The Impact of Rising Housing Rent on Residents’ Consumption and Its Underlying Mechanism: Empirical Evidence from China

Guangping Liu¹ and Xiayuan Chang²

Abstract
Based on 465 panel data from 31 provinces, autonomous regions, and municipalities in China from 2001 to 2015 (data come from “China Statistical Yearbook”), static and dynamic panel models were established by Stata16.0 software to analyze the impact of housing rent on household consumption. In order to explore the specific impact of rising housing rents on residents’ consumption, and then adjust housing policies to stimulate consumer demand, this article analyses three research topics: (a) the impact of rising housing rent on the overall consumption level of residents and whether there are regional differences; (b) the internal mechanism underlying the effect of rising housing rent on residents’ consumption; and (c) the different impacts of rising housing rent on different types of residents’ consumption by establishing fixed-effects and random-effects models. The results show that a rise in housing rent causes a wealth effect on residents’ consumption at the national level in all regions. The upgrading of the industrial structure plays a positive role in the relationship between the fluctuation in housing rent and residents’ consumption, that is, the more rational the industrial structure, the stronger the wealth effect of rising housing rent on residents’ consumption. The rise in housing rent positively affects residents’ daily necessities and services consumption; transportation and telecommunication consumption; education, culture, and entertainment consumption; and habitation consumption; while negatively affects food, tobacco, and alcohol consumption; clothing consumption; and other supplies and services consumption. However, the impact on health care consumption is not significant. Accordingly, the government should start by improving the housing rental market and reasonably promote the further development of the housing rental market, thereby further stimulating Chinese consumption level.

Keywords
housing rent, residents’ consumption, regional differences, impact mechanism, industrial structure upgrading

Introduction
As one of the twin engines of the housing supply system, the development of the rental housing market is an important strategic measure for solving the housing problems of low-income households. According to relevant statistics, the housing ownership rate in some developed countries, such as the United States, Britain, Japan, France, Germany, and the Netherlands, has remained at 40% to 70% for a long time, which means that approximately 30% to 60% of residents in these countries rely on leasing housing to solve their housing problems (Shi et al., 2013). At present, China’s rental housing population accounts for only 11.6% of the national population, which is far lower than that of developed countries (China Industry Information Network, 2018). Since 2015, the relevant departments of the Chinese government have issued a number of policy documents, such as “Guidance on accelerating the cultivation and development of housing rental market” (2015), “A number of suggestions on accelerating the cultivation and development of the housing rental market” (2016), “A pilot programme to use collective construction land to build rental housing” (2017), and “Notice on the participation of insurance funds in the long rent market” (2018). The aim of these documents is to promote the reform of the housing system, to promote the formation of a selection mechanism between housing rental and housing...
purchase, and to promote the transformation and upgrading of the real estate industry. In view of the broad development prospects of the rental housing market, Orient Securities predicts that China’s housing rental population will reach 270 million in 2030, accounting for approximately 20% of China’s population (Tencent Network, 2017). However, China’s rental housing market is facing a series of problems at present, such as an imperfect land supply mechanism, insufficient operating capacity among institutional investors, an imperfect financing mechanism and low operating profitability, which lead to several challenges in the supply of rental housing. At the same time, the rapid progress of urbanization and housing prices continues, resulting in a strong demand for rental housing. The contradiction between the supply and demand in the rental housing market can easily cause abnormal fluctuations in housing rent, which can affect people’s behavior and decisions.

However, although a few scholars have discussed the impact of housing rent on residents’ consumption, there is still a lack of in-depth analysis on the differential impact of housing rent price on residents’ consumption in different regions and for different types of housing. In particular, the mechanism underlying the relationship between housing rent and residents’ consumption is not clear. The research content of this article aims to enrich and improve the theory of housing rental price spillover effects and residents’ consumption, and for the government to formulate effective policies and measures under the realistic situation of housing rental price fluctuations, correctly guide residents to establish a reasonable consumption structure, and regulate rental prices to promote residents’ consumption level. This article indicates that the mechanism of housing rent and residents’ consumption is that with the increase of housing rent prices, it will further stimulate consumption growth, but its incentive effect will have varying degrees of influence with the different levels of economic development in various regions and this article is dedicated to stimulating residents’ consumption and promoting consumption growth by recommending housing rental policies. We thought that with the rise in housing prices, rental housing has become a more economical choice. Compared with the high cost of buying a house, the cost of renting housing is lower, which in turn increases the disposable funds of consumers, reduces the willingness to save, and promotes consumption. Willingness to stimulate the growth of residents’ consumption.

The organizational structure of this paper is in the following order. Section “Literature Review” provides a literature review from the two aspects of housing rent spillover effects and consumption influencing factors. Section “Research Method” mainly introduces the source and processing methods of the data required in this article. Section “Results” is to construct theoretical models and carry out empirical analysis. Section “Discussion” puts forward the conclusions, and puts forward relevant policy recommendations based on the empirical analysis results.

Literature Review

The Spillover Effect of Rising Housing Rent

As early as the 1980s, Harvard Law Review published articles discussing the impact of rent control on housing construction and consumption and found that rent control can not only increase housing supply but also increase consumption by reducing the social cost of poverty and homelessness (Harvard Law Review, 1988). Subsequently, some scholars began to pay attention to the impact of housing rent on housing price and drew contradictory conclusions. Richard and Wallace (1994) used time series data from two American cities to conduct an empirical analysis and found that housing rent has a positive impact on housing price. Cheung et al. (1995) took Hong Kong as their research object and found that the rental housing market and the buying and selling market in this region are in a state of isolation, resulting in the lack of a causal relationship between housing rent and housing price. Saiz (2006) found that 1% increase in urban floating population will cause 1% increase in housing rent prices, which proves that there may be multiple linear problems between population mobility and housing rents. Frew and Wilson (2002) believed that transportation hubs and urban location will also have a certain degree of impact on rents.

In recent years, Chinese scholars began to pay more attention to the spillover effect of housing rent. They have focused on discussing the impact of housing rent on housing price, consumption, social security, labor supply and other factors. F. Dong and Liu (2010) found that the relationship between housing rent and housing price is not directly correlated in China, which is due to the strong inconsistency between supply and demand caused by the residential culture, the supply shortage caused by the land system and the surge in demand caused by institutional transformation. In-depth research shows that the impact of housing rent on housing price has regional differences. Compared with central and western cities, the rising housing rent in eastern cities have a greater positive impact on housing price. Housing rent negatively affects housing price in areas with less mobile populations (S. D. Zhang et al., 2014). In terms of the impact of housing rent on residents’ consumption, Zhao and Zhu (2017) concluded that the consumption income elasticity of households with a heavier rent burden is lower than that of households with a lighter rent burden. Feng and Zheng (2018) sorted out public data from 50 cities in China and found that the proportion of residential expenditure as a share of consumer expenditure has been increasing, and non-habitation consumption space represents six point 8% of residential expenditure due to soaring housing rents in recent years. Zheng (2011) pointed out that increasing housing rent would put greater pressure on low-income households and exacerbate social security risks. L. Liu (2017) showed that an increase in housing rent has a negative impact on labor supply and found that gender and village type play a moderating role in the relationship between housing rent and labor supply.
Factors Affecting Household Consumption

