterogeneity between these regions should be considered when formulating relevant policies.

**Table 7.** Analysis of urban regional heterogeneity

	(1)	(2)	(3)
	hp	hp	hp
rei	-0.014 (0.026)	0.174*** (0.047)	0.046* (0.024)
agdp	0.187*** (0.066)	-0.832*** (0.158)	0.459*** (0.144)
gov	0.385 (0.435)	-4.097*** (0.889)	3.982*** (1.101)
indu	0.032 (0.626)	3.944*** (0.653)	-0.892** (0.382)
hc	1.618** (0.582)	-2.775* (1.444)	1.068 (0.838)
as	0.072*** (0.025)	-0.175 (0.191)	-0.066 (0.049)
_cons	5.997*** (0.901)	15.904*** (1.813)	3.006 (1.780)
year	Yes	Yes	Yes
id	Yes	Yes	Yes
N	132	88	132
r2	0.263	0.774	0.271

## 5. Conclusions and Suggestions

Through in-depth empirical analysis, this paper reveals the complexity and regional heterogeneity of the impact of real estate investment on housing prices. In the case study of 16 prefecture level cities in Anhui Province, we find that real estate investment (rei) has a significant positive effect on housing price (hp), and this effect is robust under different model settings. Specifically, the increase of real estate investment not only directly leads to the rise of housing prices, but also has a significant impact after controlling key economic variables such as the level of economic development (agdp), government intervention (gov), industrial structure (indu), human capital (hc) and asset size (as). This result fully shows that real estate investment is one of the key factors driving the change of housing prices.

Furthermore, through the analysis of regional differences, the results reveal the spatial differentiation characteristics of the impact of real estate investment on housing prices. In Northern Anhui, central Anhui and southern Anhui, the impact of real estate investment on housing prices shows significant regional differences. Especially in central and southern Anhui, the positive effect of real estate investment on housing prices is particularly obvious, while the impact in Northern Anhui is relatively weak. This finding emphasizes that the economic development, population structure and market characteristics of different regions must be fully considered when formulating the real estate market regulation policy.

The results show that real estate investment plays an important role in influencing housing prices, but its effect shows obvious regional heterogeneity. These findings provide important theoretical and empirical support for in-depth understanding of the operating mechanism of the real estate market and formulating targeted macro-control policies, and have important reference significance for the regulation of the real estate market in Anhui Province and even the whole country.

Accordingly, this paper puts forward the following policy recommendations: in the regulation of the real estate market, regional differences should be fully considered, and fine and

differentiated regulation strategies should be implemented. For areas where house prices are rising rapidly, market supervision and land supply policies should be strengthened to curb the rapid rise of house prices; At the same time, measures such as increasing land supply and optimizing housing structure should be taken to maintain the balance between supply and demand in the market, especially in areas with strong demand, so as to stabilize housing prices. In addition, we should strengthen the supervision of the real estate market, especially the restrictions on speculative property purchases, to prevent the formation of a housing price bubble. In areas with relatively lagging economic development, we should increase infrastructure investment and public service supply to enhance the attractiveness of the regional economy and promote the healthy development of the real estate market. At the same time, we will implement differentiated housing credit policies, support first-time buyers and improved buyers, and reasonably restrict speculative investment in property purchases. By comprehensively considering regional differences, supply and demand balance, market regulation and other factors, we can promote the stable, sustainable and healthy development of the real estate market in Anhui Province.

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