Scholars have mainly discussed the impact of housing price, fiscal expenditure, human capital and labor mobility on household consumption. In terms of the impact of housing price on residents’ consumption, one view holds that housing price fluctuation is conducive to increases in residents’ consumption through wealth effects. Others hold the view that the fluctuation of housing prices will crowd out residents’ consumption (Katya & Ben, 2017; S. W. Liu, 2018). The differences in research are mainly caused by regional differences, differences in residents’ housing ownership, and differences in residents’ income (Dai, 2019; He et al., 2017). Studies have found that fiscal expenditure has different impacts on household consumption: the wealth effect and the crowding out effect (Bouakez & Rebei, 2007; Xu et al., 2012). The proportion of the two effects depends on the impact of different types of fiscal expenditure on household consumption. If the impact intensity of consumer fiscal expenditure is greater than that of productive fiscal expenditure, residents’ consumption will be crowded out, otherwise, residents’ consumption will be increased (Y. F. Wang & Liu, 2015). In addition, the influence of fiscal expenditure on residents’ consumption exists across differences in time and region, which is beneficial to residents’ consumption in the short term but will crowd out residents’ consumption in the long term (Yan & Wang, 2016). Local fiscal expenditure generally has a lower impact on household consumption in high-level economic development regions than in low-level economic development regions (C. Zhang et al., 2018).

Since the 1970s, scholars have paid attention to the impact of human capital on residents’ consumption. They found that human capital improves residents’ consumption willingness and consumption ability through the mediating roles of income, consumption knowledge and skills (Z. L. Liu et al., 2018). In recent years, scholars have begun to use micro data to study the impact of human capital on residents’ different types of consumption. Z. P. Xiao et al. (2011) found that laborers with higher levels of human capital are less likely to invest in real estate than laborers with lower levels of human capital. Zhou (2011) pointed out that the higher the human-capital levels that laborers have, the more they spend on clothing and entertainment. Salim et al. (2017) took China as a sample and found that there is a significant negative correlation between human capital and energy consumption in China. Specifically, a 1% increase in human capital will reduce energy consumption by 0.18% to 0.45%. The positive impact of the inflow of the regional labor force on residents’ consumption in this region has been generally accepted by the academic community, but there have been no consistent conclusions regarding the impact of residents’ consumption on labor force outflow in the region (Wilson, 2000). Due to the variety in residents’ consumption, labor force mobility has different effects on different types of consumption. Huang and Pan (2014) analyzed the impact of labor force mobility on the consumption structure of rural residents by constructing a Linear Almost Ideal Demand System model. They found that labor force mobility not only increases residents’ consumption of culture, education, entertainment and services, clothing and medical care but also reduces residential and food consumption and has no significant impact on household consumption. Moreover, the impact of labor force supply on consumption varies according to the object of supply. C. Q. Li and Li (2018) built a dual-salary life cycle model and found that the consumption spillover effect of labor force supply in couples between the ages of 20 and 29 years was relatively weak, the consumption smoothing effect of labor force supply in couples between the ages of 30 and 47 years was stronger, and the consumption wealth effect of labor force supply was highest in couples between the ages of 48 and 60 years.

In summary, scholars have conducted extensive and in-depth discussions on the spillover effect of housing rent and the pre-influencing factors of residents’ consumption. Only a few scholars have conducted correlation analyses between housing rent and residents’ consumption, but the following problems exist: First, there is a lack of research on the impact of regional differences in housing rent on residents’ consumption. Second, the impact mechanism of housing rent on residents’ consumption is not clear. This article will solve the above two problems.

Research Method

Research Hypothesis

To a certain extent, housing rent has a screening mechanism for residents’ consumption. For the tenant, the increase in housing rent will have a crowding out effect on consumption. For the landlord, the increase in housing rent will have a wealth effect on consumption. On the one hand, most landlords rent houses directly to tenants through real estate agencies in China, and some houses are indirectly leased to tenants by leasing to institutional investors. In terms of quantity, the number of people who have rented out houses in the market is more than the number of people actually renting. Therefore, the wealth effect of rising housing rental prices on lessors is greater than the crowding-out effect of rising housing rental prices on tenants. Based on the above analysis, it can be determined that a rise in housing rental prices will have a wealth effect on residents’ consumption. Based on the above analysis, we propose the following hypothesis:

Hypothesis 1: An increase in housing rental price has a positive effect on residents’ consumption.

There are differences in the level of economic development in different regions. Compared with labor force incomes in regions with lower levels of economic development, labor force incomes are generally higher in regions with higher
levels of economic development. Research has shown that for low-income groups and high-income groups with the same consumption habits and time preferences, high-income groups have a lower savings rate than low- and middle-income groups (W. Wang & Guo, 2011). This result also indirectly means that the lower one’s labor force income is, the higher the savings rate. It can be seen that residents who live in regions with lower levels of economic development have a stronger willingness to save than those who live in regions with higher levels of economic development. Therefore, the increase in housing rent has different effects on the consumption of residents in different regions due to their different propensities to save. Hence, we propose the following hypothesis:

**Hypothesis 2:** There are regional differences in the impact of rising housing rent on residents’ consumption.

This article selects the Thayer index to reflect the upgrading of the industrial structure and explores the mechanism underlying the impact of rising housing rent on residents’ consumption. The more rational the industrial structure of a region is, the stronger the coordination between industries and the better the adaptability between the supply structure and the demand structure, which means that the economic development of the region is healthier and more sustainable. The upgrading of the industrial structure will also promote regional economic growth (X. Dong et al., 2011; Y. L. Li, 2019). It can be seen that compared with regions with a low degree of rationalization of the industrial structure, regions with a higher degree of rationalization of the industrial structure have healthier—and higher—levels of economic development, and residents of the latter have higher consumption power. Rising housing rental prices will increase the wealth of landlords and reduce the wealth of tenants. In regions with a high degree of rationalization of the industrial structure, the impact of an increase in housing rent is relatively weak for tenants and the wealth effect on the landlords is stronger than in regions with a low degree of rationalization of the industrial structure. Therefore, a fluctuation in housing rent has a stronger effect on the consumption expenditure of residents who live in a region with a higher degree of industrial structure upgrading than on the consumption expenditure of those who live in a region with a lower degree of industrial structure upgrading. Based on the above analysis, the following assumption is made:

**Hypothesis 3:** Industrial structure upgrading plays a positive role in the relationship between rising housing rent and residents’ consumption.

Residents’ consumption is composed of various sub-categories. Due to the large differences in the elasticity of different types of residents’ consumption expenditures in relation to changes in income, rising housing rent will have different effects on different categories of residents’ consumption. For example, rising housing rent will bring changes in income to landlords and tenants. Due to the relatively large income elasticity of clothing, entertainment, and daily necessities, rising housing rent may increase a landlord’s consumption expenditures and reduce a tenant’s consumption expenditures. However, health care consumption is a rigid demand for both landlords and tenants. Therefore, regardless of whether housing rent increases or decreases, rising housing rent will not impact consumption of health care. Here, the following assumption is made:

**Hypothesis 4:** There is a difference in the impact of rising housing rent on different types of residents’ consumption.

### Sample Selection and Data Source

This research sample includes 31 provinces, autonomous regions and municipalities: Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, Hainan, Heilongjiang, Jilin, Shanxi, Anhui, Jiangxi, Henan, Hubei, Hunan, Sichuan, Chongqing, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, Guangxi, and Inner Mongolia. Among them, the eastern region includes 11 provincial-level administrative regions: Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Hainan. The central region includes eight provincial-level administrative regions: Heilongjiang, Jilin, Shanxi, Anhui, Jiangxi, Henan, Hubei and Hunan. The western region includes 12 provincial-level administrative regions: Sichuan, Chongqing, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, Guangxi and Inner Mongolia.

Taking into account the differences between social patterns and economic development levels, this article does not include Hong Kong, Macau, and Taiwan in this regression analysis. The date range for this research is defined as between 2001 and 2015. The data for the housing rental price index and housing price are derived from the National Research Network statistics database. The data for human capital level, residents’ consumption expenditure, per capita disposable income and population are derived from the 2002-2016 China Statistical Yearbook. Since the price index for all the original data is based on the previous year as the base period, this research took the data in 2001 as the unified base period, converted and sorted out the data from the following 14 years, and, finally, obtained panel data for 31 provinces, autonomous regions and municipalities with time series changes.

### Variables Selection and Measurement

In this research, the housing rent price index is selected as the explanatory variable, and residents’ consumption
expenditure is the explained variable. Population, housing price and per capita disposable income are selected as control variables. The definition and description of the variables are shown in Table 1.

**Dependent variable**

*Residents’ consumption*. The national consumption expenditure and the consumption expenditure of different categories and regions are selected to measure the consumption of residents.

**Independent variable**

*Housing rent*. The housing rent price index of each province is selected to measure housing rent. It is a relative number that reflects the trend and range of changes in housing rental price levels in a certain period of time. The sub-category index takes the rental income in the reporting period as the weight, and the major category index and the overall index are the weights of the lease amount of various types of houses in the city in the previous year. The index is calculated using the weighted arithmetic average method.

**Moderating variable**

*Industrial structure upgrading*. Here, we use the Theil index to measure the rationalization of the industrial structure (Gan et al., 2011). The specific calculation formula is as follows:

$$TL = \sum_{j=1}^{m} \left( Y_j / Y \right) \ln \left( Y_j / L_j \right)$$

where $TL$ is the Theil index, $Y$ is the regional GDP, $L$ is the employed population, $J (j = 1, 2, 3)$ indicates primary industry, secondary industry and tertiary industry, and $m (m = 3)$ indicates the number of industrial sectors. The value range of $TL$ is $[0, 1]$. In the economic equilibrium state, $TL = 0$. The more the $TL$ deviates from 0, the lower the polymerization quality and the more unreasonable the industrial structure.

**Control variables**

*Per capita disposable income*. Other things being equal, the higher per capita disposable income is, the stronger the residents’ consumption power and the greater their consumption expenditure. Therefore, this research selected per capita disposable income as one of the control variables.

*Population*. Other things being equal, the larger the population base is, the greater the regional consumption. Therefore, population is selected as one of the control variables.

*Housing price*. Housing price can affect residents’ consumption through the wealth effect and the crowding out effect (Z. Dong et al., 2017). Since China’s housing prices and housing rents have deviated from the theoretical basis of rent determinism, there is no direct relationship between the two (Du & Ma, 2009). Therefore, this research selected housing prices as one of the control variables.

*Human capital level*. Since education is a main way to measure human capital, this article decides to measure the level of human capital from the perspective of education.
stock. Because rising housing rent mainly affect the mobility of employed people, the labor force group, the previous practice of using the average years of education of the local population to measure the level of human capital is discarded here. This article draws on the practice of Cai and Wang (1999) and Y. F. Xiao and Luo (2018), and divides the education level of the population into five categories: uneducated, elementary school, junior high school, high school, college and above. The corresponding average cumulative years of education are 0, 6, 9, 12, 16 years. The specific calculation formula is as follows:

\[ HC_i = \sum_{i=1}^{7} EH_i \times D_i \]  

(2)

where \( EH_i \) represents the number of people with a human capital education of \( i \), and \( D_i \) represents the average number of years of education for which the education is \( i \).

Model Construction

First, substituting data from different regions into the following dynamic panel regression model verify whether the fluctuations in housing rental prices and the consumption levels of the previous period in each region have an impact on the consumption of residents across the country, eastern, central and western regions.

Model 1:

\[ \ln CONSUME_{ijt} = \alpha_0 + \alpha_1 \ln HP_{ijt} + \alpha_2 \ln PDI_{ijt} + \alpha_3 \ln POP_{ijt} + \alpha_4 \ln CONSUME_{ijt(-1)} + \epsilon_{ijt} \]

Then, adopt hierarchical regression model in static panel model to test the moderating effect of rising housing rent on residents’ consumption. First, the influence of four control variables on residents’ overall consumption is tested. We introduce explanatory variables and control variables into Model 4.

Model 3:

\[ \ln CONSUME_{ijt} = \gamma_0 + \gamma_1 \ln HP_{ijt} + \gamma_2 \ln PDI_{ijt} + \gamma_3 \ln POP_{ijt} + \gamma_4 \ln CONSUME_{ijt(-1)} + \epsilon_{ijt} \]

Finally, in order to verify whether housing rent and household consumption are dynamic in time and avoid endogeneity, housing rent \( HR_{ijt} \), the regulating variable \( ISU_{ijt} \) and the interaction item \( HRP_{ijt} \times ISU_{ijt} \) lag term are added to Model 3.

Model 4:

\[ \ln CONSUME_{ijt} = \delta_0 + \delta_1 \ln HP_{ijt} + \delta_2 \ln PDI_{ijt} + \delta_3 \ln POP_{ijt} + \delta_4 \ln CONSUME_{ijt} + \delta_5 \ln CONSUME_{ijt(-1)} + \epsilon_{ijt} \]

In the second part, this research focuses on the impact of housing rent price fluctuation on differences in residents’ consumption. We introduce explanatory variables and control variables into Model 4.

Model 5:

\[ \ln CONSUME_{ijt} = \phi_0 + \phi_1 \ln HP_{ijt} + \phi_2 \ln PDI_{ijt} + \phi_3 \ln POP_{ijt} + \phi_4 \ln CONSUME_{ijt} + \phi_5 \ln CONSUME_{ijt(-1)} + \epsilon_{ijt} \]

Here, \( i(t = 1, 2, 3, 4) \) represents the whole country, the eastern region, the central region, and the western region, respectively. \( j(j = 1, 2, 3, \ldots, 31) \) represents the selected provincial administrative region. \( k(k = 1, 2, 3, \ldots, 8) \) refers to the consumption of different categories by residents, including food consumption, tobacco and alcohol consumption, clothing consumption, daily necessities and services consumption, transportation and telecommunication consumption, education, culture and entertainment consumption, medical care consumption, habitation consumption, and other goods and services consumption. \( t(t = 1, 2, 3, \ldots, 15) \) represents the year the data were selected. \( \alpha_0(n = 0, 1, \ldots, 4) \), \( \beta_0(n = 0, 1, \ldots, 3) \), \( \gamma_0(n = 0, 1, \ldots, 5) \), \( \delta_0(n = 0, 1, \ldots, 6) \), and \( \phi_0(n = 0, 1, \ldots, 4) \) are estimated parameter matrices. \( \epsilon_{ijt} \), \( \epsilon_{ijt}^t \) and \( \epsilon_{ijt}^t \) are random perturbation terms. We used Stata16.0 to perform regression analysis on these models.

Results

Descriptive Statistical Analysis

The observations are the panel data for 31 provinces, autonomous regions and municipalities from 2001 to 2015, representing a total of 465 observations (see Table 2). Due to residing in different geographical locations and experiencing different levels of economic development, residents in different regions have large differences in various consumption levels, housing rental prices and per capita disposable income. The average housing rental price index is 141.27, which indicates that the housing rental price has increased steadily in the past 15 years. The average housing rental price index is very close to the median of 134.46, the maximum value is 262.04, and the minimum value is 69.00. Similar to the housing rental price index, several other variables vary widely among cities.

In terms of control variables, the maximum value, minimum value and standard deviation of per capita disposable income are 5,296.19, 5,267.42 and 8,685.33, respectively. Per capita disposable income in different regions varies greatly, with obvious fluctuations and large variations. The mean value of the population is 4,245.85, the maximum value is 10,849, and the minimum value is 263. The maximum value of housing price is 22,633, the minimum value is 263, and the standard deviation is 3,154.92. It can be seen that housing price is similar to the housing rent price index with a significant change range.

In this article, we use the collected data to fit the relationship between housing rent and the national level of residents’
consumption and different categories of residents’ consumption, and the relationship graphs are shown in Figures 1 and 2. We can see from Figure 1 that both housing rent and residents’ overall consumption show a trend toward growth, and they also show a good positive linear regression trend. It can be seen from Figure 2 that, in general, with a rise in housing rent, all kinds of consumer expenditures by residents change along roughly the same trend.

**The Empirical Analysis**

**Unit root test.** To avoid the false regression phenomenon, this article adopts the LLC, IPS, ADF, and PP methods to perform a unit root test. Specific test results are shown in Table 3. None of the data show consistent stationarity in the original sequence, so it is necessary to further test the stationarity of the sequence value after the first-order difference. Table 3 shows that all variables show consistent stationarity after the first-order difference, and this trend is significant at the 1% level, showing consistent integration of order one.

**Co-integration test.** To test the long-term stable relationship among various variables, it is necessary to conduct co-integration tests among all the explained variables, explanatory variables, and control variables. This article adopts the Kao test method of the Engle–Granger two-step method to conduct co-integration tests of the models, and the results are shown in Tables 4 and 5.

---

| Variables | No. of observations | Average | Median | Maximum | Minimum | Deviation |
|-----------|---------------------|---------|--------|---------|---------|-----------|
| HR        | 465                 | 141.27  | 134.46 | 262.04  | 96.00   | 30.96     |
| FTA       | 465                 | 4,081.29| 3,854.26| 9,822.88| 1,412.95| 1,764.67  |
| OSS       | 465                 | 410.86  | 369.26 | 1,537.78| 133.94  | 222.25    |
| CLOTHING  | 465                 | 1,169.93| 1,086.42| 2,794.87| 208.83  | 529.37    |
| TT        | 465                 | 1,497.67| 1,255.87| 4,860.40| 299.89  | 963.41    |
| ECE       | 465                 | 1,396.59| 1,203.99| 4,122.07| 359.34  | 712.81    |
| DNS       | 465                 | 726.53  | 633.03 | 2,272.70| 200.76  | 374.51    |
| HEALTH    | 465                 | 794.90  | 716.87 | 2,369.50| 149.98  | 398.71    |
| RESIDENT  | 465                 | 1,455.51| 1,042.10| 12,137.00| 295.48  | 1,432.54  |
| PDI       | 465                 | 16,172.80| 14,128.76| 52,961.90| 5,267.42| 8,685.36  |
| POP       | 465                 | 4,245.85| 3,775.00| 10,849.00| 263.00  | 2,694.40  |
| HP        | 465                 | 4,099.06| 3,268.62| 22,633.00| 972.00  | 3,154.92  |
| CONSUME   | 465                 | 11,533.27| 10,280.00| 36,946.20| 3,894.52| 5,754.84  |
| ISU       | 465                 | 0.95    | 0.83   | 4.05    | 0.49    | 0.47      |

**Table 2.** Descriptive Statistics for the Variables.
As seen in Tables 4 to 6, the p-values of all the models are less than 0.1. Most models have p-values less than 0.01, indicating that there is a significant co-integration relationship among the explained variable, explanatory variable and control variables, and further Granger causality test can be carried out.

### Table 3. The Panel Sequence Unit Root Test.

| Variable | LLC   | IPS   | ADF   | PP    | LLC     | IPS     | ADF     | PP     |
|----------|-------|-------|-------|-------|---------|---------|---------|-------|
| HR       | 2.78383 | 9.06303 | 10.9872 | 10.9715 | -10.3871*** | -8.09701*** | 173.884*** | 165.075*** |
| lnCONSUME | -3.38738*** | 5.41738 | 26.9955 | 46.4633 | -11.8869*** | -8.51785*** | 188.138*** | 209.010*** |
| lnFTA    | -7.10837*** | 0.59761 | 44.8327 | 87.8575 | -11.3618*** | -7.13131*** | 166.476*** | 182.854*** |
| lnOSS    | -0.4861 | 3.73752 | 17.4307 | 16.1232 | -18.6521*** | -16.20571*** | 324.293*** | 384.282*** |
| lnCLOTHING | -7.02644*** | -0.13754 | 54.1998 | 69.9687 | -15.9648*** | -13.37141*** | 276.634*** | 392.942*** |
| lnECE    | -2.76269*** | 3.53386 | 46.1987* | 74.0360*** | -19.8798*** | -15.0726*** | 295.471*** | 341.739*** |
| lnDNS    | 1.62209 | 7.36034 | 14.0806 | 6.28215* | -13.9244*** | -7.6675*** | 171.272*** | 244.676*** |
| lnHEALTH | -3.83772*** | 3.21821 | 48.3571*** | 88.0773*** | -14.6601*** | -10.1241*** | 256.424*** | 256.424*** |
| lnRESIDENT | 9.55164 | 13.1854 | 1.368   | 1.19744 | -20.5631*** | -17.2036*** | 345.969*** | 553.217*** |
| HC       | -1.06069 | 4.04246 | 23.1399 | 23.4811 | -10.4093*** | -8.67532*** | 186.191*** | 242.815*** |
| lnHP     | -3.88325 | 3.99800 | 32.6233 | 21.9795 | -7.95719*** | -5.60882*** | 148.765*** | 178.239*** |
| lnPOP    | -4.03652*** | 2.12373 | 59.2039 | 79.1075** | -11.8869*** | -8.51785*** | 188.138*** | 209.010*** |
| lnPDI    | -3.38738 | 5.41738 | 26.9955 | 46.4633 | -11.3618*** | -7.13131*** | 166.476*** | 182.854*** |
| ISU      | 2.92847 | 4.07578 | 45.9905 | 40.4624 | -9.82644*** | -7.97923*** | 185.762*** | 192.511*** |
| HR × ISU | 4.17783 | 10.7645 | 4.83599 | 5.37342 | -10.1824*** | -7.11699*** | 154.727*** | 149.196*** |

Note. *, **, and *** denote that the statistics are significant at the 10%, 5% and 1% levels, respectively.

### Table 4. The Co-Integration Test Results of Model 1.

| ADF | The national level | Eastern region | Central region | Western region |
|-----|--------------------|----------------|---------------|---------------|
|     | t      | prob. | t     | prob. | t    | prob. | t     | prob. |
|-----|--------|-------|-------|-------|------|-------|-------|-------|
| ADF | -3.3512 | 0.0004 | -3.209 | 0.0007 | -1.8033 | 0.0357 | -1.3409 | 0.09 |

Granger causality test. In order to test the correlation and causality between variables, all variables involved in the model need to be tested for correlation. The test results are shown in Table 7.

It can be seen from Table 7 that at the level of 1%, HRP, HC, POP, PDI, and HP all have Granger causality for...
Consumes, but there is almost no causal correlation among the control variables, explanatory variables and moderator variables. This result can ensure that our subsequent regressions proceed reasonably.

**The impact of rising housing rent on overall and regional differences in residents’ consumption.** First, Hausman’s test is used to determine whether model 1 should adopt a fixed effect regression model or a random effect regression model. The regression analysis results are shown in Table 8. Except for the western region, the Hausman test results for all regions reject the null hypothesis at the 1% level, so the individual fixed effect regression model should be adopted, while the western region model should adopt the individual random effect regression model.

According to the regression model analysis results in Table 8, housing rental prices in the national, eastern, central and western regions all positively affect residents’ consumption, presenting a wealth effect, but the effects are all relatively weak, and the wealth effect in the eastern, central and western regions decreases successively. Hypotheses 1 and 2 are verified. In terms of the control variables, per capita disposable income promotes residents’ consumption. The rise in housing price increases the consumption level of residents in the eastern and western regions, but the impact on the consumption of residents in the central region is not significant. The effect of population size on residents’ consumption in different regions is quite different. The eastern region presents a promotion effect, the central region presents a crowding out effect, and the western region does not have a significant effect. The improvement of human capital has increased the consumption level of residents in various regions.

**The influence mechanism of rising housing rent on residents’ consumption.** The regression analysis results of Models 2 to 4 are shown in Table 9. The results showed that the p values of all the models are less than 0.01, so the null hypothesis is rejected significantly, and the individual fixed effect regression model should therefore be used for empirical analysis.

In terms of the explanatory variable, housing rent is significant and positive at the 1% level in both Models 3 and 4. This means that housing rent can promote increases in residents’ consumption levels and bring a certain degree of wealth effect to residents, which conforms to the empirical results at the national level in Model 1 and verifies the rationality of Hypothesis 1.

In terms of the moderating variable, in Model 4, the interaction term between industrial structure upgrading and housing rental price index is significant at the 1% level, with a coefficient of 0.002. The higher the value of the industrial structure, the more reasonable the industrial structure is. This result indicates that industrial structure upgrading plays a positive moderating role in the relationship between rising housing rent and residents’ consumption. In other words, the higher the degree of rationalization of the industrial structure is, the stronger the wealth effect of rising housing rent on residents’ consumption level. Conversely, the lower the degree of rationalization of the industrial structure is, the weaker the wealth effect of rising housing rent on residents’ consumption level. Hypothesis 3 is verified.

In terms of the control variables, from the perspective of the national level, all four control variables play a positive role in promoting the spillover effect of housing rent on residents’ overall consumption, and this result is consistent with the empirical results at the national level in Model 1. Among the variables, rising housing prices promote residents’ consumption levels, so the wealth effect brought by the rise in housing price is larger than the crowding out effect. An increase in population has an incremental effect on residents’ consumption levels. Per capita disposable income directly affects the balance between residents’ consumption and savings. An increase in per capita disposable income means that residents have more surplus assets. Residents will increase consumption in order to improve their living standards and quality of life, so an increase in per capita disposable income plays a positive role in promoting residents’ consumption. The accumulation and improvement of human capital will also promote the overall consumption of residents to a certain extent. On the one hand, the accumulation of high human capital will promote the increase of regional income, thereby enhancing the willingness of regional residents to consume. On the other hand, residents in areas with high human capital are more capable of accepting new consumption concepts and new things, and their overall consumption expenditure

### Table 5. The Co-Integration Test Results of Model 2, Model 3, and Model 4.

| Explained variable | Model 2 | Model 3 | Model 4 |
|--------------------|--------|--------|--------|
| ADF                | -3.449 | -3.443 | -2.2368 |
| t                  | 0.0003 | 0.0003 | 0.0127 |
| prob.              |        |        |        |

### Table 6. The Co-Integration Test Results of Model 5.

| Explained variable | Model 5 |
|--------------------|---------|
| ADF                |         |
| FTA                | -5.8119 | 0.0000 |
| OSS                | -4.5846 | 0.0000 |
| CLOTHING          | -6.5949 | 0.0000 |
| DNS                | -4.0608 | 0.0000 |
| HEALTH            | -2.4511 | 0.0071 |
| TT                | -4.0693 | 0.0000 |
| ECE               | -3.3957 | 0.0000 |
| RESIDENT          | -5.1173 | 0.0000 |
### Table 7. Granger Causality Test Results.

| The null hypothesis | $F$-statistic | Probability | Discriminant result |
|---------------------|---------------|-------------|---------------------|
| CONSUME does not Granger Cause HP | 30.0693 | 0.0000 | Reject |
| HP does not Granger Cause CONSUME | 20.3094 | 0.0000 | Reject |
| CONSUME does not Granger Cause HR | 0.8214 | 0.3653 | Accept |
| HR does not Granger Cause CONSUME | 19.6259 | 0.0000 | Reject |
| CONSUME does not Granger Cause POP | 0.1760 | 0.6751 | Accept |
| POP does not Granger Cause CONSUME | 24.7786 | 0.0000 | Reject |
| CONSUME does not Granger Cause PDI | 2.0688 | 0.1510 | Accept |
| PDI does not Granger Cause CONSUME | 2.7664 | 0.097 | Accept |
| CONSUME does not Granger Cause HC | 31.4236 | 0.000 | Reject |
| HC does not Granger Cause CONSUME | 8.2309 | 0.004 | Reject |
| POP does not Granger Cause HP | 0.6701 | 0.4135 | Accept |
| HP does not Granger Cause POP | 0.7021 | 0.4025 | Accept |
| PDI does not Granger Cause POP | 0.0693 | 0.7925 | Accept |
| POP does not Granger Cause PDI | 0.0130 | 0.9091 | Accept |
| HC does not Granger Cause POP | 0.0821 | 0.7746 | Accept |
| POP does not Granger Cause HC | 0.4125 | 0.5210 | Accept |
| HELIHUA does not Granger Cause POP | 0.4846 | 0.4867 | Accept |
| POP does not Granger Cause HELIHUA | 0.7109 | 0.3396 | Accept |
| HELIHUA does not Granger Cause PDI | 0.7161 | 0.3979 | Accept |
| PDI does not Granger Cause HELIHUA | 0.0207 | 0.8858 | Accept |
| HC does not Granger Cause PDI | 0.0721 | 0.4025 | Accept |
| PDI does not Granger Cause HC | 0.6714 | 0.4135 | Accept |
| HC does not Granger Cause ISU | 0.0115 | 0.1236 | Accept |
| ISU does not Granger Cause HC | 0.4976 | 0.7746 | Accept |
| HC does not Granger Cause HRP | 0.0360 | 0.8495 | Accept |
| HRP does not Granger Cause HC | 0.08192 | 0.7748 | Accept |

### Table 8. The Regression Results for Model 1.

| Variables | National level | Eastern region | Central region | Western region |
|-----------|----------------|----------------|----------------|----------------|
|           | Individual fixed effect model | Individual fixed effect model | Individual fixed effect model | Individual random effect model |
| $c$       | $-0.4759$ (−1.5941) | $-2.2710^{***}$ (−3.71670) | $4.5370^{***}$ (4.6678) | $0.8822$ (1.2563) |
| lnPOP     | $0.1026^{***}$ (2.6226) | $0.4986^{***}$ (5.8989) | $-0.4907e^{***}$ (−4.1341) | $-0.0386$ (−0.4083) |
| lnPDI     | $0.2721^{***}$ (9.0336) | $0.6401^{***}$ (10.9172) | $0.6020^{***}$ (9.9457) | $0.4820^{***}$ (9.4052) |
| lnHP      | $0.021$ (1.2474) | $0.0992^{***}$ (2.6904) | $-0.0022$ (−0.0923) | $0.0352$ (1.1979) |
| HR        | $0.0003^{***}$ (2.7354) | $0.0013^*$ (1.92) | $0.0005^{**}$ (2.1445) | $0.0006^{**}$ (2.6022) |
| HC        | $0.1711^{***}$ (2.1764) | $0.6430^{***}$ (2.6287) | $0.3129^{**}$ (3.3343c) | $0.3054^{**}$ (3.5764) |
| lnCONSUME | $0.6688^{***}$ (23.5326) | $0.6430^{***}$ (2.6287) | $0.3457^{***}$ (5.6196) | $0.4469^{***}$ (10.0519) |
| D.W       | $1.7608$ (23.5326) | $0.3632$ (2.6287) | $1.5372$ (5.6196) | $1.7201$ (10.0519) |
| $F$ – statistic | $884.1412^{***}$ | $471.5872^{***}$ | $3192.675^{***}$ | $748.2947^{***}$ |
| No.       | 465 | 165 | 120 | 180 |
| Hausman Test | $18.2503^{***}$ | $92.6965^{***}$ | $12.8360^{**}$ | $49.5990^{***}$ |

Note. *, **, and *** denote that the statistics are significant at the 10%, 5%, and 1% levels, respectively. The numerical values in parentheses are t-values.
will be significantly higher than areas with low levels of human capital.

The Impact of Rising Housing Rent on Different Categories of Residents’ Consumption

To further research the effect of housing rent on different categories of residents’ consumption, we take eight types of residents’ consumption as interpreted variables and substitute them into Model 5. Hausman test results and the regression analysis results as shown in Table 10.

It can be seen from Table 10 that the housing rental price does not have a significant spillover effect on the consumption of food, tobacco, alcohol, clothing, daily necessities and services, medical care and other supplies and services. The reason is that the four types of consumption of food, tobacco and alcohol, clothing, daily necessities and services, and medical care are rigid demands in residents’ daily lives, and their price elasticity is low. No matter how other factors occupy the consumption space, residents still need these four types of consumption to maintain a normal life, while other supplies and services include a variety of types, these consumptions are sudden and accidental, difficult to predict and maintain, and are less affected by other factors.

Housing rent has a positive impact on transportation and telecommunication consumption. For everyone percent increase in housing rent price, transportation and telecommunication consumption levels will increase by 0.0012%. The reason may be that, on the one hand, with a rise in housing rent, potential tenants will increase their search efforts in order to find suitable housing sources. Thus, expenditures related to transportation and telecommunication consumption will increase. On the other hand, the increase in housing rental prices will drive the willingness of urban labor to live in remote areas of the city, causing many laborers to choose to increase their travel and expenses to work to a certain extent in order to avoid high housing rents, which promotes transportation and communication consumption expenditures.

Housing rent promotes the level of education, culture and entertainment consumption. For every one percent increase in housing rent price, education and cultural goods and services, so arising trend in housing rent has a weak impact on tenants’ consumption of education, culture and entertainment. For landlords, a rise in housing rent price will increase the consumption of entertainment, education, cultural goods and services through the wealth effect channel. Therefore, a rise

### Table 9. The Regression Analysis Results With Industrial Structure Upgrading as the Moderating Variable.

| Variables  | Model 2 | Model 3 | Model 4 |
|------------|---------|---------|---------|
| $c$        | $-1.3294$*** | $-1.0134$** | $0.1909$*** |
|            | ($-3.1161$) | ($-2.1808$) | ($2.4426$) |
| $\ln HP$   | $0.077$***  | $0.0826$*** | $0.0211$ |
|            | $(3.2941)$   | $(3.5304)$   | $(1.2460)$ |
| $\ln POP$  | $0.2416$*** | $0.2237$***  | $0.0967$*** |
|            | $(4.3575)$   | $(3.6149)$   | $(2.2158)$ |
| $\ln PDI$  | $0.8430$*** | $0.8098$***  | $0.2812$*** |
|            | $(34.2163)$  | $(29.1490)$  | $(8.9721)$ |
| $HC$       | $0.2857$**  | $0.3309$***  | $0.1546$** |
|            | $(2.5711)$   | $(2.9416)$   | $(4.4901)$ |
| $HR$       | $0.0006$**  | $0.0007$     | $1.3801$ |
|            | $(2.6202)$   | $(1.3801)$   |           |
| $ISU$      | $0.0245$*   | $0.0212$*    | $1.7081$ |
|            | $(1.7478)$   | $(1.7081)$   |           |
| $\ln CONSUME(-1)$ |           |           | $0.0254$* |
|            |              |              | $(1.7081)$ |
| $HR \times ISU$ |           |           | $0.0002$*** |
|            |              |              | $(3.2208)$ |
| $AdjR^2$   | $0.9813$    | $0.9814$    | $0.98$ |
| $D.W$      | $0.489$     | $0.4995$    | $0.4992$ |
| $F - statistic$ | $718.5659$*** | $680.4593$*** | $573.1519$*** |
| No.        | 465         | 465         | 465      |
| HausmanTest | $20.2804$*** | $17.1286$*** | $11.334$*** |

Note. *, **, and *** denote that the statistics are significant at the 10%, 5%, and 1% levels, respectively. The values in parentheses are $t$-values.
| Category of household consumption | Food, tobacco and alcohol consumption | Clothing consumption | Daily necessities and services | Health care consumption | Transportation and communication consumption | Education, culture and entertainment consumption | Habitation consumption | Other goods and services |
|----------------------------------|--------------------------------------|---------------------|------------------------------|------------------------|-----------------------------------------------|-----------------------------------------------|------------------------|--------------------------|
| c                                | 0.843***                             | -3.6948***          | 0.3432                       | -1.4227***             | 1.7723***                                    | -4.9827***                                   | -5.6962***              |
| (3.670)                          | (-5.6101)                            | (0.3511)            | (-3.4076)                    | (-4.0489)              | (2.0941)                                     | (-3.8318)                                    | (-5.1214)              |
| HR                               | -0.0002                              | 0.0004              | 0.0003                       | 0.0012                 | 0.0009                                        | 0.002***                                     | -0.0006                |
| (-0.7474)                        | (1.0475)                             | (0.6987)            | (0.5898)                     | (1.8570)               | (2.062)                                      | (3.5153)                                     | (-1.0855)              |
| lnHP                             | 0.0349                               | 0.1148***           | -0.0302                      | -0.1062***             | 0.1002**                                     | 0.0475                                       | -0.016                 |
| (1.61)                           | (3.2972)                             | (-0.5943)           | (-2.2990)                    | (-1.8222)              | (1.0694)                                     | (-0.2890)                                    | (3.9450)               |
| lnPOP                            | -0.0325***                           | 0.2644***           | -0.4344***                   | 0.0562                 | -0.3581***                                   | 0.3527***                                    | -0.0567***             |
| (-1.8993)                        | (3.2750)                             | (-3.6870)           | (-1.5529)                    | (0.1458)               | (-3.4747)                                    | (2.7249)                                     | (-1.8175)              |
| lnPDI                            | 0.7808***                            | 0.8105***           | 1.0660***                    | 0.9677***              | 1.0797***                                    | 0.847***                                     | 0.9457***              |
| (26.4565)                        | (18.2258)                            | (16.0980)           | (16.6514)                    | (15.5364)              | (14.8012)                                    | (10.4732)                                    | (7.2645)               |
| HC                               | 0.7808***                            | 0.6550***           | 1.1504***                    | 0.0260                 | 0.4355***                                    | 1.1479***                                    | 0.0898***              |
| (26.4565)                        | (3.7479)                             | (4.5002)            | (0.1330)                     | (1.5793)               | (5.1402)                                     | (0.3199)                                     | (7.2645)               |
| Adj.R²                           | 0.9798                               | 0.9111              | 0.8663                       | 0.9085                 | 0.8961                                       | 0.913                                        | 0.791                  |
| D.W                              | 0.5678                               | 0.6183              | 0.9357                       | 1.0671                 | 1.1351                                       | 0.9462                                       | 1.0522                 |
| F – statistic                    | 392.041***                           | 136.8524***         | 86.9122***                   | 132.6704***            | 115.3518***                                  | 140.0849***                                  | 51.1661***             |
| No.                              | 465                                  | 465                 | 465                          | 465                    | 465                                          | 465                                          | 465                    |
| Hausman Test                     | 2.8423                               | 56.0130***          | 13.1490***                   | 6.7328                 | 34.5986***                                   | 64.1606***                                   | 22.2019***             |

Note: *, **, and *** mean that the statistics are significant at the 10%, 5%, and 1% levels, respectively. The values in parentheses are t-values.
in housing rent price will increase the level of education, culture and entertainment consumption.

Housing rent has a positive impact on habitation consumption. For every 1% increase in housing rent prices, residential spending will increase by 0.002%. The reasons can be summarized in two points: on the one hand, rising housing rent prices mean rising home values. Chinese citizens generally agree with the concept of maintaining and increasing the value of housing, so they will increase their consumption expenditure related to buying houses, which will drive consumer spending in areas such as home decoration, furniture and home appliances, and property expenses. Therefore, a rise in housing rent price will increase people’s habitation consumption. On the other hand, combined with the common causality hypothesis proposed by Attanasio et al (2009), the differentiation of the economic development of different cities in China will cause the population to gather in high-income areas and increase the housing demand in high-income cities. This result will directly lead to the wealth effect of the lessor and the tenant’s habitation consumption increase, thereby increasing the overall habitation consumption level of residents. In summary, housing rent has a differentiated impact on residents’ consumption expenditures in different categories. Hypothesis 4 is verified.

**Discussion**

**Conclusion**

This article discusses the spillover effect of rising housing rent on residents’ consumption and the mechanism underlying this effect. The following conclusions are obtained: First, there is a positive linear relationship between China’s housing rent and residents’ overall consumption, indicating that rising housing rent prices can exert a wealth effect on residents. Second, a rise in housing rent can increase the consumption level of residents in the eastern, central and western regions, and the impact effect decreases in turn. Third, the upgrading of industrial structures plays a positive moderating role in the impact of housing rent on residents’ consumption. The higher (lower) the degree of rationalization of the industrial structure is, the stronger (weaker) the wealth effect of rising housing rent prices on residents’ consumption levels. Fourth, rising housing rental prices will curb consumer spending on food, tobacco, alcohol, clothing and other supplies and services. An increase in housing rental price promotes expenditures on daily necessities and services, transportation and telecommunication, education, culture, and entertainment as well as habitation consumption, but it has no significant influence on the consumption of health care.

**Discussion**

Through the results of regression analysis, we can clearly find that housing rent has a significant promotion effect on residents’ consumption, and it will indirectly affect the level of residents’ consumption by adjusting human capital variables. This is consistent with the previous view of Salim et al. (2017), and also in line with our expected assumptions. In the specific consumption classification, the impact of human capital level on entertainment consumption is also consistent with Zhou (2011). On this basis, we have carried out the impact of household consumption and human capital level on other categories of household consumption. In summary, it enriches the views of previous scholars and provides necessary data support.

**Suggestion**

According to the above research conclusions, the following policy recommendations are made to promote the healthy development of the housing rental market and improve the level of residents’ consumption.

**Control the reasonable increase in housing rent.** Housing rent will stimulate residents’ consumption at a certain level, but excessive housing rent will greatly increase tenants’ housing consumption expenditure, thereby restraining the lessee’s consumption level, so the government should macro-control rent within a reasonable range.

**Improve the housing rental system.** When housing rent fluctuates, especially when it fluctuates greatly, local governments should strengthen the macro-control of the leasing market, first of all to maintain and further improve the low-rent housing policy of public rental housing. Decentralize power to different provinces, cities, and counties, and adjust measures to local conditions and ensure that the lessee still obtains the right to use housing at a relatively stable price when the external rental price fluctuates greatly.

**Strengthen and improve the dynamic rent warning mechanism.** Due to differences in economic development, various provincial governments should link my country’s housing rent increase indicators with residents’ consumption indicators in a certain cycle based on regional conditions, and judge whether the current rental price is optimal and can be maximized from the growth relationship between the two and the growth rate relationship. Promoting local residents’ consumption, market intervention should be carried out in a timely manner once consumption is inhibited.

**Lower the threshold for renting.** The government should provide financing support and tax incentives for leasing agencies, and provide housing subsidies for tenants with housing difficulties, so as to reduce the pressure on tenants to rent without severely suppressing the market price of housing rentals, which promotes housing lease transactions. The amount also protects the rental rights of low-income families.
Promote the development of the housing rental market

Develop housing rental supply market. The local government should develop the stock housing market in various provinces, “activate” the stock housing, and the government and local real estate dealers should collect and sort the stock housing resources to avoid the credibility and benefit loss of intermediary renters. We can follow the TOT model and establish related SPV companies to manage the housing rental market. This not only solves the cost accumulation caused by the excess housing stock, but also promotes the rental housing of residents.

Improve relevant laws and regulations. We can refer to the “House Rental Law” in the German “Civil Code” and the “House Rental Law” in the United States, and combine the differences between my country’s housing rental market and the international market to improve and revise China’s “House Rental Law,” thereby regulating the Chinese rental market, play a key role in implementing rent control policies and protecting the rights and interests of both parties to the lease.

Promote the optimization and upgrading of regional industrial structure. The upgrading of industrial structure plays a positive regulatory role in the influence of housing rental prices on residents’ consumption. The government can upgrade the industrial structure by optimizing the structure of foreign trade commodities, improving labor skills, perfecting the tax system, strengthening environmental regulations and other means, so as to realize the strategy of stable development in developed regions and rapid development in less developed regions, thus strengthening the wealth effect of rising housing rent price on residents’ consumption.

Acknowledgments

The authors thank the anonymous referees for their helpful comments and suggestions. All errors are those of authors.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research and/or authorship of this article: This work was supported by the Hebei Social Science Foundation (grant number HB20GL033).

ORCID iD

Guangping Liu https://orcid.org/0000-0002-1959-8327

References

Attanasio, O. P., Blow, L., Hamilton, R., & Leicester, A. (2009). Booms and busts: Consumption, house prices and expectations. *Economica*, 76(301), 20–50.

Bouakez, H., & Rebei, N. (2007). Why does private consumption rise after a government spending shock? *Canadian Journal of Economics*, 40(3), 954–979.

Cai, F., & Wang, D. W. (1999). Chinese economic growth sustainability and labor contribution. *Economic Research*, 10, 62–68.

Cheung, Y., Tsang, S., & Mak, S. (1995). The causal relationships between residential property prices and rentals in Hong Kong: 1982-1992. *Journal of Real Estate Finance and Economics*, 10(1), 23–35.

China Industry Information Network. (2018, March 12). Forecast of the development trend of China’s housing leasing market in 2018. http://www.chyxx.com/industry/201803/617744.html

Dai, Z. (2019). Housing price and upgrading of consumption structure of urban residents in China. *Modern Economy*, 10(1), 156–174.

Dong, F., & Liu, J. X. (2010). Explanations of the departure between housing prices and rents in China’s residential housing market. *Reform*, 2, 23–28.

Dong, X., Song, S., & Zhu, H. (2011). Industrial structure and economic fluctuation: Evidence from China. *Social Science Research*, 48(3), 468–477.

Dong, Z., Hui, E. C. M., & Jia, S. H. (2017). How does housing price affect consumption in China: Wealth effect or substitution effect. *Cities*, 64(4), 1–8.

Du, H. Y., & Ma, Y. K. (2009). An empirical study of granger causality between the housing price and the rent of Chinese real estate market. *Management Review*, 2(1), 94–99.

Feng, X. S., & Zheng, G. H. (2018). Reasons and risks of rapid rise in housing rents. *China Finance*, 19, 83–84.

Frew, J., & Wilson, B. (2002). Estimating the connection between location and property value. *Journal of Real Estate Practice and Education*, 5, 17–25.

Gan, C. H., Zheng, R. G., & Yu, D. F. (2011). An empirical study on the effects of industrial structure on economic growth and fluctuations in China. *Economic Research Journal*, 46(5), 4–6, 31.

Harvard Law Review. (1988). Reassessing rent control: Its economic impact in a gentrifying housing market. *Harvard Law Review*, 110(8), 1835–1855.

He, C. X., Yan, B., & Fang, X. M. (2017). The impact of housing and housing price on household consumption. *Journal of Guizhou University of Finance and Economics*, 3, 25–33.

Huang, R., & Pan, M. Q. (2014). Labor mobility and consumption structure of rural residents in China: An empirical study based on LAIDS model. *The Theory and Practice of Finance and Economics*, 35(5), 116–120.

Katya, K., & Ben, T. (2017). House prices, consumption and the role of non-mortgage debt. *Journal of Banking & Finance*, 83(10), 121–134.

Li, C. Q., & Li, L. (2018). The impact of labor supply on consumption smoothing: Microscopic evidence based on CFPS data. *Modern Economic Science*, 40(5), 70–80.

Li, Y. L. (2019). Government spending, industrial structure and economic growth. *Journal of Zhongnan University of Economics and Law*, 1, 109–117160.

Liu, L. (2017). The impact of rent income on labour supply. *Finance and Economics*, 9, 96–107.
Liu, S. W. (2018). Housing price fluctuation and household consumption: Influencing mechanism and regulation. *Consumer Economics, 34*(5), 31–3563.

Liu, Z. L., Liu, H., & Yuan, L. (2018). Human capital and household consumption: An empirical analysis based on CFPS data. *Journal of Shanxi University of Finance and Economics, 40*(4), 17–35.

Richard, M., & Wallace, N. (1994). Testing the present value relation for housing prices: Should I leave my house in San Francisco. *Journal of Urban Economics, 35*(3), 245–266.

Saiz, A. (2006). Immigration and housing rents in American cities. *Journal of Urban Economics, 61*(2), 345–371.

Salim, R., Yao, Y., & Chen, G. S. (2017). Does human capital matter for energy consumption in China? *Energy Economics, 67*(9), 49–59.

Shi, J. Y., Li, T., & Li, J. H. (2013). House lease management: International experience and its inspiration to China. *Soft Science, 27*(1), 31–37.

Tencent Network. (2017, October 19). *China’s rental population will reach 270 million by 2030*. https://xian.house.qq.com/a/20170524/034396.htm.

Wang, W., & Guo, X. Q. (2011). Income inequality and China’s high saving rate: Theoretical and empirical research based on targeted consumption perspective. *Management World, 9*, 7–2552.

Wang, Y. F., & Liu, S. L. (2015). Dynamic effect of government spending structure on household consumption: Empirical analysis based on DSGE model. *System Engineering Theory and Practice, 35*(2), 300–307.

Wilson, S. J. (2000). The savings rate debate does the dependency hypothesis hold for Australia and Canada. *Australian Economic History Review, 40*(2), 199–218.

Xiao, Y. F., & Luo, Y. (2018). Research on the spatial spillover effect of technological innovation and human capital in the development of my country’s provincial industry. *Science and Technology Management Research, 38*(09), 118–124.

Xiao, Z. P., Liao, L., & Zhang, X. Z. (2011). Life cycle, human capital and housing consumption and investment: Evidence from national household finance survey. *China Industrial Economics, 11*, 26–36.

Xu, Z., Zhang, X. C., Ding, Z. J., & Tang, T. (2012). Public finance and the high savings rate in China. *Social Sciences in China, 6*, 93–107.

Yan, Y. H., & Wang, Y. W. (2016). Research on the consumption tilt effect of China’s fiscal expansion. *China Economic Studies, 1*, 40–49.

Zhang, C., Gan, M. Q., & Xu, L. (2018). Research on the regional differences of the relationship between local fiscal expenditure and residents’ consumption. *East China Economic Management, 32*(5), 63–69.

Zhao, J. F., & Zhu, W. K. (2017). Does housing burden reduce urban households’ consumption? Micro evidence from China. *Journal of Yunnan University of Finance and Economics, 3*, 3–20.

Zheng, S. Q. (2011). Housing policy for migrant workers and economic growth. *Economic Research Journal, 2*, 73–86.

Zhou, H. (2011). An empirical research into the relationship between human capital and household consumption from the perspective of household finance. *Economic Survey, 6*, 16–20.